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THE

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COMMENTS.



IN March, 1899, the *Motor-Car Journal* began its career, or rather continued the work done for automobilism by "Industries and Iron," which was the successor of the old "Mechanics' Magazine," that chronicled the early developments in the movement towards motor-cars. Thus the *Journal* has worthy associations, and can look back on some distinguished predecessors, though its name is as modern as the movement it serves. At the beginning of the sixth volume—the Index to that just closed will be published next week—we may be pardoned for reminding our readers of this interesting fact. Many changes have taken place in the movement since we wrote our first Comment, but one tendency we note with considerable satisfaction, viz., the desire on the part of the public and the trade to recognise the worth of British productions and also the ability of British firms to turn out automobiles as good and as well finished as any foreign manufacturers. This is a matter of congratulation, and the day is not far distant when motor-cars of which every part has been made in England will be in the majority, should a census of automobiles ever be taken in this country.

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A Question Awaiting Answer.

THURSDAY'S meeting of the A.C.G.B.I. promises to attract such a large number of town and country members that the committee have wisely decided to convene it at the Institution of Mechanical Engineers. Several notices of motion have been submitted for discussion and there is every prospect of a series of acrimonious debates on the various points raised. Many questions will doubtless be asked, and already the report in the "Club Journal" as to the additional grant to Mr. C. Johnson's testimonial fund is leading members to ask the reason for such gift. Apparently the matter was revived by a letter from Mr. Johnson himself; but even that does not warrant a monetary addition to a testimonial of which we thought the last had been heard long ago.

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Earl Shrewsbury's Resolution.

ONE of the questions raised—fortunately one of principle rather than of mere personal pettiness—is to be brought forward by the Earl of Shrewsbury and Talbot, who is not a candidate for the committee and whose interest is concerned solely with the prestige of the A.C.G.B.I. We have had the pleasure of a chat with his lordship on the subject of his resolution, and he has certainly strong arguments to advance in support. In fact, the trade should not feel that he is desirous of ousting themselves from a share of direction in the affairs that concern them; he is only anxious to clear the organisation from all suggestions as to commerce, and to enable it to continue its assertion of its place at the head of the sport and the industry.

Consideration for all.

SUPPOSING chairmen and directors of automobile companies, as well as active partners in motor-car firms, were removed from participation in the counsels of the club! The trade would not suffer, for Earl Shrewsbury also proposes the appointment of sub-committees to deal with racing, trials, etc. Upon these the voice of the trade would largely predominate, and the votes of the smaller firms would count as well as those of the few larger concerns whose several representatives too frequently sway the voting. This is a point that will weigh with many members in the provinces, and a goodly number have already sent proxies to Earl Shrewsbury in support of his resolutions.

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A good Case.

MEANWHILE the ballot is proceeding, so that the adoption of the Earl of Shrewsbury's resolution will have no effect upon the result of the election. That, however, need not hinder the members of the A.C.G.B.I. who desire to see the Club prestige maintained from expressing themselves clearly in favour of the elimination of the trade element at the meeting; in fact, a large measure of support is already assured, and, as we have said, the supporters of the resolution may be expected to make out a good and impressive case.

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A Railway Motor-Car Service.

ON Tuesday the Great Western Railway Company inaugurated a new service of motor-cars, connecting their main line at Slough with Beaconsfield, by way of Stoke Road, Stoke Poges, Farnham Royal, and Farnham Common. A trial trip was made on Monday, the party comprising Mr. Morris, superintendent of the Great Western line; Mr. Hart, superintendent of the London section; Mr. Coventry, of the genera manager's office; and others. The fast train left Paddington at 11.15 a.m., the motor-car started from Slough at 11.50 and reached Beaconsfield at 12.35, the journey by road having taken three-quarters of an hour. It is made through a lovely rustic country, pleasant even in winter, in summer delightful. As a beginning the cars are to run three times daily in each direction between Beaconsfield and Slough; but within a week an additional car will run between Slough and Farnham Common at frequent intervals, being timed to catch fast trains to and from London. It is understood that the company intend to make Slough a motor-car centre, establishing workshops there for the repair of cars running in the district.

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Irish Ostriches.

IT is somewhat surprising to learn that five county councils in Ireland are playing the ostrich with regard to the motor transit scheme suggested for the Emerald Isle. They are those of Antrim, Kerry, Donegal, Meath, and Kildare, the obstinacy of the latter being particularly incomprehensible in view of the automobile education enjoyed by the locality last year. The Irish Secretary is proposing an alteration in the regulations so that the motor vehicles will be able to have a tare weight of three tons, with trailers of eighteen cwts., and to

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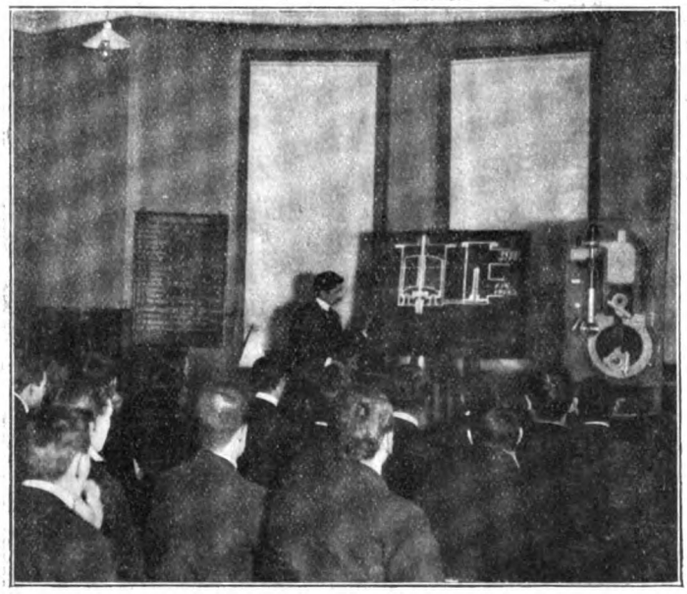
proceed at a rate of ten miles an hour. All the county councils with the exception of this quintette have assented We trust that either these will change their opinions or that the principle of the greatest benefit of the greater number will prevail in high circles.

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Technical Education.

NOT only in London, but also in the provinces, increased care is being given in the provision of instruction in motor-car driving and practice, and the attention now being devoted to technical instruction in this branch will have a good effect in the development of the industry. The accompanying illustration shows the students listening to a lecture on the carburettor by Mr. H. J. Taylor at the Battersea Polytechnic, which was visited last week by the Prince and Princess of Wales. Every Monday, Tuesday and Saturday this class is held for theoretical work, and on Wednesdays, Thursdays, Fridays and Saturdays workshop instruction is carried on. Driving lessons are given on the road daily, and altogether the experiment is likely to be productive of much good.

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Automobile Instruction at Battersea Polytechnic.

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Signposts.

THE Roads and Bridges Committee of the Glamorgan County Council, at their meeting at Cardiff last week, had under consideration the question of putting up signposts in accordance with the requirements of the new Motor Car Act. The clerk (Mr. Mansel Franklen) remarked that the Council were already in default for not having carried out the work. The county surveyor (Mr. Lloyd Edwards) said that about 300 signposts would be required. It was agreed that £1,000 should be set aside for the work. Of course, such expenditure seems somewhat heavy, but against it must be put the income derived from registrations and license fees. When these are taken into account, the actual difference will not be so great as may appear from a superficial glance at the figures.

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For Travellers.

COMMERCIAL travellers, more than any other class, may be expected to realise the advantages to be derived from the regular use of the automobile in the way of business. They are thus saved many wearisome waits at railway stations, especially on cross country journeys, by its use. The motor car becomes a positive economy in time when, having finished their business, instead of waiting about for several hours till the next train, travellers can get on to their destination, making new calls on the way. Several of the leading firms are providing their travellers with motor-cars, and Messrs. Allsopp and Sons, Limited, the brewers, are finding the use of the motor-cars by some of their drummers as great an economy as many of the Burton brewers are realising that the motor vehicle for the conveyance of heavy traffic is an advantage over the system of horse haulage.

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Side-Slip Competition.

A SCORE of entries in the side-slip competition organised by the A.C.G.B.I. give promise of a good test, from which should evolve some satisfactory device for saving motorists from one of their worst enemies. On another page we give a list of entries, and it is evident that not only are commercial firms paying attention to the subject, but enthusiastic motorists not engaged in the business are studying the matter. Hence the hope that the forthcoming trials may prove of tangible benefit to the whole movement.

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Educational Visits.

WE are now within measurable distance of the official exhibition of the year, viz., that to be held at the Royal Agricultural Hall from the 19th to the 26th inst. That the number of trade visitors will be unprecedented is evident from the interest taken in the event by the railway companies, many of whom are arranging for special excursions from the provinces. From several towns trips are being organised by leading motor-car firms with the view of providing an opportunity for their employees to become acquainted with the latest developments in motor-car work. Education of this kind is useful, and no better opportunity for gaining such knowledge could be found than will be offered at the forthcoming show.

◆ ◆ ◆

Motor-'Buses at Torquay.

AT Torquay the motor-omnibus service has proved a success, even beyond the usual sanguine expectations of the promoters. During the first nine weeks over 20,000 passengers were carried, the uniform fare being 2d. On the other hand, the amount paid for fuel and wages in the same period averaged from 3·67d. to 6·03d. per mile run, the average being 4.54d. The cost of renewals was 0·39 pence per mile, and if the cost of lubricants, tyres, etc., is added, the total comes to 5·48d. per mile. These figures amount to considerably less than half the revenue received in fares, and point to a successful future for the company which has had the enterprise to give Torquay its motor-'buses.

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Innkeepers' Obligations.

THE Bench at Haywards Heath have rightly warned inn and hotel keepers that their obligations are concerned with ministering to the wants of customers without distinction of liquid. The licensees of the Black Swan inn had, it was alleged, declined to serve a motorist with tea, and when the question of the renewal of the licence came before the Bench the matter was postponed for a month. It came again before the court on Monday, when it was stated that the tenant had received notice to quit. The Bench observed that licences would not be granted if people who asked for tea and other non-alcoholic drinks were not served. This is the right line to take; the next thing will be to secure that such drinks are served at reasonable prices.

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Views on Traffic.

BEFORE the Royal Commission on locomotion and street traffic in London, Col. R. E. Crompton has been giving his views. These are fairly well known to motorists, and consist mainly in urging the authorities to carry out with more stringency the existing regulations as well as to obtain greater powers with regard to heavy vehicles delaying traffic by stand-

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ing in the streets at any hour of the day. On the same day that Col. Crompton gave his evidence, Earl Russell spoke as to the most unsystematic manner in which streets are "up," to the utter confusion of the ordinary traffic. He advocated the provision of more viaducts, similar to Holborn Viaduct, and the construction of wider thoroughfares, so that more traffic could be safely carried on along the main roads from London to the various suburbs. The third witness was Mr. Rees Jeffreys, who urged upon the commissioners his views with regard to the creation of new streets around London, with a view to ease the existing congestion of traffic.

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The Yorkshire Club.

We are glad to learn that, with the advent of more local centres like that formed at Huddersfield, there is an opportunity for the Yorkshire Club to fully justify its title. Our impression as to the membership being mainly confined to Leeds, where are the headquarters, has been removed by a letter from Mr. A. W. Dougill, the hon. secretary, who informs us that there are a large number of members in Bradford, Harrogate, Halifax, Barnsley, Bridlington and Sheffield. In one of these towns, at least, there is a local club, so that there is evidently a little overlapping. As the idea of local centres extends, however, the fear of possible irritation which such may cause will diminish.

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Motor Cars in Essex.

Sometimes the local authorities of Essex get excited, and when such a frame of mind occurs, it is generally in connection with the automobile, which is apparently too progressive for the gentlemen of antiquated minds who seem to have been selected to govern the affairs of that somewhat flat county. At Chelmsford, the Road Committee has been recommending the Council to ask the Local Government Board to make regulations restricting the speed of motor-cars in the borough to ten miles an hour. This was stoutly defended by some very earnest advocates, and it was only after a hard battle that the matter was referred back to the committee to reconsider. Such a rebuff should have the effect of inducing them to listen to reason or perhaps exercise a little of that virtue on their own behalf. The County Council elections which are taking place in Essex are also arousing some interest in the motor-car, and at Great Baddow, the Rev. A. J. Sacré, who is a candidate, has been waxing eloquent over the recent decision of the County Council to facilitate business by the purchase of a motor-car for the surveyor. He has just assured a meeting that he will not ask the ratepayers to put their hands into their pockets and buy him the motor-car. In fact, the motor-car idea as carried through by the County Council was, according to the reverend gentleman, an absolute disgrace. An intemperate view such as that should lead the electors to vote for the other candidate. We say this, of course, from an automobile point of view, knowing nothing and caring less for the politics of either gentleman.



As mentioned in a recent issue, a public motor-omnibus service has recently been started between Leipzig and Merseberg, Germany. The cars used are built Messrs. Stoewer Bros., of Stettin. The above illustration is reproduced from a photo taken in the town of Stargard, Pomerania, showing one of the buses after having made a trial trip, through snow and ice. The distance from Stettin to Stargard, about 25 miles, was covered by the vehicle, with a full load of 16 persons, in two hours.

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Wait till March 26th.

Attempts made to restrict trade or to cause makers to act according to the wishes of a few active spirits must always fail, and, in view of the present agitation that is being sedulously fostered by a certain section of the automobile industry, we would point out that, the shackles of Parliament having been overthrown, the trade is not likely to harness itself in its own fetters. Freedom to act in their own interests is one of the secrets by which business firms have succeeded in the past; it is the pivot of prosperity for the future—especially in the case of an industry that is practically a new one and one the zenith of which is still afar off. Hence we are not surprised to

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earn that the suggested Bond has not been received with enthusiasm and that most of the leading firms are adopting a waiting policy. They naturally prefer to await the test of the Agricultural Hall show as the business show of the year. There are not a few firms which depend on this annual event for sufficient enquiries and orders to keep their commercial and industrial staffs busy during the greater part of the following twelvemonth.

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A Ladies' Day at the Exhibition.

THE invitation of Mr. C. Cordingley to the Ladies' Automobile Club to hold a ladies' day at the Agricultural Hall has evidently been appreciated. Lady Cecil Scott Montagu has informed him that Mrs. Gerard Leigh, the hon. secretary of the club, is making arrangements in connection with the matter, and the members of the club will doubtless be glad of so excellent an opportunity of adding to their technical knowledge of automobilism.

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Glasgow to London Trial.

UNDER the auspices of the Scottish Automobile Club (Western Section), another reliability trial for touring cars will take place from Glasgow to London, on May 19th and 20th next. Compulsory stops will be made at Penrith, Leeds, and Stamford, otherwise it will be a non-stop tour. Only one car of any specific make, type, or horse power will be allowed to be entered, and entries must be to hand with Mr. R. J. Smith, 59, St. Vincent Street, Glasgow, by the 13th prox. Hill-climbing competitions will be arranged, and certificates will be granted in respect of each vehicle completing the trial. The non-stop gold medal will also be awarded in each class, and for the hill-climbing competition the following formula will be the basis of the marks given:—

$$\frac{(w \times 60 \times L) + (W \times h) + \frac{(W \times v^2)}{2}}{a \times n \times s \times \left(\frac{G}{D\pi}\right)}$$

w = Laden Weight of car in tons.
L = Length of hill.
W = Laden Weight of car in lbs.
h = Height of hill.
v = Velocity in feet per second.
a = Area of piston in square inches.
n = Number of cylinders.
s = Stroke in inches.
G = Gear ratio or number of revolutions of engine for one revolution of road wheel on lowest gear.
D = Diameter of road wheel in feet.

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Balloons and Airships.

OF historic importance, as well as of popular interest, will be the display arranged by the Aero Club in connection with the forthcoming Exhibition. The fact that the War Office is assisting in the matter will ensure the presence of some very notable exhibits, while the new English airship, which will be seen for the first time, constitutes another factor which will make for the success of the display. It is very evident, from the inquiries daily being received at the offices of the Exhibition, that public interest is growing, and that the attendance will be far beyond anything previously seen at an English automobile show.

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Pneumatic Tyres

MR. SIDDELEY'S paper on pneumatic tyres, summarised on another page, is a valuable contribution to a subject of practical interest to the motorist. In the course of the discussion Mr. Cozens-Hardy emphasized the disadvantage of using tyres of too light weight; Mr. G. H. Thrupp spoke favourably of the Samson-Hutchinson non-skids; Mr. Staplee Firth asked for a method of protecting tyres against damp and rust, and Mr. Chambers drew attention to the form of guarantee given by tyre manufacturers. In his reply Mr. Siddeley dealt fully with the practical point raised by Mr. Firth. In his opinion, a great deal of the rust arose from the manufacturer putting the tyres on the rims before they had been properly painted inside. Even the best makers often had the tyres put on before the rims were properly painted. Mr. Firth had also mentioned blistering, which was frequently due to improper vulcanisation. In a moving tyre there was an enormous amount of friction, and the rubber quickly ground itself into powder and gradually formed a blister. It was very dangerous to go through two or three layers of rubber before sending the tyre to the repairer—a note of warning that should be taken seriously by all motorists.

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Motor-Van Users.

AS will be seen from the report on another page, the Motor Van and Wagon Users' Association is now in working order, and we may soon expect that it will be defending the rights of users of heavy vehicles as the Motor Union has been looking after the position of owners of light cars. The election of a president and a chairman has been postponed; the hon. treasurer is Col. Crompton; the secretary, Mr. Rees Jeffreys; and Mr. Firth's appointment as solicitor will be an assurance to users of heavy vans that their legal rights will be energetically looked after.

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A Guide to the Exhibition.

NEXT week we shall publish a Guide to the Motor Car Exhibition, with a list of the exhibitors in the various sections, viz., the Arcade, King Edward's Hall, the Great Hall, the Minor Hall, the Galleries, the North Annexe, the Berner's Hall, the Grand Lounge, etc., as well as particulars of the Club Rooms and other apartments of interest to automobilists.

AS we go to press we learn that the Chamber of Deputies has agreed to allow the French Gordon Bennett eliminating trial to be held over the course selected in the Argonne.

EXHIBITORS at the forthcoming show requiring electric light should make early application direct to the Agricultural Hall Company. This is all the more necessary in view of the enormous quantity of current that will be required.

CLIMBING flights of steps by motor-car in the grounds was one of the amusements at the Crystal Palace last week. A 25-h.p. Gobron-Brillie and a 12-h.p. Lanchester each mounted a flight, the gradient of which is stated to be 1 in 3.

FOR the distribution of "The Daily Chronicle" in the Metropolitan area on Monday a motor-car service was organised by the Great Central Garage Company, Limited. Twenty cars bore the papers to every corner of the great city and its adjacent parts.

GOOD progress is, we hear, being made with the construction of the three Wolseley racers for the Gordon Bennett eliminating contest. It is reported that the four-cylinder engines will develop about 90-h.p., and that the cars will be fitted with specially-shaped aluminium bodies with the view of reducing the air resistance to a minimum.

RACING motorists will regret to learn of the death of Levegh, which has just taken place at Pau. Two or three years ago Levegh, whose real name was Velghe, was one of the foremost *chauffeurs* in France, leading the Mors vehicles to success in many noticeable events. In the first Paris-Ostend race he ran a dead heat with Girardot, while in 1900 his successes included the winning of the Nice-La Turbie and Paris-Toulouse races.

THE statements made as to the attendance at the Crystal Palace give rise to many reflections. Exhibitors and their attendants passed the turnstiles each day, and many entered and re-entered the Palace with a freedom that must have added considerably to the total of visitors. Season ticket holders in connection with the Palace number, we believe, about 20,000, and altogether the census of visitors to the building by no means represents the actual number really concerned with automobilism.

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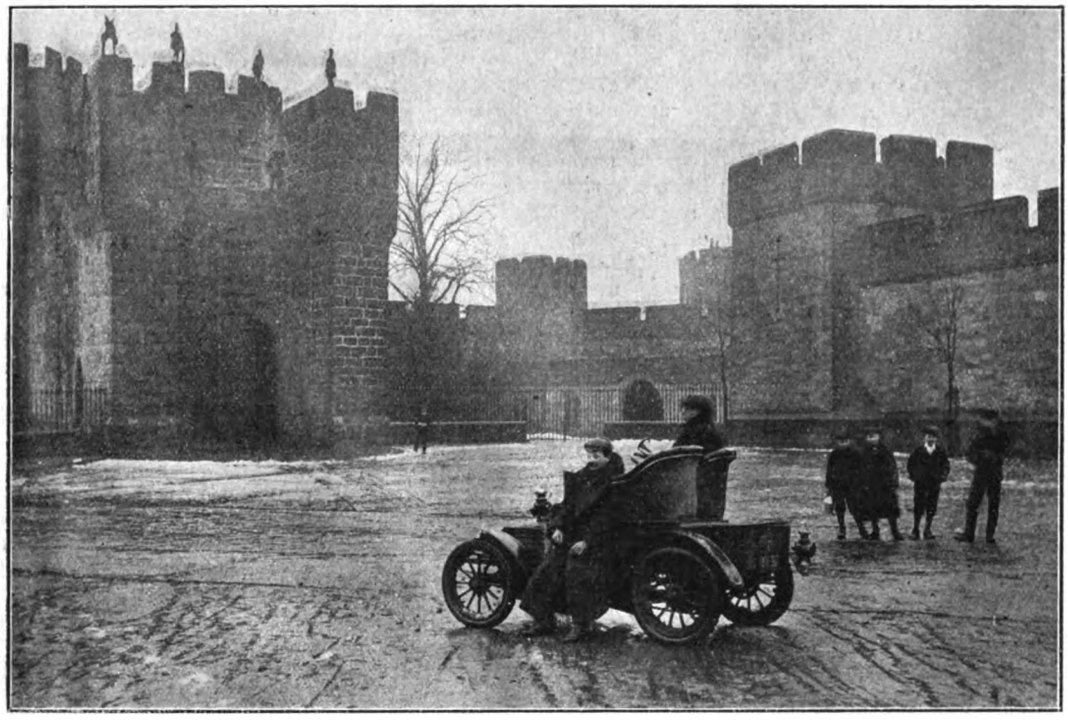
A WINTRY RUN TO EDINBURGH.

THE DEBUT OF THE 6-H.P. "WOLSELEY."

IT is over now, but, had we known the severe weather to be experienced on the trip, it is more than probable that the invitation of the Wolseley Company to assist in what may be termed the christening of their new 6-h.p. vehicle would not have been accepted so readily. So many "men of moderate means" are, however, looking for a reliable two-seated car, and the proposed trip offering a splendid opportunity of putting the new 6-h.p. Wolseley through its paces, assent was given and preparations made for a journey from London to Edinburgh. It may here be explained that there was no intention of attempting a non-stop run or of establishing a new record between the two capitals—the car had to go to Edinburgh, and so it was arranged that it should make the trip under its own power by road.

A start was made from the offices of the *Journal* in Shoe Lane late in the afternoon of Thursday of last week, the car, in addition to its driver and passenger, carrying a full supply of spare parts in order to be prepared for possible emergencies. Progress was somewhat slow through the London traffic, but ere long the Metropolis, with its never-ending line of 'buses, tramcars, and cabs, was left behind, and the open country reached. Darkness brought with it a cold nip in the air, the intensity of which was increased by a quick run along the familiar road through Potter's Bar, Hatfield, and Wellwyn to Stevenage, where a stop was made for tea. From Barnet we had encountered many stretches of road in the hands of the road-menders, and it made us fear for the tyres as we ran over many a long patch of freshly-laid unrolled stones. It had been intended to make for Grantham ere resting for the night, but the truth of the old saying was once again brought home to the travellers, for at Baldock a wrong turn was taken—a mistake which added fully twenty miles to the trip, and, instead of Biggleswade, we found ourselves at Royston, well on the way to Cambridge. There was nothing for it except to strike across country to regain the North Road, and it was close upon nine o'clock when we pulled up at the Ivel Hotel for petrol. Smiling Dan Albone was, of course, on the scene, wearing an extra smile as a result of the success of his agricultural motor in a ploughing competition at Chester that day. Off again through Eaton Socon, Buckden, noted for its palace of the Bishops of Lincoln, and Stilton, of noted cheese fame, we buzzed merrily along the road, entirely deserted save for the hundreds of rabbits, which, startled by the motor-car, scampered along for their lives. At Stamford, ninety miles from London, a halt was called for the night and the resolve made for an early start on the morrow.

On Friday morning the outlook was anything but propitious—a thin layer of snow was on the ground, while the dull sky gave promise of a further plentiful supply. Stamford is a quaint old place, but with over 300 miles between us and our destination, time did not permit to linger. So, after replenishing the petrol and water tanks, the journey was resumed shortly before 10 a.m. Once in the open country, the outlook was indeed bleak, and the whiteness of the snow-covered landscape was most trying to the eyes. Good progress was, however, made through Colsterworth, the birthplace of Sir Isaac Newton, to Grantham. A sharp rise out of this old town brought us to Foston, the only incidents on the way to Newark being stoppages for restive horses. Here a short rest was made, the interval being spent in a brief examination of the splendid ruins of the ancient castle. There were no signs of snow at this point, but, instead, we had to travel along wet, heavy roads which quickly covered the car with mud. An hour's run, however, saw us another twenty miles on the way, at Retford, and at 1.45 p.m. we pulled up at Doncaster for lunch, after passing the famous racecourse, 163 miles of the journey having thus been completed with no more startling incident than the killing of a too venturesome rabbit. Leaving Doncaster at 3 p.m. some difficulty was experienced in discovering the proper road to take owing to the scarcity of finger-posts. The result was that we missed the shortest way to Wetherby journeying *via* Tadcaster, reputed for its ales, the recompense for the detour being a glimpse of that popular and apparently thriving resort, Boston Spa. For some miles we had, judging from the imprint of its tyres on the muddy roads, been following on the trail of a motor-car. The automobile was discovered outside an hotel at Boroughbridge, a little town in the West Riding; it proved to be a Miesse steamer, and, as its passengers had repaired within the hotel for tea, we decided to follow suit. Though a nasty blinding sleet had now commenced,



In front of the Barbican of Alnwick Castle.

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the day's work was not at an end, and, after lighting up the lamps, Bee, the driver, once again took his seat at the wheel, and the passenger, with a longing look at the warm fire, prepared himself as best he could for the fray. The engine, however, seemed to enjoy being out in the storm, and, without a misfire, propelled its load along at a steady pace, unmindful of the pools of water on the road through which we splashed to Northallerton, where a brief halt was made for petrol. Darlington was no sooner left behind than the sleet gave place to snow, and the memory of climbing up a thickly-covered bank to ascertain the way from a finger post on the outskirts of Durham is more pleasant than was the actuality. We were now in the mining district of Durham, a fact indicated not only by the collieries but by the large number of miners we met on the dark roads who had apparently been imbibing "not wisely, but too well." Across Framwellgate Moor to Chester-le-Street —where we were stopped by a police-sergeant anxious to see if our rear number-plate was properly illuminated, a point on which the Durham and Northumberland police appear unwarrantably keen — we went, and soon afterwards tramlines indicated that Gateshead was reached. A charge of fourpence was made to allow the car to cross the High Level Bridge into Newcastle-on-Tyne, which city we entered shortly before midnight. We had travelled 183 miles during the day—not a bad total for a 6-h.p. car, especially in view of the bad weather and roads encountered—and we were naturally ready for food and shelter. Both were, however, denied us for some time; two or three hotels had no accommodation for the car, another, which had a stable, was full. It was only after interviewing half a dozen policemen that we were directed to Messrs George and Jobling's garage, which, while a large and well-equipped establishment, is located in a somewhat out-of-the-way corner very difficult for strangers to the city to find. Cold and wet as we were, our first impressions of Newcastle were of anything but a pleasant character, for close upon an hour elapsed ere we were able to settle down to a well-earned supper.

The poets who from time immemorial have waxed enthusiastic on the beautiful snow, and who have written odes in its praise, were assuredly men who did not live in large towns. Had it been possible for them to walk the streets of Newcastle on Saturday morning, especially with a long road journey before them, poetry would have been totally inadequate to express their thoughts and feelings. Snow was falling, and, melting as it fell, added to the slosh of the already muddy roads. The morning papers, too, gave long accounts of severe snowstorms on the Border, so that altogether the prospect was of a most cheerless character — a prospect which, after leaving Newcastle at 9 a.m. and getting only as far as Gosforth, a couple of miles out, was not improved by the engine beginning to misfire. Eventually it ceased to work at all, the car coming to a standstill immediately by the side of a traction engine which had sunk up to its axles in the road. Never have we driven across such a vile stretch as was encountered at this point; what with being under repair and at the same time covered with a layer of four to five inches of melted snow and mud, the result of the heavy downfall of the previous day, the road had proved impassable to the traction engine, and, what was worse, had pulled up the sturdy Wolseley from its invasion of the Border country. A more desolate-looking spot for a stoppage to occur could hardly be imagined. Ankle-deep in mud we went as we descended from the car, and when the bonnet was lifted the cause of our undoing was at once discernible, the sparking plug and front end of the engine being plentifully bespattered with the slush from the shocking road over which we had travelled. This cleared away, the motor, to our great relief, readily responded to the turning of the starting handle, and, with a part of our copy of the *Journal* pressed into service as a shield to the plug, we restarted on our way.

For a time both the roads and the weather improved, and our spirits likewise rising, a rapid run was made through the mining districts of Seaton Burn and Stannington into Morpeth. Time, unfortunately, did not permit to explore the ruins of the latter's ancient castle nor to visit the interesting old parish church. Its winding streets were safely negotiated, and, once out into the open country, the gradually ascending gradient gave evidence of our approach to the hilly district of the Borderland, which was covered with a thick white mantle of snow. According to our route guide rather over 100 miles lay between us and our destination. Arriving, however, at a point where diverged two roads, a finger-post indicating eighty-nine miles to Edinburgh by one and by the other 104 miles, the shorter route was selected, a decision which proved to be anything but a wise one. For fully ten miles the road lay over barren moors, the loneliness of which was enhanced by the deep snow which covered the land. It is no exaggeration to say that at this point the wheels of the car cut a track through seven to eight inches of snow, while on each side of us were deep drifts. Stiff climbs followed dangerous descents in steady succession for many miles, and it was in passing through this bleak country that the toot toot of a motor horn was heard in our rear. Not to be alone in such a desolate-looking land was something, but to meet fellow motorists from London added zest to the encounter. The car proved to be a 12-h.p. De Dion with Mr. J. W. Stocks at the wheel, engaged on a non-stop run from London. As we ran together for some time we learned that they had travelled throughout the night and had so far had good luck. Of course the 12-h.p. was speedier than the 6-h.p., and shortly Stocks drew away from us, only to be overtaken a mile or so further on, he driving his car slowly while one of the passengers filled up the petrol tank. Apparently both of us, in the agreeable encounter, had taken a wrong turning, and instead of saving fifteen miles in the journey from Morpeth to Edinburgh, had added about ten miles thereto, in addition to having chosen the hillier route of the two, for eventually we found ourselves again on the high road to Alnwick. Stocks again disappeared in front of us, but only for a short time, for, on turning a corner, we came across the car by the road side with Stocks busily engaged on some adjustments. It must have been very annoying to him to thus have his non-stop record spoiled, even by such stiff travelling as had been encountered from Newcastle, and to his credit we may say that although the car was stopped, the engine was in motion.

Once again on the main road, which we regretted having left, we scurried along to Alnwick, where the lion-surmounted column apprised us we had arrived in the domains of the Duke of Northumberland. A brief stay was made in this ancient town, which to our mind was far and away the most interesting of the many we passed through on our long journey. Alnwick played a prominent part in the wars with the old Scottish monarchs, to many of whom it was peculiarly fatal. Here it was that in 1093 Malcolm III., with Edward his son, was killed in making an inroad into Northumberland. Here, too, in 1174, William I., invading England with a army of 80,000 men, was encountered, his army routed and himself made prisoner. Even to-day three towering gates, by which the town is entered at different points, and the vestiges of a wall still to be seen in several parts, give evidence of how strongly fortified a town Alnwick was close upon 1,000 years ago. Of the Castle itself much could be written; it is perhaps the best specimen of a Norman stronghold to be found in the country to-day. The entrance to it is through the massive Barbican, which forms the background to the accompanying illustration. Some time was lost in obtaining a photographer to take the picture, and meanwhile the 12-h.p. De Dion passed through on its way north.

It was with many regrets at the short time available that Alnwick was left at 12.30, and passing through a downpour of sleet we pulled up an hour later at the little village of Belford for lunch, to which full justice was done. We had now got out of the snow-covered country, and, after a run marked only by one or two encounters with timid horses, the river Tweed was sighted and Scotland entered about 4 p.m. It was market day at Berwick, and for some miles beyond slow progress was made owing to the way being impeded by cattle and also on account of the roads being once again snow covered, deep drifts extending in many places right across the track. The scenery at

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Grant's House and Cockburnspath was beautiful, the road and railway running together for miles between sharp rising hills. At last the welcome sign "30 miles to Edinburgh" was seen, and with the hills and snow left behind, we buzzed along a splendid road to Dunbar and East Linton. Here a stop was made for water and to light up the lamps, darkness having overtaken us. Little now remains to be said; only 22 miles lay between us and our destination, and, as if aware of the approaching termination of its task, the engine seemed to "pull" better than ever. Through Haddington, famous as the birthplace of John Knox, Levenhall, Musselburgh, and on to Portobello we went, and at a few minutes to eight we drove right into the motor-car exhibition in the Waverley Market, Edinburgh, being immediately surrounded by a thick circle of friends and interested spectators.

Much could be written of the points gleaned during a trip between the two capitals—for example, the ways and charges of hotel-keepers would form an interesting chapter, the varying attitude of the police in the different localities would afford ample material for another, while the variety in the shape, lettering, and utility of mile-stones and finger-posts in the various counties passed through could easily serve as a useful theme. Space does not, however, permit of our dwelling on these points; on this occasion we are concerned with the behaviour of the 6-h.p. Wolseley car which made the 400-mile trip with only the one involuntary stop, and that due to a bumpy, muddy road, travelling over which not only bespattered the sparking plug of the motor, but also the faces of the driver and passenger. Beyond replenishing the petrol and water tanks and the lubricators and tightening up a lamp bracket, the car required no attention whatever. The Dunlop tyres, too, went through without a puncture and without requiring inflation, so that, apart from the severity of the weather, the journey was all that could be desired. As for the car itself, the hill was not met that it could not ascend, and as to its speed, at times we travelled at a rate of 25 miles per hour, the average for the whole journey, the bulk of which was over snow-covered roads, being between 17 and 18 miles per hour.

PHANOMEN.

THE Cheltenham and Gloucestershire Automobile Club will, in future, be known as the Gloucestershire Automobile Club.

AT Maida Vale Mr. Robert Atterton has a garage at 13, Canterbury Terrace, where motorists can have accumulators recharged and be supplied with petrol.

A LARGE public meeting has been held at Tarves, N.B., to urge upon the Great North of Scotland Railway Company the advisability of starting a motor-car service between Udney station and Methlick.

MR. A. W. MACLEOD, of 9, Red Lion Court, Cannon Street, E.C., has been appointed London agent for the "Cottereau" car, for which Messrs. McNeil, Hutchison and Borthwick, of Manchester, are the British representatives.

CONTINENTAL NOTES.

THE German Club has decided to publish an official guide to the Gordon Bennett race; it is to be printed in three languages—German, French and English. It is reported that the Daimler Motoren-Gesellschaft, of Cannstatt, which will have two cars in the race, have constructed six special racers, of which four have engines with cast-iron cylinders, and two steel cylinders. Before the race takes place exhaustive trials of these two types are to be made in order to select the best vehicles. The German De Dietrich Company has, it is stated, decided not to compete in the eliminating trials. M. Jenatzy and the Baron de Caters went for a trial spin over the course last week. Signors Storero, Lancia and Cagno have been selected as the drivers for the three Fiat cars for the Italian team. Official application was made on Monday to the President of the Conseil for authority to run the French eliminating trials in the Argonne in May next. M. Combes personally favoured the application, but stated that the matter would have to be submitted to the Chamber of Deputies.

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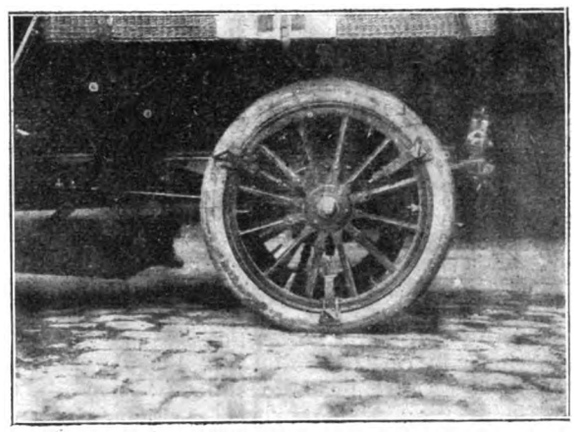
THE anti-skidding competition organised by the Automobile Club de Seine et Oise has been held during the past week. The event brought in thirty-four entries, including two of English origin—the Parsons non-skid and Sainsbury's anti-skid. Considerable interest was shown in the latter, which consists of three U-shaped pieces embracing the rim clear of the tyre and having a connection with the rim more resilient than the tyre. The pieces are adapted to normally rise and fall with the tyre without injuring the latter and so as to have no effect on the direct drive, but when a skid takes place to drag sidewise on the ground without yielding. The competition started on Wednesday, when twenty-eight competitors put in an appearance, twenty of the devices being fitted to cars and eight to motor-cycles. Owing to the fineness of the weather, the original programme had to be altered, a series of trials on the hill of Picardie being substituted. The vehicles were given a flying start of 500 metres, to make the climb on top speed, the point at which it became necessary to change to a lower gear being noted. This test was carried out twice by each competitor, once with smooth tyres and once with the anti-skids fitted. The programme on the 26th, 27th, and 28th ult. consisted of runs on a circular route from Versailles, the distance in each case being 191 kilometres, while on Monday the machines covered a short route of 100 kilometres, after which they were subjected to trials on *pave* and Macadam roads. It may be added that the bulk of the competitors went through the trials successfully, but some little time will elapse ere the report of the jury as to the behaviour of the different devices will make its appearance. Messrs. Cozens-Hardy and O'Gorman were present at the trials on behalf of the A.C.G.B.I. on the two last days.

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THE Automobile Club of Marseilles held a successful hill-climbing competition on the 21st ult. on a stiff kilometre



Loading the Cars with Ballast.



The Sainsbury Device.

THE ANTI-SKID TRIALS AT VERSAILLES.

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course. The best time of the day was made by Rougier on a 60-h.p. Turcat-Mery, who covered the kilometre in 1 min. 31 sec.

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REFERENCE was made in this column some time ago to a proposal to establish a motor racing track in the Parc de Buzenval, near Paris. Little has been recently heard of the scheme, but it is now announced that good progress is being made with the project. The estate, which comprises an area of 530,000 metres, adjoins the Saint-Cloud racecourse, and is enclosed by high walls. Buzenval is within easy driving distance of the French capital, the road from Paris being by way of the Champs Elysees and the Bois de Boulogne. Outside the confines of the Parc de Buzenval there is a level grass plain of 150,000 metres. This will be acquired by the promoters of the project. The track is to be several kilometres in circumference, with an absolutely straight run of a kilometre and a half. Moreover, the course will be so arranged that every phase of a race or trial will be visible from any of the stands. A clubhouse will be established on the estate, in addition to ample garage and repairing facilities.

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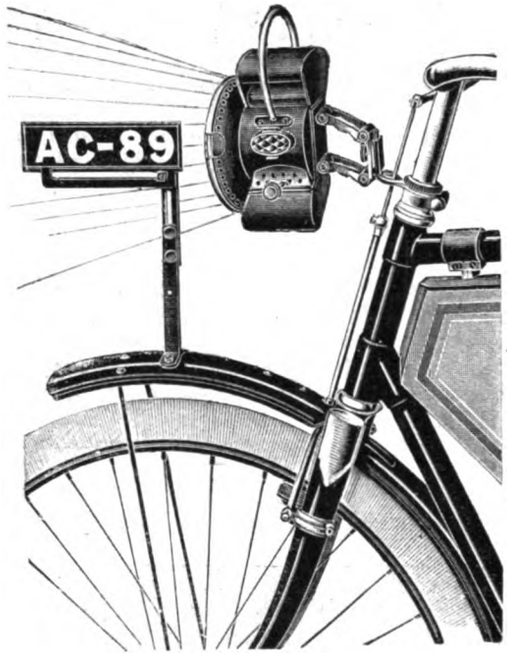
THE Dutch Automobile Club has issued a circular giving the formalities to be carried out for the driving of motor-vehicles in Holland. Automobiles that are only to remain in the country a short time can enter free of import duty provided the owner obtains a permit from the Minister of Public Works, which must be presented and countersigned at the Dutch Customs House. Before he can use his car, the tourist must send an application on stamped paper to the Minister of Public Works at the Hague, giving the width, length and weight of the car, the type of engine, the horse-power and the nature of the fuel. In a period of not less than three weeks he receives a permit on stamped paper. It is only available when signed at the Dutch Customs House, so that the application must be made at least three weeks before the automobilist intends to proceed to Holland. Once in possession of the document, duly authenticated by the Customs officers, the tourist has the right to drive his car on the national roads, but if he should venture off on to the provincial roads, his situation will be somewhat complicated. He must send applications on stamped paper for permits to the "permanent deputation" of the provinces of Zeeland, South Holland, North Brabant, Drenthe, and Friesland. The secretary of the Dutch club is able to offer some little consolation by announcing that provincial certificates are not necessary for the six other provinces. A complete specification of the car must again be sent in, together with the names of the owner and his mechanician, and in not less than six weeks the tourist will obtain permits on payment of fees varying from three to eight florins, according to the province. This exhausts the regulations as regards the national and provincial roads, but there also exist local roads for which certificates are needed for Amsterdam, Rotterdam, Groningen and Deventer. These are delivered on application at the nearest police station. The Dutch regulations require the automobilist to carry numbers on the front and back of his car, one of which must be lighted up after dark. The speed limit is fixed at twelve and a half miles an hour on country roads, and five miles an hour "on gradients, in populated centres, on bridges, in fog and after dark," under pain of a maximum fine of fifty florins. With all these formalities it cannot be said that Holland is inviting foreign motorists to tour in their country.

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SINCE M. Paul Meyan published in *La France Automobile* the method he adopts in protecting his pneumatic tyres, a number of other suggestions have been brought forward. In a recent issue, a correspondent, writing to that paper, explains a means of protection which he has found quite effective and successful. He has taken an old cover of the same size as the new one, and with a sharp knife has made several transverse cuts in the stiffened edges of the old cover. Then deflating the tyre on the rim he has forced the old cover over the new one, and re-inflated the latter. Owing to the pliability gained by the cuts in the edges it is stated that the double cover sits securely and perfectly, protecting and saving the lower one in a satisfactory manner

MOTOR-CYCLING NEWS.

THE accompanying illustration shows a new registration number plate for motor-cycles which has been introduced by Messrs. Brown Brothers, Limited. As will be seen, the plate,



which is made of enamelled iron, is fixed to the front mudguard extension by drilling two small holes and using the fitment supplied. It is adjustable to any height and angle, so that the number on either side is illuminated by the lamp.

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THE "Vindec Special" motor-cycle placed upon the market by the South British Trading Company, Limited, attracted some attention at the recent show. Since introducing the machine they have fitted some detailed improvements in the addition of a new form of regulator to the air-inlet of the carburettor, which is within easy access of the rider whilst the machine is in operation. The addition of a level gauge attached to the engine enables the rider to determine the exact quantity and condition of the lubricating oil in the crank casing.

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OUR Directory of Numbers is inclusive of motor-cyclists as well as of those who own cars—a fact we mention as a reminder to those motor-cyclists whose names have not yet appeared in the *Journal* to send their numbers without delay.

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THE motor-cycle section of the Austrian Automobile Club has decided to organise a reliability trial for motor-cycles between Vienna, Znaim and Brunn during the coming season.

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THE War Office has affirmed the proposal to include motor bicyclists in the Motor Volunteer Corps, limiting the number, however, to forty.

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HOW TO STOP SOME NOISES.

UNDER the most favourable conditions the automobile is not the most noiseless of vehicles, whereupon it behoves the owner of one to at least do what he can to eliminate as much of the noise making as may be possible. Among the important noise creators which are capable of elimination by any one is the rattle of tools which have been carelessly thrown into the place set apart for their storage in a car, and there allowed to dance about as they please to the noisy accompaniment of their own clashing. There are any number of ways of carrying the tools, without which no motor-car should ever be taken upon the road, but of all the ways the worst, but by no means the most uncommon one, is to throw them indiscrimately into a drawer somewhere or another beneath the seats.

When in the natural course of events it happens that even a small tool is required the procuring of it frequently means a complete dislodgement of the passenger is necessary to get at the drawer, and after that the tool seeker has for the time being to assume a more or less uncomfortable position.

A very much better method than this drawer idea is to have one of the leather cases now available in which each tool has its own place, the whole being wrapped up into a roll, then bound with a strap and placed in any part of the car which can be conveniently and readily be got at. Another good idea is to have made a case to fit on to the face of a door, or inside the door of one of the cupboards beneath the seats. This case should consist simply of a piece of light wood, about three-quarters of an inch thick, in which recesses have been cut out right through the wood to fit every size wrench or tool which one ordinarily carries on an automobile. One or more swinging spring clips should be fitted to press upon the tools when they are in position to keep them from falling out or from making a noise, though not strongly enough to prevent the driver, when any tool is required, to find and withdraw it readily. When the tool or tools have been finished with they are just as easily replaced and clipped back in position. If a tool is then seen to be missing it can at once be looked for and restored to its place. This is certainly a much more satisfactory method than travelling a few miles and then finding that in the processs of packing up one or more tools have been left in some unremembered spot. The arrangement suggested has, remarks a writer in the *Automobile Magazine*, of course, the same disadvantage of disturbing the passenger, unless the tool casing is made to fit upon the dashboard or in any other convenient place, but even so, it is a noise preventer of whose efficacy there can be no possible doubt.

Having thoroughly quietened the annoying tool, the next noise maker which should demand prompt attention is the rattling frame or running gear and its attachments, which are the least excusable of all the noises of which a motor-car is guilty. A vehicle running upon pneumatic tyres should make no noise from this cause, but this is far from being the case. Distance rods are a prolific cause of noise. They are generally attached to the frame and to the rear axle by plain studs or bolts of unhardened material passing through holes in the ends of the rods. Whenever the engine is propelling the vehicle the rod is under compression, but whenever the axle or wheel brake is applied the distance rods are under tension, and in this way the bearings of the rods are alternately subjected to stresses which soon tend to develop looseness in them. The constant action of the rear springs, as the vehicle passes over rough roads, and the continual presence of grit, makes the wear very rapid, and as no adjustment is provided at these bearings they become very noisy when the vehicle travels over any but perfectly smooth roads.

Brake bands are generally loosely held when not in action, and the brake actuating mechanism contains a number of unadjustable joints which develop looseness and rattle after continued use. Steering gears which develop loose joints not capable of being taken up contribute to the noise, as do the creaking of spring leaves upon one another and the rattle of spring links when worn. A loose mud guard is also unpleasantly evident to the ear. A scrupulous attention to the details of bearing adjustability, and the lubrication and protection of moving parts, will in the end give a quiet running petrol car.

THE CLUB COMMITTEE.

CONCERNING the election of the new committee of the A.C.G.B.I., which is now in progress, and in connection with which so much wire pulling has been indulged in, we have been requested by many readers who are in doubt as to whom to vote for, to suggest the names of candidates whose presence on that body would be to the advantage of the movement.

Under these circumstances we would respectfully offer the following list, which includes some of the most famous motorists in the country, and the names of many who have helped to bring the movement into the proud position it occupies at the present day.

Allen, John
Aveling, T. C.
Beaumont, W. Worby, M.I.C.E.
Bird, Alfred F.
Bouverie, Hon. Stuart
Boys, Professor C. Vernon, F.R.S.
Butler, Frank, H.
Buttemer, R. W.,
Calthorpe, Everard R., M.I.C.E.
Cordingley, C.
Critchley, J. S., M.I.M.E.
Crompton, Lt.-Col. R. E. B., C.B.
Deasy, Captain H., H.P.
Du Cros, Harvey, Jun.
Edge, S. F.
Edmunds, Henry, M.I.C.E.
Firth, T. W. Staplee
Gorham, J. M., M.I.C.E.
Hill, W. Becket
Hinde, W. Ballin
Holden, Lt. Col. R.A., F.R.S.
Holder, J. A.
Ingram, L. C.
Jarrott, C.
Leonard, W. J.
Lloyd, Major F. Lindsay, R.E.
Manville, Edward, M.I.E.E.
Mayhew, Lt.-Ccl. Mark
Moss, W. E.
Nisbet, J. R.
Ochs, James F.
Pickmere, E. R.
Purchase, E. K.
Redwood, Dr. B., D.Sc., F.R.S.E.
Rolls, the Hon. C. S.
Rose, C. D., M.P.
Rothschild, Lionel de
Rowcliffe, W. E.
Salomons, Sir David L., Bart.
Shaw, C. E, M.P.
Siddeley, J. D.
Smith, E. Shrapnell
Smith, Fred
Stanley, the Hon. Arthur, M.P.
Swinton, Campbell
Thornycroft, Sir J. I.
Todd, R.
Wallace, Roger W.
Whatton, the Rev. A., M.A.
Weguelin, Hugh

MESSRS. S. R. BAILEY AND LAMBERT, LIMITED, are now calling their B. and L. two-seated car the Pelham voiturette.

FOLLOWING the example set by Boston, U.S.A., a course of lectures on automobiles is being inaugurated at the Y.M.C.A. at Buffalo, U.S.A.

MR. G. W. HODGKINSON has had alterations made at his premises in Compton Buildings, Buxton, to enable him to garage cars and also repair the same. He now stocks petrol, oils, and spare parts, and will be pleased to help motorists passing his way.

NOW that the galleries of the Agricultural Hall are fully booked firms intending to be present at the Motor-Car Exhibition are crowding into the Berner's Hall, which has two main entrances, and it is evident that this section of the Exhibition will, by the variety of its exhibits, prove a popular branch of the show.

AT the Begbie Manufacturing Company's general meeting, on the 26th ult., a dividend was declared for the past year of ten per cent. The chairman informed the meeting that the increase of business for the first months of the new year was considerably in advance of the previous twelvemonth, and that there was every prospect of a very prosperous year.

SEVERAL firms of cycle dealers and others in Guernsey have recently added the sale of motor-cars to their businesses. Among these is Mr. T. G. Wyatt, whose engineering works are at North Clifton, in the island. To do this satisfactorily he has obtained new premises in New Street, Guernsey, for a showroom, level with the street, with workshops behind, and store-rooms above,

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HERE AND THERE.

THE London United Motor Company, Limited, has been registered with a capital of £1,000.

THE Manchester Motor Supply Company are now installed in their new premises at 18, Oxford Street, Manchester.

THE new 15-20-h.p. four-cylinder Brooke car will be exhibited for the first time at the Agricultural Hall Show.

PROFESSOR HUGH GALT will read a paper on "The Medical Aspects of Motoring," at a meeting of the Western section of the Scottish Automobile Club on Monday.

MESSRS. A. CONSTABLE AND COMPANY, LIMITED, are the publishers of a new work on Entropy by Mr. James Swinburne. This deals with thermodynamics from an engineer's standpoint.

THE South Wales and Monmouthshire Automobile Club contemplates opening a club garage at Cardiff. The Motor Garage Company have lately opened a garage in Queen Street, in that town.

THE Napier Motor Company has been incorporated in Boston under Massachusetts laws with a nominal capital of £2,000, but with the right to increase to £200,000. The new company acquires the agency for Napier cars in the United States, Mexico and Canada.

THE problem of conveniently and expeditiously charging ignition cells is one which is continually exercising the mind of every motorist. In nearly every town of any importance it is now possible to obtain a supply of current, but, owing to its being at a comparatively high pressure, considerable trouble is involved before it can be made available for charging. Messrs. Everett, Edgcumbe and



Co. have lately brought out a charging set known as the "Everright," which may be carried in the tool box, by means of which current can be instantly obtained from any electric light fitting and passed into the accumulators, with the certainty that it does not exceed the correct amount, and, also, that it is flowing in the right direction. The set is made up in three distinct forms:—Type A (see illustration) consisting of two lamp-holders, current direction indicator, adapter and ammeter reading to 2½ or 5 amperes, as preferred, complete with flexible connections, etc., in walnut case, with carrying handle for travelling; type B, similar to this, with current direction indicator, etc., but without ammeter; and type C, similar to type B, only without the case. These little sets, which are neatly and compactly constructed, are, we hear, becoming very popular, and will certainly be found a great boon to all motorists employing accumulators.

THE Medway Motor and Engineering Company, Limited, has been registered with a capital of £2,000 to acquire the business of motor and cycle manufacturers and general engineers carried on by Messrs. A. Wilson and E. T. Middlemiss at 56, High Street, Chatham, as the Chatham Machine Company.

MESSRS. COXETER AND SONS, LIMITED, of Abingdon-on-Thames, on Tuesday opened new motor works and garage in Pembroke Street, St. Clement's, Oxford. A competent staff of mechanics will be available for repairs of all kinds, while the garage has accommodation for fifty cars, with facilities for charging batteries.

MESSRS. J. E. GIBBS, of Thomas Street, York, have facilities for the repair of motor-cars.

THE Norfolk Automobile Club are sending a strong protest to the Local Government Board in reference to the county council's proposed ten-mile limit in certain Norfolk towns.

FOR cleaning metal work the Rocket liquid plate and metal polish is becoming favourably known. Being guaranteed free from acid and uninflammable, it will be of service to motorists.

AN ILLUSTRATED catalogue of electric welding machines and apparatus comes from the Electric Welding Co., Limited. They are the owners of the Thomson process of electric welding, which has been applied with great success to the automobile industry, particularly with reference to the welding of such parts as hubs, flanges, gear boxes, tubular framing, steering gear, axles, cam shafts, crank shafts, and such like.

TURNER'S Motor Manufacturing Company, Limited, inform us that in future they intend to call the Miesse car, of which they are the sole manufacturers in this country, the "Turner-Miesse." The name "Miesse" by itself gives many people the idea that it is a foreign-built car, whereas it is of English workmanship throughout, the engines and everything else being made entirely in the company's works in Wolverhampton.

THE Kelecom Motors, Limited, is the title of a company registered with a capital of £10,000, to adopt an agreement with Mr. E. J. Willis for the acquisition of the business of a manufacturer of and dealer in motors, motor-cars and their accessories, now carried on by him at 79, Wells Street, Oxford Street, W., as the Ormonde Motor and Cycle Company, and to carry on the said business. The first directors are Messrs. R. Willis and A. Goodwin.

THE Tisbury (Wilts) Urban District Council sought to have motor-cars prohibited on the roads under its jurisdiction, on the ground of their insufficient width for such traffic. But by the Highways Act of 1835 justices of the peace may order roads of inadequate width to be widened to a breadth of thirty feet at the expense of the local ratepayers. A Tisbury motorist has accordingly requested two justices to inspect the roads in question, with the result that the District Council has been instructed to widen them.

CONTINUING their series of Little Guides to English Counties, Messrs. Methuen and Company have issued a handbook to Suffolk arranged on the alphabetical plan which has proved so convenient for travellers wishing to post themselves up with the history and sights of the places to which they journey. Mr. W. A. Dutt is responsible for the letterpress and Mr. J. Wylie for the illustrations in the new volume. Suffolk is an interesting though not particularly well-known county of East Anglia; and the motorist with Messrs. Methuen and Company's guide in his wallet will appreciate its pleasant places and picturesque villages.

THE latest fire-extinguishing appliance is the new petrol motor-fire engine just built by Messrs. Merryweather and Sons for Baron A. de Rothschild. It is not only driven along the road by a petrol motor, but the same power is used, on arrival at the fire, to drive the pumps. The vehicle has a steel frame, on which are mounted a 30-horse power four-cylinder petrol engine, a 300 gallon "Hatfield" pump, and a large hose and tool-box, forming seats for driver and firemen. The whole is mounted on steel springs and artillery wheels, and solid rubber tyres. The engine is placed in front, and drives, through a pedal-actuated cone clutch and Panhard type gear box, a countershaft, from which the rear road wheels are driven by means of side chains. A second shaft is fitted, with positive clutch to the engine and arranged to drive the pump at the rear by means of a raw hide pinion and spur wheel. The pump suction inlet and two delivery outlets with valves are provided at the rear, a footplate being provided, so that two men can ride behind. On top of the hose-box is fitted the petrol tank, and the ignition arrangements are in duplicate, accumulator and coil as well as a high-speed magneto machine being fitted.

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MR. LIONEL ROTHSCHILD has obtained delivery of his 40-h.p. Mercedes.

THE Hyde Rubber Works, Limited, and the Hyde Rubber Company are two distinct concerns.

A PUBLIC service of motor-cars has recently been established between Mykobing and Nysted, Sweden.

THE Ladies' Automobile Club of Great Britain and Ireland, Limited, has been registered with a capital of £100, in £1 shares.

THE next meeting of the General Committee of the Motor Union will be held at 119, Piccadilly, London, W., on Monday the 7th inst.

JUST now there seems to be a general advance in Wales so far as public desire for motor vehicles is concerned, and the Pontypool District Council is asking the Great Western Railway to run a motor coach between Pontypool and Aberbeeg.

THE Imperial Tyre and Rubber Co., Limited, are placing on the market an inner tube repair outfit for vulcanising patches to tubes by means of an air vulcanising fluid of their own preparation.

BORIS SARAFOFF, the young Bulgarian chief of the insurrectionary movement in Macedonia, is reported to have ordered a light, strongly-built motor-car for next season's campaign, to enable him to move about rapidly on the rough roads of the plain.

THE Lion Motor and Cycle Company, Limited, has been registered with a capital of £2,000 to acquire the business carried on by Mrs. Ann M. Pinnell at 189, London Road, South Lowestoft, as the Lion Cycle Company, with certain patents relating to an improved motor and cycle brake.

THE Birmingham coroner has conducted an inquest concerning the death of a coach trimmer, who had been engaged at a motor-car works. About a fortnight ago, while padding the back of a car, he drove a tin tack into the finger nail of the right hand. A fellow-workman described the wound as the prick of the point of a tack, and it bled a little. Deceased held the finger in hot water, and a day or two later it festered. He did not tie it up and made light of the occurrence. Shortly after, however, deceased's arm became swollen, blood-poisoning intervened, and death ensued as the result of pyæmia.

THE following is from the "Morning Post":—There will be only one more important motor-car show before the season begins. Over three hundred exhibitors have taken space for stands at the exhibition which will be opened at the Agricultural Hall under the auspices of the Automobile Club of Great Britain and Ireland. The display will be so numerous that Berner's Hall will be utilised for the first time in the history of industrial exhibitions at Islington. Not the least notable feature of the show will be several British-made cars that were not completed in time for the exhibition at Sydenham. The display of heavy vehicles in the minor hall will be particularly representative. Some new types of municipal vans will make a first appearance, and the Beadle airship will also be on view.

"HIGHWAYS and Bye-ways" in Sussex is the title of a new volume by Mr. E. V. Lucas, which has been published by Messrs. Macmillan and Company, Limited. This is one of a series which already includes Yorkshire, Devon, North Wales, the Lake District, and other touring districts beloved by those who tour. In writing on Sussex Mr. Lucas has largely determined his order of progress by the lines of railway. Entering the county at Midhurst, he has gone in a zig-zag course across to the east by way of Chichester, Arundel, Petworth, Horsham, Brighton, Cuckfield, Lewes, Eastbourne, Hastings, Rye and Tunbridge Wells, emerging on the borders of Ashdown Forest. This is not the route the motorist would take in seeing Sussex, but the capital index at the end of the volume, together with the map, will compensate for deviations from the road. The excellent illustrations by Mr. F. L. Griggs add to the pleasure of reading a volume in which ancient lore is admirably combined with picturesque descriptions of the present prospect.

CORRESPONDENCE.

PETROL FOR COOLING.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—If petrol does not readily freeze, and is not easily heated, would it not be better than water for the tank?

I should like to hear if anyone has tried it, or if its use would be dangerous for cooling purposes.—Yours truly,

OVERHEATED

BENZ v. LIGHT CARS.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—In answer to "G. L. B.," I think he is right in his surmise respecting the "geared Benz," especially the 7-h.p. There is no doubt that there has been considerable confusion made in respect to the ordinary and the "geared" Benz, to the discredit of the latter.

Having driven the 7-h.p. geared and several makes of light cars, I have never found one so efficient as the 7-h.p. geared Benz. It is fast enough for country roads, and will do over 30 miles per hour, whilst, on the other hand, it will surmount any hill with its full load.

Being very easily driven and controlled, also as simple as a car can be, I know some of your readers will readily condemn it because it has belt transmission. But I believe it has many points in its favour, and should give no trouble with proper attention. There are, no doubt, several other "Benzites" who can testify to the good qualities of the "geared Benz."—Yours truly,

SOLID TYRE.

WOOD PAVING.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—I note still another case of side slip due to the greasy condition of wood paved roads. A motor-car essayed to go into a draper's shop in Brighton on Sunday. It seems a pity that those in charge should treat these the same as ordinary macadamised roads. The original idea was the same as with asphalte, viz., to produce a surface which could be easily washed down and kept clean. I wonder how often the London road at Brighton has been subjected to the ordeal of a bath. I have frequently found it exceedingly slimy and treacherous.—Yours truly,

A.

LOSS OF POWER.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—Owners of 3½-h.p. Benz cars should look to the size of their valves. These cars first came out, I think, with valves about 1 in. in diameter. This was found to be too small, and I think the later pattern had them increased in size. I owned one of these cars for nearly a year, and the previous owner had fitted inlet and exhaust valves 1¼ inch diameter. This car would mount a gradient of 1 in 25 on the top speed, and 1 in 12 on second, and anything, I believe, on the crypto; but it occasionally used to lose power, and I always found the causes to be as follows:—First, auxiliary air valve out of order. The spring of this valve should be almost the same tension as the inlet valve spring, but very slightly stronger, so that the inlet valve opens a little more than the auxiliary. This valve often gets covered with mud or dust, and is either choked or leaks, in which case compression is weakened. Second, the petrol in the Benz carburettor gets stale and weak, especially after standing an hour or so with engine stopped. Third, the fibre wheel in the half-time gear gets worn, and the exhaust valve opens too late. If this car is fitted with 1¼ inch valves, and the auxiliary inlet is properly adjusted and tight, it will take two people up a very fair hill on its top speed. I am certain that many small cars are now being blamed for loss of power, while the real cause is the state of the roads. Owing to the long-continued rain and lack of sunshine, gravel roads have become thoroughly sodden and water-soaked; though, after a day's dry weather, the surface may be free of mud, the foundation is still soft, and a large proportion of power is lost, much more than one would believe possible.—Yours truly,

CHAS. PERCY DEAN.

CARS FOR MEDICAL MEN.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—With reference to "Motoring Medico's" letter in your last issue, asking why the leading makers do not build cars to drive with belts, the reason is that foreign motor manufacturers are, to a certain extent, compelled to follow the fashion, and it would be a difficult matter for an agent to find buyers at the present time for belt-driven cars. Although I am no longer connected with the company selling the Benz cars, I know from long experience that a small car up to 10-h.p., driven with a straight belt (not crossed), gives no trouble whatever—in fact, I have driven quite 5,000 miles without ever touching the belt. With big cars, however, the belt sometimes does give trouble, unless one has an extraordinarily good belt. I think the magnetic clutch must be most satisfactory; as it is arranged, if the pedal of the clutch is worked very slowly, the clutch will slip a little, until the full force of the magnetism is on, which has about the same effect as a belt-driven car. There is no sudden shock on the gear.—Yours truly,

H. HEWETSON.

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MAGNETO AND ACCUMULATOR IGNITION.

To the Editor of *The Motor-Car Journal.*

Sir,—May I ask some one who is well versed in the subject to give me a few hints upon ignition, through your valuable medium, which I read with interest every week. I have a car with horizontal engine and magneto ignition, but find great difficulty in starting. Can I fit an accumulator and De Dion induction coil and wire up to the same make and break which is in the cylinder, without any sparking plug, or shall I require a trembling coil? The contact is broken by a tappet which works against a cam on the end of 2 to 1 shaft. There is automatic water circulation for cooling; shall I get much advantage by inserting a pump? The ignition takes place just before the end of the compression stroke; should I not get more power if the explosion occurred at the beginning of the forward stroke? Thanking you in anticipation,—Yours truly,

A Gloucestershire Novice.

[For "A Gloucestershire Novice" to fit his engine with electric ignition by means of coil and accumulator, it will be necessary for him to do away entirely with his present mechanical device, which he uses with magneto, and in place fit a sparking plug. It will also be essential to fit a contact breaker and trembler coil in preference to non-trembler. If this form of ignition is fitted, the spark can be made either early or late, this by means of moving the contact breaker backward or forward. The proper position for the piston in the cylinder when the spark is retarded is about one inch down the stroke, but when advanced the engine increases in speed and the spark occurs earlier. This, of course, appears to have the tendency to drive the engine backwards, when the position of piston is ascertained in relation to time of spark; but when the piston speed is taken into consideration, together with the time it takes for the spark to form at the plug, the cause is easily explained. The power of the explosion actually is exerted on the piston at about the dead centre. With regard to the water circulation, this we should leave, if every satisfaction is obtained from the present system.]

MORE TYRE QUERIES.

To the Editor of *The Motor-Car Journal.*

Sir,—May I ask the scientific readers of the *Journal* why a solid tyre on a motor-car, though admittedly slower on the level, is faster than a pneumatic up a hill? I am only a cycle rider, and well know that in any degree of inflation, and under any road conditions, a pneumatic-tyred cycle is much faster up hill or down than a solid, yet at the Crystal Palace I was told by a firm of tyre makers that a solid tyre is faster up an incline, and that is because a pneumatic tyre, by reason of its flabby walls at the point of contact with the road, allows the wheel to "float" about, and so lose the power in transmission, whereas a solid tyre loses nothing in this manner. I absorbed this shock, and was quite prepared to hear that the pressure of air per square inch in a car tyre is not increased, however much extra weight is put on board.

Still another curious thing was told me by the same people about a new pneumatic tyre now being much discussed. The finest theoretical and expert knowledge they declare teaches them that a nail will very quickly puncture this tyre; the nail strikes the hard resisting cord, and, instead of cutting it, is diverted to the side, and with a rush passes between one cord and the next, thus puncturing the inner tube. My own reasoning is different to this, as I should contend that at the flat of the tyre, at the contact with the road, the tangential cords which are already touching would take still closer order, and have a tendency to pinch out the nail which tried to slip between them. However, I should be glad to hear the opinions of others on the above matter, as my convictions are rather unsettled.—Yours truly,

G. R. F.

QUERY *RE* NEW GEAR DRIVE.

To the Editor of *The Motor-Car Journal.*

Sir,—In your show report, in the *Journal* of February 20th, you gave a description of the "Dennis" silent worm drive to live axle. One of your contemporaries also recently described a car (Hitchon-Weller) which is said to possess a similar arrangement. This information, though very interesting, leaves us wondering what happens when the clutch is disengaged while the car is running. It seems clear that one could not "coast" unless the back axle were fitted with a free-wheel device of some sort, in which case reversing seems impossible. Trusting you will find space for this, as I know I am not the only one who would like information on this point.—Yours truly,

Live Axle.

STORAGE OF PETROL.

To the Editor of *The Motor-Car Journal.*

Sir,—Motor-cyclists will be interested to know that petrol may be stored by any person in quantities up to three gallons, so long as it is contained in separate one-pint vessels. (See *Motor-Car Journal*, April 18th, 1903, p. 148.) If larger quantities are kept, and are stored within 20 ft. of a woodstack or building, is it necessary to give notice and obtain permission to store it? In some anti-motor districts this permission is withheld if possible. The motorist is then entirely dependent on the capacity of the tank on his motor-car, and this tank most likely holds less than two gallons; he is, therefore, obliged to purchase his petrol in very small quantities, and at increased price. By using the one-pint tins he might buy a can of petrol and fill up his tank and put the remainder in the tins till it was wanted.—Yours truly,

B.W. 12.

DRIVERS.

To the Editor of *The Motor-Car Journal.*

Sir,—Having read the correspondence in your *Journal re* the scarcity of good mechanic-drivers, and being a mechanic and driver, capable of repairs of all kinds, I was hoping to see some feasible scheme suggested whereby really capable drivers and mechanics (not the driving school certificated so-called mechanic-driver) could be brought into touch with gentlemen requiring capable men, and who were willing to pay a good mechanic's wage. There are plenty of good men who would be glad to see a strict test instituted as to the capabilities as driver and repairer, the passing of which would entitle them to a certificate, which certificate would then be of some value, not as certificates are obtained now, by the payment of from £2 to £5 and a week's tuition at some driving school.—Yours truly,

Mechanic.

[We would ask correspondents on this subject to make their letters as concise as possible, and also to avoid the repetition of ideas which have appeared in previous correspondence. Otherwise we cannot find space for one-tenth of the interesting letters that we continue to receive on this subject.]

THE CLUB COMMITTEE.

To the Editor of *The Motor-Car Journal.*

Sir,—With reference to the resolutions that I will propose at the forthcoming general meeting of the Automobile Club, I should be obliged if such gentlemen who are in agreement with my "resolutions" would send me their proxies to 12A, George Street, Hanover Square, London, W., same being made out as follows:—

I.....of....., being a member of the Automobile Club of Great Britain and Ireland, do hereby appoint the Right Honourable the Earl of Shrewsbury and Talbot, or him failing, the Right Honourable Lord Westbury as my proxy to vote for me at the meeting of the Club to be held on the 10th March, 1904, at the Institution of Mechanical Engineers, Storey's Gate, Westminster, London, S.W., and at any adjournment of the meeting.

Dated the.....day of March, 1904.

Your obedient servant,

Shrewsbury and Talbot.

THE COST OF REPAIRS.

To the Editor of *The Motor-Car Journal.*

Sir,—The further letter from "Chirurgeon" puts a different complexion on his case. Certainly, if the same jobs had to be done two or three times over, "Chirurgeon" is—to say the least of it—unfortunate in his choice of a repairer. Of course, I took the item he gave to be work—necessary work done, and it is decidedly difficult to understand how £16 worth of repairs to a cylinder can be necessary. To sum up this case, we have an 8-h.p. Progress car costing £270, which in eighteen months has cost £2 12s. through accident, but in the last three or four months has cost nearly £100 for repairs *not* caused by accident. It is difficult to believe that the car is so thoroughly bad. In motor repairing it often happens that a lot of work has to be done, for which there is very little to show, as "Chirurgeon" will no doubt understand, and for this reason a repairer's just charge is often considered excessive. I am sorry that there should be many incompetent motor repairers, and should welcome any scheme for registering the competent ones. Could not a list of really competent motor-repairing firms be compiled? Readers could then write and ask for the name of competent firm in any district. When complaints were received, if found to be true, the offending firm could be struck off the list. I throw out this suggestion, and perhaps other readers will criticise the idea.—Yours truly,

Francois.

MOTOR GARAGE FOR HOTEL.

To the Editor of *The Motor-Car Journal.*

Sir,—I am desirous of erecting a motor garage for an hotel to hold from four to six motor-cars. Will any of your readers kindly say what would be about the proper dimensions, and if there are any special features they can recommend?—Yours truly,

R. Kay.

[This is an interesting subject, and motorists are invited not only to forward suggestions for hotel proprietors desiring to cater for their wants, but also their experiences in housing cars when away from home.

Experiences with Paraffin Carburettors.—Lieut. Windham has sent us a letter in reply to one from Mr. D. G. Smith in our last issue. Both sides have had a hearing, however, and we regret that pressure on our space will not permit us to publish further letters on the point.

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The Crystal Palace Automobile Show.

[Concluding Notice.]

Below we conclude our report of the recent Show. Motoristsare now looking forward to the Agricultural Hall Exhibition, at which several new models will be shown for the first time. Not a few makers have also waited till the March event to bring new accessories, etc., to the notice of the trade and public.

PETROL CARS.

The Motor Manufacturing Company, Limited, furnished one of the *clous* of the exhibition, viz., the 25-h.p. Saloon car, of which an illustration was given in our issue of December 19th last. The body, which was designed and built at the Coventry Works, is of the most sumptuous description. There are four corner seats inside, consisting of comfortably upholstered revolving chairs. Folding tables, drawers, and lockers are among other fitments, in addition to a barometer, thermometer, and clock. The occupants can communicate with the driver by speaking tube, while in addition there is an instruction dial, by means of which, by moving a handle the wishes of the owner are transmitted to the driver, somewhat on the same lines as a captain communicates orders to the engine-room of a steamer. Specimens of the M.M.C. 20-h.p., 10-h.p., and 8-h.p. cars were also displayed, a noticeable improvement in these being the provision of an iris throttle valve. This is controlled by the governor, and works on similar lines to the well-known iris shutter in photographic cameras. A new addition to the popular 8-h.p. M.M.C. cars is a mechanically-operated inlet valve and a governor, as a result of which the running of this vehicle has been made much quieter. Several new designs of bodies were shown fitted to the 8-h.p. *chassis*, these including a two-seated hansom cab, a landaulette, and a mail phaeton. A 20-h.p. car with Roi des Belges body, having entrance at the side, was another vehicle to which reference may be made. It was pleasing to find that the M.M.C. concern had two *chassis* on view, one of the 20-h.p. type and one of the 8-h.p. Both were excellent specimens, and attracted much attention on the part of visitors. In addition, examples of the 20-h.p. motor with mechanically-operated inlet valves, the 10-h.p. double-cylinder engine, and a full range of the M.M.C. cycle-motors had a prominent position on the stand.

In addition to examples of their 3½-n.p, 9-h.p., and 15-h.p. cars, the New Orleans Motor Company, Limited, had on view a new 12-h.p. four-cylinder car, which attracted much attention. The engine has four separate cylinders, 85 mm. diameter by 110 mm. bore, and runs at a norma speed of 900 revolutions per minute. It is carried on the main frame, which is constructed of wood and steel. The throttle on the admission pipe is controlled both by its own pedal and also by a clutch pedal, so that when the clutch is taken out the engine is automatically slowed down. One o the novel features of the car is the clutch; this is of the internal cone variety, with the difference that the cone is in two halves and bolted to a driving plate, from which each may be readily removed by detaching three bolts. Three speeds forward and a reverse are available, the power being transmitted to the rear live axle through a cardan shaft and bevel gear. On the top speed the drive is direct, neither the side shaft nor any of its pinions rotating. The engine clutch and gear box are protected from below by a shield of aluminium. The New Orleans cars have long had a reputation for quiet running. and the new 12-h.p. model should be no exception.

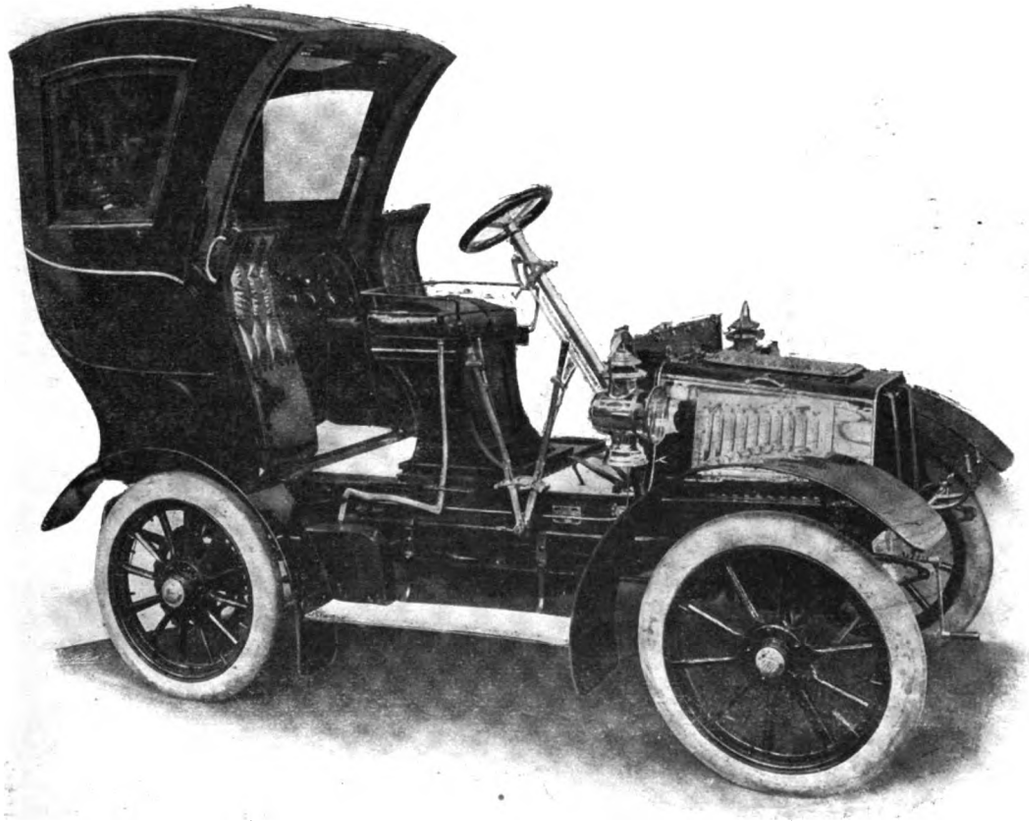


Fig. 67.—The M.M.C. 8-h.p. Hansom.

The latest models of the Benz Parsifal cars were displayed by Messrs. Hewetsons, Limited, and we must first of all remark as to the evident progress this firm has made in construction in recent times. For 1904 four types are being made—8-h.p. single cylinder, 12-h.p. two cylinders, and 22-h.p. and 35-h.p. four cylinders, examples of the first three being on view. The latest productions follow the standard lines, having the engine set in the front part of a pressed-steel frame. The engines have mechanically-operated inlet valves and an automatic carburettor. The smaller type has the usual coil and accumulator ignition, while the large sizes have magneto and high-tension ignition, as well as a governor acting on the inlet valves in such a way as to vary their lift. The clutch is also of the metal-to-metal type, and runs in oil. The 35-h.p. car has side chain transmission, but in others the power is conveyed to a rear live axle through a cardan shaft and bevel gearing.

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Messrs. Coles and Wyss, the new title of the firm of Messrs. E. J Coles and Co., exhibited a new and interesting vehicle of Swiss construction. As will be seen from Fig. 68, the frame is of tubular construction; the single-cylinder engine is 110 mm. diameter by 120 mm. stroke, and develops 8-h.p. The inlet valve is mechanically operated, and is provided with a variable lift device, controlled both by a hand lever and by the foot. A special form of carburettor is employed, having an inlet to permit the engine to take in an additional supply of air when running at high speeds. Three speeds forward and a reverse are provided, the drive being by cardan shaft and bevel gear on to a live axle. Altogether, the new Coles-Wyss car contains many good points, and is worthy of the careful examination of those seeking a vehicle at a relatively low price. A more powerful car on similar lines, fitted with a two-cylinder 9-11-h.p. engine, is also being introduced.

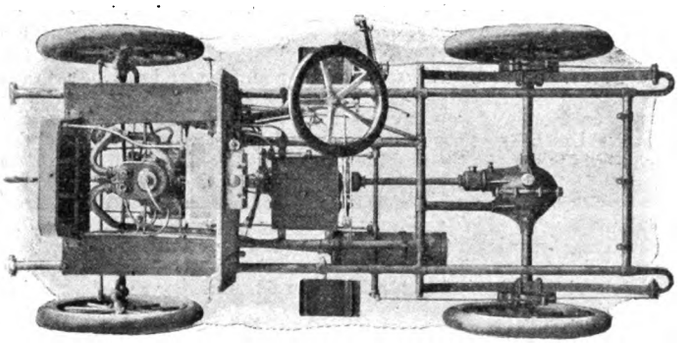


Fig. 68.—Chassis of Coles-Wyss 8-h.p. Car.

Messrs. H. M. Hobson, Limited, had a varied exhibit, prominent among which was the 24-30-h.p. four-cylinder *chassis* constructed by La Societé La Locomotrice of Liege, under licence from the Rochet-Schneider Company. While it is unnecessary to describe the details at length, we may mention that the Belgian production compares most favourably with that of the Lyons concern, and that it attracted considerable attention at the Show. Fig. 70 illustrates the 16-h.p. "Dasse" car shown by this company. The motive power is supplied by a two-cylinder engine with mechanically-operated inlet valves. The water circulating pump is attached to the cylinders and is driven by the same belt as operates the fan behind the special tubular radiator. The car is of the gear-driven live axle type, and has three speeds forward and a reverse. Peugeot 2½-h.p. motor-bicycles, the "Perfecta" non-skidding band, and the "Pognon" sparking plug were other exhibits of interest at this stand.

In addition to a large 20-24-h.p. four-cylinder car, the Velox Motor Manufacturing Company had on view a little 5-h.p. two-seated car. This is chain-driven throughout, and has two speeds and a reverse. One was fitted with a van body capable of carrying loads up to 2 cwt.

The Brouhot Motor Company of Great Britain, Limited, a new concern formed to introduce the Brouhot cars into this country, exhibited a *chassis* and complete tonneau of this type. The cars are made in size ranging from 12 to 40-h.p. Dealing with the 12-14-h.p. car exhibited, the frame is being made sufficiently large to accommodate a body having side entrances. This is fitted with an engine, the four cylinders of which are cast in two pairs, the cylinders being 90 mm. diameter by 100 mm. stroke, the normal speed being 1,000 revolutions per minute. All the valves, both inlet and exhaust, are mechanically actuated off one cam shaft. The carburettor is Messrs. Brouhot's own design, and provides for the automatic regulation of the air in order to give the correct mixture at any or all speeds. The jet is also so arranged that it can instantly be taken out for cleaning purposes. Pump circulation is adopted in conjunction with a framed ribbed pipe cooler and tank, through which a current of air is drawn by a belt-driven fan. The transmission is by side chains, the drive on the top speed being direct. The governor is adapted to act on a throttle valve, which when entirely closed opens a second valve to allow the engine to draw in cold air. An ingenious form of friction clutch is employed to connect the engine with the gear-box. It consists of a steel band, the outer surface of which is lined with camel-hair belting. The band itself is so arranged that it can be readily detached; it is expanded within the fly-wheel by means of two toggle levers. The countershaft brake is water-cooled, while those in drums on the rear wheels are practically identical in form and action with the clutch. To ensure proper lubrication of the engine each pair of cylinders have their own base chamber. There are other points of interest in the Brouhot cars to which we may return on a later occasion.

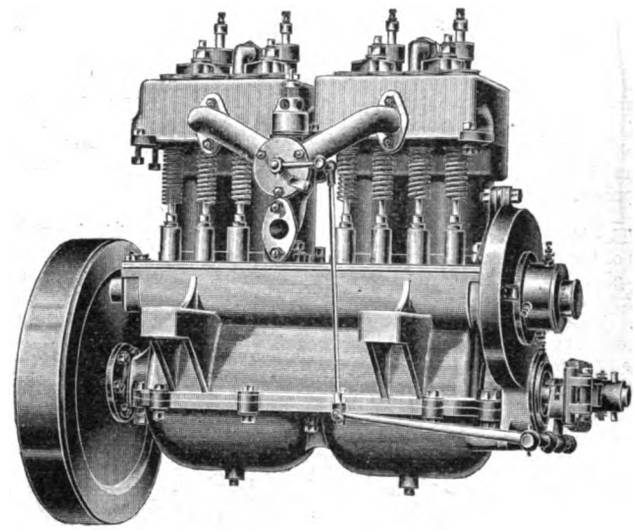


Fig. 69.—The Brouhot Four-Cylinder Engine.

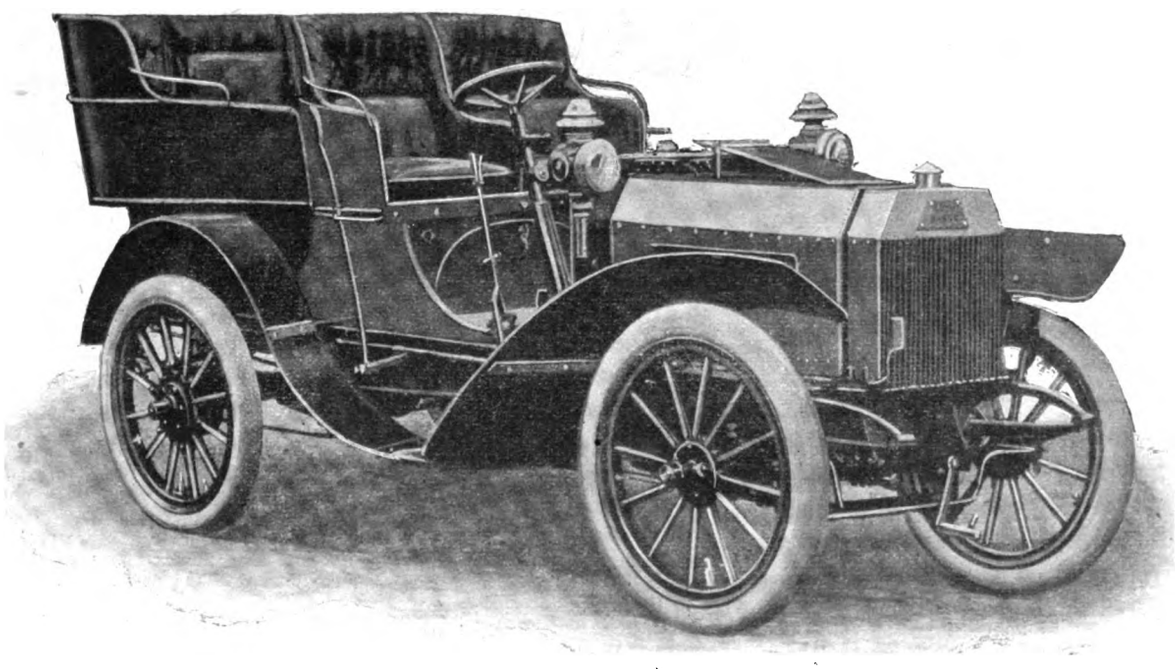


Fig. 70.—The Dasse 16-h.p. Car.

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The Firefly Motor Company is devoting considerable attention to motor delivery vans, and had several examples of these on view. So far as the *chassis* is concerned, these follow the usual lines of gear-driven cars, the gear and various parts, however, having been designed for the special work, and also to enable the vehicles to run on solid tyres. A useful type for drapers is a 6½-h.p. van to carry loads up to 6 cwt. at speeds ranging to fifteen miles per hour. The van to carry 10 cwt. is provided with a 8-9-h.p. engine, while that to carry 25 cwt. has a double-cylinder



Fig. 71.—The "Firefly" 25 cwt. Delivery Van.

motor. The transmission on this vehicle is on the lines of that adopted on the Milnes-Daimler and Chenard-Walcker vehicles—that is to say, the cardan shaft, instead of driving by bevel gear on to a live axle, drives a differential shaft parallel with the fixed axle. The shaft carries at its ends pinions which mesh with internally-toothed wheels attached to the rear road wheels. Either van or open-sided bodies can be fitted to the *chassis*, rendering them suitable for all classes of work. In this connection we may refer to a new device known as a portable "Auto-Elevator" the Firefly Company are introducing. This is arranged to be carried on the vehicle, and is intended for raising heavy goods (up to 15 cwt.) from the ground level to the floor of the vehicle, and consists of a platform raised or lowered by means of a screw or chain worked by the motor while the van is at rest. When not in use the auto-elevator may be folded up and slid underneath the body of the van. Among the pleasure cars exhibited by this company we noticed a 10-h.p. gear-driven vehicle, fitted with a special hansom cab body, with separate seat for the driver, and ample room for luggage.

The exhibit of the Brush Electrical Engineering Company, Limited, comprised examples of the 10-h.p., 14-h.p. and 18-h.p. cars, all chain-driven vehicles. The latter is a new type, having a four-cylinder engine with mechanically-operated inlet valves. The clutch and brake pedals, as well as the hand-brake lever, are all connected up to the throttle valve on the inlet valve. The engine is fitted with Doyle's special valve in connection with the carburettor, an ingenious device, performing three distinct functions, namely, it scavenges the cylinders with cold air during the governing, proportions the mixture at all speeds of the engine, and admits cold air when coasting down hill. Other features of the car are the special ignition wire terminals and a self-centreing clutch between the engine and gear box. The Brush Company have also taken up the construction of public-service vehicles, and had on view a 30-b.h.p. double-deck 'bus to seat thirty passengers. The motive power is supplied by a four-cylinder engine, and is transmitted through a clutch to a change speed gear, the pinions of which are always in mesh, the requisite pair being made to transmit the power by means of clutches. The Brush Company also had on view a light two-seated car known as the Brushmobile (Fig. 72); it is made in both 5-h.p. and 6-h.p. sizes, and is fitted with a single-cylinder horizontal engine, the transmission, steering and general control being on very similar lines to that adopted in the Vauxhall car.

For the 1904 season Les Automobiles Clement, represented in this country by Mr. E. H. Lancaster, are making five types of cars—6½-h.p. single cylinder, 9-11-h.p. double-cylinder, and 10-h.p., 12-16-h.p., and 20-h.p. four cylinder, the largest size having a chain drive. In the others the cardan shaft system of transmission is adopted. The engines have mechanical inlet valves and a special carburettor, in which the automatic regulation of the air is obtained in an exceedingly simple manner, no springs or diaphragm being employed. Special attention has been paid to the brakes, a simple and useful spring device being provided to keep the band off the drum when the brake is not in use. The cars are being made with frames sufficiently long to take bodies with entrance to the rear seats at the sides, some excellent examples of which were on view.

In the "Ludgate" car Mr. J. F. Bentley has a low-priced vehicle, which, for those who do not appreciate the fore-carriage, will be found serviceable. It has a 3½-h.p. water-cooled engine with chain transmission direct from the gear box to the back axle. Two passengers can be carried at a speed well up to the present legal limit.

A 6-h.p. Planet car on the stand of the Automobile Engineering Company provided something of interest for those on the look-out for a popularly-priced car, and the fact that this company will be showing this and other cars fitted with engines of 9-h.p., 12-h.p., and 24-h.p., at the forthcoming exhibition should also be mentioned. The model shown was a two-seated vehicle with a single-cylinder engine having mechanically-operated valves, automatic carburettor, and transmission by a cardan shaft to the live axle. On top speed the drive is direct. Fitted with artillery wheels, pneumatic tyres, and bucket seats, the 6-h.p. Planet car should have considerable vogue during the coming season.

A good display was made by the Imperial Motor Company of 6-h.p., 12-h.p., and 16–20-h.p. cars. These cars are distinguished by great efficiency and are fitted with bodies of admirable finish.

In a side court the Mobile Motor and Engineering Company, Ltd., had a full display of their vehicles, including those of 12–14 and 14–16-h.p., as well as a small 6-h.p. Mobile car of good appearance and moderate price. The larger size cars are fitted with Prunel or De Dion engines. In the 12–14-h.p. silent Mobile car is a double-cylinder Aster engine of the slow running type, making 1,000 revolutions per minute on top speed. The carburettor is a Longuemare, electrical ignition and wipe contact being also fitted. The cooling is effected by a Mercedes pattern radiator. Three speeds and reverse are provided on a single lever.

Mr. Doulas S. Cox made a feature of the Hulbert-Bramley motor-bicycle and the new model of the Cottereau car, the type shown being one of the 12–16-h.p., and described in our report of the Paris *Salon*.

In addition to their automobiles, the General Motor-Car Company exhibited the Fouillaron change-speed gear, by means of which a gradual change of speed can be effected. In this device the driving pulley is keyed to the main shaft, the driven pulley being actuated by a specially-designed steel chain. A cardan shaft transmits the power to the live back axle. To get the reverse it is only necessary to press a pedal placed conveniently for the driver. A 6½-h.p. car with an Aster engine specially designed for the use of doctors was on view, as also a mail van such as the company use in their contract with the G.P.O., and a 30–32-h.p. car with a canopy. This canopy has some special features of construction, being made so that the front window slides in the uprights until it can be swung on the under side of the roof, clear of the steering wheel. A new form of spiral radiator is also being brought out by the General Motor-Car

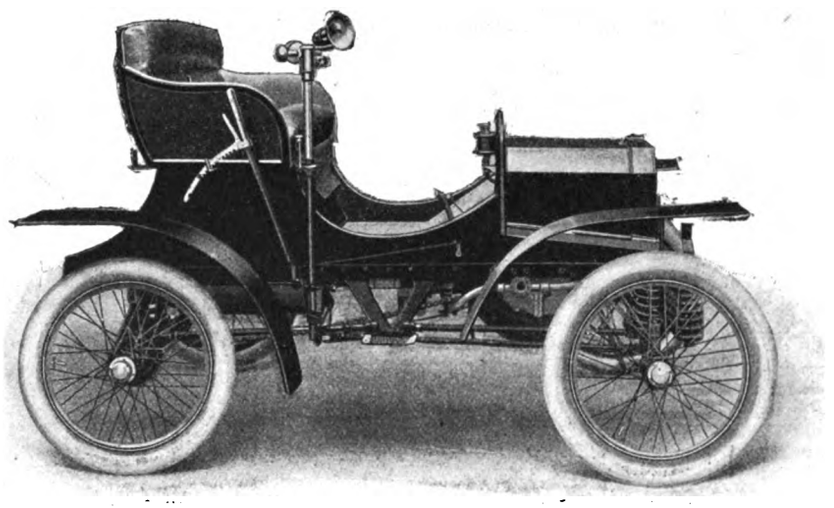


Fig. 72.—The 6-h.p. Brushmobile.

Limited, whose display excited considerable interest during the exhibition.

Mr. Montague Atkinson, who has secured the London agency for the Spyker cars, had on view two excellent specimens of the 24-h.p. four-cylinder cars of this type. These cars are of Dutch construction, and some reference to their details was given in connection with the report of the stand of the Elsworth Automobile Company.

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STEAM VEHICLES.

It is satisfactory to find that attention is still being paid to the steam car, and it is with satisfaction that we record another addition to the list of British-built steam cars in the "Keenelet," built and exhibited by KEENE'S AUTOMOBILE WORKS, LIMITED. It is of 14-h.p., and has the engine set in the front, and the generator in the rear of a steel frame. The generator consists of, approximately, 300 feet of steel coils, arranged in ten layers; each layer slides in a tray, and can be withdrawn without disturbing any of the others; each set of coils being joined to the next by a special clamp joint, so arranged that it can be undone, in case of necessity, in about thirty seconds. The fire, which uses common petroleum, is silent in action, and is stated to be absolutely reliable so long as the single

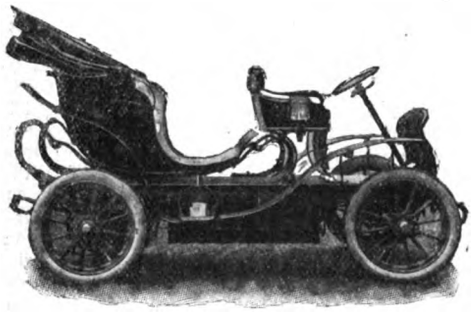


Fig. 73.—The Electromobile Co.'s C.-Spring Victoria. (See page 988 ante).

jet is kept reasonably clean; this jet is very accessible, and can be cleaned through at any time in about one minute. Close attention has been given to the cooling of the seats; there is a space of about 8 in. beneath the top of the funnel and the bottom of the seat; over this a volume of slightly compressed air is constantly travelling, so that the seats never become hot even after the longest run. The fire is fitted with a pilot light, so arranged that the car may be left standing for twenty-four hours, if necessary, and be ready for use at any time. The engine is of the single vertical cylinder single-acting trunk type. Steam is admitted by a special form of cam gear, which gives any cut off from zero right up to full stroke, the cylinder being 3 in. diameter by 4 in. stroke, and the normal speed 400 revolutions per minute. By sliding the cam shaft, a second set of cams is brought into operation for reversing the motor. The exhaust and inlet valves are of the mushroom type. The water and fuel feed, as well as the lubrication, is all controlled by the engine, the feed varying with the speed of the motor; the pumps are spur-driven from the motor shaft, and have a ratio of 3 to 1. The water pump and the paraffin pump are set opposite each other, and are actuated by a sliding die, a method which has the advantage of silence in running, and also has very few parts. Attached to the main spindle is a worm and wheel which operates a slow-running pump which passes lubricant to all the necessary parts of the engine. By means of a clutch, the pumps can be disconnected from the engine and worked by hand at any time, to ascertain if they are in perfect working order. Sufficient fuel and water is carried for a run of 150 miles, and the paraffin and the water tanks are filled from the outside of the car by means of a special permanently-fixed swivelling funnel. The mere act of withdrawing this funnel from its cover opens the connection to the tanks, and allows of them being filled. Furthermore, the funnel is fitted with a suitable gauze, so that the whole of the water is strained before entering the tanks. The power from the motor is transmitted in the first place to the rear wheels through a large diameter cone clutch and bevel gearing, which enables the engine to be freed from the car when turning corners or descending hills. When starting from quite cold, the clutch is disconnected and the engine is allowed to run for a short time; this gets the cylinder thoroughly hot, blows out all condensed steam and allows the pumps to start full of water, and, consequently, the car will start away at full power when required. No hand pumping is needed to start the car. The speed is controlled mainly by a pedal, actuated by the left foot and acting on the throttle. There is further provided a hand regulator in connection with the cam gear. When stopping for a short time in traffic or elsewhere, it is only necessary to depress this lever, which cuts the fire down and leaves the motor running at about thirty to fifty revolutions per minute. Although paraffin is used as fuel, the vaporiser is first made hot by petrol, one small handle on the dashboard turning on either fuel or shutting off both. Sufficient steam can be raised to run the car within seven minutes of lighting the fire; there is always enough water in the generator to give a pressure of 300 lbs. per sq. in., the usual working pressure being about 350 lbs. The brake-work fitted to the car is of metal throughout, and is of the internal expanding type, and holding with equal facility either backwards or forwards. The carriage body resembles a round-backed tonneau, but instead of entering through the back, access is gained to the rear seats by two side doors. There are many features of interest in the "Keenelet" steam car, which, however, cannot well be described without drawings.

Another additio to the list of heavy steam vehicle builders was the BRISTOL WAGON AND CARRIAGE WORKS COMPANY, LIMITED, who showed a 4-ton steam wagon with low sides, fitted with horizontal two-cylinder compound engine, the working parts and gearing being enclosed in oil-tight cases. The boiler is of the water-tube type, arranged for a working pressure of 200 lbs. per square inch. Gas coke is used as fuel. The vehicle is gear driven throughout, two speeds being provided. We hope to illustrate the vehicle in a subsequent issue. Two vehicles were shown by the THORNYCROFT STEAM WAGON COMPANY, one a 4-ton wagon for municipal purposes, the body being arranged so that not only can it be tipped, but entirely removed, and a watering-cart body fitted in its place, and a 4-ton wagon for general industrial purposes. Among the recent improvements in these vehicles are an arrangement for readily dropping out the fire bars, and a new form of valve for the engine, the latter being claimed to have not only a longer life than the old type, but to be more economical.

Another 5-ton steam wagon was that of MESSRS. E. S. HINDLEY AND SONS. This is a gear-driven vehicle, fitted with a vertical fire-tube boiler in the front part of the frame. The working steam pressure is 228 lbs. per square inch. The engine is of the compound and reversing type, running in an oil bath. The makers claim their wagon to be capable of carrying its full load up a gradient of one in eight on a good road. MESSRS. HALL AND COMPANY, of Tonbridge, displayed one of the 5-ton Foden steam wagons which have already been described and illustrated in the *Journal*. The one on view was designed for use on large estates, and represented a type which has proved very successful in practice.

GENERAL EXHIBITS.

MESSRS. W. AND F. THORN had a representative selection of their motor-car bodies. Rightly recognising the growing popularity of the sider entrance car, they have designed a good double phaeton motor body with side doors, and fitted with canopy and wind shield. Natural wood bodies are a special line with this firm, whose study of the requirements of motor-car builders and owners has resulted in their vehicles attaining special distinction. At the stand of the A. G. MULLINER MOTOR BODY COMPANY, LIMITED, we had an opportunity of inspecting the new "Planish steel" mudguards, which are capable of taking any colour, and should become popular in the trade. A good selection of single and double artillery motor wheels was also shown by this company.

Space precludes a just appreciation of all the excellent coachbuilding exhibited at the Show. MESSRS. LAURIE AND MARNER had a bold show, their vehicles being of good design and effective colouring. On another stand MESSRS. HENRY WHITLOCK, LIMITED, demonstrated their interest in motor-car work as exemplified in the Whitlock-Aster cars of 10, 12, 14, 20, and 24-h.p. This is a combination of good engineering practice with splendid carriage work. Then at the stand of the Elswick Motors, MESSRS. BARKER & Co. had a selection of their work, proving that, though somewhat loth at first to leave the orthodox ways of the carriage builder, they are now catering for the automobile industry with every prospect of success.

Some idea of the business given to the motor-lamp trade by the recent legislation might be gained from the stand of MESSRS. SALSBURY AND SON, Limited, whose selection of tail lamps, &c., was both varied and exhaustive. The "Salsbury Flario" lamps as well as the "Salsbury Dietz" lamps were shown in large numbers, while many accessories in the way of coils, accumulators, horns, voltmeters, densimeters, automobile baskets, &c., were on view.

A good display of "Bleriot" lamps was made by MESSRS. WELDHEN AND BLERIOT, who called special notice to their self-contained lamps using

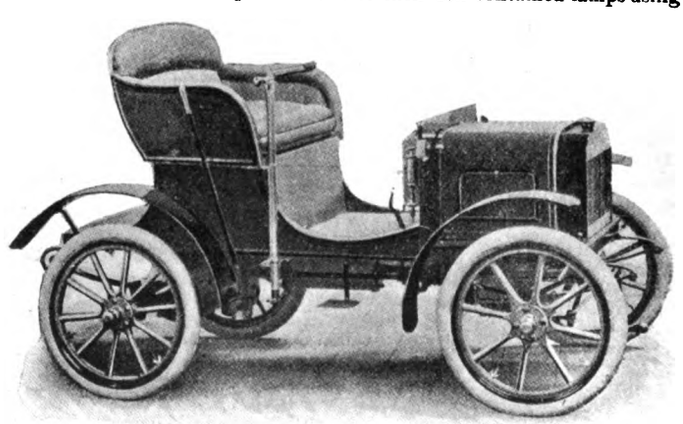


Fig. 74.—The "Vulcan" 6-h.p. Car. (See page 1022 last issue).

cartridges—a clean and effective method of generating acetylene. A good type is that with the bull's eye inserted in the centre of the ordinary glass front, thus securing a searching light ahead, while giving good illumination on all sides. The parts of all these lamps are detachable, ensuring facility for cleaning, &c. New tail lamps in accordance with the regulations now being enforced were also shown, and the useful display included a combined side lamp and horn, which attracted many visitors to Messrs. Weldhen and Bleriot's display.

MESSRS. JOSEPH LUCAS, Limited, had a large show of their "King of the Road" head and back lights, the latter being fitted with white side glass. The features of these have been often referred to in these columns. Lamp brackets for the various lamps were also on view, and several improved patterns were shown in connection with the firm's back

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lights to meet the requirements of the Motor-car Act. Horns and their fixings were another important section of the display, which also included steering wheels of the flat and dished patterns, funnels, petrol squirts, and the hundred and one "motoralities" which go to make up the needs of automobilism.

COLLIER TYRES are always a notable feature of the tyre section of motor-car exhibitions, and their display was no exception to the rule. Tyres were shown which had done actual service, thus giving evidence of their reliability. The point of novelty on the stand was the new plan of attachment, which should be carefully observed by motorists visiting the exhibition at the Agricultural Hall, where a good display will be made by the COLLIER TYRE COMPANY. The new flange attachment enables the tyre to be removed in a few minutes, and will be appreciated by all practical people. The Grappler tyre was again to the fore on the stand of the HYDE RUBBER WORKS, LTD.

A capital assortment of tyre pumps was shown by MESSRS. ROSS, COURTNEY AND CO., LTD., the novelty on the stand being the three decker tyre pump, which has a compound action so arranged that the compressed air assists the operation of pumping. This enables the work of filling motor-tyres to be accomplished quickly to the highest pressure required with a minimum amount of labour. The arrangement is very simple. They also exhibited a large variety of foot pumps for inflating pneumatic tyres, lubricating oil pumps for motor-cycles, and motor-cars of various patterns. Sight feed lubricators for motor-cars, filler caps and collars, throttle valves, unions, levers, petrol gauges, cocks, and all kinds of screws, terminals, turned parts, machined parts and stampings for the various requirements of the motor trade were also displayed.

THE COSI CAR COMPANY, LTD., showed a useful attachment for fixing to a motor-cycle, so that it can be transformed into a small car. The idea is one that has been frequently advocated, and as it has already been described in our columns, further description is unnecessary now.

The Keystone belt and pulley brought out by MESSRS. JOHN TULLIS, LTD., was on view. This is the invention of Mr. H. W. Stones, of Lincoln. The belt is of hide rivetted with copper, so that each strip of hide has its share of the work, while the grip is mainly on the flat slotted surface connecting the two flanges.

MR. C. J. PAFFARD'S stand was a centre of attraction by reason of the presence of Dr. Winter's speed indicators, which present several good points, including a combination of the counting of the revolutions as in a cyclometer and the measuring of time. The rotations of the car wheel are communicated to a wheel in the instrument (but at a greatly reduced speed) by means of worm gearing and bevelled cogs; the amount of rotation of the indicator wheel in a given time shows, therefore, the rate at which the car wheel is revolving. The revolutions are counted by a simple piece of clockwork, consisting of only three spindles—the mainspring spindle, escapement wheel spindle, and balance wheel spindle. This clockwork is automatically wound up by the movement of the car, and as it unwinds it measures off the periods of the two seconds during which the revolutions of the car wheel are communicated through the indicator spindle to the hand on the dial.

Seddon's motor tyres were shown by the BRITISH MOTOR TYRE COMPANY. These are made from red rubber, and in the construction of the tyres each strand or cord is dealt with separately by unvulcanised rubber being forced between each. They are made taut under great pressure in order to take their equal proportion of the strain, with the result that several layers of the cord are practically moulded into one. The tyre is self-sealing, and has attracted considerable attention from practical motorists.

The Reilloc padded solid tyre was shown to us in section on one of the stands by MR. ARTHUR COLLIER, and its presence at the forthcoming Motor-car Show will prove a minor feature of some interest. It is constructed in two parts, there being an outer cover and an inner rubber pad. This outer cover is detachable, and is secured to the wheel by fabric of Egyptian cotton, much as a pneumatic cover is held. The inner pad is made of rubber, taking the place of the ordinary air tube, so that when the tyre is worn down only the outer cover will need renewal, thus saving one-half the cost of rubber when new tyres are needed, and even the outer cover can be re-treaded. There is no waste of rubber inside the rim, and all the rubber is utilised for cushioning the car. A thick steel rod, fitted with left and right hand screw threads, is united by a strong nut, thus enabling the outer cover to be pulled tightly down on to the rubber pad, forming a good adjustable fastening.

The "Bridge" accumulators and high-speed trembler coils were shown by the ELEPHANT CHEMICAL COMPANY.

MESSRS. W. R. MCTAGGART, LTD., had a stand where a representative of the Streatham Motor Company showed us the new model of the F. N. motor-bicycle. This has a 2¾-h.p. motor in a vertical position, somewhat advanced, so as to increase the distance between the pulley and the rear wheel. A special patented pattern of the F.N. carburettor has been fitted. This is of the constant level type, giving uniformly good results under all conditions. A new contact breaker is now fitted, the new arrangement requiring only one terminal on the exterior to attach the accumulator wire. The reservoir holds sufficient spirit for a trip of about 150 miles, the accumulator furnishing enough current for 600 miles. A new design of Bowden brake is now provided on the rim of the rear wheel. In lubrication a new arrangement is being introduced, enabling the cyclist to lubricate the motor, whilst riding, by moving a simple lever, and to thoroughly lubricate the piston when the motor is running slowly and needs an abundant lubrication. At this stand was a good type of fore-carriage, notable by reason of the ease with which it can be steered, and the efficient way in which the current of air beneath is directed on to the engine.

MESSRS. G. STRAUSS AND COMPANY, LTD., the representatives of the Aix-la-Chapelle Steel Works, had a display of the Fafnir engines, change speed gears, and rear axles.

The "Giant" tyre was shown by the SHREWSBURY AND CHALLINER TYRE COMPANY, LTD., the idea being to secure a tyre capable of carrying heavy motor wheels. The company also exhibited their automatically interlocking artillery wheels, the spokes of which are designed to overcome the liability of working loose, etc., the same being recessed and interlocked in such a manner as to make a perfectly rigid centre, independent of the metal hubs.

The motor lawn-mowers of MESSRS. RANSOMES, SIMS AND JEFFERIES, LIMITED, were shown in various sizes, notably 42 in., 30 in., and 24 in., the latter being the smallest size. It is driven by a 2¾-h.p. engine, and with its help an intelligent gardener can easily get over two to three acres a day. The 30 in. machine has a 3½-h.p. motor. The power is conveyed to the cylinder by chain gear through a reducing arrangement, which is furnished with a simple gear for starting and stopping the machine quite independently of the motor. There is also a separate clutch for putting the cutting cylinder out of gear when it is not required for cutting. The largest machine has a 6-h.p. petrol motor, chain gear being utilised in connection with the power transmission. The driver sits on a spring seat behind the machine, his weight being carried by a pair of steering rollers. He has control over every part of the machine, the handles and lever for starting, stopping, steering, and emptying the grass-box being arranged so as to be easily within reach from the seat. The height of cut can be easily altered. When not required as a grass cutter, the machine can be used as a roller; and when needed for heavy rolling the cutting cylinder can be removed and extra weight easily added by separate weights; 7 cwt. or less can be added in this way. A pulley can be attached for using the motor for other purposes.

THE TONI TYRES, LTD., exhibited pneumatic tyres of that name, the construction of which is apparent from the accompanying illustration. The tyre consists of a cover and inner tube, the main feature being the method of attachment. This is effected without any bolts passing through any part of the tyre. The square beads are held firmly at every point round the wheel by pressure of the flanges, and it is claimed that there is no possibility of any creeping or displacement of the tyre. The pressure of the flanges on the beads is obtained by a series of bolts through the flanges and the intervening felloe without touching the tyre. The flanges can easily be taken off, and the tyre and inner tube removed within a few minutes, by simply unscrewing the nuts on the ends of the bolts. The replacing of the tyre and the flanges can also be easily accomplished on a properly constructed wheel, as all the parts of the flanges are interchangeable.

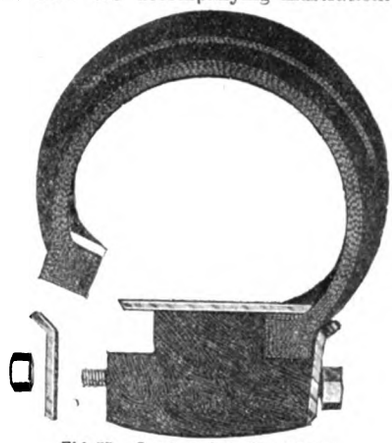


Fig. 75. Section of the Toni Tyre.

MESSRS. PHILIPP AND COMPANY, who are taking up several English agencies in addition to those with which they have been familiarly connected showed a new engine made by Messrs. Lloyd and Plaister. On their stand we also noticed the A.B. axle with ball bearings, and the M.A.B. gear for chain or cardan drive, all of which are fitted with ball bearings. A good assortment of lubricators for motor-cars and motor-cycles was shown, and Messrs. Phillip and Company made ample demonstration of their capacity to cater for the trade.

MESSRS. CASSWELL, LTD., showed a patent two-speed gear box, giving also a free engine for motor-cycles, tricars, etc. They also had a good display of the Imperi Rex motor-cycles, Rex tricars, Trimos, fore-carriages, Minerva engines, Abingdon motor-cycle fittings and frames. A new mica sparking plug was also shown. There was also seen Dick's Balata motor belt (Messrs. Casswell, Ltd., being their sole London agents), and, in fact, every up-to-date motor requisite was on view.

At the stand of the CLIPPER PNEUMATIC TYRE COMPANY were the "Clipper" motor tyres, the "Clipper-Continental" motor tyres, and the "Clipper-Michelin" motor tyres. Special interest was shown in the new patent "Clipper-Continental" motor tyre, with flat tread.

MESSRS. ALFRED HERBERT, LIMITED, Coventry, had a good display of their machine tools, such as are being adopted by most of the leading automobile makers in the country. Of special interest were the No. 6 capstan lathe and the combination turret lathe, the latter being extensively employed for dealing with the heavier parts of automobiles.

A collection of accumulators of all sizes was shown by the SOLA ACCUMULATOR COMPANY.

LEWIS'S, of Liverpool, came into prominence at the show with a good selection of motor clothing, attractive items in their display being jackets, overcoats, breeches, caps, etc., in leather, waterproof tweed, and other

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cloths. Fur coats in Russian foal, seal, cheyrette, reindeer, etc., were also included on their stand, the exhibit being completed by a large assortment of accessories, lamps, horns, etc.

In addition to the Royal Sirdar-Buffer tyres, the SIRDAR RUBBER COMPANY exhibited twin tyres for public service motor-omnibuses weighing up to 6½ tons. They also showed their special wheels made of cleft oak, built for voiturettes, touring cars, and omnibuses, wire wheels and carriage wheels of all sizes, and Sirdar pneumatic tyre covers compressed both laterally and longitudinally, so that the cuts in any direction close up. There was also a Sirdar pneumatic tube, so constructed that it cannot get nipped by the cover when fitting the tyre. When inflated, this tube is under compression, so that it is very difficult to puncture.

The DININ accumulators for cars and motor-cycles were an attractive display, and attention was drawn to several excellent batteries for lighting the lamps of carriages, etc. These well-known accumulators have long ago proved their reliability. In addition to accumulators, M. Dinin also exhibited charging boards for recharging accumulators, voltmeters, amperemeters, and the like. We may add that the business is looked after by M. A. Godin, so far as this country is concerned.

"A thousand and one things"—to quote a familiar phrase—were shown by MESSRS. A. W. GAMAGE, LTD., whose representative collection was a liberal education as to what a motorist really wants—as well as many things which he likes to possess. In lamps, a burning question just now with motorists, was an infinite variety, a three-cornered pattern being prominent. Back lights for illuminating numbers were also on view in comprehensive variety. The Duplex tyre lever, illustrated herewith, was another speciality. The new motor-bicycle on view had a 3-h.p. engine instead of that of 2½-h.p. hitherto fitted. It is now fitted with a trembler coil, exhaust lift, and throttle, otherwise retaining the well-known features of this popular machine. A pump actuated horn shown by Messrs. Gamage will be appreciated by those who have had trouble with the bulb pattern. Several new spanners and similar tools were on view, and drivers of cars should be interested in the licence holder brought out by the firm. This is something like the ordinary season ticket case, with a celluloid face, so that the licence is always ready for inspection, and need never get into

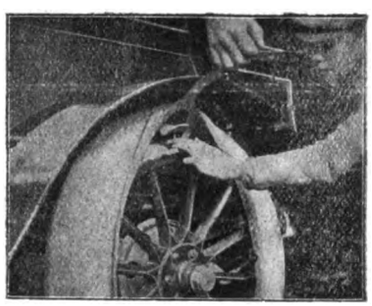


Fig. 176.—Gamage's Tyre Lever.

a dirty condition. One of the neatest devices on the stand was the "Cossor" petrol gauge and test, which affords an accurate and easy means of ascertaining both the quantity and density of the petrol in the tank of any car or motor-cycle. By a simple arrangement the gauge automatically empties itself when shut off from the tank. The float is clearly marked with three red lines, which indicate the best density for summer and winter, as well as the limit. We may add that Messrs. A. W. Gamage, Ltd., did not exhibit cars, reserving their new types for the 1904 season for the exhibition at the Agricultural Hall.

MESSRS. J. G. STATTER AND CO. made a good show of their Lampe de Luxe, which is now made in three types. One of these gives an approximately parallel beam of light; the second has a fixed mirror, and also a device which, on pressing a button, applies a shade according to the suggestion made by several county authorities. The third has a mirror which can be set to give either a parallel or a divergent beam, the movement being controlled by a Bowden cord actuated from the steering pillar on the dashboard. Thus the driver can have the command of a parallel light for fast driving, or a divergent beam for driving in traffic. Messrs. Statter and Co.'s headlight is charged by means of a cartridge which, when exhausted, is thrown away, and another one inserted. This system has been under trial for nearly twelve months with satisfactory results. The water contained in the lamp is not fouled in any way, except so far as it may be said to be fouled by the absorption of acetylene gas. No lime, however, is allowed to escape from the carbide, and the water remains clear. If a quantity of it be evaporated no deposit is left. This is important to automobilists, in case of an accidental splash on the paint of their car. It is moreover useful, since it is not necessary to renew the water in the lamp, but merely to add a little from time to time to make up for that lost in combining with the carbide calcium. The cartridges are hermetically sealed, but may be quickly unsealed for use. The firm also showed their jacks for light and heavy cars.

At the stand of the EAST LONDON RUBBER COMPANY the "Kerry" motor-bicycle was a conspicuous exhibit. This, with its 2¼-h.p. engine placed in the vertical position, is becoming a popular machine. Transmission is by a V belt, and there is an improvement in placing the switch on the handle-bar, thus doing away with the switch handle. The company are also bringing out a 2¾-h.p. model de luxe and a 3½-h.p. machine for racing purposes. Fore and side cars were also shown at this stand.

The B.S.T. dry storage battery was shown by the BRITISH STEAM TRACTION SYNDICATE, LIMITED, this being, claimed to work equally well in any position, and adapted for either lighting or ignition work. The battery contains no free acid, and for the plates a special form has been adopted. The active material is firmly keyed to the plates, which can be charged at an unusually high rate. They have also the properties of lightness and durability. The B.S.T. battery is charged in the usual way, from a dynamo, lighting main or primary battery, and is made in various sizes from 8 to 30 ampere hours for carriage lighting, or they will give 25 per cent. more on ignition work.

The "living pictures" which MESSRS. ALFRED DUNHILL, LIMITED, have introduced into their displays at the exhibition have become a popular feature of the tailors' corner, and they managed to introduce a novelty into their display. Instead of the ordinary "dummies," men and women were attired in motorists' garb, and, seated on a car, gave visitors a good idea of the actual appearance of new costumes on people when in motion. Among the novelties shown were a shower-proof motor-cyclist's jacket, a double-breasted garment of covert coat length, with a deep extension storm collar, the sleeves being fitted with the usual windcuffs. A good style of lady's waterproof motor-coat was also deserving of notice, giving a much smarter appearance than the ordinary waterproof. The stand of the collar is finished with two straps of elastic, one passing through an opening on the opposite side of the collar, terminating at the back of the neck with a large hook and eye. Thus the collar is held close, and it is impossible for rain to penetrate. A new combination of fur storm collar, cape, stole, and muff was another novelty; while the combination of cap and goggles is an idea that will commend itself to racing men. Included in the largest and most comprehensive assortment of motorists' goods were leather coats, jackets, overalls, oilskins, fur outfits, skin coats, waterproof knee aprons, and combined leggings and gaiters. In accessories the display was as full as in the tailoring department.

MESSRS. LOWE, BEVAN AND CO.'S display was complete in all kinds of motor body accessories, canopy fittings, spring clips, door handles, etc. Some good designs of door furniture were comprised in the display, as well as a new design in carriage steps, particularly adapted for motor-cars. "Guineo," a new metal for motor-fittings, which is claimed to have the advantage of being non-corrosive; motor-rugs, aprons, lamps, &c., completed an interesting display.

A motor-launch with a 4-h.p. engine was shown by the GROSVENOR ENGINEERING WORKS, which is entering into the study of motors for launch purposes with much chance of success. MESSRS. SIMPSON, STRICKLAND AND CO., LIMITED, were also represented in the marine motor department, a 30-ft. yacht's launch being the leading feature on their stand.

M. ANDRE A. GODIN had a display of the "Ducellier" lamps for automobiles. These are made in all sizes for various types of cars, the illuminating power being paraffin, acetylene or electricity. New projectors and headlights for large cars were also shown, as well as some new automatic generators, which motorists should examine for themselves at the forthcoming show. A good assortment of horns of new shapes and designs completed M. Godin's exhibit.

A good display of engines, gears, coils, radiators, axles, lubricators, etc., was made by the BEGBIE MANUFACTURING COMPANY, LTD., who will also be prominent at the forthcoming show at the Agricultural Hall. After being shown at this exhibition, many of the articles will be shipped directly to the St. Louis Exhibition. Among the exhibits were the "Aster" engine, fitted with mechanically-operated valves. These are made in 10–12, 14, 16–20, 24, and 30-h.p. sizes, the three latter being of the four-cylinder type. The "Aster" three speed and reverse gears for chain drive, and supplied complete with differential and clutch, were also shown. On the stand was a complete *chassis* such as the Begbie Company supply fitted with Aster engines of 10, 12, 14 or 20-h.p. In Begbie-Audin radiators was a good selection, including the new type thermo-syphon radiators, all being characterised by good cooling properties, combined with lightness. Water-circulating pumps, Longuemare carburettors, coils, lubricators, etc., were also shown, as well as the Begbie-Oleo sparking plug, the advantages of which are that it is made very short, and of thick porcelain. The interior of the porcelain is shaped so as to prevent fouling. There was also displayed the Begbie-Aster motor-launch set—a department to which great attention is being given. These sets are supplied in 6, 8, 10, 12, 16 and 24-h.p.

Two splendidly-made *chassis* of respectively 15 and 25-h.p. were to be seen at the stand of MESSRS. CHARRON, GIRARDOT AND VOIGT. The 15-h.p. car is on similar lines to last year's models, with the exception of a number of detail improvements, these including the new ball-bearing axle and an improved radiator with fan. The 25-h.p. car is a new model. The frame consists of a square steel tube filled with wood. In addition to the usual springs, a transverse spring is provided at the rear. The motor comprises four cylinders with mechanically-operated inlet valves. In place of the steel cylinders of last year, separate cast cylinders are now employed. They are, however, of special design, having openings in the side closed by removable bronze plates, which not only allow the engine to be built on a smaller crank chamber, but also permit of access to the water jackets. The inlet valves are driven off the same cam shaft as the exhaust valves, with which they are interchangeable; the crank shaft of this engine runs on ball bearings. The gear box, which gives four speeds and reverse, with direct drive on the fourth, has been newly designed; in it ball bearings are utilised. A new design of exhaust box adds to the silent running of the car.

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PNEUMATIC TYRES.

By J. D. Siddeley.

A slight knowledge of the manufacture of the pneumatic tyre must be of advantage to the owner of a car, and thereby, incidentally, of pneumatic tyres, to enable him to, at all times, get the best results from the use of his car. It has been my experience that a certain proportion of tyre troubles could have been avoided had the owner of the car been conversant with certain elementary principles of tyre construction. The two important problems before the tyre manufacturer, apart altogether from the many incidental details, are, primarily, to manufacture a casing (this being the technical expression for the canvas or air-restraining portion of the tyre) which shall in all ways satisfactorily accomplish the duties it is called upon to perform; and, secondly, to so blend a mixture of india-rubber which, when vulcanised, will ensure the india-rubber and the canvas becoming homogeneous, and, at the same time, be capable of withstanding the friction created during the running of the car ensuing from the driving effort.

Dealing first with the casing, this is composed of cotton cloth, made of long fibre yarn. For this purpose the quality known as "Sea Island" is most favoured, this having the longest staple of any known cotton yarn, and therefore being expensive. By "staple" is meant the capacity to which the fibre can be drawn out. Next in favour comes Egyptian yarn, which runs the Sea Island variety very close for length of staple, while many tyre manufacturers contend that it gives more satisfactory results, on account of being slightly tougher, and therefore capable of withstanding greater strains. In the early days of tyre manufacture linen was used for this purpose, as being the stronger; but it was discovered that what was required was not mere strength, but flexibility, linen casings invariably cracking at the point of flexion, on account of the internal bending strain of the tyre. This point occurs a little above the halfway point on the walls of the tyre. If you look at the tyres on a car you will see a slight flattening out, and a sharper bend as the tyre comes round the point where it is in contact with the road to the walls. That point is the point of danger in all pneumatic tyres, for there is a constant saw-like action going on there. The greatest care is required in preparing the cloth before it can be made into the casing, as it is absolutely essential that this should be quite dry; otherwise, in the process of vulcanisation the heat required to vulcanise the tyre tends to convert any moisture it may contain into steam, thus preventing the various folds of cloth uniting properly. The cloth being dry, it has first to go through the frictioning process. This consists of thoroughly impregnating the cloth with rubber solution, this solution being naturally of a vulcanising nature. The canvas being spread, it is then cut into diagonal strips—that is to say, strips of tyre lengths which have been cut across the threads at, practically, an angle of 45 deg. This plan is followed to enable the canvas to adapt itself to the bridge shape—in fact, it is regarded as a practical impossibility to get the necessary amount of shape on a tyre made with the canvas cut quite straight. A further advantage in cutting the canvas in this particular direction is obtained in that it is found that the canvas cut in this manner prevents the tyre rolling from side to side when fitted to the wheel. If a tyre were made with the canvas cut on the straight, it would not matter how tightly inflated it might be, it would still roll from side to side, and at the same time there would be a considerably greater loss of power. In the case of canvas cut diagonally, we have short strands anchored on opposite sides of the rim and tangentially, and so with a direct resistance to side-pull, but with a straight cut canvas there would be no such anchoring, and every strand would be free to move from side to side. A pronounced difficulty in connection with this class of work is that we have so much more circumference to deal with in the tread than we have at the sides. The canvas has to be stretched on the tread, and consequently wrinkles, which develop at the sides, have to be smoothed out as far as possible to make a proper tyre. A further advantage in connection with the construction arises, in that at the bend (I am speaking now of the ordinary beaded-edge tyre), where the greatest wrenching strain arises, the cloth is in its normal state, and better able to withstand the strain which arises at that point. In addition to the difficulty in connection with this portion of the manufacture of the casing, the complicated process of forming the bead of the cover is done in the same operation. Upon the regularity of the bead and its being shaped correctly and at even distance from edge to edge throughout the tyre, a good deal of the durability of the tyre—certainly, its powers to stay on the rim when inflated to an enormous pressure—depends. The bead is composed of hard rubber, run through a die, and is, like all the rubber used in the construction of the tyre, of a vulcanising nature. This beading is so mixed that when subjected to the same heat as the remainder of the casing it becomes harder, and thus gives the necessary stiffness to the bead. The strength of the tyre entirely depends upon the casing, and this is arrived at in the ordinary type of tyre by the numbers of folds of canvas which are incorporated in the manufacture of the casing. Dealing with the standard makes of tyres, the number of folds of canvas are as follows:—Three folds of light cloth for voiturette tyres. Three folds of heavy cloth for light car tyres. Four folds of heavy cloth for ordinary touring car tyres. Five folds of heavy cloth for heavy touring car tyres.

These weights are found to give a sufficient strength of casing to the cover, and not to interfere in too great a degree with the elasticity of the tyre.

Assuming that we have our completed casing, which is ready for receiving the rubber, I will now deal with the manufacture of the rubber. On arrival at an india-rubber factory the blocks of rubber are cut up into small pieces and then carefully boiled to remove all impurities and dirt. After being boiled the small pieces of rubber are dried and sent to the mixing-room. When the raw rubber arrives at the mixing department, sulphur is served out, this being used for vulcanising, and at the same time other ingredients which are used to assist such vulcanising, or to toughen the rubber, or to cheapen its quality by mixing with the pure rubber and vulcanising ingredients a cheaper rubber and other chemical preparations. After being mixed, the rubber is then taken to be calendered. From the calender the rubber goes to the cutters-up, who cut it into the necessary strips and pass it on to the tyre-makers proper. These secure to the casing the necessary thickness or amount of rubber such as may happen to be required for the tyre which they are then engaged in making. The tyre, having passed through these various departments, is now a complete cover, ready for vulcanisation. After the tyre has been cured by being subjected to the necessary heat, the tyre is taken out of the mould, forced off the "former," and is then complete beyond the necessary trimming of the superfluous rubber which will have been forced out of the mould through passages provided for this purpose, and, beyond the necessary amount of handling, is then ready for use. Should, however, the tyre be of the type fitted with a tread, it has to undergo a further cure, this being generally effected in the following manner:—The tread is built up separately, and after being solutioned to the casing, the whole cover is wrapped upon a suitable "former" with canvas—hence the rough marks always seen on the tread of such a tyre, these marks being formed by the canvas wrapped round the cover to secure the tread during the second process of vulcanisation.

Dealing next with the manufacture of inner tubes, these are made on two systems. By one system the mixed india-rubber is put into a machine much resembling a sausage machine, from which the uncured rubber issues through a suitable die in the form of a tube. In the other system, sheets of mixed india-rubber are cut up into strips, put on to tubular mandrils, and joined up by wrapping them with canvas. Probably the manufacture of india-rubber requires the use of more steam than almost any other industry, as it is the heating agent for the curing of all rubber. It is only to firms such as the Continental Company and other houses in an enormous way of business that one can look for developments of this industry. The enormous expense incurred in experimenting, the slightest slip in issuing a batch of tyres in which a mistake has been made in construction, requires generous treatment, and in dealing with such trouble when arising from such mistakes immense resources are needed—only at the command of large companies. Thus far I have dealt only with the ordinary form of tyre, but I feel that it is necessary to speak specially of one tyre of which we have heard a good deal in the last few months—I refer to the Palmer cord tyre. There is no doubt in my mind that a tyre of this construction will be less open to the attacks of one of the great enemies of motor tyres—friction—than the ordinary type, for the simple reason that there are only two layers between which the friction can arise, instead of four or five. As an item of interest some experiments have shown that the heat developed in a tyre which has been running for two or three hours on the road may reach as high as 185 deg. Fahr. A further point which must demand close attention until we have arrived at a satisfactory solution to the problem is the provision of an effective non-slipper and protector. While I am speaking the "Concours d'Antiderapants" is being carried out across the Channel, and the entries for this show that the tendency is to look to iron or steel mingled with leather or rubber, or both, to provide the effective non-slipper; but we must not forget that in all such attempts we have to face the effect of damp on the tyres, and the rusting of their iron immersions or attachments.

I desire to give a few hints to motorists in general, which may perhaps be of some little value in selecting their tyres. Taking, first, the covers, do not be led away with the idea that many folds of canvas necessarily means strength. Secondly, beware of the tyre having wrinkles on the inside of the cover. Thirdly, never purchase tyres having fat edges—that is to say, in which the lips bedding in the rim do not slope away to a knife edge. Regarding tubes, the endless variety are always uncertain. Under the very best manufacture there must be thick and thin patches, and this is their vital defect. I have a personal preference for red tubes instead of grey ones, solely because with the red tube one can see at a glance whether this has been nipped in any way in attaching the tyre to the rim. Any other pronounced colour would serve equally well, save that it could only be produced by using a pigment in the rubber, while red and grey rubber are produced by natural vulcanising agents. To answer a common question, I may also add that there is no difference whatever between the qualities and properties of red and grey rubber. Finally, with regard to the use of the tyres, I strongly advise every motorist to stop and repair any serious cut in his tyres immediately he notices it, even if this be at some personal inconvenience. I also advise everyone to carry with him a supply of rubber and canvas gaiters.

* From a paper read at the Automobile Club on February 25th, 1904.

LICENCE ENDORSED.

Sidney Keeble, driver to an officer at Shorncliffe, was, at Sevenoaks Police-court, fined 10s. for recklessly driving a motor-car through Sevenoaks High Street, on February 1st. The defendant travelled at an estimated

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speed of from fourteen to sixteen miles, attempting to pass between two vans, one of which was overturned and the occupants were injured. The magistrates considered the case a very bad one, and endorsed the driver's certificate.

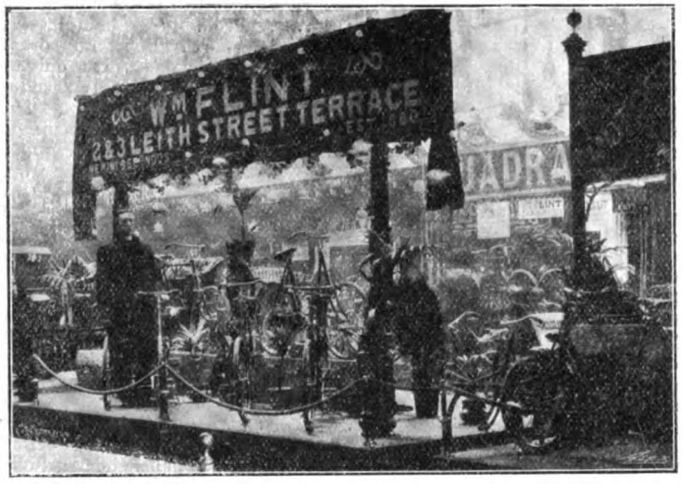
ENTRIES FOR SIDE-SLIP COMPETITION.

THE following firms and gentlemen have submitted entries for this competition to the A.C.G.B.I.:—

Mr. Mark Vivian.
The Wilkinson Tyre and Tread Company.
The Continental Caoutchouc and Gutta Percha Company.
Mr. Alexander Nicholson.
Commander Chas. T. Scott.
Messrs. Rourke and Horsburgh.
Mr. Wm. Cross and Sir Chas. Ross.
Mr. H. Taylor-Stephens.
Sainsbury's Anti-Skidders, Limited.
Mr. S. H. Cavendish.
Mr. E. Midgely.
Mr. Wm. Hunt.
Mr. Samuel Butler.
Mr. W. Maitland Edwards.
The Gare Patent Tyre Company.
M. Henri David.
Messrs. Grose, Limited.
Mr. W. H. Manning.
Mr. John Harrington.
The Parsons Non-Skid Company.
Messrs. Wm. Jenkinson and Co.

EXHIBITION AT EDINBURGH.

THE seventh annual motor and cycle exhibition which opened in the Waverley Market, Edinburgh, on Friday last week, contains by far the largest display of motor-cars, motor-cycles and accessories so far seen in Scotland. Fully 150 cars, in addition to a large number of motor-cycles, are on view, these including all the leading English and Continental types, already fully dealt with in recent issues of the *Journal*. One of the most interesting stands is that of Stirling's Motor Carriages, Ltd., on which is shown a two-



A Corner of the Exhibition.

Photo by] [*Fraser & Elrick.*

ton petrol lorry similar in type to the three-ton vehicles which the firm is now building for the War Office. A 20-h.p. omnibus for fourteen passengers, with luggage rail on top to carry half a ton of luggage, one of a number built for the Earl of Leitrim for the purpose of maintaining a regular passenger service on a thirty-mile route in the neighbourhood of Strabane, County Tyrone, is also displayed. Mr. William McLean, of Glasgow, shows a new 12-h.p. tonneau car of his own construction. It is known as the "St. Vincent," and is fitted with a 12-h.p. two-cylinder Aster engine and cardan shaft transmission. Altogether the exhibition, which closes to-day (Saturday), reflects much credit on the organisers, and the enterprising managing secretary, Mr. A. K. Dempsey.

MOTOR-VAN AND WAGON USERS' ASSOCIATION.

THE first general meeting of members of the Motor-Van and Wagon Users' Association was held at 119, Piccadilly, London, on the 24th ult. Among those present were Colonel R. E. B. Crompton (in the chair), Messrs. R. W. Wallace, K.C., E. Shrapnell Smith, T. Staplee Firth, George Monro, jun. (Motor Cartage Company), Mr. Douglas Mackenzie (Motor Transport Company), W. G. Lobjoit (W. J. Lobjoit and Sons), R. H. Griffiths (Idris and Co., Limited), J. Kitching (Debenham and Co.), F. C. A. Coventry (Great Western Railway), J. Farmiloe (T. and W. Farmiloe, Limited), John Allen (Oxfordshire Steam Ploughing Company), O. Cernett (French Ashphalt Company), R. D. Dundas (Dundas and Seton), and Mr. Rees Jeffreys. The Secretary having read the notice convening the meeting, the draft rules, as formulated by the Provisional Committee, were considered and amended by the meeting, and adopted. It was resolved that the first Executive Committee of the Association shall be comprised of the following:—Messrs. E. R. Calthorp, E. Shrapnell Smith, H. H. Humphreys, D. Mackenzie, G. Monro, jun., F. C. A. Coventry, A. J. Clay, L. H. Baxendale, J. Farmiloe, J. Kitching, W. G. Lobjoit, T. W. Thorpe, R. H. Griffith, Alsager Vian, and Lieut.-Colonel Mark Mayhew, with the following as *ex-officio* members:—Colonel Crompton, C.B., T. Staplee Firth, R. W. Wallace, K.C., and W. Rees Jeffreys. The Executive Committee to have power to add two names representative of firms using motor-delivery vans to this list. Messrs. A. W. Barr and Co. were elected auditors. A meeting of the Executive Committee was held immediately after the general meeting, at which the following appointments were made:—Hon. treasurer, Colonel R. E. B. Crompton, C.B., R.E.; secretary, Mr. W. Rees Jeffreys; solicitor, Mr. T. W. Staplee Firth. The question of the election of a president and chairman was postponed.

CLUBS AND ASSOCIATIONS.

HERTFORDSHIRE.

AT a committee meeting of the Hertfordshire Automobile Club, held in Watford on the 26th ult., it was decided to become affiliated to the A.C.G.B.I. under Scheme II. It has been decided to contest the action of the St. Albans Corporation, which is seeking to impose a ten-mile speed limit over the entire area of the city. A formal letter of objection was forwarded to the Local Government Board. The chairman and hon. secretary drove over to St. Albans on the following day in order to beat up local opposition to the application. A number of protests from motorists living in St. Albans have been forwarded to the Local Government Board. The club has obtained from the local candidates their views as to automobilism generally, and has been assured that they object to the underhand practice of the police in trapping motorists on deserted roads. Happily Hertfordshire is free from this noxious practice.

CASES DISMISSED.

MR. JAMES MCKELVIE, of Clifton Terrace, Edinburgh, was summoned at Guildford for driving a motor-car at Ripley at the rate of over twenty miles an hour. Sergeant Jarrett admitted that eleven out of twelve stop-watches supplied to the police of that district had been sent to London to be seen to. The case was dismissed.

WILLIAM HAYNES, driver, in the employ of the Folkestone, Sandgate, and Hythe Motor-Car Company, has been summoned for not having a light fixed on the back of the motor-car to show the number. Defendant, in reply to questions put to him by Mr. Minter, said that since the regulations had been passed he had had a number on the back of the car, and a lamp in order to illuminate it at night time. He lighted the lamp before he started from Cheriton. For some time past the Cheriton road had been in a very bad state so far as carriage traffic was concerned, from repairs going on there. It had broken the springs of the motor-car on two occasions. The vibration from the state of the road caused the light to go out. W. H. Willis said he was the manager of the Folkestone, Hythe and Sandgate Motor Company. He produced one of the lamps used by the company. They burnt paraffin oil and would burn from ten to twelve hours. When alight they illuminated the number behind the car. He corroborated last witness with regard to the springs of the motor-car being broken on account of the state of the road. The chairman said under the circumstances they had decided to dismiss the case. They wished defendant to understand, however, that they were not going to allow that always. If the lamps were continually jolting out the company would have to find better ones.

DAMAGES AGAINST A DRIVER.

AT the Bristol Guildhall, the Under Sheriff, with a jury, has heard an action which Joseph W. Hall, of Oldland Common, brought against Thomas Watts, of Elmore, Gloucestershire. The plaintiff claimed £10 for personal injuries, and £100 for damage to a motor-car, alleged to have been caused by the negligent driving of the defendant or his servants on December 15th, at Gloucester. Mr. Phillips explained that the plaintiff was a commercial traveller, and used a motor-car in his business. On December 15th he was driving from Bristol to Gloucester at about 6 p.m., and met the defendant, who was driving a cart. The plaintiff had a lamp on each side of the motor-car and a large acetylene lamp in front, and he was on the proper side of the road. The defendant, who had no lights, drove into him, the result being that the car was an absolute wreck. Judgment having gone by default, the only question the jury had to decide was the amount of damages. The plaintiff gave evidence in support of the claim. Mr. H. B. Lowe said the car was worth about £200, and the repairs would cost about £92. The jury assessed the damages at £68.

DIRECTORY OF NUMBERS.

PRESSURE on our space again compels us to hold over both the "Directory of Numbers" and the list of "Dealers' Marks," considerable additions to which have been made since the publication of the last lists.

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THE

Motor-Car Journal.

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COMMENTS.



SIR OSWALD MOSLEY, whose genial features we are able to reproduce by the courtesy of our friends of the *Pall Mall Gazette*, is the president-elect of the Hackney Horse Society, whose annual show has attracted many visitors to the Agricultural Hall during the last few days. He is an authority on horseflesh and a convert to automobilism. In fact, despite his position in the Hackney Horse Society, he has declared to our contemporary his intention of selling all his horses save two and becoming a motorist at an early date. Such a confession is interesting as demonstrating the advance now being made by automobilism, and also as evidence of the capacity of country gentlemen to recognise the trend of the age. Sir Oswald has seen the good work done by the agricultural motor, and is convinced that the motor vehicle is destined to play an important part in resuscitating the fallen fortunes of the countryside.

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English or Roman.

MR. INVERNESS WATTS had better be content with plain English figures in place of the Roman numerals which have led to his appearance at the Hailsham Petty Sessions. On his identification plate he used the figures CCXXXIII. instead of the regulation number 233. It was made clear by the Local Government Board that the figures were to be such as could be plainly seen and read by a policeman. The adoption of Roman numerals was certainly contrary to the Act, and, as will be seen from our report on another page, somewhat expensive when Major Lang's men are about. This can hardly be regarded as a piece of police impertinence, although the chief constable is to have a car provided him by the East Sussex County Council, and paid for out of the fines imposed on motorists last year.

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A Paper at York.

AT a meeting of the York and District Motor Club the other day, Mr. J. E. Gibbs, of York, read a paper on the progress of the motor industry during the last few years. Having pointed out the reliable character of the modern motor-car, he touched upon the law as regards automobiles, and deplored the fact that the recklessness of certain motor drivers had certainly branded all motorists as ticket of leave men. Notable improvements had been effected in frames and wheels, and with regard to tyres, he mentioned the Collier as having proved itself to have very great immunity from punctures in several important trials. Mr. Gibbs deplored the fact that the majority of motorists took little care of their tyres. After running in wet weather, these should be carefully dried, especially where the covers touch the rim, and if they are occasionally removed and the edge of the rim kept free from rust, the life of the tyre will be materially increased. Reference was made as to the characteristic features of the Gobron-Brillie motors, and the engines in the Lanchester car. Dealing with carburettors, those used on the Crossley and Wolseley cars were explained, and considerable attention paid to the transmission gear. Steam and electric vehicles were not overlooked, and altogether the paper proved a very comprehensive survey of the state of automobilism at the present time.

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Saturday, March 19th.

ON Saturday, the 19th inst., the Ninth International Automobile Exhibition will open at the Agricultural Hall, London, and will continue during the following week. Social functions will include a dinner by the A.C.G.B.I., the reception of the Ladies' Automobile Club, and the annual meeting of the Motor Union. Apart from the interest of the Exhibition, these events will bring a large number of influential motorists to the Show, and there should be no uneasiness felt as to the attendance. This will be larger than ever before known, and many prospective motorists are awaiting the opening of the Exhibition to make up their mind as to the particular car they will select for their pleasures.

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Admission.

ADMISSION to the Exhibition will be one shilling, save on Wednesday, the 23rd, when the charge will be half-a-crown. The convenience with which the Agricultural Hall at Islington can be reached from any part of the great metropolis is well known and appreciated, both by provincial visitors and Metropolitan residents. A first-class band will be in attendance, and exhibitors are looking forward to much business in the few days the show will be open.

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Accumulators.

IN the course of a paper on electric accumulators read before the members of the Junior Institution of Engineers at Westminster Palace Hotel, London, this week, Mr. G. C. Allingham observed that the design of motor-car and other portable cells was still in a more or less tentative state, and was not standardised to anything like the same extent as was the case with stationary batteries. Light plates had a very short life. The general practice was to make them as cheap as possible, and simply scrape them and replace them by new ones as soon as they began to give trouble. Both positives and negatives were usually parted grids. They were made much thinner and placed much closer together than in stationary batteries. Generally they were something like one-eighth of an inch thick and an eighth of an inch apart. Sheets of ebonite or celluloid, corrugated and perforated, were usually placed between the plates. Something of the kind was absolutely necessary when they were so close together. The containing boxes were generally of ebonite, though celluloid was used a good deal for the smaller ignition and similar cells. The connections from cell to cell in motor-car batteries must be flexible and springy, else the vibration of the vehicle would cause the connecting lugs to break off.

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The Use of the Stop Watch.

In dismissing a case against a motorist on Tuesday, the West London magistrate made a significant reference to the use of stop watches by the police which should be remembered by others who sit on the Bench. Although three policemen testified as with one voice, and produced a stop watch in support of their evidence, Mr. Lane was not satisfied with regard to the estimate of speed based on the stop watch. "Indeed," he said, "it was very liable to infirmity in the hands of persons who had not been trained to its use from their youth." After that the police authorities should either withdraw the stop watches, or put them in the hands of boys.

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Military Motor Trials.

In our issue of the 20th ult. some particulars were given of the trials carried out by the War Office in connection with the Stirling motor lorries at Edinburgh. These proved most successful, and on Monday next some officers of the Royal Engineers will start from the works at Granton Harbour to drive to London on the wagons, one of which is shown in the accompanying illustration. These motor lorries have four-cylinder petrol engines, developing 24-b.h.p. at about 800 revolutions a minute. They are fitted with mechanically operated inlet valves and solid cylinder heads. High tension



electric ignition with accumulators is fitted in addition to the magneto. The power is transmitted by a large metal friction clutch to a change speed gear giving three speeds, which are enclosed in a dust-tight oil bath. No chains are used, the rear wheels being driven by a universally jointed shaft to a driving bevel pinion which drives the countershaft, which is fitted with steel-toothed wheels engaging with driving rings made of a special metal attached to the inside of the wheels.

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Points for Exhibitors.

Some lessons from previous shows may well be learned by those who intend to take full advantage of the opportunities that will be presented for business at the Agricultural Hall. See that the attendants are fully instructed as to the technical points of machines, etc. Visitors nowadays are far more fully informed with regard to mechanical matters than was the case a few years ago, and betray a curiosity that is quite perplexing to anyone who does not really know what he is expected to explain. Exhibitors should also make a point of not over-crowding their stands with a wearying perplexity and complexity of exhibits. As in newspaper advertising boldness pays better than much confusion by over-crowding, so in exhibition displays it is not always well to overdo the thing with a too plentiful collection of any particular items.

Obstinacy in Wales.

While the East Ham, Ilford, and other London suburban district councils, which have already successfully established tramways, are now considering the question of putting motor-'buses on routes not served by such vehicles, some of the provincial municipalities seem to be possessed of a more narrow spirit. At Cardiff, for instance, the Cabs' Committee of the Town Council refused to grant licences to the South Wales Transport Company to run a service of motor-'buses between Cardiff and Llandaff, and Cardiff and Llanishen. On their minutes being brought before the full Council, however, the Chairman of the Tramways Committee moved that this suggestion be referred back, and after an animated discussion it was carried by a majority of three. Apparently some of the Councillors—loyal to their tramways—were quite heedless as to the convenience of the ratepayers in localities through which the tram-cars cannot possibly be run with any thought of profit.

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Variety in Decisions.

The other day Mr. J. Tofts was driving to the Bishop's Stortford railway station, when his horse shied at a motor-car that was standing stationary outside. The party was thrown out, and one of them subsequently died from concussion of the brain. At the inquest, the police-constable who gave evidence said that in his opinion the trap was being driven much too fast, and a verdict of "accidental death" was returned. We mention this as it is one of those rare cases where prejudice does not seem to have prevailed. In some parts of the country, the motor-car standing aimlessly still would doubtless have been regarded as the cause of this accident. Not long ago in Norfolk a horse shying at a motor-car standing on the road side resulted in an accident, and at the Assize Court the motorist was mulcted in heavy damages. What apparently is allowed in one county, is not regarded with favour in another.

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A Postponement.

Some idea of the interest with which the forthcoming Exhibition is regarded in automobile circles may be gleaned from the fact that not only are automobile organisations avoiding holding gatherings likely to clash with the official arrangements at the Agricultural Hall, but others which, like the Hertfordshire Automobile Club, had made their arrangements, are postponing their meetings so that their members may not be kept from the greater event. From the Secretary of this Club comes the note that "owing to the date of the inaugural run of the Hertfordshire Club clashing with the opening of the Agricultural Hall Show, it will now take place on Saturday, the 26th inst."

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Light or Heavy Vehicle.

From the evidence in a case heard at the Lambeth Police Court on Tuesday, it would appear to be customary among makers of road locomotives to weigh vehicles without their bodies, thus securing to customers the privilege of registration at the lowest fee. But, as we hinted in dealing with a kindred subject in our issue of the 6th ult., this will not avail should the authorities run the vehicles on to a weighbridge. Proof of this comes in the case referred to at Lambeth. A South London brewery firm was summoned by the London County Council for unlawfully using a locomotive in the county of London (in which county it was not licensed) without payment of the fee required by section 9 of the Locomotives Act, 1898. Mr. W. E. Helman-Pidsley, who supported the summons on behalf of the Council, said the Act of 1898 was known as the Heavy Locomotives Act, and applied to all locomotives used for haulage purposes which were over four tons in weight when unladen. Before a locomotive exceeding that weight could be used in the County of London a licence, which would cost £10, had to be procured from the Council; but if, on

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the other hand, the locomotive was under four tons in weight unladen, then the Light Locomotives Act of 1896 and the Motor Car Act 1903 applied, and it simply had to be registered upon payment of a fee of £1. The firm took out a licence giving the weight of the engine as 2 tons 19 cwt. 3 qrs., but had excluded the weight of the body, without which it would be useless. The magistrate, in imposing a nominal penalty, said it was obvious that the weight of the complete vehicle must be taken.

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Mr. Jarrott on Drivers.

OUR correspondence on drivers has called forth many denunciations of the certificated person, and the mechanics seem to have been in the majority so far as letter writing is concerned. Now Mr. Charles Jarrott has been giving his view on the subject, and he mentions it as his opinion that the want of drivers is to be supplied by young men of serious intent, intelligent, sharp and bright. As time goes on, the requirements for drivers will become more and more exacting, and only those men who are capable of carrying out their work in an intelligent and satisfactory manner will be able to find places. The professional driver is one of the greatest difficulties the manufacturers have to deal with at the present time, and any movement to secure to owners of motor vehicles reliable men at once responsible, painstaking and law abiding, would meet with the greatest support from the trade. Naturally owners of cars will, in the future, prefer to engage only those who have obtained a certificate which will be giving some sort of guarantee as to their efficiency. This is a fact that we would advise mechanics who think of entering services as drivers to recognise, and urge them to equip themselves with the necessary theoretical as well as technical knowledge, or they may be left out in the cold by the greater popularity of those who have been through some sort of a course of construction.

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Motor-Car Upkeep.

To the discussion on the cost of maintaining motor-cars—a subject of almost continuous interest—the Scottish Club has made a useful contribution. As we report elsewhere, Mr. John Adam has been encouraging the members of that organisation to give their expenses. Ordinarily these have worked out at less than threepence a mile, to which, however, has to be added an item for depreciation. This question of depreciation is one which amateur motorists should not ignore. The depreciation of second-hand cars is much more nowadays than was the case a few years ago. Styles and methods are so transient that the fashion in automobiles is, apparently, becoming as fickle as in millinery.

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Motor-Car Houses.

ANOTHER practical point raised by Mr. Adam was in connection with the size of motor-car houses. Recently our Correspondence columns have contained letters from some hotel proprietors anxious to provide for the accommodation of motor-cars. For a single car Mr. Adam advises a house 18 feet by 9 feet with a pit 6 feet by 3 feet near the door. This, constructed of corrugated iron with wood lining, would, according to his estimate, cost £24. This would include placing a layer of felt between the corrugated iron and the wooden sarking. The matter is one upon which the views of readers this side of the Tweed might be useful.

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Pennington's Latest.

SOME of our American contemporaries to hand this week devote considerable space to the latest production of Mr. E. J. Pennington. Briefly summarised, one account is as follows:—"One of the most remarkable automobiles ever constructed is being built in the factory of the Eclipse Machine Company of Cleveland, O., for the Cleveland Motor Company. The last mentioned concern has recently been organised with an authorized capital of £40,000, to build high-powered touring cars to designs prepared by Mr. E. J. Pennington, who has a record on two continents as a promoter and inventor of unusual mechanical contrivances. The new car is 25 feet long and is equipped with motors which it is claimed will develop over 300 horsepower. Its inventor claims it will make 100 miles an hour, and to demonstrate his claim he proposes as soon as possible to place flanged wheels on the machine and give it a trying out on the rails of some steam or electric railway. The frame work is made of 4-inch heavy gauge tubing. The cylinders proper of the engine are of steel tubing, while the cylinder heads are turned from solid material. The cylinders are copper jacketed and are placed in the forward part of the frame, side by side in a horizontal position, being entirely independent of one another, although they drive on to the same crank shaft. In the centre of the crank shaft is a huge fly wheel. The road wheels are of steel, fitted with 7-inch pneumatic tyres. The front wheels are contained in steering forks closely resembling bicycle forks. The drive is by a heavy chain on to the rear axle." Those in this country who remember Pennington and his war motor vehicle, which was eventually knocked down for a song at an auction in Bloomsbury, will be entitled to a smile while reading the foregoing.

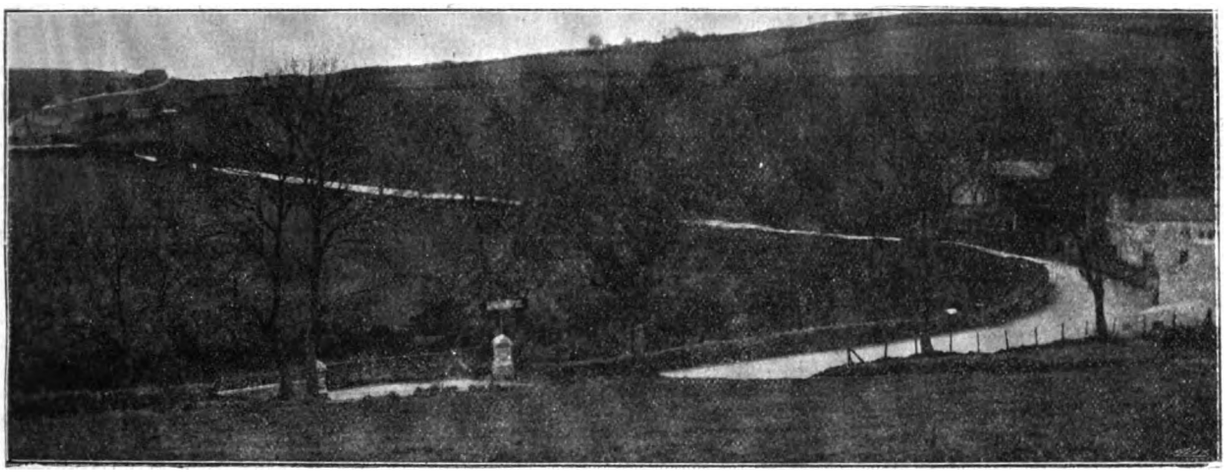


Photo by] The Corkscrew road at Baldrine, six miles north of Douglas, Isle of Man, and on the proposed course of the Eliminating Trial. *[D. Collister.*

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A Change at Newport.

THE recommendation of the Newport Watch Committee to limit the speed of motor-cars in the borough to ten miles an hour came before a full meeting of the Town Council on Tuesday, when the borough engineer pointed out that if the bye-law were adopted it would mean a large expense in putting up the requisite notice boards. Councillor Moxon urged that such a bye-law was needless, as they could always proceed against motorists who were driving in the streets to the danger of the public, even if only going at five miles an hour. There were only three other towns beside Newport that were proposing to adopt such a bye-law. At length it was resolved to refer the matter back for further consideration to the Watch Committee. It is to be hoped that common-sense will ultimately prevail.

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Motor Services about Dublin.

DUBLIN, which has so splendid a tram-car service, is shortly to be equally well favoured in regard to public services of motor-cars. Recently we chronicled the formation of a local company to run automobiles from the Irish capital to the suburb of Swords, and now the Liquid Fuel Engineering Company, of Edinburgh, have written to the Dalkey Urban Council stating that they propose to run a motor service from that pleasant suburb to Kiliney Park and Bray during the coming season. We are glad to hear that the Council has warmly approved of the idea, and the linking of Dalkey with Dublin by similar means should not be a difficult matter. There are several good routes which might be suggested about Dublin. The electric trams rush out to Clontarf and Howth rapidly enough for anybody, but a motor-car service to Lucan would be popular, and in other directions automobiles might be utilised with the certainty of a real Irish welcome.

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The Security of Numbers.

WE would utter a word of warning to car owners and the trade, that they should see that their numbers are so fixed that they cannot be tampered with. During the Crystal Palace Exhibition an exhibiting firm were running a car around the Palace, and garaged it with a number of others in a local livery stable. One day the driver had scarcely left the garage ere he was stopped by a policeman and then found there was no number on the front of his car. As some half-dozen others found themselves in a similar predicament, the occurrence could scarcely have been accidental. The sequel was a summons to appear at the Lambeth Police Court last week, and a fine of 5s. and costs. The suggestion has since been made that the numbers of private cars—which, when once registered, keep the number "for all time"—be, wherever possible, painted upon the car itself and not attached separately. With traders and manufacturers' numbers, which are changed about from car to car, this is not, of course, possible, but it will be well for all to see that the numbers are so affixed that it will be impossible to remove them without considerable trouble, or much inconvenience and injustice to drivers may result.

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A Motor-Martyr.

EVERY great movement has its Smithfield, and motoring has found a martyr-soul in the ranks of the Cumberland and and Westmorland Chamber of Agriculture. On the agenda of the last meeting was the item "the speed of motor-cars on district roads," and when it was reached Mr. Elliott moved a resolution to the effect that motor-cars being an innovation on the ordinary road traffic, owners and drivers should be held responsible for loss or damage caused by their use, seeing that no definite limit can be safely assigned to their speed of travelling on district roads. This was seconded, whereupon Mr. J. W. Hayton, of Carlisle, the secretary, pointed out that the resolution went beyond the notice on the agenda, and he should decline to forward the resolution to the Central Chamber of Agriculture. He spoke of the danger which motorists ran through cows being allowed on the roads unattended. He himself had a narrow escape from colliding with a cow which suddenly emerged from a farmyard to reach a watering place. Upon the resolution being adopted with only two dissentients, the secretary added, "Please take my month's notice." Of course, such an attitude opens up a wider question. Could not Mr. Hayton do good work for the automobile movement by remaining with the society and educating the members into a sensible frame of mind with regard to the inevitable motor-car?

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Delivery Vans.

THE A.C.G.B.I. have accepted an offer of a diploma from the Army Council for award to the motor vehicle which, in the motor delivery van trials to be held by the Club, is considered by the War Office Committee on Mechanical Transport to be most meritorous from a military point of view, and therefore likely to be of service, even though indirectly, to the Army. This is a department of automobilism that should come to the front during the present year and will largely predominate in future exhibitions.

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Valve Mechanism.

A PAPER on valves and the valve mechanism of internal combustion engines was read by Mr. R. E. Phillips at the Automobile Club last week. It contained a series of statistical tables of value and interest, and evoked a good discussion. Lieutenant-Colonel Holden presided, and after the debate summarised the proceedings. There could be no question, he said, that Mr. Phillips had given them a modification of the automatic valve which brought it up to the level—or nearly so—of the mechanically-operated one. With it the volume of the charge led into the cylinder must be larger, and therefore the compression would be increased and the power of the engine increased. They were also told that this improvement was obtained without any complication in adjustment, and that the valve was more certain to work properly; that was another great point. In connection with the data in the paper the thing that struck the speaker most was the extreme flexibility allowed in design in the internal combustion engine. It appeared that whatever was done it did not prevent the engine working; that, of course, was a great convenience for the manufacturers, but at the same time it ought to be a great incentive to them to find out by experiments, exhaustive experiments, what were the best proportions for their engines, and he would urge upon them the necessity of doing so. Regarding mechanically-operated valves in general, it was, of course, common knowledge that they were very old; in fact, all large gas engines had been made with them, and it was a puzzle to know why Daimler adopted automatic valves in his first engine. There could be no doubt the mechanically-operated valve had come to stay.

INCLUDED with the present issue is published, as a supplement, the index to Vol. V. of the *Motor-Car Journal*.

ON Saturday last the Derbyshire Club held its inaugural run for the present season, Ashbourne being the destination.

WE are officially informed that the statement made by a contemporary that the Queen has ordered a Wolseley car is not correct.

THE awards have just been published in respect to the recent trial of anti-skidding devices at Versailles. The highest number of points was secured by the Gallus arrangement of M. Edeline.

MR. WINDSOR T. WHITE, of the White Sewing Machine Company of Cleveland, makers of the well-known steam car bearing that name, has been elected president of the American National Association of Automobile Manufacturers.

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THE CARE OF A STEAM CAR.

THE care of a steam car formed the subject of a recent lecture at the School of Automobile Engineering in connection with the Y.M.C.A. of Boston, to which reference was made in a recent issue. It was given by Mr. J. K. Macalman, manager of the local branch of the Locomobile Company, and as the author gave a number of hints which may be useful to those motorists owning Locomobile and similar steam cars, we print an abstract of the lecture below.

Confining our attention to the fire-tube type of boiler, to insure the maximum efficiency of this type a certain amount of care is necessary. When first firing up and the steam-gauge begins to show a pressure the blow-off valve should be opened to let a small quantity of water be discharged through the same. When the water begins to boil, the sediment, which is settled on the bottom of the boiler, is disturbed and begins to rise. By means of the blow-off valve more of the impurities can at this time be removed than at any other.

When the steam reaches 50 or 60 lb. this sediment settles back and is not easily disturbed. If these impurities are allowed to remain on the bottom of the boiler, they form a non-conducting hard scale, covering the plates and lower ends of the tubes, which interferes with rapid steaming, and in addition removes the protection of the water directly in contact with the flame. The cleansing of the boiler removes to some extent the liability of burning it, as this is too often caused by sediment clogging the circulating system, which includes the check valves on the water column or gauge glass.

The water in the gauge should fluctuate with the motion of the car, and when found to remain stationary it is an indication of clogging. This can be remedied by tapping the check valves and opening the water column gauge until the sediment is cleaned out. The sole indication of the amount of water in the boiler is the water in the gauge, and it is absolutely necessary that the driver makes sure of perfect circulation.

To obtain uniform steaming capacity, the fire must be able to meet the varying demands. This regulation is commonly secured by the so-called "automatic," which consists of a needle valve actuated by the steam pressure on a diaphragm, the valve closing as the pressure increases to some set point and shutting off the fuel supply. Care should be taken that the packing of this valve is neither too tight nor too loose, as in the former case it fails to work promptly, and in the latter is liable to leak and thus destroy the whole efficiency. Another source of trouble is the cracking or breaking of the diaphragm, which should be at once replaced.

The fuel system should be cleaned out occasionally in the following manner:—Open the torch valve and let a small quantity of cold petrol through under high pressure. This will soften and remove a portion of the scale and grit and thus prolong a free flow of petrol. The jet valve on the automatic should be cleaned out from time to time. This may be done by unscrewing the jet valve spindle and removing the small plug opposite the jet nozzle. Take a small piece of wire and clean the scale out thoroughly, as when the jet becomes in any way plugged it interferes with the air mixture, does not produce a good fire, and sometimes causes the burner to fire back.

The type of steam engine commonly used necessitates proper lubrication of all moving parts. This lubrication is divided into two sections: One where the steam is in direct contact with the movable parts. For this a special grade of oil is essential, one that will not burn or be disintegrated by the heat. Only enough oil should be fed to form a mixture with the steam and keep the surfaces coated, and to permit the engine to start easily and without undue grinding or squeaking. In the other section—the external parts—the oil distributed should be of a consistency to prevent its quickly running off. It is not necessary to have oil dripping from every portion of the engine, a little will perform the same work and there will be no waste. Cleanliness is to be strictly observed, and the engine should be washed from time to time with kerosene to remove the extra oil and grit.

Before starting a car, after steam is up, the driver should open the throttle slightly and move the car slowly backward and forward. This will warm up the engine and drive out the water formed in the cylinders by condensation. This is very necessary, as the pressure of the steam acting on the water will often cause bursting of cylinder heads, stripping of bolts, bending or breaking of connecting rods, and blowing out of piston packings. These same results are sometimes caused by too much water in the boiler, so that, instead of steam being fed to the engine, water boils over and enters it. This is evident from the blowing sound of the exhaust and the diminution of power, and is commonly called priming.

From time to time the rear wheels of the car should be jacked up and the engine run slowly, the action of the various parts of the engine being closely watched. All reciprocating parts should be kept in adjustment, and a trial as above mentioned will permit of accurately locating needed adjustments. The pumps and check valve can be thus tested. Check valves should be reground from time to time. This can be determined by an examination of the valve faces, which should be smooth and bright.

The burner is often blamed for inefficiency when the trouble is really in the air mixture and fuel feed, and often a poor burner is benefited by some means of covering it or giving it more air, as the case may require. When the burner fires back the cause may be traced to various reasons—sometimes the mixing tube is not properly adjusted or the jet valve is not in the right position. This can only be ascertained by trying the different ways to discover the cause.

Experience fails to show any easy way of repairing a boiler on the road. Putting oatmeal or some cereal in the boiler to find the leak and stop it from the inside has been suggested, but is not recommended, as it is almost impossible to get these substances out again.

The only way to repair a burned boiler is to carry along the proper expanding tools. Having the tools on hand, it is necessary to stand the carriage on end and remove the burner. If the burn is slight, the bottom may be caulked without removing the top hood. After doing this one can tell whether the boiler is tight or not by using the hand water pump and filling the boiler with water, pumping it until the steam gauge shows a pressure of about 300 lb., and if it will remain at this point one can conclude that the boiler is tight. Unless, however, one is an expert in this class of work, it should be placed in the hands of a competent repairer.

THE Japanese Government have placed an order with the Olds Motor Works for twenty Oldsmobile railway inspection cars. The vehicles, which are of 5-h.p. and run on rails, seat four passengers each.

MESSRS. ALFRED DUNHILL, LIMITED, have brought out a pneumatic cushion which does away with vibration. It can easily be inflated with an ordinary foot pump, and can be covered with leather, pegamoid, or other suitable material to match the upholstering of the car.

THE Beaufort Motor Company have sent us a copy of the new catalogue they have issued. It gives full particulars and illustrations of the 9-10-h.p., 10-12-h.p., 15-19-h.p. and 24-30-h.p. Beaufort cars. No less than sixteen pages are devoted to testimonials from users of these well-known cars, a fact which speaks much of their popularity.

FROM The Maudslay Motor Company, Limited, comes a copy of their 1904 catalogue, in which full particulars are given of the 18-h.p., 25-h.p. and 40-h.p. Maudslay cars. Diagrams are given of the company's three-cylinder engine, in addition to very clear illustrations of the wagonettes, touring cars, double tonneau, etc., made by this concern.

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CONTINENTAL NOTES.

THE Danish Automobile Club sends us a French translation of the automobile regulations enforced in Denmark, from which the following is extracted:—Motor vehicles must not differ essentially either in size or appearance from horse-drawn vehicles serving similar purposes. Motor vehicles serving for goods transport or to carry more than six persons, if not provided with rubber tyres, must have tyres at least 4 inches wide. Every motor-car must be provided with two separate braking systems, each capable of stopping the vehicle within 12 yards; each vehicle must be provided with a signal horn and must carry at night two lamps provided with colourless glasses and of such luminous intensity as to light up the road for 15 yards ahead of the vehicle. Motor-cycles must carry one such lamp. In addition each vehicle must carry a lamp to illuminate the registration number.

ALL automobile vehicles must be registered with the proper authorities, the formalities being essentially the same as enforced in France. Motor-vehicles can only be operated by persons in possession of a driver's certificate issued by the local police authorities, and the driver must at all times carry the certificate with him when driving his vehicle. Persons under eighteen years of age are not allowed to drive automobiles; the same applies to drunken persons. The most peculiar provision of the law is that from July 16 to May 15, inclusive, automobiles are not



A Snapshot near Abbazia, Austria.

allowed to be driven on the public highway between one half hour after sunset and one half hour before sunrise, except where the road is thoroughly illuminated by artificial light. The Minister of Justice may, however, waive this rule for certain departments or districts upon the recommendation of competent counsel. The maximum speed allowed in towns and villages is 9·4 miles per hour, and on the public highways 18·5 miles per hour. At night the speed must not exceed 9·4 miles per hour in any place. Foreigners who wish to tour with their cars in Denmark must declare their vehicle at the police headquarters of the first town they enter. In case they are provided with a driver's certificate issued by some foreign authority it suffices to present this and have it indorsed by the police authorities; otherwise a special certificate will be made out for them.

THE Bordeaux Automobile Club is organising an "automobile week," to be held from the 8th to the 15th May next. It is proposed to hold a competition of commercial motor vehicles, a balloon race, and an exhibition.

THE international motor-car exhibition to be held in Frankfurt-am-Main from the 19th to the 27th inst. promises to be a most successful affair, the list of exhibitors already comprising over 150 names.

THE Portuguese "Diario do Governo" of the 22nd February contains a notice calling for tenders, which will be opened at 1 p.m. on the 24th May next, in the Directorate of the Caminhos de Ferro Ultramarinos, Lisbon, for the exclusive concession during fifteen years for running automobiles for the transport of persons and merchandise from Mossamedes to Chibia, in the Portuguese Colonies.

THE Commission du Yachting Automobile of the A.C.F., at its meeting on the 20th ult., decided that the 1904 race for motor-boats shall take place on Monday, August 8th, about ten o'clock in the morning, starting from either Calais or Boulogne and finishing at Dover. The entries for the race will be closed on June 30th, and the entry fee will be 100 francs for boats up to 20 ft. 6 in. (8 metres) inclusive, and 200 francs for boats of greater length. With this race the Coupe Recope will be competed for without a special entry fee (this cup is for boats using ordinary petroleum) and the Coupe Quinones de Leon for boats using denaturalised alcohol, with a special entry fee of 200 francs. That is to say that owners of boats who wish to compete for the Recope Cup or the Quinones de Leon cup alone, without being entered in the big race, will have to pay, in the first case, the entrance fee for the race according to their class, and for the second the fixed sum of 200 francs. The French Minister of Marine has officially promised to convoy the boats by torpedo boats on leaving the French coast, and it is hoped to obtain a special prize from the Department. It is also suggested that the Automobile Club de France should allot the sum of £800 to be distributed in prizes for this race.

IN connection with the German winter military manœuvres at present being held in the Harz, trials are being made with two motor-cars for the transport of officers, two motor-wagons and a couple of motor-cycles.

A NOTICEABLE feature of the automobile movement in Germany at the present time is the increasing attention which is being paid to the question of connecting small towns, not served by railways, by public services of motor-cars. Several have recently been established, while a number of others are in contemplation. The municipal authorities of Langenschwalbach have voted a sum of £150 towards a public service of motor-cars between the town and railway station which a syndicate proposes to establish at an early date. A motor-omnibus service is also projected between Lindenfels and Bensheim, while a service for the conveyance of both passengers and goods is also about to be started between Brunswick and Wandsburg.

ARRANGEMENTS for the motor van and wagon trials, which will take place from August 22nd to September 4th, under the auspices of the A.C.F., are being rapidly pushed forward. The programme has now been issued, from which it appears that there will be a section for speedy delivery vans, with a carrying capacity of less than two tons, another for heavy wagons carrying more than two tons, and a third for electrically-propelled tourist cars. The first and second days' programme will be made up of consumption tests in Paris, which will be continued on the 12th and closing day of the trials; the intervening days will be taken up with road trials, with an exhibition at Lille on the seventh day.

LA SOCIETE DES DESSINATEURS DE L'INDUSTRIE AUTOMOBILE is the name of a new society which has been formed in Paris. There are now a good many well-qualified automobile designers and draughtsmen in France, and it is hoped that the new association will be the means of bringing them together for the interchange of ideas.

THE newly-formed Lake District Road Traffic Company intend running a motor service between Windermere and Keswick for both passenger and freight traffic. A piece of ground has been secured in the centre of Ambleside (near the old Market Cross), where offices for the company's use are to be erected.

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SOME USEFUL NOTES.

SOME very useful "Hints for Motorists" have lately been issued by the Hozier Engineering Company, Limited, from which we take the following, as, while primarily intended for users of Argyll cars, they apply equally well to many other well-known types of gear-driven vehicles:—Lubrication is one of the most important points in the running of a motor; neglect on this score may result in very serious consequences, most probably a total break down of the engine. Ordinary gas engine oil should be avoided, being quite unsuitable for high speed engines. Oil of a very high flash point and free from deposit at high temperatures is the most suitable. With the pump system of lubrication it is preferable to oil often and in small quantities; half a charge every fifteen to eighteen miles will be found to give the best results. With the drop feed system the lubricators should be set to give from five to six drops per minute for each cylinder.

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AFTER each day's run it is advantageous to inject a teaspoonful of paraffin into each cylinder of the engine and give the motor a few sharp turns by hand; this will remove all "gumminess" from the cylinder walls and prevent the piston sticking. After about 500 miles' running, remove the sparking plugs and wash the engine out thoroughly by injecting about a wineglassful of paraffin into each cylinder; after turning sharply by hand for a few minutes remove the plug from bottom of crank case and allow all the waste oil and paraffin to drain off completely. Before starting the engine again it will be necessary to put about half a pint of lubricating oil into the crank case of a single cylinder engine, three-quarters of a pint into a double cylinder, one and a quarter pints into a three cylinder, and three pints into a four cylinder. This may easily be done through the examination hole in the crank chamber. The air regulator of the carburettor should not be altered after it is properly set; the engine starts more easily on a rich mixture, this can be attained by slightly flooding the carburettor.

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SHOULD there be a loss of power in the engine the following points should be examined for the cause: leakage at either the exhaust or inlet valves, sparking plug, or piston rings, weak accumulators, dirty sparking plug, imperfect contact at the contact breaker, caused by a weak spring in the contact arm, or by carbonised oil on the fibre disc and contact pieces, or burning of the platinums on the trembler of the induction coil. The latter may be cleaned by removing the screw and trembler blade, and dressing up the contact pieces perfectly square to ensure good contact when replaced. Put on the switch, put the contact breaker in position to close the circuit, then adjust the screw to the blade till the most violent vibration of the trembler is attained. Lock the screw in position by means of the locking nut. When making this adjustment it is most important that the sparking plug wire should be connected to the plug and the plug to the cylinder; should this be neglected there is every probability of the coil being injured by burning.

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SHOULD misfiring occur, examine the sparking plug points, to see whether they are clean and the proper distance apart (about $\frac{1}{32}$ of an inch); see that the porcelain of the plug is not broken, all terminals of the wiring properly tight and clean, contact breaker clean and proper adjusted, accumulators not under four volts and all parts of the wiring, which are likely to come in metallic contact with the framework, properly insulated. A most successful method of finding a short circuit is to put the car in the very darkest place obtainable and start the engine, when any leakage in the electric circuit will be easily found, a dull blue flicker showing up bright in the dark although quite imperceptible in the light. Do not discharge the accumulators below 3·8 volts. Although it is possible to run on less than this it is most injurious and shortens the life of them. Examine the accumulators frequently to ascertain whether the top of the plate is well covered with the electrolyte; if the top of the plate is visible add only pure distilled water to cover it.

IT is advisable to run off about a cupful of petrol from the carburettor end of the petrol pipe about once a fortnight; this will clear away any water that may have gathered. The petrol in the carburettor should also be allowed to run off. The carburettor should be taken down and thoroughly cleaned out about every three months; it must be kept clean and free from water or grit.

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IF the clutch should "slip" it will be due to oil getting on the face of the leather. This should be washed off by pouring petrol through the hole in the friction clutch drum or fly-wheel, a little fuller's earth may be applied afterwards. The clutch should not be allowed to slip for any length of time, as the heat generated will burn the face of the leather; when this takes place it is best to have the leather replaced at the first opportunity. Remember to regularly oil the friction clutch bearing. Don't give more than a few drops, as when too much oil is given it will find its way on the leather face of the clutch.

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A CHARGE of oil should be given to the gear box about every 200 miles, and all the actuating levers should be kept well lubricated and working freely, so that the gear can be changed without any "sticking" in any of the joints. As it has been fully demonstrated that the wear and tear of the gear box is almost always all due to bad manipulation, it is of the utmost importance that drivers should make certain that they have acquired the knack of changing gear without jar or noise. To change, the left foot pedal should be depressed, and the change immediately made by the hand lever; no force is necessary, but the lever should be quickly and lightly moved from one notch to the other. The gear should never be changed from a high to a lower speed until the car is moving at approximately the rate of the lower speed.

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WHEN descending steep dangerous hills, the Hozier Company recommend that the descent be made on the second speed, or even the first speed, if the hill is very dangerous. In this way the car cannot run away, and the brakes are reserved for any emergency. Of course, ordinary hills can be descended with the engine running free. Never allow the car to get out of control, but always know that it can be stopped immediately, if necessary. The brake power provided is more than ample, but it should not be abused. When driving in the ordinary way allow plenty of time to stop, as sudden application of the brakes is sore on the mechanism, and should only be done to save accidents.

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THE back axle should have a charge of solid oil about every 500 miles, by means of a force pump supplied for the purpose. A charge should be given to the gear and also to each of the axle tubes through the screw plug holes. The front wheels may be very efficiently lubricated with grease, the outer cups should be filled up, and by screwing these home the grease will be forced right through the bearing. The steering gear should be oiled every 100 miles. All the mechanism of the car should be kept clean, and all joints regularly oiled.

A REWARD is offered for the number of a dark motor-car containing three men in white peaked caps, which killed a dog between South Mymms and Barnet on Sunday, the 28th ult. about 3.30 p.m.

AN echo of the Reliability Trials of Septenber last comes in a letter dated March 3rd by the Technical Secretary of the A.C.G.B.I. to Messrs. Mann and Overton's, Limited, in which he says that on inquiring into the climb of Westerham Hill by the car No. 106 in the Trials he finds that the Observer made a mistake in his notebook in booking the car as having stopped on Westerham Hill. The Observer was not, apparently, acquainted with Westerham Hill, and booked a stop which occurred on a hill previous to Westerham as occurring on Westerham Hill itself. The marks for both Georges Richard cars, numbers 57 and 106, on this hill stand good, and in the amended certificate the marks are duly entered.

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THE "SUNBEAM" SIX-CYLINDER CAR.

WE gave a general description of the new six-cylinder "Sunbeam" car of Messrs. John Marston, Limited, in our issue of the 6th ult., while in that for the 27th ult. we gave drawings of the metal-to-metal friction clutch employed on the vehicle. We are now able to illustrate the engine and gear box of this interesting car. Figs. 2 and 3 represent respectively an end elevation and a part longitudinal section of the 16-18 h.p. motor. As will be seen, the six cylinders are cast in three

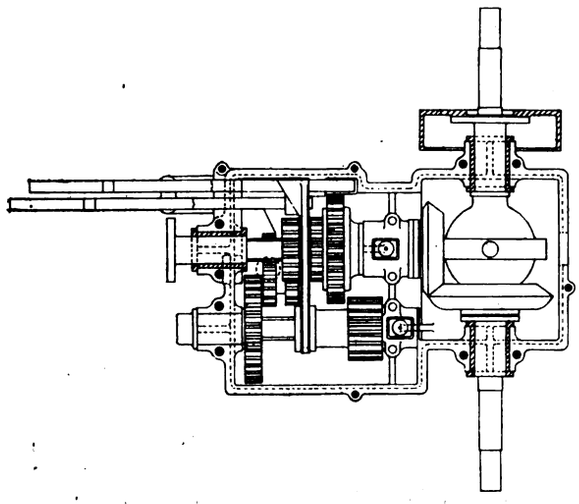
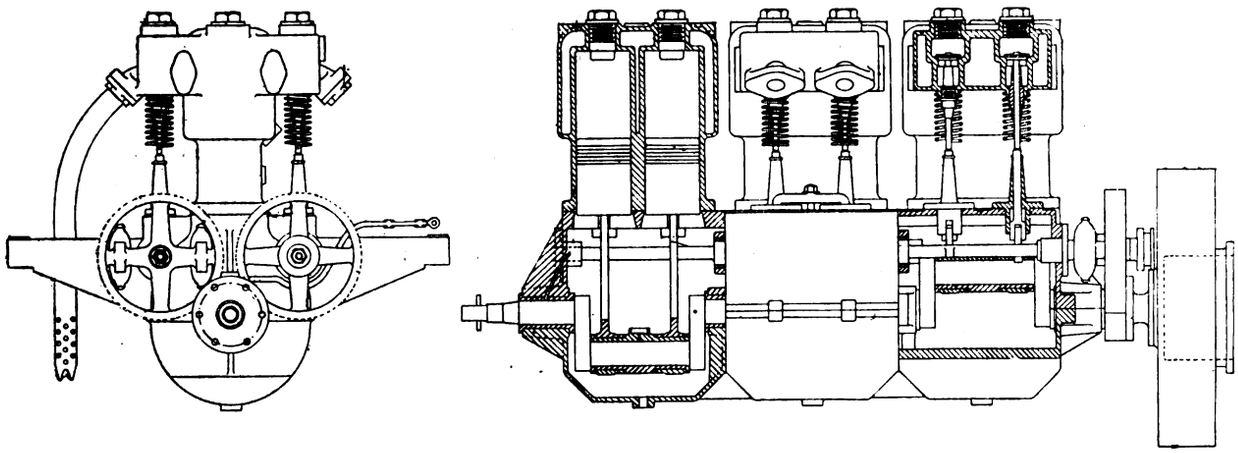


Fig. 1.—Sectional Plan of Change Speed Gear Box on "Sunbeam" Six-Cylinder Car.

pairs. The bore and stroke are the same as in the "Sunbeam" 12-h.p. car. The pistons of each pair of cylinders work on their own crank, the cranks being set at an angle of 120 degrees. The valves are all mechanically operated, the inlets being on the opposite side to the exhaust, and are interchangeable as far as valve seats, plugs, guides, etc., are concerned. A new feature is embodied in the inlet valve cam shaft, which is made so that the cams can slide longitudinally, they being sloped off towards the back, thus providing a variable lift to the inlet valves, giving a large range of control of the engine speed, at the same time effecting a notable economy in the quantity of petrol consumed. There is, of course, beyond this the ordinary throttle governing device. Fig. 1 shows a sectional plan of the gear box, which provides two forward speeds and a reverse with a direct drive on the top speed.



Figs. 2 and 3.—End and Part Longitudinal Section of "Sunbeam" Six-Cylinder Motor.

Two Napier cars will be on view at the motor-car show in Boston, which opens on the 14th inst. These will be the first cars of English manufacture to be shown at a public exhibition in the United States.

WHY WAIT?

FROM the very beginning of automobilism there has always been a number of persons who have announced themselves as firmly determined to buy a car some day, but who have been waiting, and are still waiting, for what they consider a "perfect" motor vehicle. Of course, many who express such sentiments are not sincere, and are merely endeavouring to disguise an inability or a disinclination to expend the price of a good automobile, but undoubtedly there are others who are actually waiting in good faith for the coming of their ideal vehicle. Their idea is that some wonderful system will be brought out which will render all present machines fit only for the scrap heap, and so they wait and wait, missing years of enjoyment, for the car which never comes.

As a matter of fact there is very little probability that the car perfect in equipment and satisfactory in price will ever come, and there is nothing in the history of other important inventions, such as the bicycle, the sewing machine, or the many applications of electricity, for example, to warrant any such expectation. In almost every case the differences between the earliest models and those of the present day are comparatively unimportant, and while many improvements have increased the efficiency and modern methods of production have lowered the prices of the apparently perfected article, the fundamental principles of operation have remained the same. Similarly as regards the automobile, it is the general opinion of well-known constructors and others best qualified to judge that the lines on which future development will take place are already well defined.

The tendency is not for startling innovations, but rather for taking existing systems and gradually improving them, as experience shows that such action is advisable; but even this process must be very gradual. If an improvement be thought of to-day to a standard pattern engine or gear made by any good firm, it will probably be nearly a year before it will be embodied on the cars turned out by the particular makers, as it will be tested carefully, and possibly modified a dozen times before its final form is decided. These things are being continually done by the manufacturers, remarks a writer in the "Automobile Magazine," but the automobile world never hears of them, as many changes which appear to be very promising are found in the long run not to be improvements, and are discarded, possibly to be taken up again a few years later, and found wanting once more, by some other experimenter. This is the history of other mechanisms, and it will be found that all the most successful and practical have been gradually evolved in this way.

The would-be automobilist may therefore safely go ahead and purchase the car which best meets his requirements among existing models, with a certainty that no revolutionary inventions will make it obsolete before he receives an adequate return on his investment.

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THE GORDON BENNETT RACE.

THE prospect of the eliminating test for the Gordon Bennett Race being held in the Isle of Man is one which will be regarded with pleasure by all interested in the development of British sport. At one time it seemed probable that the British eliminating test would take place in the Ardennes, but the rapacity of the Burgomasters of Belgium caused the officials of the English Club to look for another course. Mr. Orde has been in the Isle of Man, and has apparently found a road which will be suitable for the purpose. This is certainly an advance upon the way in which the trials were conducted at Welbeck last year. As we pointed out at the time, it seemed rather absurd to select the drivers for a contest of close upon 400 miles on the strength of the speed attained over a kilometre course. However, now we have the promise of something like a genuine test, and the fact that it will be held on English soil should make it an event of primary importance to British motorists, who may be expected to invade Mona in even greater numbers than they rushed into Ireland last year. Let us hope that the hotelkeepers of the Island will prove themselves as modest as their *confreres* in the Emerald Isle showed themselves exorbitant in their charges.

THE rules and regulations for the eliminating trials which will probably be held in the Isle of Man during the latter part of April, are of interest at the present moment. All cars intended for competition must be produced for inspection at the Automobile Club, Piccadilly, W., by noon on Saturday, April 16. Each firm entering shall contribute at the rate of £50 for the first car and £25 for each succeeding car towards the cost of the trials. Each entry must be accompanied by a deposit of £250–this deposit to cover any number of cars entered by any one firm. Unless the car (or cars) presented for the selection trials conforms (or conform) in all respects with the requirements of the Gordon Bennett rules, and unless the car is, in the opinion of the committee of the club, a *bona fide* racing car suitable to compete in the Gordon Bennett race, the £250 will be forfeited. If a car entered is not at the appointed place by noon on April 16th, 1904, the deposit of £250 shall be forfeited and shall remain in the possession of the club. After the selection trials, three cars and drivers and reserve cars and drivers shall be chosen by the club, it being understood that, contrary to the rules governing the eliminating trials of 1903, the selection trials of 1904 are held simply for the guidance of the club in making their choice, and the winners of the selection trials will not necessarily be selected to represent the club in the race. The names of the proposed drivers must be submitted to the committee of the club before the inspection of the cars, and the committee shall have the right to refuse any driver at their discretion.

THE programme of the Gordon Bennett week has now been definitely fixed as follows:—

June 16th.—Weighing of the competing cars.
June 17th.—The Cup race.
June 18th.—Tour over the course and dinner at Homburg.
June 19th.—Track races at Frankfort-am-Main.
June 20th.—International Automobile Conference at Homburg.
June 21.—Elegance Competition and Flower Fete.

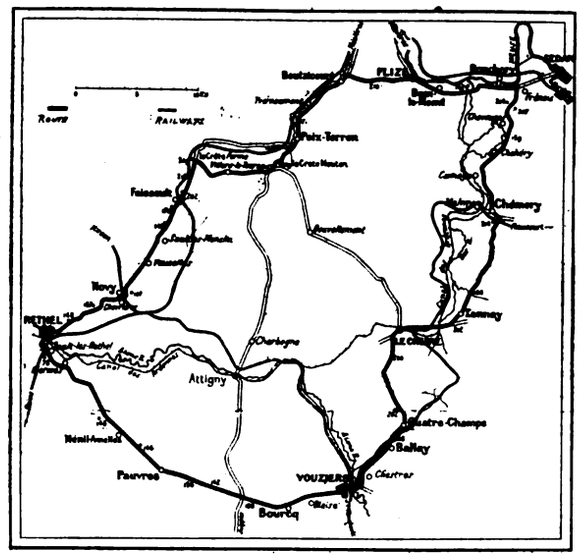
IT is said that there is still plenty of hotel accommodation to be had at Mainz, which is only twenty-five miles from Homburg. The municipal authorities of Mainz are reported to be willing to provide two buildings to serve as garages during the Gordon Bennett week, each having accommodation for about 200 cars.

NO authoritative announcement has yet been made by the Committee of the Automobile Club of America as to the time and place of the eliminating trials for the American team. The Secretary of the Club has been commissioned to make an investigation of the Virginia beach, near Norfolk, and report on its fitness as a place for holding the trial tests.

THE course finally chosen for the eliminating trials for the French Gordon Bennett team, and for which official sanction has now been given, is shown in the accompanying map. It is in the French Ardennes, the exact course being shown below:—

	Kil.		Kil.
Rethel	0	Donchery	65
Sault-les-Rethel	1	Dom-le-Menil	70
Biermes	4	Flize	73
Menil-Annelles...	10	Boulzicour	78
Pauvres	16	Poix	86
Bourcq	27	Cretes de Poix	87
Vouziers	32	Neuville-aux-Tourneurs ...	92
Ballay	37	Cretes de Neuvisy	97
Quatre-Champs	40	Faissault	103
Le Chesne	48	Saulces-Monclin	110
Tannay	51	Novy	116
Chemery...	59	Rethel	125
Chehery	60		

The exact distance is 78 miles, and will therefore have to be covered four times. Most of the places named are villages in which there will be no difficulty in making precautions for the public security, while the course is so good that the cars will probably be able to attain higher speeds than will be possible on the Gordon Bennett course. At the same time there are hills at Poix and Neuvizy which will sufficiently test the speed of the cars on gradients.



The course of the French Eliminating Trials. [*L'Automobile.*

FRIDAY, May 20th, has been fixed for the French eliminating contest, the weighing-in to take place on the 19th of May. The competitors will draw lots for the order of starting, in the following way. The car of the competitor who secures No. 1 will start 1st, 11th, and 21st, the one who secures No. 2, 2nd, 12th, and 22nd, No. 3, 3rd, 13th, and 23rd, and so on. No ladies will be allowed to drive in the French team.

THE colours of all the competing nations have now been fixed; they are as shown below:—

Germany, white.	Belgium, yellow.
Great Britain, green.	Italy, black.
France, pale blue.	Austria, black and yellow.
United States, red.	Switzerland, red and yellow.

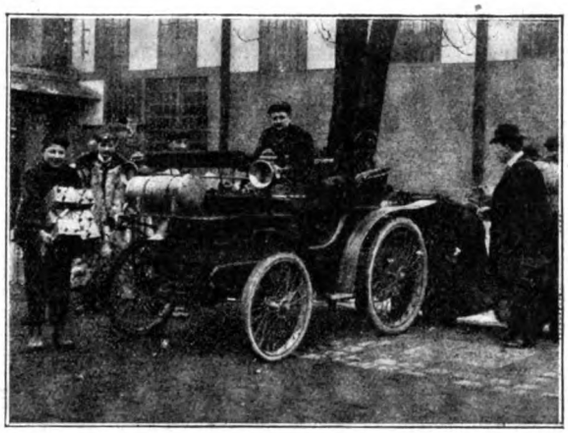
REGARDING the reference to their garage in South Street, Newcastle-on-Tyne, in the last issue, Messrs. George and Jobling ask us to mention that their establishment is just one minute from the Newcastle end of the High Level Bridge, and that in a short time their garage will be always open, and connected with the outside world by telephone.

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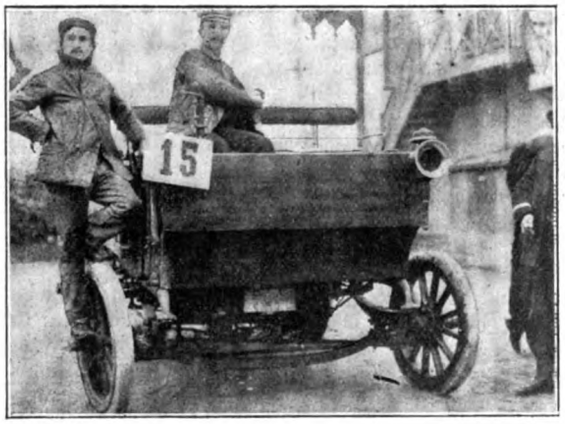
THE FRENCH CONSUMPTION TRIALS.

THE fourth annual "Criterium de Consommation" organised by "L'Auto" commenced on Thursday last week. The competition was divided into the following classes:—

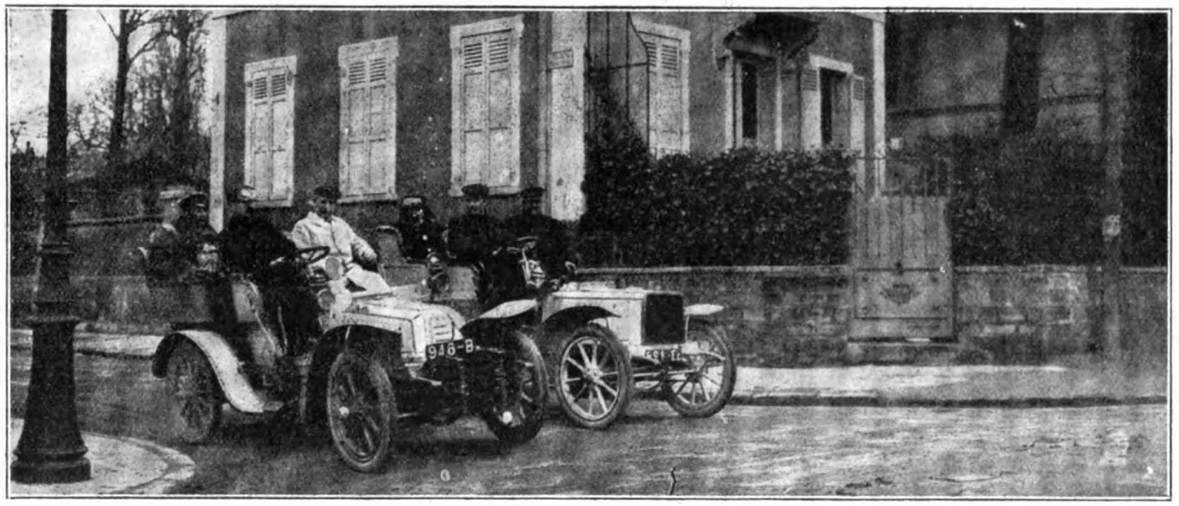
Passenger cars costing less than 5,000 francs.
" " from 5,000 to 8,000 "
" " " 8,000 " 12,000 "
" " " 12,000 " 18,000 "
" " " 18,000 " 25,000 "
" " " 25,000 " 40,000 "
" " over 40,000 "



The Chenier-Lion (Peugeot) Car, which utilises Paraffin, Shale Oil, Naphthaline as Fuel.



The Peugeot Lorry.



The Two Successful Creanche Cars in the Criterium de Consommation.

Lorries carrying less than 1 ton.
" " over 1 "
Delivery vans carrying less than 500 kilos.
" " from 500 to 1,200 "
" " over 1,200 "

The points taken into account in the trials were: The consumption of fuel, the average speed and regularity of running, and the hill-climbing capabilities. Thursday the 3rd inst. was devoted to a 100 kilometre run from Suresnes to Corbeil and back by the pleasure cars costing less than 12,000 francs. Points were allotted to each competing car as follows:—1. Consumption per total weight, the marks being equal to the number of litres of fuel consumed, divided by the weight of the car and its load, in tons, multiplied by the co-efficient ten. 2. Consumption per useful load, marks equal to litres consumed divided by useful load in tons multiplied by ten. (3) Any car averaging less than 25 miles per hour was given marks equal to the difference in kilometres between its average and that required multiplied by twenty-five. (4) On the hill climb on Picardie Hill a speed of 30 kilometres per hour was required. Any lower speed secured marks equal to the difference between it and 30 kilometres multiplied by five for the outward journey, with flying start, and by ten for the return trip, standing start. Seventeen cars competed, all getting back within the specified time. The car entered by Messrs. Chenier and Lion excited much interest, it being an old Peugeot fitted with two-cylinder horizontal engine, but adapted by the inventors to use either paraffin, napthaline, shale oil, or petrol as fuel. On the first day paraffin was used. The following are the results:—

Classification.	Car.	Weight of Car and Load. Kilos.	Total Consumption. Litres.	Total Marks Allotted.
	Class I.—Chassis less than 5,000 francs.			
1.	Peugeot	875	5·600	511·1
2.	Peugeot	775	5·420	512·4
3.	Fouillaron	1,000	9·130	602·9
4.	Noe Boyer	785	5·080	878·9
4.	Bolide	975	12·950	878·9
6.	Roy	900	13·940	951·9
	Class II.—Chassis from 5,000 to 8,000 francs.			
1.	Creanche	1,130	7·630	356·8
2.	Chenard Walcker...	1,210	8·560	589·2
3.	Vivinus	1,040	12·	635·
4.	Vinot-Deguingand	1,315	11·430	677·4
5.	Aries...	1,185	13·550	753·6
6.	Creanche	1,038	10·880	839·5
7.	Boyer	1,618	15·750	842·5

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Class III.—Chassis from 8,000 to 12,000 francs.				
1.	Creanche	1,300	9·770	507·
2.	Aries...	1,402	10·210	517·4
3.	Vinot-Deguingand	1,383	18·100	796·5
	Heavy Oil.			
	Chenier-Lion	1,168	14·810	—

On Friday, the 14th inst., the cars costing from 12,000 fr. upwards were submitted to a trial over the same route. On this day the Chenier-Lion car used shale oil as fuel. Appended are the results of the first cars in each section :—

Number.	Car.	Weight of Car and load Kilos.	Total Consumption Litres.	Total Marks allotted.
	Chassis costing from 18,000 to 25,000 francs.			
1.	L'Automotrice	1,638	14·700	553
	Chassis costing from 12,000 to 18,000 francs.			
1.	Peugeot	1,650	14·700	475·5
	Shale Oil.			
—	Chenier-Lion	1,145	12·170	937

The commercial vehicles were put to the test on Saturday, they being required to cover a sixty kilometre course to Longjumeau and back, the Chenier-Lion car taking part in the procession, with naphthaline as fuel. The same rules regulated the proceedings, except that only an average speed of fifteen kilometres and twelve kilometres on Picardie Hill was required. The table below gives the results :—

Classification.	Car.	Weight empty, Kilog.	Load. carried, Kilog.	Total consumption, Litres.	Marks allotted.
	Class 1.—Heavy Lorries.				
1.	Peugeot	1,680	3,000	16·110	186·97
2.	Bardon	1,730	1,313	16·670	364·38
3.	Gillet-Forest (heavy oil)	1,476	1,504	17·400	452·4
	Class 2.—Light Lorries.				
1.	Gillet-Forest	737	787	10·680	380·1
	Class 3.—Delivery Vans Carrying less than 500 kilos.				
1.	Aries	963	322	7·350	285
	Class 4.—Delivery Vans carrying more than 500 kilos.				
1.	Gillet-Forest	880	570	9·500	372·7
	Napthaline (in balls).				
1.	Chenier-Lion	1,230	230	6 kilos.	

It will be seen that the Peugeot Company headed the lists in three of the classes and the Creanche Company in two of the categories.

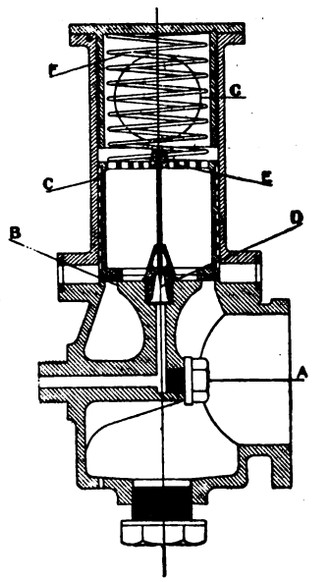
"AUTOMOBILE TOPICS," of New York, informs its readers that "at the Crystal Palace automobile show, in London, several cars belonging to King Edward were shown"!

IN connection with the race for motor-boats which is being organised by the A.C.F. to take place on August 8th next, from Calais to Dover, the A.C.G.B.I. is taking steps to obtain Admiralty sanction and the co-operation of the various railway companies, municipalities and yacht clubs to make the race a great international success.

THE Automobile Club of America will hold in the week beginning April 4th an international trial of motor-wagons, open to all used for commercial purposes. The classification will be on the basis of dead load carried, all wagons of like weight, whether steam, petrol, or electric, to operate in the same class. The following classes have been established :—(1) To carry a dead load of 1,000 lbs. or under; (2) 1,000 to 2,000 lbs.; (3) 2,000 to 3,000 lbs.; (4) 3,000 to 4,000 lbs.; (5) 4,000 to 5,000 lbs.; (6) 5,000 to 6,000 lbs. With a view to holding a more thorough and practical test than has hitherto been afforded, the wagons will be placed under actual working conditions in the service of the American and Westcott Express companies, and will deliver merchandise, produce, etc., from the various stations of these companies for an entire week. Awards will be made in each class for the best performance, based on the economy of operation in time and fuel, ratio of paying load, ton mileage and general reliability and availability for service.

THE CHENARD-WALCKER AUTOMATIC CARBURETTOR.

IT is a well-known fact that the carburation changes with the speed of the motor, and that the mixture (which should remain constant, by which is meant those proportions of air and petrol vapour which give the best explosion, and therefore maximum influence), alter to a very marked degree, resulting in a considerable loss of efficiency. In order to overcome or rather to rectify these variations it has hitherto been necessary for the driver, in order to obtain the best results out of his car, to continually devote his attention to the regulation of the gas and air levers, usually found situated on the steering columns. As this adjustment could only be effected, even by the most expert *chauffeurs*, in a more or less perfunctory manner, it follows that it was seldom that a motor was working under the best conditions suited to its requirements at the moment. Several more or less successful attempts have been made in the past to get



Section of Chenard-Walcker Carburettor.

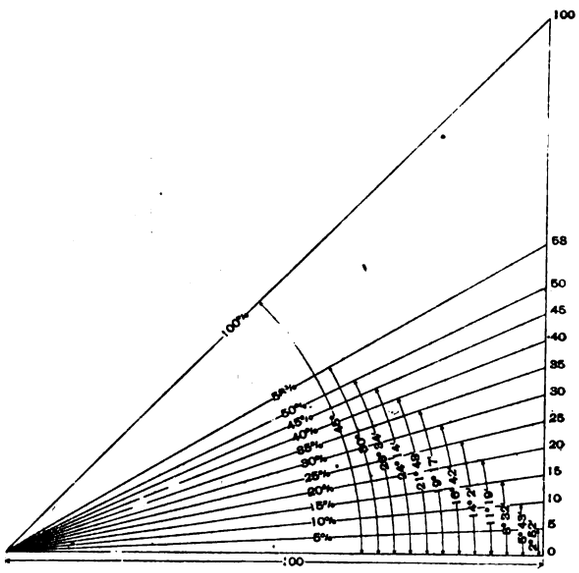
over this difficulty by carburettors which automatically take in a supplementary supply of air when the same is required. Messrs. Chenard and Walcker have devised and are fitting to their 1904 car a new automatic carburettor which is claimed to give a perfect mixture for all engine speeds. The accompanying illustration gives a sectional view of the carburettor, the float feed being omitted. The air which enters at A has to pass the annular entry B, which is opened and closed by the movable valve C. Attached to this valve is a conical needle, D, which controls the feed of petrol in direct relation to that of the air. F is a spiral spring, exerting a slight constant pressure on the valve, and G is the outlet of the mixture to the motor. Let us now examine what happens when the motor is working. As soon as the suction from the motor exceeds the tension of the spring, the valve lifts, opening the annular air ring and the petrol supply in their correct proportions; the greater the speed, the greater, naturally, the suction, whilst at the same time the valve lifts higher in consequence of the increased suction opening the air and petrol orifices in the requisite proportions for correct mixture. A number of claims are made for the new carburettor, among which may be mentioned the following :—It economises fuel, as the maximum impulse is derived from each charge. It simplifies driving, since there are no air or gas levers to attend to, and even in starting, as well as on the road, the existence of the carburettor can be entirely ignored. It renders the car remarkably silent, while, having no mechanical complications, and depending merely on the laws of nature, there are no parts to wear out and nothing to go wrong.

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THE MEASUREMENT OF GRADES.

THERE is considerable misunderstanding current as to the method of measuring road grades and a general tendency to over-estimate the incline of hills. The matter, however, is a very simple one. Grades are usually measured on a percentage basis, and this percentage is the ratio of the vertical distance climbed to the length of the horizontal distance travelled. A horizontal base line is assumed originating at the commencement of the incline, and all grades are referred to this. If a perpendicular is erected to this horizontal line, the distance along it from its base to the point where it intersects the grade itself is the rise. The ratio of this vertical rise to the length of the base line from its beginning to the foot of the perpendicular is the measure of the grade. Of course, the ratio of the difference in height between two neighbouring perpendiculars, to the horizontal distance between them, is the measure of the grade. If two perpendiculars be chosen 100 feet apart and one of them be 20 feet and the other 30 feet in height, the rise in the 100 feet of horizontal distance is 10 feet and the grade is one of 10-100 or 10 per cent.

If the incline is not uniform, it is necessary to choose the perpendiculars closer together than 100 feet in order to obtain the per cent. of grade with sufficient accuracy, for it is simply the average grade between the perpendiculars which is obtained by



this method. In the accompanying diagram a horizontal base line has been drawn, and grades of percentages varying by 5 per cent. stages up to 50 per cent. have been represented by inclined lines radiating from the left hand end of the base line.

It is very common to find people confounding the percentage of a grade with the angle of incline which it makes with the horizontal. The angles corresponding with each percentage of grade here represented are marked upon the diagram for purposes of comparison. It will be seen that the percentage of the grade increases in an entirely different ratio from the angle of slope, and, in fact, the per cent. of grade is simply the natural tangent of the angle of incline. A grade which makes an angle of 30 degrees with the horizontal is equivalent to a 58 per cent. gradient. A 45 degree slope is equivalent to a 100 per cent. grade, or, in other words, the vertical distance is equal to the horizontal distance. The usual cause of the almost universal over-estimation of gradients lies in the fact that when looking up a hill the length of the road itself is greatly foreshortened, while the vertical distance is projected at its full value. This causes the apparent ratio of the vertical distance to the horizontal distance to be greatly exaggerated and leads to the estimation of the per cent. or the angle at an excessively high value.

In rolling country, where one is constantly descending and ascending hills, the incline which one is approaching is likely to be over-estimated on account of there being no horizontal base line at hand to assist in the estimate. One is likely to unconsciously assume the down grade upon which one may be as horizontal, and thus its decline is added to the incline of the rise which one is approaching. About the only condition under which one can make even a fair approach to accuracy in the estimation of a grade is, remarks a writer in the "Horseless Age," by viewing it from a point at right angles to the length of the road and from a horizontal surface. This condition is seldom realized.

The gradometers which are on the market consist of a spirit level which is made in the form of an arc, lying in a plane along the length of the car. The gradometer should be attached so that its base is level when the vehicle is horizontal. The bubble should then stand at zero. In ascending or descending a hill the bubble moves in the appropriate direction along a scale which is graduated in per cent. The accuracy of the readings of gradometers is somewhat affected by the loading of the vehicles upon which they are placed.

THE NICE WEEK.

PREPARATIONS are well in hand for the automobile *fete* to be held at Nice from the 22nd to the 30th inst. On the 22nd and 23rd inst. there will be a touring competition; on the 24th inst. a gymkhana, followed on the 25th inst. by a *rallie papier*, or automobile paper chase. On Sunday, the 27th inst., there will be a procession of decorated cars. The races commence on Monday, the 28th, by a series of mile trials, followed by the flying kilometre trials for the Henri de Rothschild Cup. On Tuesday, the 29th inst., there will be a *concours d'elegance*, at Monte Carlo, while a kilometre hill-climb on the Corniche road will take place on the 30th inst. if the necessary prefectural authorisation can be obtained. Some new records are expected to be created in the various events, for among the entries so far received are the following:—

Baron de Caters	90-h.p.	Mercedes.
Warden	,,	,,
Jenatzy	,,	,,
Braun	,,	,,
Werner	,,	,,
Andrew Fletcher	,,	,,
Mark Mayhew	80-h.p.	Napier.
S. F. Edge	,,	,,

A CHARGING plant has been established by the Motor Mart, Limited, at their premises in the Euston Road.

WE understand that motorists anxious to obtain an early number for their cars can secure this by registering their vehicles in Argyllshire.

MESSRS. DEASY AND COMPANY are very shortly moving their depot from Piccadilly to 10, Brompton Road, close to Tattersall's, Albert Gate, S.W. The new premises will allow sufficient room for carrying on repairs under personal supervision.

THE United Motor Industries, Limited, have sent us a sample of a specially delicate yet pure grease for placing on the terminals of coils and accumulators to prevent the damp getting to them, and to keep them perfectly clean and satisfactory for ignition. This grease has been devised by M. Boulanger, the electrical expert, and manager of Messrs. Bassee and Michel, and is being introduced into this country by the United Motor Industries.

THE exclusive agency for the productions of Messrs. Charron, Girardot and Voigt, makers of the well-known C.G.V. car, has been secured by the London Motor Garage Company, Limited, who can deliver from stock C.G.V. cars of 15-h.p. and 25-h.p., with *chassis* of standard length, or of larger dimensions to admit of side entrances. The company have appointed Mr. Charles Joiner, who has been connected with Messrs. Charron, both at the works and sales departments, for five years, as manager of their business.

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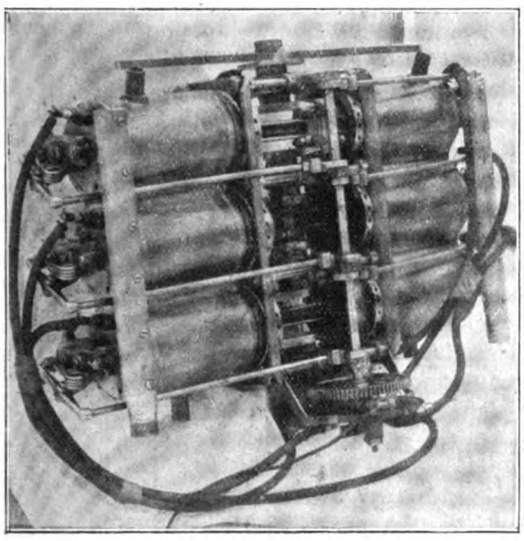
HERE AND THERE.

A STEAM 'bus is now plying for hire at Eastbourne.

MR. J. R. STATHAM is opening a garage in the High Street, Kilkenny.

MR. H. S. VANE has been appointed secretary to Messrs. S. F. Edge, Limited.

THE accompanying illustration represents the new six-cylinder Duryea petrol engine which has been specially built for



use in an air-ship, in which extreme lightness has been aimed at. It will be seen that the two sets of three cylinders are opposed. The valves, as in the new British-made Duryea engine, are in the head, the inlets being automatically operated. The cylinders, which have a bore of 4½ in. by 5½ in. stroke, are of cast iron, and the crank shaft is a hand forging bored hollow to reduce weight. The engine, complete with water jackets partly filled with water and everything ready to run, weighs 232 lbs., and develops 40½-b.h.p. at a speed of 900 revolutions per minute, giving the effective result of 5.7 lbs. per h.p., a noteworthy advance in lightness of construction which reflects much credit on the builders, the Duryea Company, of Reading, Pa., U.S.A.

A WELL-KNOWN motorist fined at the West London court for driving a car without a rear light made a strong appeal to a magistrate not to endorse his licence, and succeeded in avoiding that awkward witness to his waywardness.

THE Reading Automobile Club, the Oxford and District Automobile Club, the Sheffield and District Automobile Club, and the Eastern Counties Automobile Club have joined the Motor Union under scheme II., which provides for affiliation at a fee of 5s. per annum.

INQUIRIES recently made by the U.S. House of Representatives concerning the number of vehicles of all kinds maintained at Government expense are said to have disclosed the fact that the United States Government owns only one automobile. It is an electric vehicle used principally in carrying the mails to and from the Bureau of Standards, located in the suburbs of Washington.

"LA LANGUE ANGLAISE SANS MAITRE" is the title of the latest volume in the "Self-Taught" series issued by Messrs. E. Marlborough and Company. This will be useful to all Frenchmen learning English. One result of the development of automobilism has been the increase of the value of a knowledge of languages other than their own to a good many people. Some of the automobile expressions might have been less literally translated than by the author, Mr. Thimm, but on the whole the work is freer from solecisms than most books of the kind.

AN automobile club has lately been formed in Kiew, Russia.

LAST Saturday the Herefordshire Automobile Club held a run to Abergavenny.

MESSRS. ALLSOPP AND SONS' motor-car for the use of their travellers is a 9-h.p. Beaufort phaeton.

A NEW list of more than six hundred agents for the Vacuum Mobiloils has just been issued by the Vacuum Oil Company, Limited.

THE Motor Van and Users' Association is now in full work, the first committee having been elected. Mr. W. Rees Jeffreys is secretary

AT the new technical institute which the London County Council have established in Saltram Crescent, Paddington, a motor-car workshop is to be started.

A FIRE broke out the other day in the motor-car house of Mr. C. D. Leng, of Sheffield, who was unfortunate in losing not only his motor-car house, but the two cars it contained.

EVERY car owned by a maker or agent, and intended for sale, must bear the identification mark assigned by the registering authority of his district. In no case must this exceed £3.

OWING to the alleged excessive size and brilliancy of the lights used on motor-cars in Dorset, the Dorset County Council has decided to ask the Local Government Board to limit the power of the lights.



Where all Motorists will be flocking on the 19th inst.

THE Planet "Peerless" sparking plug has a glass-cased jump spark attachment, and acts in grease and soot equally as well as if clean. It is being placed on the market by the Automobile Engineering Company.

MESSRS. W. HUNT AND COMPANY, of Kettering, have brought out a non-skidding device consisting of two discs or wheels to bite on the road inside the road wheels at option of the driver. When not in action they are automatically released and raised clear of the road.

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MESSRS. JULIUS HARVEY AND COMPANY have just shipped a steam motor-wagon and six trailing vehicles for use on mining properties abroad.

THE Kennedy Motor Company, Limited, has been registered with a capital of £10,000 and offices at Newlands Road, Cathcart, Glasgow.

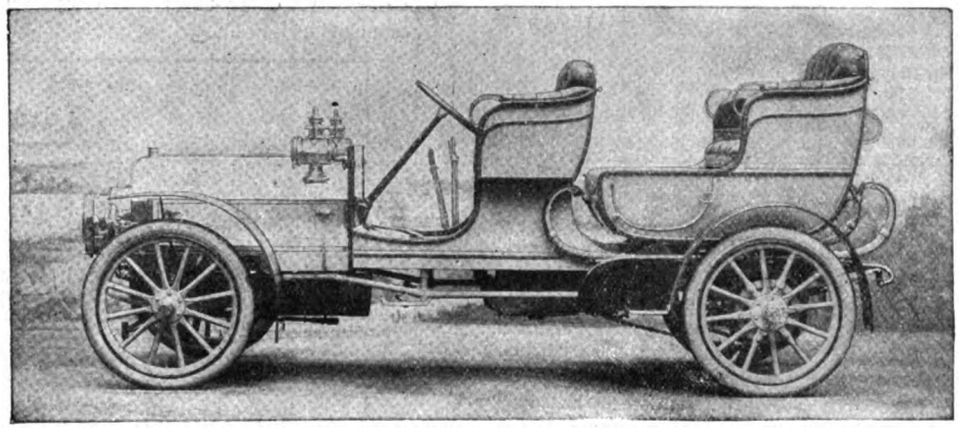
AT the annual meeting of the Dutch Automobile Club, held a few days ago, it was announced that the list of members now comprised 204 names.

AS already mentioned in these columns, there is every probability of the British eliminating tests for the Gordon Bennett race taking place in the Isle of Man.

MR. EDWARD CORNET, motor-car agent, of Thornhill, N.B., will shortly be opening a garage at Dumfries, where he will stock accessories and undertake repairs to motor-cars.

"LA FRANCE AUTOMOBILE" in a recent issue refers mysteriously to a new clutch for motor-cars which is expected to cause a sensation when it makes its appearance on the market.

ONE of the striking features of modern automobiles is the great advance which has been made by carriage builders. As an example of the luxurious bodies now being turned out, we herewith illustrate a four-seated side-entrance car, known as a "berceau," the design of M. A. Belvalette, a well-known Parisian carriage builder. It is mounted on a 20-h.p. Gobron-Brillié *chassis*. As will be seen, the rear portion is separately carried on its own C springs, entire freedom from vibration being claimed as the result of the special suspension.



A Gobron-Brillie Car with Belvalette "Berceau" Body.

THE "Criterium de Consommation" organised by the "Auto" commenced on Thursday and concluded on Saturday, last week. Altogether forty-two entries were received for the event, the results of which are given elsewhere in the present issue.

KEENE'S AUTOMOBILE WORKS, LIMITED, has been registered with a capital of £10,000 to acquire the business of Keene's Automobile Works; to adopt an agreement with Mr. H. Perry Keene; to buy, sell, repair, alter, let on hire, store, and deal in motors, motor-cars, cycles, carriages, and vehicles, &c. The first directors are Messrs. H. L. A. Perry Keene, C. F. H. Harrison-Watson, J. Urlwin, and C. Young.

MESSRS. A. AND C. BLACK are issuing a series of volumes on the country scenes associated with the lives of the great names in literature. The associations of Scott and Burns have already been described; now comes a new book by Mr. C. G. Harper on the Ingoldsby country—that delightful corner of Kent peopled by the wonderful legends of the Rev. R. H. Barham. The motorist who wishes to explore the district with the definite object of tracing the developments of Ingoldsby's genius as well as of seeing the pleasant landscapes and coast scenery with which his humour was identified, should take Mr. Harper's chatty volume, with its delightful pen and ink sketches, as a "guide, philosopher, and friend."

THE Earl of Norbury has ordered a 4-cylinder Craig-Dörwald car.

THE Medway Motor and Engineering Company, Limited, will open an up-to-date garage on the 25th inst. at 77, High Street, Chatham.

THERE are now nearly 100 automobile clubs in North America, the latest organized being the Motor Car Club of Nova Scotia, Halifax, N.S.; the Newton Automobile Club, Newton, Mass., and the Automobile Club of New Hampshire.

IN our report of the Langdon-Davies Motor Company's exhibit at the Crystal Palace we referred to the change-speed gear under their own name. In order to prevent any confusion we are asked to mention that the gear is known as "Soame's."

MR. ANDREW CARNEGIE is having built a three storey fireproof motor house at No. 55, East Ninetieth Street, New York, at a cost of £4,000. It is to be twenty-five feet front and thirty feet deep, provided with a lift and living quarters on the upper floors.

JAMES ROBERTSON was fined 10s. at Marlborough Street, London, for "unlawfully exhibiting an advertisement on a motor car" in Hyde-park, contrary to the Park Regulations Act. Robertson said he did not know that he was committing any offence by going into the park. Nobody said anything when he entered, so he had no idea that he was contravening the regulations.

THE Continental Caoutchouc, Continental Patent Tyre and Guttapercha Company are calling special attention to their motor tyre canvas bag, which has the advantage of keeping tyres clean from mud and water whilst travelling. It does not expose the rubber direct to the sun's rays when attached to the car, and will also prove very handy when sending a cover by rail.

THE use of alcohol as a fuel for combustion engines in automobiles in the United States seems to be an early possibility, a Bill providing for untaxed denaturized alcohol having been introduced into the House of Representatives by the Hon. Henry S. Boutell, of Illinois. The Bill provides for the sale of alcohol free of internal taxes, with penalties for removal of the substances which are added to make the alcohol unfit for use as a beverage.

FROM the Hozier Engineering Company, Limited, comes a copy of the 1904 catalogue of Argyll cars—one of the finest productions of the kind that has so far reached us. A few pages are devoted to a description of the Hozier works, after which follows a very complete description of the various features of the Argyll cars, diagrams being given of all the principal parts, such as the three-cylinder engine, clutch, change speed gear, brakes, etc. The nine pages at the end of the list devoted to testimonials from users of the Argyll cars form an excellent indication of the popularity of these vehicles amongst the motoring public.

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MOTOR-CYCLING NEWS.

THE forthcoming trials promoted by the Auto-Cycle Club to test the various non-slipping devices for motor-cycles will be watched with great concern by those who are interested in this form of motoring. The trials will take place on a private track which has been specially prepared with some slippery material, such as clay, etc., and these tests will be followed by a run of not less than 500 miles in order to gauge the durability of the devices. Entries close to-day (Saturday).

THE new catalogue just issued by the Rex Company, Coventry, contains instructions as to how to operate the Rex motor-cycles. The diagrams of the working parts are lucidly drawn and explained, and should be of great service alike to users of this machine and to those who contemplate its acquisition.

THE Garrard Manufacturing Company, Limited, have lately introduced a neat ladies' motor-bicycle. As will be seen from the accompanying illustration, it resembles in appearance an ordinary pedal-driven machine with dropped frame, while the forks are the firm's own special anti-vibration type. The motor is of 1½-h.p., fitted with spray carburettor, and driving the rear wheel by means of a twisted raw-hide belt. The machine is controlled by one lever fixed on the handle-bar. The



tanks are two in number, one being placed between the upper and lower tube members near the steering column, the other behind the seat pillar tube. The engine is supported in a vertical position well in front of the bottom bracket, and a shield is fitted over the belt.

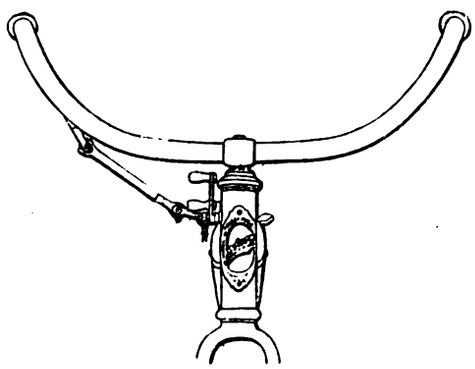
THE German Motor Cyclists' Union, of Stuttgart, has decided to hold a competition of lamps—acetylene, oil and electric—for motor-cycles in April next. Unfortunately it has been resolved to restrict the competition to German makers.

EVEN in India the motor-cycling movement is making progress, as is evidenced by the fact that a motor-cycle club has lately been formed at Delhi.

NINETEEN entries have so far been received for the reliability trial for motor-bicyles from Paris to Bordeaux and back, which is to be held by the Autocycle Club de France from the 22nd to the 27th April next. Any British makers of motor-bicycles who intend competing should apply at once to M. C. Doué, 38, Rue Amelot, Paris, as the competitors entered before the 15th inst. will ballot for starting positions, while those entering after that date will start according to their entry number.

AN International motor-bicycle 100-kilometre competition will be held in May next at the Porta Salaria Velodrome, in Rome. The King of Italy has given a gold medal to be awarded to the winner of the event.

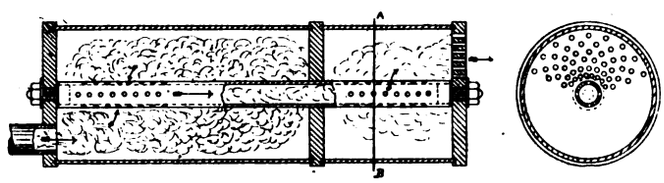
AN American firm of motor-cycle builders, the Hendee Manufacturing Company, of Springfield, Mass., are bringing out for the 1904 season a machine which is entirely controlled by one hand, so rendering it unnecessary for the rider to remove his hands from the handle-bar. By a mere "twist of the wrist" on the right grip, not only is the speed increased and decreased at will, but it also lifts and drops the exhaust valve



and makes and breaks the electrical circuit. The device consists of a flexible shaft connected with the right grip, leading down inside the handle-bar to universal joints and a telescoping shaft which connects with the speed lever on the head of the machine. The construction is stated to be very simple, and admits of perfect steering with the front wheel. In all cases the lever control fixed to the top bar of the machine will be retained, so that in case of accident to the handle-bar of such a serious nature as to break the bar or affect the grip control, the lever may still be used for the purpose of controlling the engine.

THE annual meeting of the Birmingham Motor-Cycle Club was held on Saturday, being presided over by Mr. R. Tingey, chairman of committee, who was supported by Messrs. E. H. Humphries (captain), L. C. Davis (vice-captain), and J. R. Bedford (hon. secretary). During the evening a letter was read from Mr. C. Jarrott offering a silver cup to the member of the club who, during the present year, covers the greatest distance in twenty-four hours on a motor-bicycle or motor-tricycle. The only stipulation is that the time of the trial shall be twenty-four hours on end, with the view of seeing what distance can actually be covered in the time, not with the idea of abnormal speed, but more in the shape of a touring competition, no speed beyond the legal limit of twenty miles an hour average to be recognised.

MESSRS. COXETER AND SONS, LIMITED, of Abingdon, have recently brought out a new silencer for use on motor-cycles, of which two sectional views are given herewith. It consists of a cylinder divided into two compartments, through both of which extends an iron tube, pierced, as shown, at both ends. The exhaust gas enters at the opening at the left and expands in the first large



chamber; it then passes through the holes in the tube, and, travelling along the latter, emerges and further expands in the right-hand compartment, from which it passes to the atmosphere through the openings in the cap. It is claimed that by means of the device the exhaust is rendered perfectly silent without causing any back pressure on the engine, which is thus able to develop its full power. The silencer, which is readily detachable for cleansing purposes, measures 8 in. in length by 3 in. diameter.

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CORRESPONDENCE.

BENZ v. LIGHT CAR.

To the Editor of *The Motor-Car Journal*.

Sir,—Your correspondent, G.L.B., suggests that owners of the more powerful Benz cars should give their experience of them. I have used a 6-2-h.p. Benz (tonneau) four-seated car in my practice and for touring since December, 1902, and it has given me the greatest satisfaction. The engine is wonderfully reliable and can always be depended on to get you home again. I can average from eighteen to twenty miles per hour on a run with four up, and it has never yet refused to carry its load up any hill. The cost of upkeep and repair has been very moderate, in spite of the fact that I have used it regularly in all weathers and given it some hard work.

The solid tyres supplied with the car were much too narrow and small altogether, and, being a square shape, tore off. I have replaced them with much broader rounded tyres and now have no trouble in that respect. I have also had the silencer placed further back, near the rear axle, and the engine, which used to get rather hot, now keeps cool. The workmanship throughout is sound and good, and I have yet to hear of a better four-seated car at the price. It is a matter of wonder to me that we hear so little of the more powerful Benz cars in this country and that they are never entered for the trials. Certainly they are very different machines to the wretched little three-and-a-halfs that one sees rattling and clanking about year after year as though they would never break up or wear out.—Yours truly,

Doctor.

To the Editor of *The Motor-Car Journal*.

Sir,—Your correspondent "Solid Tyre" suggests that there must be many "Benzites" who can testify to the good qualities of the geared Benz car, and as he mentions belt transmission and those who condemn it. May I just give my experience with the 4½-h.p. geared Benz.

I fitted a Dick's patent belt, which I bought for a few shillings some ten months ago; this has only been off for adjustment once during this period. I should like to mention, for the benefit of your readers, that for a 4½-h.p. engine the belt should not be less than a five-ply one and should be joined with the screw and stud fastening.

With regard to tyres it is only necessary to test the resiliency of the carriage springs fitted to these cars to be convinced that pneumatics are in reality a secondary consideration as compared with the proper springing of the carriage body. One other useful tip to Benzites—don't use the sparking plug as supplied by the makers but have the existing plate on these threaded to take a De Dion plug. In this case the plate need not be removed when fitting a fresh plug in, and, again, the cost is less. Considering the reliability and the long life of these cars, it is somewhat a matter of regret to hear that the firm have given up making them and are turning their attention to heavy cars only.—Yours truly,

Benz the Third.

STEAM v. PETROL.

To the Editor of *The Motor-Car Journal*.

Sir,—I notice "Searchlight" is asking for advice *re* steam *v.* petrol. should certainly advise steam, as there is nothing like the wear and tear in a steam car that there is in a petrol vehicle; no gear box wear and tear, no lightning speed of the engines, no carburettors, nor the thousand and one things you would have with a petrol car. I am using a Locomobile steam-car, which I have been running for two years, during which time I have made many alterations, which have improved the running of the car. I have removed the condenser, and coupled the exhaust to the three-way cock, so that I can turn the steam into the water tank, which does away with the water heater, or when required I can exhaust under the car. I know some critics will say the oil I lubricate with will get into the tank, then the boiler. I say, into the tank, but not the boiler; as the oil will float on the water, all that is required is to wash the tank out occasionally. By this means you are saving some weight, and allowing yourself more room to get around the engine. I have also substituted a steam lever tap for a wheel valve, which is a saving in the chain drive, as the engine starts much steadier, and saves jerking and straining the driving chain. Then I changed the petrol burner for a Clarkson paraffin burner, which saves much in fuel, and when I take my car out I do so in confidence of bringing it back again, or rather the car bringing me back. I have had twenty years' experience of steam-engines, namely, locomotives, steam cranes, steam navvies, winding engines, etc., and if I wanted a dozen cars now, they would all be steam.—Yours, etc.,

Steamer.

MOTOR-CAR REPAIRS.

To the Editor of *The Motor-Car Journal*.

Sir,—Undoubtedly your correspondent "Chirurgeon" is right to a certain degree *re* motor-car repairers (?). Many of the above so-called "repairers" are cycle agents who are gaining their experience at the cost of both the manufacturer and owner of the car they pull about (*repair*). On the other hand, no encouragement is given to practical men to open repair shops in local towns. Take the following instance:—Some time since an owner of a car told me there were several gentlemen in his district running cars, but it was almost impossible to get any repairs done without sending to the makers for a man, there being no reliable man in the district. I then made the following proposal:—That a small limited company be formed for repairing and garaging cars in the district; the various owners of cars to find half the capital between them, and I to find the other half, and take charge of the garage at a small salary. The above appeared to me to be a reasonable proposal, but no one would take it up. I have had a long practical experience in various makes of cars, and had my proposal been adopted, it would have been to the mutual advantage of the car owners and myself. As things are at present, really good men will not risk their money in opening repair shops in strange towns without any local interest.—Yours truly,

Engineer.

To the Editor of *The Motor-Car Journal*.

Sir,—I think it would be a good thing if there was some way of having our accounts looked over by some responsible firm to see into overcharges. In regard to the account about which there has been some correspondence, can you inform me if I can send the statement to someone and have it corrected, as I do not object to paying a fair charge; in fact, I have paid already one half of the account, and would like to know how much, if any, I am really owing. Some of your readers will, perhaps, kindly inform me upon this, and help me out of the dilemma. I consider "Francois'" suggestion a good one, as there ought to be some means of registering proper workmen.—Yours truly,

Chirurgeon.

CLEAN VALVES.

To the Editor of *The Motor-Car Journal*.

Sir,—I have a two-cylinder car. On taking out one inlet valve I notice it and its exhaust valve are sooty. The other inlet and exhaust valves are quite clean. Why is this?

Is it safer to drive with the clutch pedal disconnected from the pedal brake? In my car they are connected, so that I cannot put on the pedal brake without declutching.—Yours truly,

W. A. W.

PARAFFIN CARBURETTORS.

To the Editor of *The Motor-Car Journal*.

Sir,—There seems to be a good deal of interest centred round the relative merits of petrol and paraffin, and carburettors for paraffin. Perhaps, with your permission, Mr. D. J. Smith, or any other user of the Trusty carburettor, would be kind enough to give us a sectional sketch of the apparatus, and explain its working. There are a good many excellent carburettors on the market at present, and there must be something extra special about this one to fit it for paraffin. Is it necessary to employ a heat jacket with it?—Yours truly,

Cycle Mechanic.

TIMING GEAR TROUBLES.

To the Editor of *The Motor-Car Journal*.

Sir,—In answer to a query by Mr. H. Brown, in your issue of the 27th ult., I would like to say that I experienced a similar incident as far back as the winter of '98-'99. The firm I was then working for did the repairs for a public service company, who used the 6-h.p. Daimler type of engine (to carry fourteen passengers). I had to put in a new rocker in the semi-rotary pump, which had been broken by trying to start the engine with the pump frozen up. The driver, I believe, came from doing a milk round straight on to driving the car. However, after a good deal of unprofitable "winding up," it was found that the two to one gears had jumped a few teeth when the ice crushing was going on. The distance which an overhung gear wheel will spring without giving a permanent "set" to the shaft is very often considerable, especially if the shaft is made of high-class steel.—Yours truly,

Ad Sum.

THE YORKSHIRE CLUB.

To the Editor of *The Motor-Car Journal*.

Sir,—With reference to the paragraph in your issue of the 5th inst. on the authority of Mr. A. W. Dougill, stating that the Yorkshire Club has a large number of members in Bradford, Harrogate, Halifax, Barnsley, Bridlington, and Sheffield, this statement is apt to mislead one into the notion that they have a large number of members in Sheffield, which city can boast of a very live automobile club of its own, viz., the Sheffield and District A.C., which has a membership roll of 110, and which includes in its district Rotherham, Barnsley, Doncaster, Chesterfield, and North Derbyshire, whereas the Leeds organisation can, I believe, boast one Sheffield member. This gentleman joined them before the local club was formed. Last year they had two, one of whom was a member of both the Yorkshire and the Sheffield Club, but he left the district some time ago.—Yours truly,

Fred B. Cawood, Hon. Secretary,
Sheffield and District A.C.

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FROM A CRITICAL READER.

To the Editor of *The Motor-Car Journal.*

Sir,—I read your *Journal* every week with interest, but sometimes your enthusiasm on behalf of motorists and all things connected with them rather amuses me. For instance, a few weeks ago I read that the Staffordshire county authority had taken about £247 in fees under the new Motor Car Act, and you hoped they would use it properly towards improving the roads. As the Staffordshire County Council already spend about £40,000 a year on their main roads, I am wondering what great improvement you expect for the extra £247.

Another thing I suggest that you should publish a list of motor-car repairers and their addresses.—Yours truly,

D O. 12.

[Does D.O. 12 suggest that the roads of Staffordshire are so perfect that they cannot be improved? The point of the suggestion was that fees obtained from motorists should be utilised on some work likely to be of benefit to them—the provision of signposts and the improvement of the roads naturally occur at once in such a connection. So far as the list of motor-car repairers is concerned we would refer our correspondent to the small advertisements headed "garages" and to the intimations which are published in our literary pages weekly.]

QUERY *RE* NEW GEAR DRIVE.

To the Editor of *The Motor-Car Journal.*

Sir,—We would take it as a favour if you would kindly allow us to reply to the query in your last week's issue, as we fancy many of your readers may be labouring under the same misconception of what has been termed the worm drive to the live axle of motor-cars, or, to use enquirers' own words, "That it seems clear that one could not 'coast' unless the back axle was fitted with a free-wheel device of some sort." This is not so.

Maybe if it could be looked on as a helical or skew tooth drive, its reversing would be better understood; this is really what it is, and when properly made and case hardened, with the spiral lead of the worm tooth leaves or wings (which are usually seven in number) being equal to their circumference at the pitch line for giving an angle of 45 deg. makes the gear not only very high in efficiency, but practicable as driver or driven.

When this type of drive becomes better understood there will be no doubt of its having many more friends. Although "Live Axle" makes reference to the Dennis and Hitchon-Weller, some credit is due to the Lanchester Co. for their persistency in forcing the opposition to this drive so long, and as testimony of their experience they exhibited at the recent show a gear of this type which has run 5,000 miles with no appreciable signs of wear.—Yours truly,

Hitchon Gear and Automobile Company.

BELT-DRIVEN CARS.

To the Editor of *The Motor-Car Journal.*

Sir,—Can any reader tell me where I can obtain Dick's canvas belting? I see this is highly spoken of in some of the back numbers of the *Journal* I have been using leather belting, which does very well for the high speed, but on the low speed I find it slips a lot unless the engine is going slowly. Is there any belting made which will not slip in the least? If so, I should like to try it. My pulleys are wide enough for 2½-inch belt, are leather faced, and are 6 in. and 9 in. diameter. The engine is a 3½-h.p. De Dion pattern.—Yours truly,

B. W. 12.

[The canvas belting referred to can be obtained from Messrs. R. and J Dick, 58, Queen Victoria Street, E.C.—Ed. *M.C.J.*]

LOSS OF POWER.

To the Editor of *The Motor-Car Journal.*

Sir,—Having seen the trouble "M.R.C.S." is in with his Oldsmobile, and having just experienced the same, I am writing to say that I think if he will adjust his high-speed clutch, giving it another eighth or even a quarter of a turn, his "loss of power" troubles, like mine, will cease.—Yours truly,

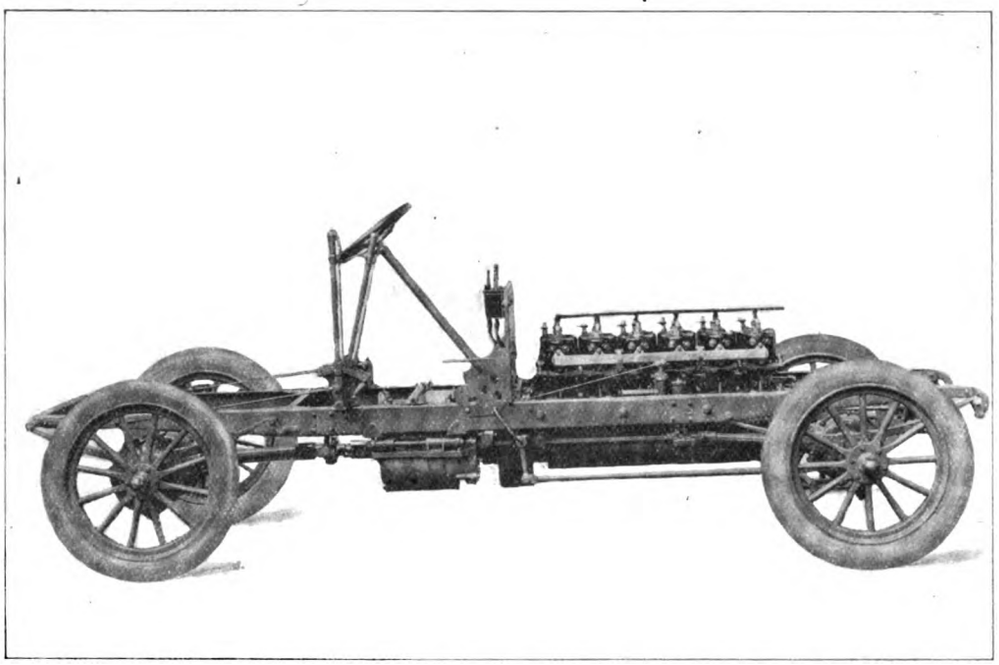
M.B.

WHEELS FOR MOTOR-CARS.

To the Editor of *The Motor-Car Journal.*

Sir,—In reading the *Journal* of the 27th ult., I note that in a well-written article on "Wheels for Motor-Cars" the statement is made that "the experiments of Morin, however much confidence they may deserve, were made exclusively with steel-tyred carrier wheels." May I be allowed to point out that this is not so, as General Morin carried out detailed and exhaustive experiments with an Aveling and Porter road locomotive and traction wagons. From these experiments he calculated that 40 per cent. of the total power expended was taken up in overcoming the resistance of traction.—Yours truly,

Thos. C. Aveling.



Chassis of the Elsworth Automobile Company's Spyker 60-h.p. Six-Cylinder Car. (*See issue February 27*).

DRIVERS.

To the Editor of *The Motor-Car Journal.*

Sir,—Please allow me to add my quota to the discussion on the subject of drivers. I, like many readers of your *Journal*, am a little interested. The letters which you have published are of value, and such letters as that by "A. K. 33" should be appreciated by drivers as well as by owners of motor-cars. "Sub Judice" says he can polish and clean a car as well as the coachman can. That may be true, and in a former issue the Editor hinted broadly that many motor-car drivers would have to look to their laurels in this respect. My experience has taught me that a coachman of a mechanical turn of mind is to be chosen in preference to experts, driver-mechanics, etc., with their slip-shod methods. The fact is very much in evidence that there are too many boys who have gained experience in a few lessons coming out as full-blown mechanics. They can get work, and at a ridiculous wage, while men of talent and practice have to trudge the streets half in despair, day by day, and cannot find work. I do not understand Mr. Edge's letter when he writes about good men. I, like many

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more men with good testimonials, cannot get work. From a good business address, however, boys can and do.

I am now filling a situation with a well-known gentleman who has had five boys, all mechanics of a few weeks' standing. This owner has two cars, a Panhard and a Mors. Both vehicles were utterly useless to him; neither would move when I took them over. I have been just one week with him. I have succeeded in getting the Mors in order; the Panhard I am tackling, and hope to have same running in a few days. The owner was getting disgusted with motor-cars, and intended selling them and have done with it altogether; but, fortunately, I finally persuaded him to let me try and put his cars in order. I never saw two cars in such a disgraceful state; yet this gentleman pays good wages. Can one wonder why some gentlemen give up motoring?—Yours truly,

A. 1304-5.

To the Editor of *The Motor-Car Journal*.

Sir,—In regard to the question of drivers, I may say I have been out now eight weeks and cannot find a suitable berth at anything near the wages I am asking, £2 and extras. I have got an excellent reference from my last master, but no luck. I agree with "Mr. Edge's" letter when he says there are few good drivers. No wonder. I know of one case where an agent offered a temporary job to a mechanic to drive a car to the country and teach the gentleman to drive, and was to have 25s. per week for his services, and when he replied that he could earn more by cleaning windows, he was told he would be scratched off the register.—Yours truly,

A Victim.

To the Editor of *The Motor-Car Journal*.

Sir,—I have read with interest the correspondence *re* drivers, and should like to give my views as a motor engineer. I have been trying for a good many months past to get a respectable situation as driver-mechanic to a private gentleman at a reasonable wage. I have had a large and varied experience. Eight years ago I was apprenticed to engineering, the last four years I have given to motor work. I have advertised, people write me offering 25s. to 30s. per week. It is my belief you cannot get a driver-mechanic who is conscientious and capable to drive and manage car in first-class order at this wage, it is only the gardening valet-chauffeurs that get situations at 25s. per week. This latter are the class of drivers whom owners are disgusted with; if they would only engage men who have had engineers' training, I am confident they would be satisfied. It is the ex-clerk, valet, or coachman-chauffeur that is lazy and too big for his boots, and not the genuine mechanic. As regards drivers taking out their friends in their employer's car, my sentiments are uttered by "Chameleon." This undoubtedly gross impertinence ought to be stopped before it has begun. I might mention I am still looking for a situation and advertising.—Yours truly,

A Won.

To the Editor of *The Motor-Car Journal*.

Sir,—I think it is wrong for the mechanics who write to your *Journal* to class all the certified drivers under one head. There are some men who have been at a motor garage for four or six weeks and are certified for driving and running repairs, and are quite capable of doing them. If all owners of cars were to employ only men who had been employed as mechanics for five or six years, there would never be enough to go round. I think that some of the certified men should be tried before the owners of cars decide to engage one.—Yours truly,

One of the Certified Ones

To the Editor of *The Motor-Car Journal*.

Sir,—I am not surprised to see the correspondence evoked *re* drivers, for I was somewhat astonished to see your remarks as to the inability to obtain good drivers, being under the impression that too many existed already to obtain situations. Recently this opinion has been modified. As an engineer, with a long apprenticeship, and as long again in the workshop with a varied motor experience, I thought possibly I might be eligible as a driver, and, like many others, replied to advertisements for same, as well as two as mechanic in the workshop. From these latter two I received most courteous replies, but from owners of cars not a single answer did I get, although forwarding a stamped addressed envelope. This clearly showed me the applicants were too numerous to answer, and this I found to be correct, for a friend of mine was selected from eighty-six applicants as driver for a Lanchester car. The owner selects one, and is disappointed. Who is to blame? Your correspondents seem to think the owner is. I am not speaking of the owner who requires a practical engineer and electrician to drive, keep in repair, do gardening and housework at £1 per week, but of the reasonable owner. I do not think he is so much to blame. But the fault lies with the "certificate granters," and there are a few who are making a nice little harvest from it, for, with a few lessons, "army and navy pensioners, stablemen," etc., can become "thorough motor mechanics." One informed me only last week he had got into trouble through granting certificates, and he would not do so again under five guineas. I do not blame him, for, even at this, a man is made a poor mechanic at 10s. 6d. a lesson, and I can only repeat what "E. E. M." said recently:—"Ask any foreman of works how long it takes to make a mechanic, and he will say, some years." No, the owner is not to blame, he does not know; thinks the certificate is definite, and learns by experience. But were he to select a mechanic from the shop, even if he sent him for a week to the works of the particular car he has to look after, he would be well repaid, and have little cause for complaint.—Yours truly,

C. E. M.

To the Editor of *The Motor-Car Journal*.

Sir,—As a driver, I should like others to consider what is the best way to get into touch with employers. Some months ago I sought a place through a man who advertised, under a high-sounding name, that he could find employment for drivers. He offered to put me on the list on payment of a small fee. The fee was paid; the writer still awaits to hear of a situation from that source. It seems that the supply and demand in connection with drivers lends itself to something of the kind that goes on with servants, with this exception. Ordinary servants pay no fee; but the motor-driver is expected to pay whether he gets a place or not. I would suggest that drivers should avoid such concerns, unless the arrangement is made to pay a fee after a place has been secured, otherwise disappointment will generally result. I have made two good changes in three years—both through the medium of a small advertisement in your columns.—Yours truly,

A. B. C.

To the Editor of *The Motor-Car Journal*.

Sir,—I have read with interest the letters which have appeared in your *Journal* regarding the scarcity of good drivers. I myself as a motor-mechanic and driver of several years' experience have found it very difficult to obtain a respectable situation. There seem so many so-called driver-mechanics who have had one week's tuition (paid for) that there is no chance for a good man at all. They seem to me to be preferred before the experienced man because they will go for such a low wage, and in the long run they are much dearer. Should anything go out of order with the car they at once have to take it to a repair shop, which means for the owner to part, where if he had had a good man it would only be the cost of a few minutes. My experience teaches me that a driver does not want another man's work to do as well as his own, for if he is any good he can find quite sufficient to do in the motor-house and on the car.—Yours truly,

A. Walker.

To the Editor of *The Motor-Car Journal*.

Sir,—As a driver I agree that there is much to be said in favour of the views as set forth by you in the *Journal*, and by the letter of Mr. S. F. Edge. Undoubtedly the qualities required to make a good driver are well set out by the correspondent "E. E. M.," in your issue of the 20th ult. Yes, employ a mechanic, and let him not be too young, but pay him a fair mechanic's wage, and if he has even seen a little private service and has a fair amount of common sense, he is the man it pays an owner to have about him. The constant and close companionship of master and man must lead to such a happy position as is rarely seen between employers and servants in other vocations, so that, given a driver who is willing, cheerful under difficulties, and ever ready to do his master's calling, he would soon gain his master's entire confidence, if it is to be gained, and I am sure there will be less cause for complaint on our side. On the driver a lot depends, for he must learn the lessons of service, which to some are so difficult and so different from that of a mechanic, who learns to have an independent spirit, which hardly adapts him for private service; so if the driver be a good mechanic, let him prove by his always cheerful and ready attention to his duties that he can be as servant to the master, and not the reverse. I am certain of one thing, good drivers' berths are very scarce; I mean a berth where the master really wants what he advertises for, a good man. I have been trying for nearly three months to get a driver's berth, either in private service or otherwise. I have had replies and interviews, and particularise one offer, viz., 30s. per week, nothing found, to have sole control of a 16-h.p. four-cylinder car, and fill in spare time gardening and making myself generally useful. This I refused, firstly on account of the wage, but principally because I was positive that to have kept this car in the condition so that its running should be a pleasure to all, and not a vexatious trial, would have required all one good driver's time and attention, as the car was in daily use, and was to be kept clean. I do not want an extravagant wage, but in fairness to all mechanics I expect a fair price for my labour; but it is hard to get this, for there are so many who profess to thoroughly understand seven or eight different types of cars, and work for 25s. to 30s. a week. I have been cut out by price on more than one occasion, and think that if a fair wage is offered there would not be so much difficulty in getting good English drivers; it is a matter of £ s. d. I only add that it was a pity, when the Motor-car Act was being put through, that a clause was not inserted making it compulsory for drivers applying for a licence to have to pass similar examinations as a 'bus driver does before he can get his badge.—Yours truly,

No. 3966.

Loss of Power.—Messrs. Jarrott and Letts, Ltd., write:—Having noticed in your esteemed paper a letter from "M.R.C.S." regarding loss of power in the Oldsmobile, we write to say that if this gentleman will favour us with his address, we shall be pleased to give him every assistance. There is no reason why his Oldsmobile should lose power in the way he says it does."

The "Be Tall" Terminal.—In answer to several enquirers, the terminal referred to under this name in our issue of the 27th ult. is made by Messrs. A. and B. Apted, 41, Blondel Street, Battersea, S.W.

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MOTOR-CAR UPKEEP.

AT a meeting of the Scottish Automobile Club (Western Section), held in the Windsor Hotel, Glasgow, Mr. John M. Ross being in the chair, Mr. John Adam, chairman of the section, and Mr. J. Hunter Steen introduced a discussion on "The Cost, Care, and Upkeep of the Motor-car." Mr. Adam stated that "cost" was such an elastic term the prospective buyer should make up his mind first as to the use to which he intends to put his car, the carrying capacity required, and having regard to the amount of money he was prepared to spend, should then fix upon the type of car he wished, and thereafter make the best terms therefor possible. In his opinion for one who was an absolute novice and who had yet to learn to drive it was advisable to purchase a second-hand car and practice on it. He dealt extensively with the question of the housing of motor-cars and submitted plans which he had had prepared exemplifying his ideas on the subject. He had confined himself to a small house for a single car, which he advised should be 18 ft. by 9 ft., that the pit should be near the door, 6 ft. by 3 ft., and that the depth should be anything up to 5 ft., if the depth of the drainage system would permit of this. His plans provided for a house of corrugated iron with wood lining, the roof having a layer of felt between the corrugated iron and the wooden sarking, that the light should be borrowed from the side, and that there should be through ventilation. He had an estimate for the cost of such a house amounting to £24. A cement floor with the necessary trap connected with the drain, with pit, would cost ten guineas and a slow combustion stove £4 10s., all extra to the £24 mentioned. Mr. Adam thought that this would be found to be a sufficient and satisfactory house for a motor-car on the most moderate basis, though he said any person proposing to spend more money on it could do so advantageously, and he emphasised the mistaken policy of paying a heavy price for a motor-car and grudging a sufficient sum in order to its being properly housed. Mr. Adam advised all prospective entrants to automobilism, immediately on getting their car, to make themselves thoroughly acquainted with its working, and said that thereby they would have much less difficulty in the event of any roadside or other troubles, and counselled a regular and methodical examination and adjustment of parts and brakes. He submitted elaborate statistics which had been prepared by Mr. Steen of his cost of running a 10-h.p. car for 7,065 miles, which summarised as follows :—

	£	s.	d.		
Light, oils, and grease	3	5	6½	·11	of 1d. per mile.
Petrol	22	12	8	·77	do.
Repairs and replacements ...	12	9	11	·42	do.
Tyres	27	15	3	·86	do.
Sundries, licence, stabling and washing	14	10	11½	·56	do.
	£80	14	4	2·72	do.

The quantity of petrol used was 346 gallons, the average consumption giving 20·41 miles per gallon. Mr. Steen explained that all the above running had been done on Scottish roads, many of which were of the roughest and most primitive type. Mr. Adam further submitted similar statistics which were handed to him in the meeting by Mr. Seligmann with regard to a 12-h.p. car, and which worked out as follows :—

Petrol	·76	per mile.
Oil	·066	,,
Grease	·033	,,
Electric Current	·016	,,
Tyres	1·332	,,
Repairs and sundries	·212	,,
Stabling, washing, and license ...	·417	,,
	2·836	

These results were based on an experience of 5,000 miles, and attention was drawn to the marked similarity between the two sets of results attained on similar makes of cars, both of which, it was mentioned, were 1903 cars. He dealt with the cost of transport of goods by motor-car and quoted the figures used by Mr. J. E. Thornycroft in his lecture to the Glasgow University Engineering Society a few days before, with regard to vehicles for goods transport, in which it was made out that a steam lorry costing £665 would cost 2·75 of 1d. per ton mile. Mr. Adam also submitted statistics which he had prepared with regard to the use of a public service vehicle, 12-h.p., costing say £500 and based on an estimated annual running of 7,800 miles, which brought out that the expenditure would be as follows :—Solid tyres, £42 ; petrol and lubricants, £32 ; motor-man's wages and entry form, £80 ; attendant, £59 ; repairs and upkeep, £30 ; interest on capital, £25 ; depreciation, £52. Total, £320.

In the discussion which followed many interesting points were raised. Mr. Smith quoted his experience on a 6-h.p. four-seated car, which worked out at almost exactly 2¾d. per mile, and gave it as his opinion that the question of depreciation was one which should be taken into account, and this he estimated in the case of an ordinary pleasure vehicle could not be less than about 2d. per mile, 17½ per cent. on the reducing values being, he thought, a fair charge, though at the same time he pointed out that this would only be applicable after a term of say two years, as the great bulk of the depreciation consisted of the difference in value between a new and second-hand car, and this was occasioned by even a few months' working. Mr. Murray pointed out that in the case of those who had stated their experiences it had to be borne in mind that they were their own drivers and looked after the cars personally, and he thought this had a very material effect on the reduction of expenses, and more particularly with respect to the cost of tyres. Mr. Steen expressed his view that the bulk of cars were too lightly tyred, and that many canopies were so heavy that the strain on the tyres tended to shortening their lives, and that tyres should never be run under eighty pounds pressure, and in reply to an inquiry, gave it as his experience that non-skid chains, while they slowed the car about three miles per hour in ordinary running, increased the speed considerably on greasy roads and aided considerably in lengthening the lives of tyres. His experience was that the chains would run about 700 miles, after which the expense of renewal amounted to about 20s. per wheel. It was pointed out that all the costs quoted apply to pneumatic tyred vehicles, and that in no case was the owner's insurance premium included in the figures submitted.

CASES DISMISSED.

AT Woking, on Saturday, Claude Browne, of Onslow Gardens, Kensington, was summoned for driving a motor-car to the common danger at Ripley. Mr. Staplee Firth defended. Sergeant Jarrett alleged that the defendant had covered a measured distance at thirty miles an hour. Mr. H. J. Swindley gave evidence against the police stop-watches. Tests had proved, he said, that the 30s. stop-watch which Sergeant Jarrett used could be unconsciously stopped and started again, so that it would show a car as covering five miles in as many seconds. On the Thames Embankment motor-cars travelled up to 17½ miles an hour, and this at a spot passed by 800 vehicles in sixty minutes. The magistrates found there was a doubt as to the speed at which the defendant was going, and dismissed the case.

AT the Derby Borough Police Court, on Tuesday, Mr. A. J. Eggleston, of Osmaston Road, Derby, was summoned for driving a motor-car at a reckless speed at Derby, on February 23rd. Police-constable Evans having given evidence and the defence having been heard, the Chief Constable said he brought the case forward so that motorists should understand that speed had nothing to do with dangerous driving and as a warning to others. The Bench, after consultation, dismissed the case.

MR. WILLIAM FORSTER, of Colherne-road, Kensington, was summoned, before Mr. Lane, K.C., at the West London Police Court for driving a motor-car at a speed exceeding 20 miles an hour. Police-constable 37 F. R. deposed that on Sunday afternoon, Feb. 14th, he timed the defendant's car with a stop watch over a measured distance of 220 yards along the Kensington-road, and calculated that he covered it in 16sec., or an average of 28 miles an hour. Another officer confirmed his estimate, and Police-constable 41 F R., who gave the signal, stated that he stood 12 yards east of the starting-point and waved his handkerchief as the car passed him. The defendant denied the charge, and called witnesses to prove that the road was full of traffic, and that there was a brougham in front of his car over the whole distance. Mr. Lane, K.C., said he was not satisfied that the estimate of the stop watch was correct, and, indeed, it was very liable to infirmity in the hands of persons who had not been trained to its use from their youth. He dismissed the summons.

A FINE AND A DISMISSAL.

AT Beaconsfield Sessions, at the instance of Major-General Upton Prior, of Gerrard's Cross, Buckinghamshire, Mr. Dudley Truman was summoned for driving a motor-car at a reckless speed at Chalfont St. Peters, also for failing to sound a horn or bell giving warning of his approach. The complainant was out for a walk with his three dogs, and in a narrow portion of the road he put his hands up for the defendant to stop, fearing that the animals would be run over. Mr. Truman did not obey the signal, with the result that one dog was sent by the car flying head over heels. For the defence, the allegation of recklessness was denied, and it was stated that the dog backed into the car, and that a horn was sounded. The bench fined the defendant £2 and 10s. 6d. costs for reckless driving, the other part of the charge being dismissed.

ENGLISH v. ROMAN.

AT Hailsham Petty Sessions, Inverness Watts, of Heathfield, was summoned for not having a proper number on a motor-car. Mr. Lawson Lewis prosecuted, and stated that defendant's identification plate on his motor-car bore the letters A.P. ccxxxiii., instead of the regulation number 233. On this being reported to the Chief Constable, Major Lang, he wrote to the defendant pointing this out. Mr. Lewis contended that by the provision of the Act the lettering and numbering of the plates should conform with the model issued by the authorities, and should be in English capital letters and ordinary English numbers. Police-constable Snelling testified to seeing the car with the plate in question attached, which he "could not understand." Robert Jenner, clerk from the office of the Justices of the Peace at Lewes, stated that a copy of the model plate was issued to each applicant for a motor-car license. Defendant denied that he failed to reply to the Chief Constable's letter, and urged that it was nowhere stated that Arabic numbers had to be used. Roman numerals were employed in all Acts of Parliament and on coins. The Bench were unanimously of opinion that defendant had evaded the law, which had been clearly explained to him, and imposed a fine of £1 and costs—£1 9s. 6d. in all.

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A GUIDE TO

THE AUTOMOBILE CLUB'S EXHIBITION

AT THE

AGRICULTURAL HALL, LONDON.

MARCH 19th to 26th.

ARCADE.

1. R. W. Coan.
2. Motor Castings Co
3. Aitchison and Co.
4. Johnson and Sons.
5. David Perry.
6. Bluebell Polish Co.
7. Stern-Sonneborn Oil Co.
8. Nicoll and Co.
9. Car and General Insurance Co.
10. Pfluger Accumulator Works.
11. Hoare and Sons.
12. Carless, Capel and Leonard.
13. Hoare and Son.
14. Aquascutum, Ltd.
15. Sutherland and Marcuson.
17. R. L. Motor Engineering Co., Ltd.
18. Geipel and Lange.
19. Lister and Sons.
20. Gare Tyre and Wheel Co., Ltd.
21. Forward Engine Co., Ltd.
22. Jos. Kaye Co.
23. Price's Oil Co., Ltd.
24. Thomas Noakes and Sons.
25. Salsbury and Son, Ltd.

KING EDWARD'S HALL.

26. Parsons' Non-Skid Co.
27. Normal Powder Co., Ltd.
28. William Beardmore and Co.
29. International Motor Car Co., Ltd.
30. Barre Automobiles, Niort, France.

GREAT HALL.

31. Consolidated Autocar Co., Ltd.
32. Green and Son, Ltd.
33. Coronet Motor Co., Ltd.
34. J. King and Co.
35. Crossley Bros., Ltd.
36. Paddington Motor Co., Ltd.
37. Henry Whitlock, Ltd.
38. Burton, Griffiths and Co.
39a. Sola Accumulator Co.
40. Madame Lockert.
40a. Madame Longuemare.
42. F. C Blake.
43. J. F. Bentley.
44. London Electromobile Syndicate, Ltd.
46. Mohawk Motor Co.
47. De Luxe Motor Co.
48. Horley Motor Co.
49. Baker and Sons, Ltd.
50. Brouhot Motor Co., Ltd.
51. Dechamps Motor Co., Ltd.
52. E. Mendelssohn and Co.
53. Bath and Son.
54 and 55. Great Central Garage Co.
56. Salmons and Son.
57 and 58. Begbie Manufacturing Co., Ltd.
59. British Simplex Gear Co.
60. Elsworth Motor Co.
61. Cremorne Motor Co.
62. Bailey and Lambert, Ltd.
63. Anglo-American Oil Co., Ltd.
64. Cannstatt Auto. Supply Association.
65 and 66. Star Motor Co.
67. Selbach, Ltd.
68. Elswick Motor Co.
69 and 70. Speedwell Motor and Engineering Co., Ltd.
71 and 72. Darracq and Co.
73. Highgate Motor Co.
74. Motor Car Co., Ltd.
76. H. P. Salsbury.
77. Rex Motor Manufacturing Co., Ltd.
78. Deasy and Co.
79. Anti-Vibrator, Ltd.
80. Maudslay Motor Co., Ltd.
81 and 82. Motor Manufacturing Co., Ltd.
83 and 84. Weston Motors, Ltd.
85. Horsfall and Bickham, Ltd.
86. Alldays and Onions.
87 and 88. Stirling's Motor Construction Co.
89 and 90. H. E. Hall and Co.
91 and 92. Bayliss, Thomas and Co., Ltd.
93. Swift Motors.
94. Swift Motor Co.
95 and 96. Siddeley Autocar Co.
97. Autocars and Accessories, Ltd
98. Van Toll and Co.
99 and 100. Hotchkiss Motor.
101 and 102. Mann and Overton, Ltd.
103. Shippey Bros., Ltd.
104. British Peerless Co., Ltd.
105 and 106. Friswell, Ltd.
107, 108, 109, and 110, British Automobile Commercial Syndicate.
111 and 112. Beaufort Motor Co.
113. O'Neill and Co.
114. Richardson and Co.
115 and 116. Lancaster Motor Garage Co.
117 and 118. C. S. Rolls, Ltd.
119. J. W. Brooke and Co.
120. F.I.A.T. Motors, Ltd.
121 and 122. Germain Motors.
123 and 124. Duryea Motor Co.
125. A. W. Gamage, Ltd.
126. Fabry Automobile Co.
127. Automobilia, Ltd.
128. Hayes and Son.
129 and 130. Durham, Churchill and Co.
131 and 132. Brown Bros., Ltd.
133 and 134. J. E. Hutton and Co.
135 and 136. Morgan Donne.
137. Pritchetts and Gold.
138. Ransome, Sims and Jefferies, Ltd.
139. Smith and Sons, Ltd.
140. Iliffe and Sons.
142. "Automotor."
143. Gordon Motor Co.
144. "Motoring Illustrated."
145. London General Automobile Co.
146. Foster and Co.
147. R. R. Jackson, Ltd.
148. Iliffe and Sons.
149 and 150. Motor Car Emporium.
151. Roots Motor-Car Co., Ltd.
152. Vacuum Oil Co., Ltd.
153. National Gas Engine Co., Ltd.
154a. The "Car."
155. "Motor-Car Journal."
156. Rose Bros.
157 and 158. De Dietrich.
159. Bilbie, Hobson and Co.
160. W. A. Green.
160a. Wass and Cocks.
161. Eagle Range Co., Ltd.

MINOR HALL.

162 and 163. Lancashire Steam Motor Co. Ltd
164. Fodens, Ltd.
165. Yorkshire Steam Vehicle Co., Ltd.
166. Dougill and Co.
167. Hydroleum Co., Ltd.
168. J. Robertson and Son.
169. Hoffmann Manufacturing Co.
170. Hercules Motor Co.
171. Tasker and Sons, Ltd.
171a. Garlio (Marx).
172. Empire Hagen Co.
173. Hall's Hydraulic Gear Co.
173a. Auto Machine Co.
174. J. and F. Howard.
175. Motor Car Emporium, Ltd.
177. Hydroleum Co., Ltd.
178. Mann's Patent Steam Wagon Co., Ltd.
179 and 180. Wallis and Steevens.
181 and 182. Savage Bros.

GALLERIES.

183 and 184. A. A. Godin.
185. Samuel Bros., Ltd.
186. Alweathers and Co.
187. Hyde Rubber Works Co.
188. General Accident Insurance Co.
189. Electric Battery Co.
190. Thor Motor Car Co.
191. W. Vincent.
192. Law Accident Insurance Co.
193. Seddon Tyre Co.
194. Trading and Manufacturing Co., Ltd.
195. County Chemical Co., Ltd.
196. Motor Carrier Syndicate.
197. Automobile Engineering Co.
198. Lacoste and Co.
199 and 200. The Protector Lamp Co., Ltd.
201. Wilkinson Sword Co., Ltd.
202. Ditto.
203 Aurora Manufacturing Co.
204. Philipp and Co.
205. See Motor Car Supply Co.
206. Docker Bros.
207. J. W. and T Connolly.
208. Holding and Son.
209. Twentieth Century Manufacturing Co.
210. Electric Ignition Co.
211 and 212. Automobile Components, Ltd.
213. "Motor Car Journal."
214. Imperial Tyre Co.
215. Williams Tyre Co., Ltd.
216. Chiswick Soap Co.
217. Imperial Tyre Co.
218. Sheldon and Co.
219. Sissons Bros. and Co.
220 and 221. Bowden's Patents Syndicate, Ltd.
222. Glover and Sons.
223. Hopkinson Tyre Co.
224. Peto and Radford, Ltd.
225. Martin Tyre Co., Ltd.
226. Nugget Polish Co.
227. Doherty Motor Accessory Co.
228. Collier Tyre Co., Ltd.
229. J. C. Meredith, Ltd.
230. Miller and Co.
231. Artillery Wheel Works.
232. C. R. Base.
233. Clarendon Motor Co.
234 and 235. North British Rubber Co.
236. Birmingham Aluminium Co., Ltd.
237. Dunlop Tyre Co., Ltd.
238. Societe Des Automobiles Francaises.
239. Putney Motor Co.
240. Rothschild and Co.
241. W. Maitland Edwards.
242. Clipper Tyre Co., Ltd.
243. Bleriot Lamp Co.
244 and 245. Goy Co., Ltd. (Lanchester).
246. Cloud and Nichols.

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GALLERIES.—*cont.*

247. Smith, Parfrey and Co.
248. South British Trading Co.
249. Garrard Manufacturing Co., Ltd.
250. G. Polkey, Ltd.
251. Abbott, Anderson and Abbott.
252. Lozier Motor Co.
253. Harvey, Frost and Co.
254 and 255. J. W. Lovegrove and Co.
256. Oliver Typewriter Co.
257. Rowland Hill.
258. Shannon File Co.
259. Lewis's, Liverpool.
260. Skudder and Co.
261 and 262. Dunhill and Co., Ltd.
263. Jones Bros., Ltd.
264. Lake and Elliott.
265. Grose, Ltd.
266. The Motor.
267. Purrott and Willard.
268. Wilton Cox Device Co.
269. C. Lohmann.
270. Coventry Chain Co., Ltd.
271. F. J. Rodgers.
272. Greenberg and Sons.
273. Johnson, Hurley and Martin.
274. Tomcox, Ltd.
275. British Steam Traction Syndicate.
276. Minerva Motor Co., Ltd.
277. Gibbons Brothers.
278. Forman Motor Co.
279. J. Bartlett and Co.
280. Floyd and Floyd.
281. Elliott, Hallas and Sons, Ltd.
282. Van Raden and Co.
283. Horse Insurance Co., Ltd.
284. J. Russell and Co.
285. R Dalmer.
286. W. and F. Thorn.
286A. Brighton and Sussex Motor Works.
287. Clyde Motor Co.
288. Prested Electric Lamp Co.
289. Kyma Car Co., Ltd.
290. Canterbury Motor Co.
291 and 292. Palmer Tyre Co., Ltd.
293. Steiner Brothers.
294. W. H. Newman.
295. Motor Tyre Manufacturing Co.
296. Max Accumulator Co.
297. Stoke Newington Motor Co.
298. Imre Engineering Co.
299. Patcho, Ltd.
300. Light Car and Motor Engineering Co.
301. Montague Hawnt and Co.
302. Quibells.

BERNER'S HALL.

303. Ludw. Loewe and Co.
304. "Cycle Trader."
305. R. F. Dickerson.
311. Armitage, C. W.
312. B.P. Accumulator Co., Ltd.
316. A. T. Collier.
317. Rocket Polish Co.
318. Liversedge and Sons.
321. S. W. Andrews.
322. Karl Barkham.
323. A. G. Taylor.
324. Bloch and Co.
325. Empire Key Registry.
328. Union Waterproofing Co.
329. Bowley and Son.
331. J. C. Fuller and Son.

&c. &c. &c.

OUR DIRECTORY OF "NUMBERS."

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Below is a further instalment of Automobile Numbers. Motorists who have not yet communicated with us are invited to forward their Names, Addresses and Numbers.

Arthur, E., "Oneida," Exmouth	T.	98
Abbott, J. T., 5, Church Road, Tunbridge Wells	D.	44
Aird, T. W., M.D., Tyneside, Wallington, Surrey	P.	169
Allen, Dr. P., Gillingham, Dorset	B.F.	47
Ballard, G. O., Cicestria, Clifden Gardens, Twickenham	H.	90
Bonsall, Dr., Aberystwyth	E.J.	1
	E.J.	3
Boundy, Edward, Kendal	E.C.	58
Barker, C. E. J., Highfield, Dudley Hill, Bradford	A.K.	59
Butler, J. G. W., "Anaverna," Murrayfield, Edinburgh	S.	32
Bolton, B. E., Bowden Street, Oldham	B.U.	7
Barreto, Baron de, Norfolk	A.H.	8
	A.H.	9
	A.H.	10
Bolton, B. E., 10, Bowden Street, Oldham	B.U.	7
Compton, F. Coniston, 22, Inglis Road, Colchester	F.	110
Caravan Restaurant Company, Limited	B.P.	173
Clark, R. and Company, 22, Cheapside, Spennymoor	J.	131
	J.	132
Crirar, Dr. J. H., High Street, Maryport	A.O.	40
Cornet, Edward, Thornhill, N.B.	S.M.	42
Cory, Mrs. R., Elliott Terrace, Plymouth	C.O.	8
Collett, O. O., Bampton, Oxon	B.W.	12
Dixon, A. J., Railway Hotel, Ponder's End, N.	H.	760
Davies and Netherwood, Central Garage, Harrogate	C.	69
Dewey, H., Tredegarville, Barnwood Road, Gloucester	F.H.	4
	F.H.	103
Evans, Mr., Aberystwyth	E.J.	11
Ford, J. B. & E., Bridge Street, Macclesfield	M.	202
Fox, J. W., Dr., 18, Bernard Street, Southampton	C.R.	88
Freeman, H., 329, Tong Street, Dudley Hill, Brads.	A.K.	135
Fawke, J. M., Victoria House, Lord Street, Southport	B.	230
Griffiths, Vernon, Aberystwyth	E.J.	9
Gwishort, T., Largo	S.P.	14
Holland Bros., Bargate Motor Works, Boston	D.O.	25
Hansford, A. W., 20, Jewry Street, Winchester	A.A.	94
Holloway, J. W., Shoreham, Sussex	B.P.	80
Hughes, Captain Lloyd, Allt Lluyd	E.J.	8
Holmes, S. and Company, Albion Works, Bradford	A.K.	33
Hozier, The Hon. James, M.P., Mauldslie Castle, Carluke, Scotland	S.V.	9
	V.	40
Hemsted, Dr. R., "Hordley," Whitchurch, Hants.	A.A.	55
Hannam, S. C., Bourton, Dorset	B.F.	28
Hannam, T. W. P., Stourton, Wilts	A.M.	142
Hoskins, G., Wellington, Somerset	Y.	129
Harker, F., 5, Albany Street, Hull	B.T.	60
Hoy, Thos., 233, Cardigan Terrace, Gateshead	C.N.	58
Ilaley, H. S., 62, Leyland Road, Lee, S.E.	A.	1679
Jones, Mr., Lampeter, Wales	E.J.	5
	E.J.	10
Jones, Hughes, Aberyswyth	E.J.	8
Keeping, Fred, Motor Garage, Milford-on-Sea, Hants	A.A.	209
	A.A.	207
	A.A.	208
	A.A.	216
Kinnoull, Earl of	E.S.	44
Lobley, Frank J., 8, Hawthorn Road, Hale, Altrincham	M.	275
McAdams, C., The Garage, West Hartlepool	E.F.	15
Murray, Prof., Aberystwyth	E.J.	12
Moorilyan, W. E. J., 64, Friars' Stile Road, Richmond Hill	P.	74
Mayhew, Lt.-Col. Mark, Scio, Putney	A.	17
Marden, W. Oakenshaw, Oak Hill, Surbiton	P.	20
Marwood, Thomas H., Pleasington Lodge, near Blackburn	B.	519
Marwood, Fred, Pleasington Lodge, near Blackburn	B.	119
Norton, Bernard, 16, Clarence Street, Cheltenham	A.D.	124
Nicholson, W. G., M.P., Bentworth Hall, Alton, Hants	A.A.	276
Olliff, Wm., 26, Corporation Road, Middlesbrough	D.C.	55
Pover, Wm. H., Lower Breck Road, Liverpool	K.	40
Pender, J. C. Denison, Electra House, Moorgate, E.C.	A.	561

(To be continued.)

DEALERS' MARKS.

Dealers are requested to send their general identification marks for inclusion in our next list.

Paffard, C. J., 112, Oakfield Road, Anerley, S.E.	D. G.	116/117
Wolseley Tool and Motor Co., Adderley Park, Birmingham	O.	W.Y.
Bould, J., 136 and 138, Castle Road, Cardiff	B.O.	X.
Boyes and Co., Chapel Ash, Wolverhampton	D.A.	N.
Speedwell Motor and Engineering Co., 151, Knightsbridge S.W.	A.	E.S.
Bailey and Lambert, 217, Piccadilly, W.	A.	D.F.
Ratcliffe, Bros., "Reliable" Motor Works, Frinton-on-Sea	F.	E. 7
Foster, Wm., Waterworks, Chesham, Bucks	B.H.	A.
Hunt, F. H. and Co., 74, Burnfoot Avenue, Fulham, S.W.	A.	C.P.
Brown, S. and Co., 4, Yeoman's Row, Brompton Road, S.W.	A.	D.X.
Lemaire and Thackthwaite, 7, Maddox Street, W.	A.	C.F.
Bremer, F., 15, Albert Road, Walthamstow	F.	E. 21
Richardson, J. R. and Company, Lincoln	F.E.	A.I.
Hodgson, J. Duncan, 94, Northumberland Street, Newcastle-on-Tyne	B.B.	N. 1-6
Meredith, J. Child, Limited, Birmingham	O.	G.O.M
Humm, R. and Company, Market Place, Plymouth	C.O.	27 A.
	C.O.	27 B.
	C.O.	27 C.
George and Jobling, Newcastle-on-Tyne	B.B.	N. 7-16
Hodgkinson, G. W., Compton Buildings, Buxton	R.	D.
Chambers Engineering Co., Ltd., Vauxhall Works, Birmingham	O.	C.E. 2-7
Clarksons', Messrs., New Road, Blackpool	H.	C.B.
City Garage, 34, Queen Street, E.C.	A.	G.H.

(To be continued.)

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CLUBS AND ASSOCIATIONS.

NOTTINGHAMSHIRE.

AT the annual meeting of the Nottingham and District Automobile Club, held at the Black Boy Hotel, Nottingham, it was decided that in future the Club should be known as the Nottinghamshire Automobile Club. The opening run will take place to-day (Saturday), to Meldon, members meeting at the Red Lion, Nether Broughton, at 2.30 p.m.

NORFOLK.

AT the annual meeting of the Norfolk Automobile and Launch Club, Lord Claud Hamilton was re-elected president, Mr. Edward Reeve hon. solicitor, Mr. F. W. Burton-Fanning hon. treasurer, Mr. J. E. Warne Hewlitt hon. sec. of the motor-car section, and Mr. H. L. Clark hon. sec. of the motor-launch section. It was agreed to continue the club room at the Royal Hotel, Norwich, and also to hold the opening meet of the Club on Easter Saturday.

HERTFORDSHIRE.

THE opening run of the Hertfordshire Automobile Club has been postponed to Saturday, the 26th inst., the route followed being from St. Albans to Hatfield, Hertford, and Stevenage. The start will be from St. Peter's Street at 2.30 p.m.

As a result of the Club's action in the matter of the application of the Corporation of St. Albans for power to impose the ten-mile speed limit on the City roads, several influential tradesmen and residents, in addition to most of the local motorists, have forwarded objections to the Local Government Board and the Town Clerk. The local feeling is that such a limit is totally unnecessary, the Act providing amply for the safety of the public, and that any purely local restrictions such as those sought for would have the effect of causing motorists to avoid the city as much as possible, and lead to a great deal of money, which now finds its way into St. Albans, being spent elsewhere.

MANCHESTER.

THE members of the Manchester Automobile Club have just had their fourth annual dinner at the Albion Hotel. Mr. Frederic Smith presided. In proposing the toast of "Automobilism" the Chairman drew a contrast between the year 1900 and the present time. He remembered riding on a car in the former year which was running something like a small traction engine, and he happened in his innocence to remark that they were going very well. "Don't say anything," whispered his companion, the driver, "or we shall have a breakdown." How different it was now. The modern motor-car had become a wonder of mechanical design and construction, and as beautiful in its simplicity of control. Smooth, silent, reliable, it was as different from its prototype as the modern locomotive was from the "Puffing Billy." He believed there was a great future before automobilism; it would be a source of pleasure and health and convenience to mankind. When they got a perfect pneumatic tyre, an approximately perfect road, and a careful user of the road, there would be no limits to its importance as a friend of humanity. Mr. D. Q. Henriques responded, and gave an amusing account of his motoring experiences. The toast of the visitors was proposed by Mr. Arrowsmith and responded to by Mr. Lennox Lee, and also by Mr. G. Haworth. A vote of thanks to the Chairman, proposed by Mr. J. A. Morris, terminated the proceedings.

GLOUCESTERSHIRE.

THE first annual meeting of the Gloucestershire Automobile Club was held under the presidency of Dr. H. P. Fernald. There were also present Dr. Halliwell, Messrs. A. H. Wyatt (treasurer), H. Dyer (hon. sec.), F. J. Bennett, F. M. Bostock, A. Arthur Dale, E. A. Stretton, C. Bullock, A. Meats, F. Sims, G. F. Ticehurst, S. H Wellington (Gloucester), A. G. Sanders, J. Wheway, and H. E. Ranken, of Beckford Towers. The minutes of the last meeting having been read by the hon. sec., the hon. treasurer produced the balance-sheet, showing a balance in hand of £26 16s. 9d. The chief item of revenue was thirty-four members' subscriptions of a guinea each. The balance-sheet and annual report were both adopted. The hon. treasurer read a number of proposed alterations in the club's rules, the chief of which was the change of its name from the "Cheltenham and Gloucestershire Automobile Club" to the "Gloucestershire Automobile Club." On the proposition of the president, seconded by Mr. Meats, the alterations were adopted en bloc.

After a vote of thanks to Mr. Wyatt for drawing up the report, the president remarked that his year of office having concluded, he was bidding good-bye to the position he had held with so much pleasure, one reason being that he was leaving the town to practise in London. He should not be surprised to hear that next year they had brought the membership up to 150 or 200. Gloucestershire ought to furnish 300 or 400 members. Mr. F. J. Bennett took the chair *pro tem.*, and proposed a vote of thanks to the retiring chairman and the hon. sec., who had also signified his intention of vacating his office. He remarked that Dr. Fernald had been their moving spirit. He was sure it was a sorrow to all of them that Dr. Fernald was removing from Cheltenham, and particularly that he was severing his active connection with their club. However, it would be gratifying to them all to know that he would continue his membership. Mr. Bennett also commented upon the excellent services rendered the club by their hon. sec. Mr. Dale seconded and referred to the many ways in which the kindness and generosity of Dr. Fernald had been manifested. The motion was adopted with much cordiality. Dr. Fernald, the hon. secretary and the hon. treasurer also returned thanks. Mr. Bennett remarked that it would be a satisfaction to them to know that they had a worthy successor to Dr. Fernald, and when he told them that that gentleman was Mr. A. H. Wyatt, he thought a unanimous election was assured. He mentioned Mr. Wyatt had served them admirably in the position of treasurer, and well deserved the promotion which he (the speaker) would formally propose. Mr. Dale seconded with much pleasure, and the motion was agreed to amidst applause. Mr. Wyatt took the chair and acknowledged the compliment paid him. Mr. F. M. Bostock was elected hon. treasurer, and Mr. A. Arthur Dale hon. sec., and the following were balloted as a committee, with the officers as *ex officio* members:—Dr. Halliwell, Messrs. F. J. Bennett, A. Meats, E. A. Stretton, S. H. Wellington, A. G. Sanders, H. E. Ranken, E. Sims, G. F. Ticehurst, H. Dyer, and W. R. Hughes. Dr. Fernald and Mr. A. Arthur Dale were appointed as representatives of the club to attend the Motor Union meetings in London.

EXHIBITION AT MANCHESTER.

THE Manchester and District Cycle Trades Association, Limited, is to be congratulated on the excellent show of motor-cars, motor-cycles and accessories now being held at St. James's Hall, and which was opened on Monday by the Earl of Shrewsbury. Altogether there are close upon a hundred exhibitors, the vehicles displayed comprising all the leading types. Messrs. J. Walmsley and Company attract attention with the Crossley *chassis* as well as with De Dietrich, Gladiator, and Oldsmobile cars, Darracqs and De Dions are shown by Mr. T. Garner, Panhard and Talbots by Messrs. Joseph Cockshoot and Company, 6, 8, 12-h.p. Brown cars by Messrs. Brown Bros., the Cotterean cars by Messrs. McNeill, Hutchison and Borthwick, Wolseleys and Lanchesters by the Bolton Motor Company, Limited, Vinot, Panhard, Lancaster, and Enfield cars by Messrs. Newton and Company, Humberettes by Messrs. Humber, Limited, Peugeots, Stars, Argylls, and White steam cars by Messrs. Bennett and Carlisle, Rothwell cars by the Eclipse Machine Company, and Lanchesters by Mr. R. Ramsbottom. The Belsize Motor-Car and Engineering Company, Limited, show their new three-cylinder car, and the "Belsize Junior;" Messrs. Horsfall and Bickham display the new models of Horbick cars, including the "Horbi k Minor," illustrated in a recent issue; Messrs. R. and W. Brownswood exhibit the Sunbeam car, the Protector Lamp and Lighting Company a neat little two-seated car, and the Eagle Engineering and Motor Company the Eagle light car and runabout. There is also a large display of motor-cycles and motor-car accessories.

MESSRS. DAVID CARLAW AND SONS have a garage for fifty cars at 11, Finnieston Street, Glasgow.

THE Maudslay Motor Company, Limited, have established a London showroom at Albert Gate Mansions, Knightsbridge, W.

"NOTES ON AUTOMOBILES" was the title of a paper read at a meeting of the Rugby Engineering Society last week by Mr. B. Hopps.

FROM the Gobron Motor Company comes a copy of a new catalogue of Gobron-Brillie cars, which are made in 12-h.p., 18-h.p., and 25-h.p. sizes, and with various types of bodies.

A COMPANY has been formed at Munchwilen (Thurgau) Switzerland, to establish public services of motor-cars between Fischingen and Munchwilen and between Turbenthal and Munchwilen.

TO CORRESPONDENTS.

All communications intended for insertion in this Journal or relating to Editorial matters should be addressed to THE EDITORIAL DEPARTMENT, MOTOR-CAR JOURNAL, *39 and 40, Shoe Lane, London, E.C., and must be written on one side of the paper only. Letters must in all cases be accompanied by the name and address of the writer, as no notice will be taken of anonymous communications.*

The Editors cannot undertake to return MSS. or drawings, although every effort will be made to do so in the case of rejected communications. Where such are regarded as of value, correspondents are requested to retain copies.

To insure insertion communications and contributions must be in the Editor's hands by Tuesday forenoon of the week in which the same are intended to appear. Disappointment may be caused by non-compliance with this rule, and to avoid this earlier receipt, if possible, is necessary.

The Editors do not hold themselves responsible for the opinions expressed by their correspondents, or for statements and facts which do not appear in the editorial columns.

The Editors and Publishers beg also to state that they will accept no responsibility for unsolicited contributions, even if used, unless payment for same is directly specified in forwarding, and the terms arranged before publication.

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THE

Motor-Car Journal.

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COMMENTS.

The British Eliminating Test.

THE Bill to enable the eliminatory trials for the Gordon Bennett motor-car races to be held in the Isle of Man passed through both branches of the Manx Legislature on Tuesday. In the Bill as sent down by the Council the House of Keys introduced a clause confining the races to any three days not including Sunday. Another amendment making it imperative on the A.C.G.B.I. to bear the expenses entailed on the Highway Board was withdrawn, it being left optional with the Board to charge expenses. The course selected is one of fifty miles, the roads being of fair width and excellent surface. The starting point is west of Douglas, then by way of Laxey, Ramsey, Sulby, Ballaugh, St. John's, and Fox Dale to Ballasalla, and thence back to Douglas. There is much rejoicing among Manx people that their island has been selected for the trial, and the Legislature is to be congratulated upon the expedition with which the matter has been carried through.

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Local Government Regulations.

ON another page we make reference to the regulations of the Local Government Board, issued during the present week, and which will be found to confirm the forecast we published in the *Journal* of January 2nd last. These seem to have been drawn up with due regard to common sense, and, altogether, motorists have no need to complain of the attitude the Board has adopted since the Act was passed. The use of search lights on motor-cars is prohibited, and the hope expressed that motorists will themselves consider the question of the very dazzling lamps which some employ, so that there need be no need for further regulations on this point. Copies of the order and circular are now on sale from Messrs. Eyre and Spottiswoode, and there will doubtless be many questions arise, with which motorists would do well to make themselves acquainted. During the last few days we have received several enquiries with regard to the points raised in the elucidation of the Act, and to these we propose to refer in our next issue.

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Roads in Ireland.

IT is gratifying to hear that certain local authorities in Ireland, recognising the educational influence exerted by the motor-car tour of last year, are beginning to set their roads in order in view of the touring season, which, should the weather ever settle down to old ideas of self-respect, will commence ere long. A local gentleman in co. Clare has just secured a writ of mandamus in the superior courts of Dublin, insisting on the Clare County Council putting a certain public road into good condition and repair. Elsewhere also we hear of public-spirited men taking steps to secure the local authorities doing their duty in this respect. While on this subject, we would emphasize, as we did just after the Gordon Bennett Race of last year, the necessity of the authorities in the South of Ireland supplying the signposts which have, hitherto, been so conspicuously absent where they were most required. This was forcibly pressed upon us when, making for Cork, we found ourselves stranded at Dungarvan, owing to the absence of signposts on the road from Arklow, and instinct having, on that occasion, led us to a wrong conclusion.

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Horse v. Motor.

FOLLOWING upon the confession of Sir Oswald Mosley as to the future of horse-breeding in this country comes a declaration by Sir Walter Gilbey, who, at a meeting of the Hunters' Improvement Society, complained that horse-breeding was not a flourishing industry in this country, and said that it was very disheartening to see the figures relating to the importation of foreign horses into England. He believed the motor-car had come to stay, but there was nothing like rivalry, and he considered that more horses would be seen in Hyde Park during the next ten years than had ever been seen before. For one reason, ladies did not look nearly so pretty in a motor-car as mounted upon a fine horse. We have always recognised the popularity of the horse for the Park. What we contend is that by the adoption of the motor-car he will be spared many of the burdens and hardships now imposed on "the friend of man."

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Stop Watches no Evidence.

SOLICITORS throughout the country are expecting the new Motor Car Act to become almost as valuable as the horse so far as their professional engagements are concerned. Certainly, from the reports of cases heard recently, there seems a reasonable hope of successful defences, and one result has been the employment of counsel far more freely than last year, when a summons was invariably followed by conviction. In a case heard at Steyning on Monday, Mr. Humphrys showed considerable discretion in the way he handled the police evidence with regard to stop watches, and by quoting other cases in Surrey and the method adopted in East Sussex was able to shake the faith of the magistrates in the police stop watches. From that point to a dismissal of the case was an easy step.

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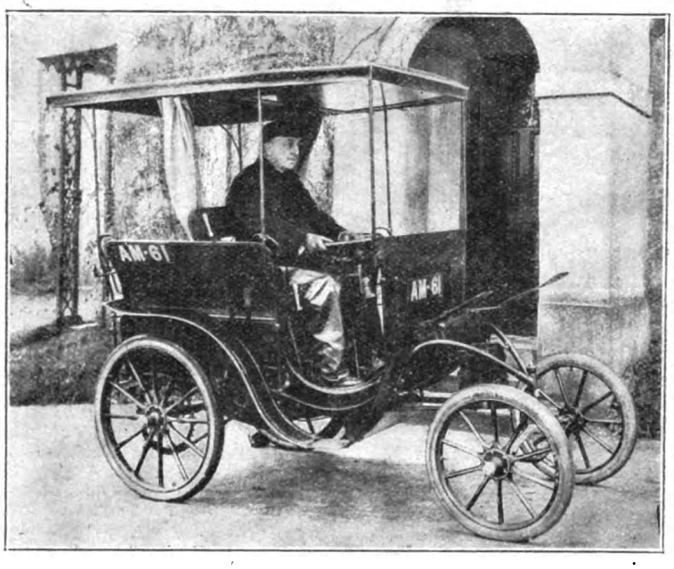
Another Motor List.

WHEN the new legislation came into operation we refrained from publishing the cases where motorists were fined, as such convictions, publicly recorded, served as useful police information. Many of the summonses were the result of mere carelessness, so that it seemed unjust to give the police the opportunity of branding motorists as to first, second, and third convictions. But from letters received from motorists there is evidently much interest felt in the prosecutions throughout the country, and as it is clear the publication of these will be of service to motorists in warning them as to the places where the police are active, we propose in our next issue to give a weekly list, without names, of the offences with which motorists are charged.

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A Clerical Motorist.

A WELL-KNOWN clerical motorist is the Rev. W. C. K. Sylvester, Vicar of Chitterne-All-Saints cum Chitterne-St. Mary, on Salisbury Plain, near Codford, Wilts. He is the youngest son of the late Dr. George Mayris Sylvester, of Trowbridge, Wilts, and a descendant of the old family of the Sylvesters, who have resided in Wiltshire for the past 200 years, but who originally came from Burford, in Oxfordshire, where, in the parish church, there is an aisle called "The Sylvester Aisle," the same being full of monuments erected to their memory, and dating back for over 300 years. At the time of the great rebellion (Charles I.), the then head of the family advanced a considerable sum of money in support of the Royal cause; but, needless to say, like most others, never saw it again. Mr. Sylvester has been accustomed to a mechanical means of locomotion from his earliest childhood, naturally beginning with the humble perambulator, and then aspiring to a velocipede; a curious kind of machine, which consisted of a sort of box arrangement, as a seat, fixed between two large wheels on a triangular-shaped frame; a small wheel being at the apex to



guide with, the same being moved by a long straight handle resembling that of a bath-chair. The movement of the whole was imparted by a pair of long treadles acting directly upon the axle. Then, after some years, an advance was made to a tricycle, and that in turn superseded by a freewheel back-pedalling brake bicycle (after a process of evolution from the fixed wheel), and last, but not least, a motor-car. The one he now drives is a 5-h.p. Stirling light dogcart. Being four miles from a station and eight from the nearest town, Mr. Sylvester finds it far less expensive and more convenient in the long run to keep a car than to possess a horse and carriage.

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The Aero Club Display.

AMONG the exhibits in the North Gallery Annexe, at the Agricultural Hall next week, will be found the original Beedle airship and a model, an important display by Messrs. Spencer Brothers of balloon apparatus, including a model of Stanley Spencer's airship, and the Rev. J. N. Bacon's collection of photographs. Dr. Barton will show a propeller, and propellers will also be exhibited by Mr. W. A. South and Mr. W. Cochrane, whose model dynamic flying machine will be on view. Aeroplanes and kites have been promised, and there will be a quite unique collection of pictures, photographs, and curiosities, lent by Sir David Salomons, the Hon. C. S. Rolls, Mr. Griffith Ewer, and other well-known aeronauts. This interesting section of the Exhibition has been organised by the Aero Club.

1905.

LONG ere one exhibition is closed the most enterprising firms are considering the next. The chief places at this year's show were booked a twelvemonth since, and by the time these lines appear in print settlements with regard to the positions of representative firms at the 1905 display will be made. This is a matter which few people delay, there being always a familiarity of position associated with stands at an Exhibition that is regarded as a useful asset by those acquainted with the practical value of such trade displays.

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Motor-'Buses v. Tram Cars.

AT a meeting of the Eastern Section of the Scottish Automobile Club, held at Edinburgh, Mr. John Stirling has been speaking on this subject—one with which he is fully acquainted from the practical side. Dealing with the older invention, he said there was no doubt that the early tramways served a useful purpose. The idea that tramways were a modern necessity took hold of many minds, but he ventured to make contradiction of this idea and to say that tramways were now no longer a modern necessity. so far, at any rate, as their cities and large towns were concerned, nor were they now the most satisfactory or economical method of moving the population of great centres from place to place. Tramways, with their huge cars, constituted a perpetual street obstruction. They ran on their fixed lines, and all other traffic must make way for them. Alongside the remarkable growth and development of electrical engineering, and especially that department of it relating to locomotion, there had been arising and advancing steadily a new competitor which promised to become, at no great distance, a serious rival to the tramways. This was the evolution and perfecting of the motor-omnibus. A discussion followed, in which Sir J. H. A. Macdonald, K.C.B., took part. He fully endorsed and amplified the views expressed by the lecturer. Mr. Eunson, from Dunedin, New Zealand, who is at present in this country to study the question of motor-car traction in place of expensive tramway systems, addressed the meeting, and said that he and many other tramway directors were fully alive to the likelihood of motor-cars proving their superiority over the present tramway system. Amongst other speakers were Mr. John Wilson, Mr. Norman D. Macdonald, Mr. Alexander M'Kenzie, Councillor Macfarlane, and the chairman, Mr. John Macdonald.

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Lamps.

A SUGGESTION has been made for a competition of head lights, side lights, etc., used on motor-cars, and the A.C.G.B.I., it is suggested, might well organise a test to help motorists to determine the best kind of lamp suitable for their purpose. This is well worth the consideration of the manufacturing firms, as well as of agents, and, in view of the attempt to secure new regulations from the Local Government Board on the subject, the idea is one to be welcomed. There are many good types of lamps on the market, but motorists must often be in a quandary as to the pattern best suited for their requirements. The details of such a competition would require careful consideration. In fact, before committing themselves with regard to the practicability of the proposal, the trade will probably want to know something more of the details than is at present available.

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Railway Excursions.

FROM information received from all parts of the country, we are satisfied that the attendance of provincial visitors at the Exhibition will be large and representative. The Great Western Railway Company will be running excursions to Paddington from Birmingham and Wolverhampton and district on the 19th, 21st, and 23rd. On the Saturday and Wednesday there will also be cheap bookings from all the towns in the

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Thames Valley. On Monday three and four-day trips will be run from the West of England. The Midland, Great Northern, L. and N.W.R., Great Eastern, and other lines will also provide facilities for cheap excursions, so that everything has been done to secure the interest of those who are likely to develope into motorists, as well as of those already owning cars.

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Motor 'Buses at Eastbourne.

At the last meeting of the Eastbourne Town Council, an interesting report on the working of the motor-'bus service was brought forward. Although a profit of only £67 has been made on the venture from its inauguration to the end of last year, there is no doubt in the minds of local people that its success is entirely sure. At the rate of progress disclosed by the accounts, the Town Council should be in a position to repay the whole capital expenditure in seven years, whereas the Local Government Board have granted ten years for the loan. 294,922 passengers were carried, the total receipts therefrom being £2,069. Among the items included in the expenditure were, wages £367, general repairs £84, tyre repairs £8, repairs to machinery £205, petrol oil, waste and cleaning materials, £365, tyres worn out and depreciation on tyres still running, £626. The latter item, it will be seen, was greater than that under any other heading, but it should be minimised in the future. When that is done a good profit should result to the Corporation from their enterprise. 36,800 miles were run at a total cost of 1s. 1·6d. per car mile, the cost of tyres was 4.09d. per car mile, the cost per week of each car being £17 9s. These figures should give confidence to other local authorities intending to embark upon similar ventures, and also to assure the public that there is a financial future before the motor-omnibus.

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One good Turn Deserves Another.

Having regard to the usefulness of the motor-car to the police, as illustrated in the police courts last week, we are glad to see that the authorities in the Metropolitan area are proving friendly to motorists. An advertisement in the daily papers this week reads:—"Metropolitan police.—Found, in the South-Eastern district, during last month, a pair of motor-lamps.—Apply, East Dulwich Police Station, S.E." But then this is in London, and not near Ripley. One can hardly imagine Sergeant Jarrett—who lost another case at Woking the other day—going out of his way to assist some careless motorist.

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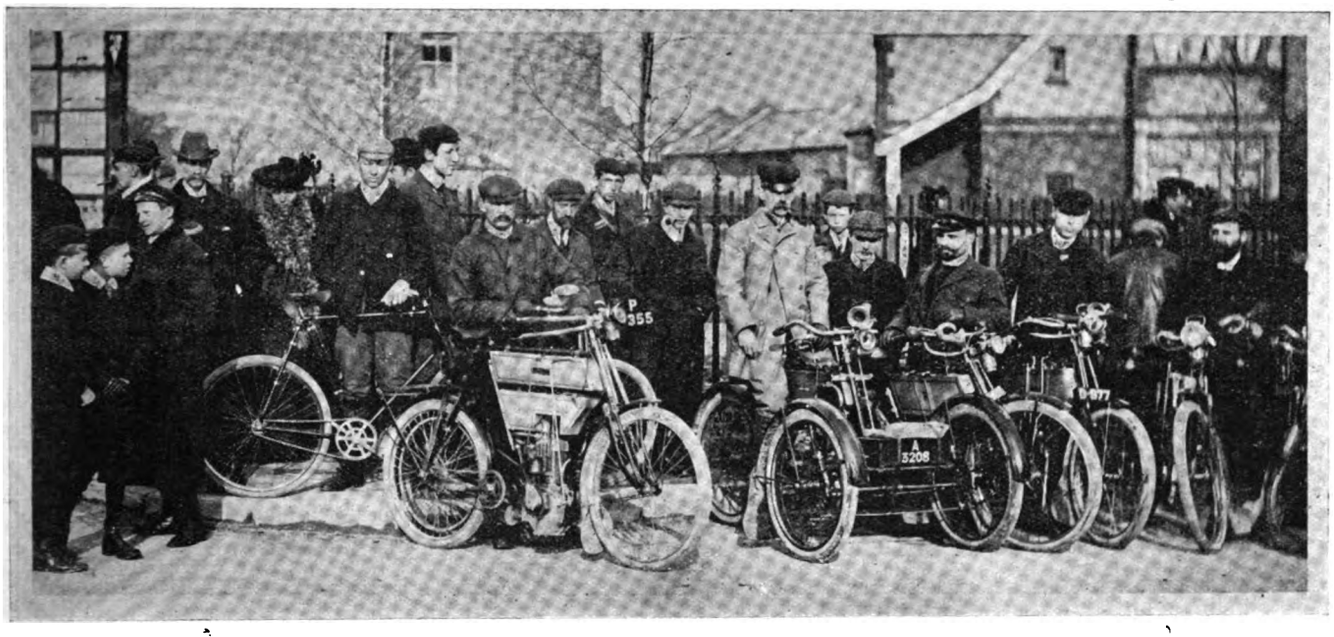
Our Directory of Numbers.

Provincial motorists whose numbers have not yet appeared in our Directory are invited to call at the office in the Exhibition and leave their names, addresses, and numbers for publication in future lists. Considerable interest has been taken in the lists already published, hence the suggestion that further numbers should come to hand during the period of the Exhibition, when the attendance of motorists is likely to be unprecedented.

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Motor-car Imports and Exports.

No less than 538 foreign motor-cars were imported into this country during last month, their value being returned at £185,499. "Parts" were responsible for £21,496, bringing up the total imports for February to £206,995, as against only £120,772 in the preceding month, and £94,735 in February, 1903. So far this year, that is to say for the first two months, the imports stand at £327,767 or roundly £60,000 more than in the same period of last year. We are glad, however, to be able to record an upward move in the exports of British automobile productions. Thus last month sixty-five vehicles were shipped, these with the "parts" being valued at £28,195. For the two months ending with February the exports are returned at £56,831, or £13,000 more than in the corresponding two months of 1903.



The Opening Run of the Motor Cycling Club. The Gathering at Purley Corner.

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The Stupidity of Pedestrians.

We are glad the President of the Manchester Automobile Club has been emphasizing the stupidity of the average pedestrian with regard to ordinary street traffic. The danger of the motor-car is comparatively small in comparison with the danger, both to themselves and to others, caused by that vacuous stupidity which too often marks the ordinary man in crossing a busy thoroughfare. Two-thirds of the accidents that occur in the streets of large towns are the direct result of carelessness on the part of the individuals concerned. How they are to be obviated it is difficult to say. The use of recognised crossing places might do something to minimise the evil, but that it would effectively stop it is too much to hope for in view of the carelessness of the average human being.

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"Quiet to Ride and Drive."

A CURIOUS case was heard at the Lambeth County Court the other day in which there figured as the central feature a horse, warranted "quiet to ride and drive." This would not, however, face motor-cars, and the purchaser, who brought an action for breach of warranty, admitted that, whilst it was all that could be desired in every other point, its objection to the modern automobile, when seen on the road, was such as to destroy the value of any warranty as to its quietness among traffic. Judge Emden, whose practical experience as a motorist has frequently stood him in good stead when hearing actions in connection with road traffic, held, in view of the large number of motor-cars now in use, that the term "quiet to ride and drive" must receive a broader construction than it had done in the past. This should be borne in mind by all who deal in horses, and the fact that the Bench is beginning to recognise motor-cars as ordinary features of traffic must be regarded as a triumph for the mechanical vehicle.

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Lights on Vehicles.

THE Committee of the Motor Union of Great Britain and Ireland, the annual meeting of which will be held at the Agricultural Hall, London, on Tuesday next, has adopted Mr. Rees Jeffrey's suggestion concerning the steps that might be taken to better the existing law and practice as regards the lighting of vehicles. The recommendations are as follows:—1. A general and systematic attempt to strengthen the local bye-laws. This might be done by one or more of the following methods: Arranging a deputation to the Home Office and inviting that department to bring pressure to bear on the local authorities to adopt bye-laws in districts which are at present without them, and to improve them in those districts in which existing bye-laws are only partial in their operation. Circularising the local authorities. Moving the local clubs to organise deputations to meet the responsible committees of the local authorities. Inviting the co-operation of the County Councils Association and the Association of Municipal Corporations. 2. Including a Universal Lights Bill in the political programme of the Motor Union, and taking the following steps to press the measure on the attention of Parliament. Introducing a Bill into Parliament, either alone or in concert with the C.T.C. and the N.C.U. Asking the President of the Local Government Board to receive a deputation in support of such a measure. Suggesting to members of the Union that they should invite their Parliamentary representatives to vote in favour of a Universal Lights Bill.

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Care Required.

THERE is trouble among the Brighton motorists, who have been threatened with having the Front closed for traffic on Sunday mornings, owing to the reckless, or alleged reckless, driving of motorists who are not resident, during the last few Sundays. The matter has been before the Brighton Town Council, to which body the inspector of police has complained that no heed is taken of the regulations by motorists. Not only had he been unable to overtake cars rushing along the front on his bicycle, but a mounted trooper called into requisition in a friendly way had also failed to accomplish the task. Several Councillors have expressed themselves in strong terms against the conduct of motorists who are thus bringing the movement into disrepute, and we would ask for reasonableness on the part of those who drive, especially when visiting towns in which they are non-resident.

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Continental Touring.

LAST week, at the Automobile Club, Mr. Roger H. Fuller read a paper on Continental Touring, in which he gave some useful information with regard to routes to Paris, some of which will appear in the guide-book shortly to be issued by the Club. Touring in France does not differ very much in cost from what it is in the British Isles, and the roads, generally speaking, are excellent, with the exception of those in towns and villages. In Spain, however, they are quite unfit for modern racing cars, and even with touring cars require much patient driving. Mr. J. Pennell was in the chair, and gave some of his own interesting experiences as a motor-cyclist on the Continent. Lieut. Windham opened the discussion, and emphasized a point Mr. Fuller had mentioned with regard to free garage accommodation at Continental hotels, an innovation which hotel keepers in this country might make with considerable advantage both to themselves and to motorists. The discussion took a general turn, and Mr. Schlentheim, making reference to the question of routes to Homburg for the Gordon Bennett Race, advised motorists to go through Holland. He had gone that way to Germany, and had found the road was fine and wide. There were no duties on the German frontier, and the distance was about 300 miles. A hearty vote of thanks was accorded to both lecturer and chairman at the conclusion of the meeting.

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Exhibition Events.

SEVERAL interesting social events will take place at the Agricultural Hall next week. On Tuesday the annual meeting of the Motor Union will be held; Wednesday will be the Club day (when the charge for admission will be raised to half-a-crown), and the annual meeting of the Automobile Mutual Protection Association will also be held on that day. On Thursday a reception will be held by the Ladies' Automobile Club, and on Friday the Auto-Cycle Club will have a meeting. These events will prove of considerable interest to exhibitors, who may confidently look forward to a very busy time.

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Kentish Enthusiasm.

TECHNICAL education in motor-car work is being developed with almost surprising rapidity throughout the country. Many times have we recently referred to developments in this direction in London, and we are glad to learn of the success of the classes established at Tunbridge Wells, at which the Mayor was one of the first students. In fact, at that place it has been found necessary to open a second class, so great has been the number of applications for membership, and it is evident that, given a supply of information on automobile topics, the demand will grow.

THE King and Queen went to Esher on Wednesday, His Majesty using for the first time in public his new Mercedes motor car.

THE Committee of the Corporation of the City of London has asked the Local Government Board to approve of a speed limit of eight miles an hour for motor-cars when passing through the City of London.

HAVING memorialised the Local Government Board to restrict the speed of motors to ten miles an hour in the borough, the Dover Corporation were on Tuesday notified that the Board will hold a local inquiry into the matter.

AT the last meeting of the Automobile Association of Bengal the following officers were elected:—Dr. Neild Cook, Chairman; Mr. Oakley, Vice-Chairman; Mr. Rolfe, Hon. Secretary; to the Committee Messrs. E. S. Martin, Dent, Birkmyre, Whiteway, and H. Marah were elected.

THE Side-slip Trials of the A.C.G.B.I. will start on the 18th prox., with a 1,000 miles Endurance Test. On completion of this, tests will be made on the track of the new Clement-Talbot works near Ladbroke Grove, W. A number of observers will be required for the Endurance Test.

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MOTORING AND HEALTH.



AMONG doctors motoring seems to have been welcomed both on account of the facilities it provides for paying the maximum of visits in the minimum of time, and also because of the invigorating effects of a rapid spin through the country. Sir Henry Thompson and other leaders of the profession have borne testimony on this point, and now Professor Hugh Galt has been giving the members of the Western Section of the Scottish Automobile Club what he describes as "the medical aspect of motoring." Life in a city, it was pointed out, resulted in the absorbing into the system of various poisons which made themselves felt in the form of malaise, biliousness and other similar troubles usually ascribed by the medical profession and laymen to a man being in the condition known as "run down." For this condition a motor-car run was of great value. It stimulated the kidneys, the liver, and to a less extent the bowels, and the increased circulation had the effect of removing from the system the poisons thus released. Motoring, according to the professor, had the effect of increasing the circulation of the blood, the heart's action being accelerated with a corresponding oxygenizement of the blood usually from air of the purest kind.

Of course there must be some regard to the constitution and health of the person riding in a motor-car. These very qualities inspired in anyone of sound health might be inadvisable, and even harmful, to a person of impaired heart or delicate health, unless taken with a due regard to the condition of body. But ordinarily to a person of fairly good health the value of automobilism is apparent. After a week's hard work of a sedentary character there is nothing so re-invigorating as a brisk motor trip of many miles, the change of scene and the contact with the fresh air having a most beneficial effect on the whole system. Just as motor ambulances will soon be recognised as part of the equipment of every ambulance station, so will motor-cars be considered a necessary feature of every convalescent home. Patients in such institutions will find their recovery hastened by automobile rides, under, of course, medical advice.

During the discussion at the Scottish Club Dr. Robb raised the question of the effect of motoring on insomnia, and Professor Galt extolled motoring as an absolutely unfailing specific for that distressing complaint. The brain cells were invigorated by the increased circulation; the run through the pure air had the effect of soothing the irritated nerve centres, and the insomnia patient who had gone through this experience in the forenoon, and proposed seeing the sights of the town in the afternoon, usually saw the sights of the town in his dreams while sound asleep in the smoking-room of the hotel. The advantages of this, or any other really interesting open-air hobby; the ability to get almost immediately change of air and change of scene; the evils of monotony on both mind and body, but especially the mind; and the mental training in the direction of resource and self-reliance were all referred to and commented on in a way that should cause many people to regard the motor-car from at new aspect.

But there are points in connection with this view of the motor-car which should not be ignored, viz., the effect of motoring on the eyes, and the want of exercise associated with the pleasures of driving an automobile. Of course, in the early days of the modern motor-car, the vagaries of the vehicles then in use provided plenty of opportunity for enforced exercise in the form of mounting and re-mounting to attend to matters that would go wrong, and to difficulties that would arise without any apparent cause. But those times are past and punctures provide the main excitement of that kind with which the motorist is entertained while riding. And after a drive of many miles the limbs become stiff and cramped. Under those circumstances Sir Henry Thompson recommends that "opportunities should be found once or twice during a long journey of say, seventy or eighty miles, to take a short but smart walk for a few minutes to keep the muscles in order, and make the blood circulate through them." Care, too, should be taken to secure protection against wind and wet by the adoption of the special garments to which so many leading tailors have given close study of recent years. As to the eyes, the use of goggles becomes absolutely necessary when any great speed is attained on the road, especially when roads are dusty and winds are lusty.

These reflections should encourage those who have not yet committed the plunge into the car world to take advantage of the early spring for trial runs, so that they may obtain their automobiles in full time for the summer season, when they can realise for themselves the health-giving pleasures of the motor-car.



The arrival at a Poseda causes excitement on the part of the Natives.



At the Puerta del Sol, in Madrid.

MOTORING IN SPAIN. *La France Automobile.*

A SQUAD of about a dozen men of the Army Service Corps from London and Chatham have gone to Granton to study the mechanism of the new Army motor lorries.

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CONTINENTAL NOTES.

THERE will be one neutralisation less on the Cup course now that the route from Oberursel to Saalburg has been altered. Instead of leading through Oberstedten and Dornholzhausen, the Homburg Schlosspark and the Glockensteiner Weg are now to be taken in. The first and original road was the shorter and more direct one, but was twice neutralised, whilst the longer way about will only have the one neutralisation of the Homburg Schlossweg. It is now stated that the drivers of the three Austrian cars will be Warden, Werner, and Braun.

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THE proposed automobile tax at Frankfort-on-the-Main has been averted, thanks to the efforts of the Frankfort Automobile Club.

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THE automobile *fetes* at Cannes this week are being favoured by splendid weather, and are so far a great success. On Sunday a gymkhana was held, and on Monday the programme included a hundred kilometres touring test from Cannes to Grimaud and back, and an interesting hill-climbing contest, in which the following took part:—M. Gallice (12-h.p. Clement), M. Burton (60-h.p. Mercedes), M. C. Loubet, (10-h.p. Peugeot), Doctor Durand (22-h.p. Mors), M. C. Quinson (12-h.p. Gladiator), M. C. Mounier (8-h.p. Renault), M. Delaunay-Belleville (35-h.p. Panhard), M. Rouff (20-h.p. Rochet-Schneider).

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ANOTHER test of anti-skidding tyres is being organised, consisting on this occasion of a run from Paris to Nice and back. A start will be made on the 30th inst. From the 4th to the 7th April the vehicles fitted with the competing devices will be exhibited in Nice and Monte Carlo, the return journey to the French capital being fixed for April 8th.

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THE Oberpfalzischer Automobil Klub has just been formed at Regensberg to encourage the automobile movement in the Upper Pfalz district of Germany.

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THE commission appointed by the Italian Ministry of Public Works to inquire into and report upon the question of automobile regulations in Italy recommends (1) that the speed in towns and villages shall not exceed 7½ miles an hour; (2) that in open country no speed limitations be fixed, motorists to travel at any speed they may deem prudent; (3) that motor-cars shall show a white and not a red light at the rear, and (4) that a stricter examination for driving licences be enforced.

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AT a meeting of the Technical Committee of the A.C.F. the commencement of the Concours de Carburetters was fixed for May 1st.

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THE question of the speed of automobiles has lately been raised in the Portuguese Parliament, and it has been decided that it must not exceed 18½ miles per hour in open country, and 5½ miles in towns and villages.

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IN our last issue we were only able to mention that the highest number of points in the recent anti-skid trials organised by the Automobile Club de Seine-et-Oise was gained by the Gallus ferré device of M. Edeline. The general classification according to the points gained by each device is as follows:—1. Gallus ferré (395 points); 2. L'Empereur (368); 3, Gallus demi-ferré (361); 4. De Fornier (345); 5. Bergougnan (366); 6. Fouilloy (320); 7. Durandal (310); 8. Lucas (290); 9. Houben (284); 10. Clerget (251); 11. Excelsior (250).

The awards are:—

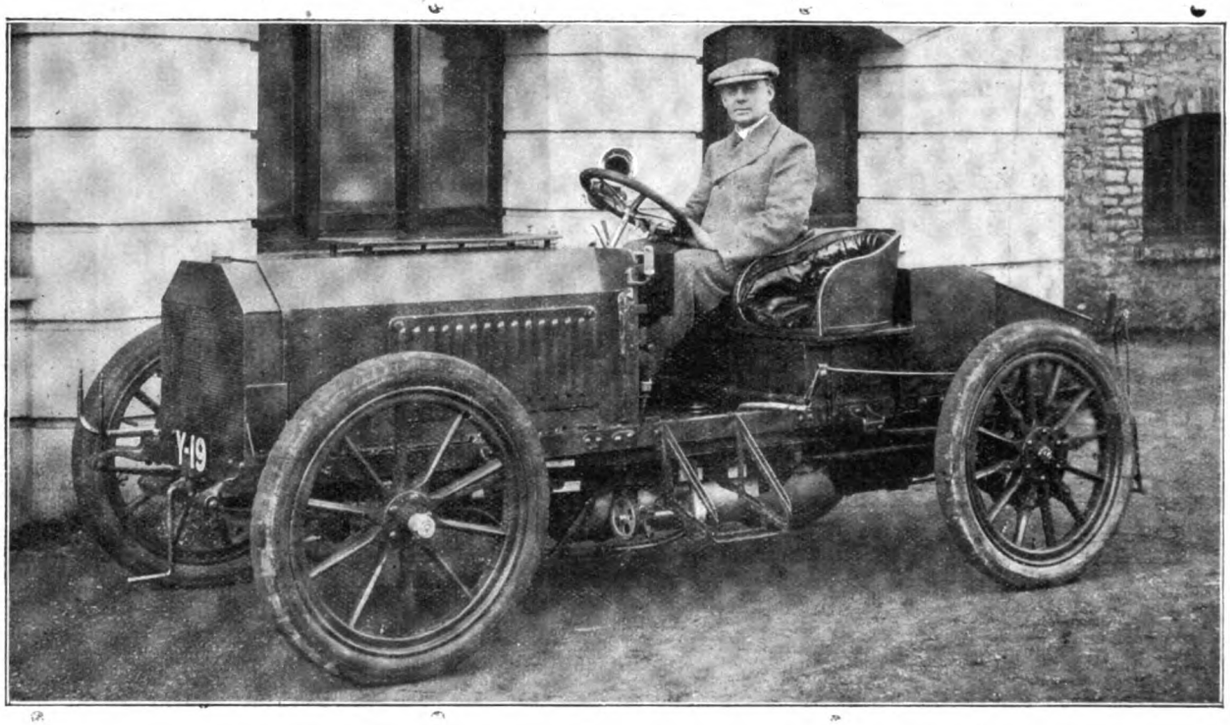
CATEGORY A. *Removable anti-skid devices.*—1. L'Empereur; 2. De Fornier; 3. Fouilloy; 4. Durandal; 5. Houben; 6 Excelsior.

CATEGORY B. *Anti-Skid tyres.*—1, Gallus ferré; 2, Gallus demi-ferré; 3, Bergougnan; 4, Lucas; 5, Clerget.

CATEGORY C. *Smooth Tyres fitted with anti-skid devices.*—1, Eyquem; 2, Moche; 3, Sainsbury.

CATEGORY D. *Non-skids for motor-bicycles.*—1, Bergougnan; 2, Durandal; 3, Lucas; 4, Billet.

Some of the competitors were not classed by the jury, owing to accidents other than to the anti-skid devices themselves. This applies to the Chameroy, which is being permitted to complete the trials; to the Samson tyre and the Billet tyre, both the cars on which these tyres were fitted having continually broken down, thus preventing the tests being completed.



Mr. John Hargreaves, Templecombe, on his 65-h.p. Napier Car.

This enthusiastic sportsman has lately received the 100-h.p. Napier racing car, which he will drive in the eliminating trials for the English team for the Gordon Bennett Race. If successful in the preparatory event it is his intention to take part in the "Motor Derby," after a course of racing practice on Continental roads.

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NEW MOTOR-CAR REGULATIONS.

THE new regulations of the Local Government Board with regard to the use and construction of motor-cars have been issued this week. According to these, the width of cars is now permitted up to seven feet two inches.

Every vehicle exceeding two cwts. in weight unladen, drawn by a motor-car, is required to have a brake and shall carry a person competent to apply the brake efficiently.

One interesting clause obviously refers to tri-cars and other additions to motor-cycles. Two independent brakes have to be fitted to motor-cars, of such efficiency that the application of either to the motor-car shall cause two of its wheels on the same axle to be so held that the wheels shall be prevented from revolving. The exception is in the case of a "motor-car having less than four wheels." This condition shall apply as if instead of two wheels on the same axle, one wheel was referred to.

Article IV. of the new regulations contains one or two new clauses, and drivers must not now travel backwards for a greater distance than may be requisite for the safety "or convenience" of the occupants of the car, and of other traffic. Motorists, too, must drive with a full view of the road ahead, and if they quit the car, must take precautions against it being started in their absence.

The question of stopping the vehicle has evidently been reconsidered by the Local Government Board, and motorists now need only stop on the request of a police constable in uniform, or of any person having charge of a horse.

In the circular accompanying the regulations, there is an appendix with reference to the notices and sign posts to be put up under Section 10 of the Motor Car Act. These have been previously referred to, but may be summarised on the present occasion as follows:—For the ten mile, or lower limit of speed, a white ring, 18 inches in diameter, will have to be placed upon a post not less than 8 feet from the ground level, with a plate indicating the limit in figures. For the total prohibition of motor-car traffic, a solid red disc, 18 inches in diameter, will have to be provided; a hollow red equilateral triangle with 18 inch sides will indicate caution at dangerous corners, cross roads, etc., and two of the other notices under the Motor Car Act will require to be set forth on diamond-shaped boards.

THE Peterborough Motor Company have lately extended their works.

AMONG the events that will attract motor-cyclists to the Exhibition at the Agricultural Hall next week will be a meeting of the Auto-Cycle Club, at which Mr. Victor Hart will read a paper on "Some Suggestions for the Auto-Cycle Club's 1,000 miles trial." The meeting will be held in one of the rooms at the Hall on Friday, the 25th, the chair being taken at 7 p.m. There should be a good muster of members of the club, who will receive invitations for the meeting from the energetic secretary, Mr. F. Straight.

THE R. L. Engineering Company, Limited, of Verulam Street, Holborn, W.C., is bringing out a new car fitted with a 3½-h.p. Rulex engine at a price which is exceptional, even in these days of cheapened light cars. They have also one fitted with a 4½-h.p. engine. These cars are equipped with a patent two-speed gear and free engine, and can be geared up to forty miles per hour. They will be at the Exhibition. The R. L. Motor Engineering Company, Limited, have well-equipped works, and are going thoroughly into the automobile industry.

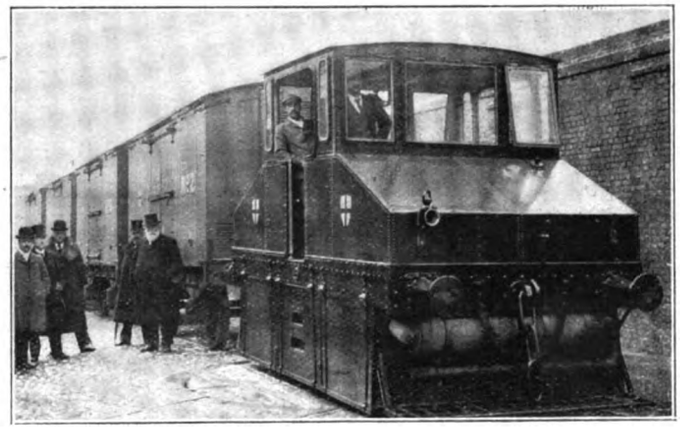
THE opening run of the season of the Motor-Cycling Club took place on Saturday last, the destination being Brighton. The meeting place was at Purley Corner, and there were quite fifty machines assembled just before the start. Excellent running was made to Crawley, where a fifteen minutes' halt was made. One or two members fell out on the latter part of the run to effect trifling adjustments, but practically everyone got into Brighton well before lighting-up time. In the evening a dinner was held at the Old Ship Hotel, at which about forty members were present.

A NEW PETROL LOCOMOTIVE.

THE locomotive shown in the accompanying illustration has been designed and built by the Maudslay Motor Company, Limited, of Coventry, to the order of the City of London Corporation, for the special purpose of drawing trucks on a standard gauge line between the Corporation meat market and the London, Brighton, and South Coast Railway sidings. The full load consists of four trucks, weighing when loaded about fifty tons. The maximum gradient is exceedingly stiff, being 1 in 36. As the line to be traversed runs partly through the streets and partly through the market, the locomotive is geared to travel at a slow speed only, and has two speeds of 2½ and 5 miles per hour respectively in each direction.

The petrol motor is similar in design to the Maudslay Company's standard pattern, and has three cylinders, 9 in. bore by 9 in. stroke, and develops 80-b.h.p. at 450 r.p.m. Half compression cams are fitted, and for greater convenience an 8-h.p. single-cylinder engine is provided for starting purposes. The water and petrol tanks are of sufficient capacity for a whole day's run, and the motor is cooled by a large tubular radiator fitted with a fan. The mechanism is all covered in to conform with the Board of Trade regulations. The weight of the locomotive complete is about twelve tons.

Westinghouse brakes are fitted in addition to the ordinary hand brakes, as also a sanding apparatus for use when the streets are greasy.



The official trial of this locomotive took place on the 29th ult. The trucks shown in the photograph were loaded with paving stones to bring them up to the contract weight (fifty tons). The locomotive drew them all over the system with perfect ease, and it was evident to those present that it would have been capable of drawing the same load at a much higher speed or a much heavier load at the same speed. The trial included stopping and re-starting on the steepest gradients. The running of the locomotive, and especially the ease with which it was controlled and reversed, gave complete satisfaction to everyone concerned.

MOTOR boats will be among the attractions of the Berner's Hall at the Exhibition next week.

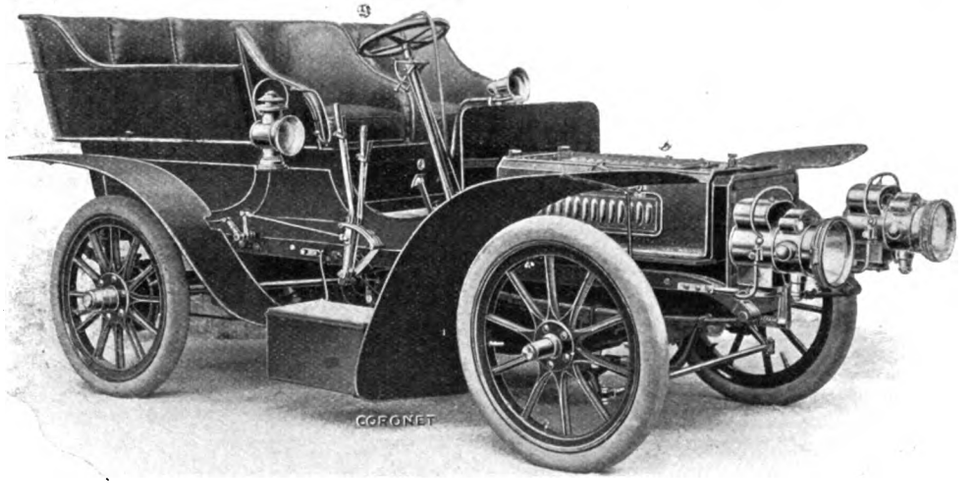
THE Imperial Motor Company, Limited, has been registered with a capital of £10,000, to adopt agreements with Messrs. A. Giovanelli, J. S. Stewart-Wallace and A. Carlisle-Herts, and to carry on the business of manufacturers of and dealers in motor- or other cars, wagons, cycles, and vehicles of all kinds, etc.

IN order to meet the demand for a light two-seated car at a popular price the Duryea Company are putting on the market a two cylinder 8-h.p. vehicle, which will embody their well-known features of central engine and direct drive with single chain on to a live axle. Two speeds and reverse will be available by means of a concentric gear on the engine shaft. The company are hoping to have one of the new vehicles on view at the Agricultural Hall Show next week.

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THE "CORONET" PETROL CARS.

THE CORONET MOTOR COMPANY, LIMITED, of Coventry, are bringing out two new types of petrol cars of 8-h.p. and 16-h.p. respectively. The 16-h.p. car is fitted with one of the "Coronet" four-cylinder water-cooled governed engines; each cylinder of which is a separate casting with its water jacket. The bore is 3¾ inch and the stroke 4⅜ inch. The pistons are of good length and are fitted with three eccentric rings. The crank shaft has a bearing between each throw of the crank. The valves are of large diameter and mechanically operated by one cam shaft, which is supported by a central bearing, and, together with its gear wheel and governors, runs continuously in oil in a dust proof case. Two large inspection plates are fitted in the lower half of the crank case. The normal speed of the engine is 1,000 revolutions per minute. Although nominally rated at 16-h.p., the brake power on test is 20 to 22-b.h.p., with the motor running at normal speed, and 25 to 27-b.h.p. at 1,400 revolutions per minute. The power from the motor is transmitted to the gear-box through an internal leather-faced clutch entirely free from end thrust either to the motor or gear box, whether the clutch is "in" or "out," a universal joint being arranged between the gear box and clutch. The gear gives three speeds forward and one reverse, all controlled by one lever. The top speed is a direct drive with all the gear wheels out of mesh. The change gear offers some novel ideas of much interest; it is of the ordinary sliding type, but the sliding is done on all-round shafts, there being no square shaft or wheels sliding on tongues or rings, an arrangement enabling all parts to be accurately ground after hardening, and ensuring, if properly fitted and meshed, as thoroughly silent a gear on all speeds as is possible! The transmission from gear box to the road wheels is by cardan shaft and live axle. The road wheels are mounted on the outer tube of the axle; the driving shaft from the differential runs through this tube and drives the hubs through steel star clutches firmly fixed to the driving-shaft; by this method there is claimed to be no possibility of the road wheels spreading. The differential gear in the rear axle is of the spur wheel type. The wheel base of the car is 7 ft. 10 in., and the tread 4 ft. 3 in. The frame is of hydraulic pressed steel. Three brakes are fitted—one on the differential and one each acting on drums connected with the rear road wheels, all brakes being of the same size. The steering gear is the Coronet Company's special irreversible type. The car is fitted with phosphor bronze bearings, the makers having adopted these in preference to ball bearings. The body work of the car is by the Coronet Company, and is upholstered in best leather. The 8-h.p. car is similar in design to the 16-h.p. and is fitted with a governed engine giving 10-h.p. on the brake at 1,200 revolutions.



The Coronet 16-h.p. Car.

MOTOR-CYCLING NEWS.

ONE of the most remarkable charges yet heard against the motor-bicycle is that of farmers out in Indiana, who complain of the motor-cycle riding of a young priest, the Rev. Father Adam Baron, of Linton, Ind. The agrarians say that the machine frightens the cattle in the fields and they become so excessively nervous that they lose flesh! The Rev. Father Baron is an enthusiast both in the work of his calling and in respect to the motor-cycle. He has charge of two parishes fifteen miles apart, and by virtue of using a motor-cycle he is able to preach at both places every Sunday. Father Baron has become popular with his parishioners because of his enterprise, but his dash when on the road has made him unpopular with the farmers, who are threatening suit for damages on the ground that the loss of flesh by their cattle caused by nervousness, due to fright at the motor-bicycle, has resulted in a depreciation of the market value of the animals.

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NOW that the riding season is commencing a word of warning may be given to those riders who are this year making their debut in the motor-cycling world against being too venturesome. The art of "tap-twiddling" may be quickly learned, but that of riding through traffic needs much practice, and until a rider feels that he has full control over the machine it will be well for him not to indulge in high speeds. The *debutant* is already more than probably a cyclist, and may imagine the management and control of the motor are the only things he has to learn. There is, however, a considerable difference between the average speed attainable on a bicycle and a motor-cycle to become accustomed to which needs more than a day's practice. We have been led to make these remarks by the fact that on Saturday last a boy named Gredge, aged 16, whilst riding his motor-bicycle at Ilford, collided with a van. The impact of the collision smashed the machine and threw its rider with such force that he was picked up unconscious and taken to the London Hospital, where he was found to be suffering from severe abdominal injuries.

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"O. L." WRITES:—"I have not lately seen any correspondence in the *Journal* on the subject of clutches for motor-cycles. They are not an absolute necessity with one cylinder motors, but now that there are two and four-cylinder motors, I think that it will be absolutely necessary to have a free engine. I should very much like to hear other correspondents' opinions on this subject."

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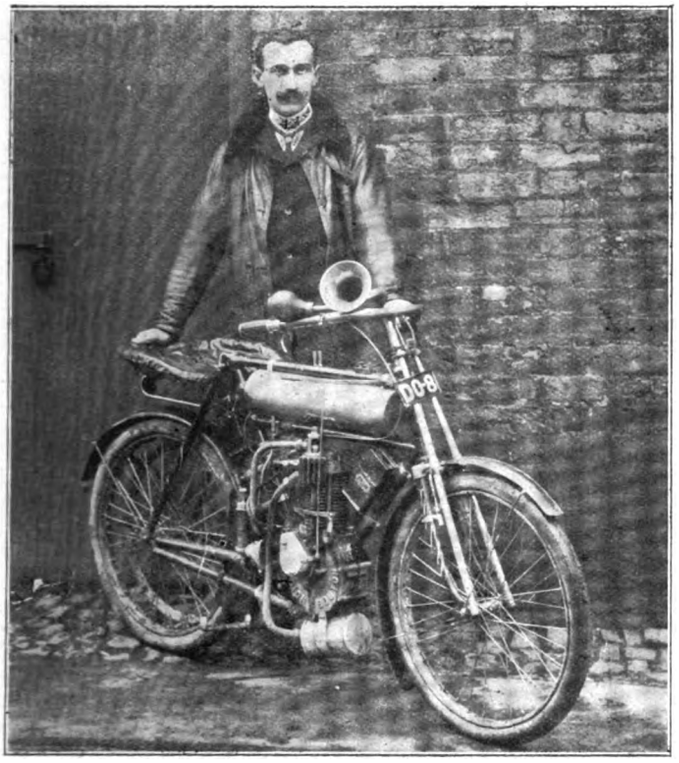
A MOTOR-CYCLE tour on the Continent is being arranged by the C.T.C. for Easter, and every effort is being made to render the trip thoroughly enjoyable. The tour will extend from March 30th to April 6th, the party crossing from Southampton to Havre on the night of the 30th inst., returning from

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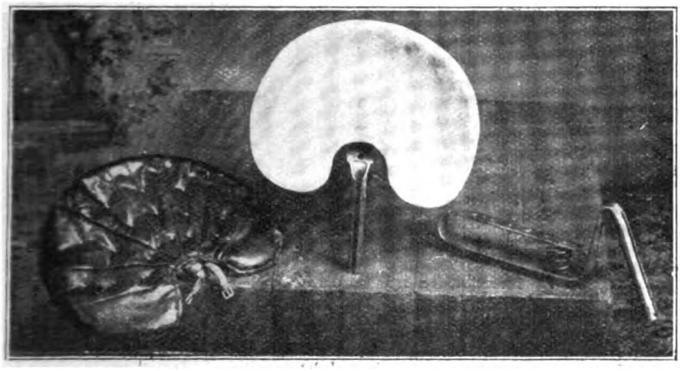
France on April 5th. The chief places to be visited will include Trouville, Caen, St. Lô, Coutances, Granville, Avranches, Mont Saint Michel, Domfront, Falaise, Lisieux, Brionne, Bourgtheroulde, Rouen, and Caudebec.

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We are indebted to Mr. Richard W. Curtis, of Holbeach, Lincolnshire, who is acting as agent for Mr. Robert Cooke, of Decoy Farm, Spalding, for the accompanying photographs of an



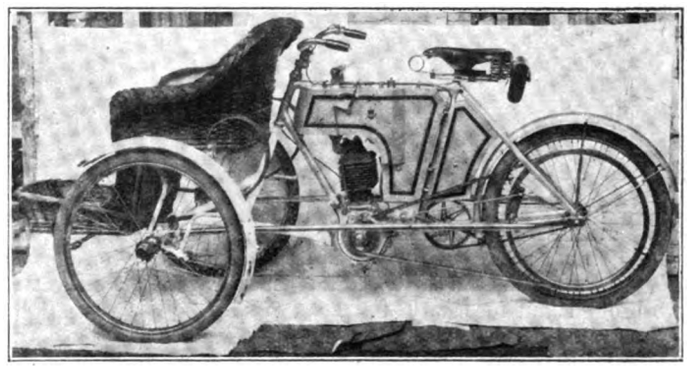
improved seat for motor-cycles. It consists of a piece of spring steel forged to a special shape, being made semi-circular, and is inserted into that part of the frame which usually contains the ordinary seat pillar post. Being made concave, it admits of the use of the usual saddle post at the same time, if required. An auxiliary steel spiral spring is connected with the top and bottom of the larger spring for strengthening purposes. A well-dished seat made of aluminium or suitable metal or material is attached to the spring by means of bolts and nuts in such a way that it can be adjusted to any desired position, the seat being



upholstered or padded in different styles. The first illustration shows Mr. Cooke with his motor-bicycle, to which is attached one of the improved seats. In the second picture, the various parts of the seat are shown separately. We may add that the new seat can be applied without trouble to any make of motor-bicycle. In an interview we learn that Mr. Cooke, originally trained for an engineer, developed into a farmer, and having farms both in Lincolnshire and Norfolk, some fifty miles apart, he found motoring essential. He now rides regularly, often upon the roughest roads and grass fields, and finds no inconvenience, thanks to the new attachment. The seat, which is broad and comfortable, causes no inconvenience in mounting or pedalling. The spring and saddle will be on view in the Berner's Hall at the Show at the Agricultural Hall, which opens to-day (Saturday).

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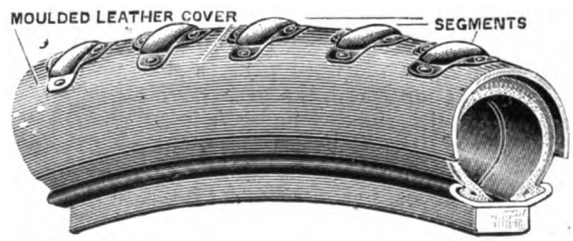
The Rex Motor Manufacturing Company's latest production in the way of two-seated motor-cycles is shown below. It is known as the "Triette"; the motor power is supplied by a standard "Rex" engine of 3¼-h.p. A notable feature of this motor is the baffle-plate silencer incorporated with the exhaust valve chamber, and recently this construction has been further improved by the addition of an air passage between the cylinder proper and the exhaust valve chamber, in



order to prevent overheating. The disposition of petrol tank, carburettor, lubricating oil tank, coil and accumulators (two), is somewhat different from any other make of machine. The tank or casing is extended downward almost to the bottom bracket and between the cylinder and seat post. The accumulators and coil are carried in a separate compartment fixed to the rear of the latter, this arrangement permitting of a large petrol storage. The transmission is by V belt; the Rex foot-brake enables the rider to place his foot on the brake lever when riding in the ordinary position. The brake is extremely simple, consisting merely of a bell-crank lever operating through a direct connecting rod on a pivoted shoe, which in turn is brought in contact with the inner surface of the belt pulley.

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Herewith we illustrate Edwards's newest patent non-skidding device, as applied to a motor-cycle tyre. It will be exhibited in this form and also as applied to motor-car tyres, at the forthcoming show at the Agricultural Hall. It will be seen that it is an adaptation, in metal, of the principle of the original Edwards' non-slipping cover for bicycle tyres which was so popular some years ago. Experiments and trials extending over



many months have demonstrated that motor-cycles and cars fitted with this tyre are absolutely safe from skidding under all conditions of road surface. The improved non-skidder consists of a specially prepared toughened chrome leather cover, moulded so as to fit all sizes and makes of tyres. On the tread of this cover steel segments are fixed with bifurcated rivets at suitable intervals.

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The committee of the Auto-Cycle Club have decided to make the use and fitting of silencers optional in motor-cycle races held in enclosed grounds.

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The Alldays Three-seated Car.

THE ALLDAYS LIGHT CAR.

MESSRS. ALLDAYS AND ONIONS, LIMITED, in response to enquiries for a small car of rather more power and size than their well-known "Traveller" voiturette, have brought out for the 1904 season the "Alldays" 6½-h.p. light car illustrated herewith. In designing this vehicle care has been taken to make every part as simple as possible, whilst providing ample strength and wearing surfaces to every working part. Smooth and comfortable running is ensured by the use of extra long and flexible springs. The frame is constructed of channel steel, bent in one piece, and stayed by two cross sections, the engine and gear-box being bolted to two longitudinal members riveted to the front and two cross sections of the frame. The motor, of the vertical single cylinder type with outside fly-wheel, developing 6½-h.p., is fitted with mechanically-operated interchangeable valves. The fly-wheel forms the outer portion of the friction clutch, which is leather faced, and designed to eliminate all end thrust when driving. The cooling water is carried in a combined tank and radiator placed in the front part of the bonnet, the circulation being maintained by a slow-running pump driving direct from the cam-shaft, to which it is attached by a flexible coupling. The crank case is made in two halves, the upper half having extended arms for bolting direct to the frame of the car; the lower half can be readily detached, and is also provided with a bottom inspection plate which provides for making adjustments to the connecting rod. A universally-jointed shaft is fitted between the engine and gear-box, in addition to the one between the gear-box and the rear axle, thus preventing any undue strains on the bearings of the engine or the gear shafts, which may be caused by any springing or distortion of the frame. The gear-box is arranged for two forward gears and a reverse, with a direct drive on the top speed, the gear wheels being of ample width to ensure quiet running and a minimum of wear. The rear axle is of the "live" type, running in an oil-tight dust-proof casing, fitted with a spur-gear differential instead of the usual bevel type. The two halves of the axle run in plain bearings, but ball-thrust bearings are provided for taking the side thrust due to the bevel drive. The brakes are of the expanding metal-to-metal type, that on the countershaft being operated by a pedal, which also disengages the clutch, while the one on the differential is operated by a hand lever at the side. A second pedal is provided to disengage the clutch only, while the change gear is controlled by a side lever. The petrol and lubricating oil-tank is mounted at the rear of the dashboard, and holds sufficient petrol for a run of about 130 miles, while the lubricating oil capacity is equal to a run of 250 miles. The levers for controlling the ignition and mixture are conveniently mounted on the inclined steering column. Any suitable type of body can be fitted, but of the two standard types, one is a body with a phaeton seat for two passengers, having a large and roomy platform at the back for luggage, and underneath this a cupboard for carrying an extra tyre, etc.; and another has a three-seated body. This car, which is shown in the accompanying illustration, at first glance appears to be of the usual tonneau order, but a closer inspection reveals the fact that it possesses only one front seat—the driver's seat—and that the space usually occupied by a second seat is left vacant and forms a passage by which to enter the tonneau from the dash platform, in place of by a door at the back. The car, which appears to be of sound construction and design, will be on view at the Exhibition at the Agricultural Hall.

A COMMERCIAL TRAVELLER'S CAR.

MESSRS. DE DION, BOUTON AND COMPANY have lately completed a car for the use of one of the travellers of Messrs. Michelin and Company, the well-known tyre manufacturers. So far as the *chassis* is concerned this is a standard 8-h.p. De Dion; it is in the carriage work that the special features of the vehicle lie, as will be seen from the illustrations on pages 53 and 54. In place of the usual tonneau, the rear part of the body consists of a neatly finished chest having double doors, one dropping down and the other lifting up. The chest itself is divided into four compartments, thus enabling the various classes of samples carried to be separated and conveniently arranged. As the car is to be used in all weathers, the front seat is fitted with a special hood which projects forward a greater distance than usual, so completely protecting the driver and passenger from rain.

THE Speedwell Motor and Engineering Company, Limited, have issued a booklet entitled "The Pleasures of a Light Car," which deals with the advantages of the popular Speedwell light cars.

OWING to the attention drawn to the Sainsbury Anti-Skidders by reason of their entry in the recent French competition, many enquiries have reached Sainsbury's Anti-Skidders, Limited. From the experience gained in these trials they are perfecting the device by incorporating several minor improvements. These modifications will be embodied in the Anti-Skidders they are running in the English trials, at the conclusion of which they hope to be able to present to the motor public an article more satisfactory in every way than those hitherto supplied.

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HERE AND THERE.

It is reported that the Cockerill Company, of Seraing, Belgium, is about to take up the construction of motor-cars.

The Southern Motor Club has signed the affiliation agreement with the A.C.G.B.I., in accordance with scheme 2.

The British Automobile Commercial Syndicate, Limited, are making a special feature of the teaching of "Driving and Repairing" of motor-cars.

The International Westrumite, Limited, is the title of a company formed with a capital of £320,000 to adopt an agreement with Mr. L. S. Van Westrum.

Dr. Hopkins Walters, who took the initiative with the Reading Club in connection with the recent federation proposals, has been elected an honorary member of the Southern Motor Club.

Sir David Salomons has offered to present to the London County Council, for placing in a prominent position in London, one of the earliest locomotives in use in the country. It is the Invicta, an engine constructed by Stephenson, and of the same type as the Rocket.

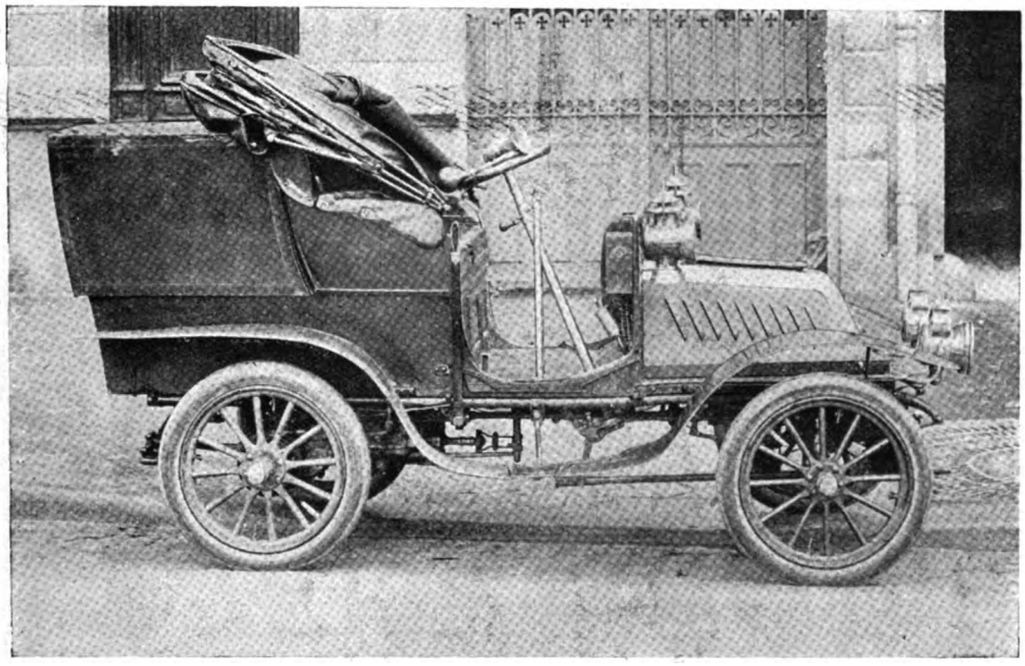
The engineering students of McGill University, Montreal, Canada, are constructing a 12-h.p. petrol motor-car.

The Marquess of Anglesey has, at Newport Pagnell County Court, been ordered to pay £15 and costs for injuries caused by his motor-car to two bullocks belonging to a local farmer.

J. S. Critchley, Ltd., have taken over the Stanley Works, 306, King's Road, Chelsea, S.W., and will carry out any motor-car work either in the shape of repairs or alterations. Special provision will be made for experimental work.

The report of the directors of Vickers, Sons, and Maxim, Limited, for 1903 states that the expectations expressed in last year's report with regard to the Wolseley Tool and Motor-Car Company have been fulfilled, and there continues to be a large demand for the motor-cars manufactured by them.

Messrs. Horsfall and Bickham have sent us a copy of their new catalogue of "Horbick" cars, which for 1904 are being made in sizes from 6 to 14-h.p., with various types of bodies. The list gives detailed illustrations of the new popular-priced 6-h.p. "Horbick Minor" car



The De Dion-Bouton Commercial Traveller's Car. (See page 52.)

The annual supper of the Scottish Motor Manufacturers' and Traders' Association has been held in the North British Hotel, Edinburgh. Mr. John Stirling, the president of the Association, occupied the chair, and was supported by Mr. Paterson, vice-president, Mr. Hewit, Mr. T. M. Sleigh, secretary, Messrs. Spencer, John Wilson, L. Morelli, W. L. Sleigh, Kingsbury, Sangster, and W. Flint. The toast of the Association was proposed by Mr. Hewit, and replied to by Mr. Stirling.

Messrs. J. Rothschild et Fils have received orders to construct a motor-car body with side entrances for Major Courtenay Morgan. This will be the first body undertaken to be built entirely in London. Previously Messrs. Rothschild received all their bodies from the French factory, and they were finished and upholstered at the London works; arrangements have now been made and a staff of French workmen drafted over for the purpose of building all the bodies in England, and exactly similar work will be made in this country as has hitherto been turned out in France.

In their Little Guide series Messrs. Methuen and Co. are including some famous cities, as well as many pleasant counties. The latest volume deals with Rome, Mr. C. G. Ellaby contributing the letterpress and Mr. B. C. Boulter supplying some charming illustrations.

In consequence of the strong opposition to the proposed regulation limiting the speed of motor-cars within the borough of Blackpool to ten miles per hour, the Town Council of Blackpool have, with the consent of the Local Government Board, withdrawn their application.

At a meeting of the Associated Chambers of Commerce Mr. Levenstein (Manchester) proposed:—"That having regard to the great advantages resulting from the extensive employment of untaxed alcohol for industrial purposes, this association is convinced that the retention of the existing duty on pure alcohol for such purposes is a very serious obstacle to the progress of British industry, and that a letter be forthwith addressed to the Chancellor of the Exchequer, asking him to receive a deputation on an early date for the purpose of demonstrating to him the importance and urgency of exempting from duty pure alcohol for industrial use. Mr. Tyrer (London) seconded, and it was carried.

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THE Automobile Club of Victoria now numbers 87 members, and an inaugural dinner was being arranged for when the mail left.

THE value of the automobiles and parts exported from the United States during January last amounted to only £17,907, as compared with £22,874 in January, 1903.

A MOTOR CAR service is being established between Kidderminster and Bewdley, with headquarters at Mr. T. W. Bowen's motor house in Mill Street, in the former town.

THE Aberdeen County Council has decided to apply to the Secretary of Scotland for an authorisation restricting the speed of motor vehicles in certain places to ten miles an hour.

MESSRS. W. WATSON AND COMPANY have removed from Hoylake to commodious premises in Newington, Liverpool. Three years ago they ran a public service of motor-cars in Chester, and have been running cars for hire ever since that time.

MR. A. H. BUNNING, of the Rathmore Cycle Depot, Hawthorn, Victoria, has lately completed the construction of a steam car which will develop about 6-h.p. and seat three passengers. The car has a tubular frame and chain drive. The engine is of the twin cylinder type and the boiler is of the wire-bound tubular pattern, tested up to 2,000 lbs. pressure.

A MEETING has been held at Llandaff in connection with the proposed motor-car service from Cardiff to that little city. Although no resolution or definite understanding was arrived at, the explanation of the proposed South Wales and Monmouthshire Motor Omnibus Company, given by Mr. Roberts Jones, solicitor, of Cardiff, proved very acceptable to the meeting.

IN the area of the West Riding (Yorkshire) County Council there have been registered 262 motor-cars and 247 motor-cycles. Four transfers of ownership have been registered, while 13 manufacturers and dealers' general identification marks and 763 licences to drive motors have been issued. The total fees received amount to £554, of which £229 has been for annual fees.

IN connection with the cross-Channel motor-boat race from Calais to Dover on the 8th August a Dover town challenge cup is to be offered.

AN inquiry into the application of the Winchester Town Council to restrict the speed of motor-cars in its district to ten miles an hour will be held at Winchester on Thursday next.

A FLORAL fete will be held at the Royal University, Dublin, on April 14th and 15th, among the attractions being a competition for the best decorated motor-car. For this the Wolseley Company have presented a silver cup.

MESSRS. DENNIS BROS., LIMITED, have sent us a photograph of the new factory they are erecting in Guildford. The extension is a three-storeyed building forming an addition to their present establishment. The ground floor is divided to contain the engine-room, in which is being installed a 75-h.p. gas engine and a Dowson gas plant to drive electric motors, and a large dynamo for lighting the whole building. On the ground floor there is also allotted a large smiths' shop with twelve forges, and a garage with several inspection pits, which is to be confined to adjustments necessary to new cars, when undergoing their test runs. On the same storey is a large mess room and lavatories for the workmen. On the first floor is a large room in which all the stock used in the construction of the cars will be stored. On the same floor is the upholsterers' shop, and an extensive body-building department. The second floor will be used entirely as an erecting shop. An idea of the size can be gleaned from the fact that it will be possible to have over fifty cars in erection at one time. The working area of the new factory is 38,000 square feet; the building is heated by hot water, and is equipped with a large lift giving access to all floors.

THE young Sultan of Johore, who paid an official visit on Saturday last to Mr. Lyttelton at the Colonial Office, is an enthusiastic motorist. His Highness, who drove to Downing Street in a motor-car, accompanied only by a couple of aides-de-camp, is thirty years of age and speaks English with fluency.



Rear View of the De Dion-Bouton Traveller's Car, showing Sample Chest. (*See page* 52.)

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SOME USEFUL NOTES.

IT is frequently stated that the valves of a car (inlet and exhaust) are absolutely interchangeable; this is not so. It will always be found that ground surfaces only fit in the places in which they are originally ground.

◆ ◆ ◆

WHEN using a loose starting handle which engages direct on the crank-shaft, it is a good plan to put a little oil on it, as if by any chance the handle sticks a little, it will be carried round when the engine starts.

◆ ◆ ◆

USERS of cars having the Panhard type of clutch which pulls out through the gear box should note that there should always be ¼ in. clearance between the fork and the spring box.

◆ ◆ ◆

PETROL is the best material for cleaning a dirty plug; wash it well first, and then set fire to the tip, and finally polish up with fine emery paper.

◆ ◆ ◆

THE "Grappler" motor tyres are the subject of a booklet just issued by the Hyde Rubber Works, Limited, of Woodley, near Stockport. Some hints on the use and preservation of tyres are given, an idea of the utility of which may be learned from the following extract:—"It is most essential that a car should be fitted with tyres tested to carry the weight required. A very useful practice is to have a heavier class of tyre upon the back wheels, and the specified ones on the front wheels. When new tyres have been fitted, run the car gently at first for about fifteen minutes, then tighten up the driving bolts, and run on again quietly for a time in order to allow the tyres to get well into their places in the rims. Rubber is highly susceptible to the action of oils and acids, and rapid decomposition will set in if subjected to their influence. If by mishap oil is dropped on the tyres when lubricating the wheels, they should be cleaned immediately. The fabric portion of the tyre is very susceptible to the effect of water. It is for this reason that a puncture that lays bare the fabric is most to be dreaded. The water is quickly absorbed and decomposition sets in. Water sometimes finds its way into the casing owing to the tyres being insufficiently inflated."

◆ ◆ ◆

AN American contemporary gives some useful hints with regard to the care of the painted parts of motor-car bodies. Such delicate work requires a certain amount of attention to keep it in proper condition, and the better the painting the more sensitive it will be to certain conditions, but the more durable it will be if given intelligent care. Water should never be allowed to remain on the paint; it will make a spot wherever it rests, dulling the lustre of the varnish. Warm water and soap are to be avoided as injurious to varnish. A sponge, chamois leather and cold water should be used in cleaning. Sponge off mud, dust, etc., taking care to keep the sponge well cleared of grit, so as not to make scratches, and dry with the chamois leather. There is no objection to using a hose, as long as the water is removed from the paint at once. For brightening up carriage paint that has become somewhat dull there are several good "renovators" on the market. These should be applied with cheese cloth and then rubbed completely off with fresh pieces of the material. The paint should be rubbed until no discoloration of the cloth is produced. This will improve the paint considerably; but disastrous results will follow if any of the renovator is left on.

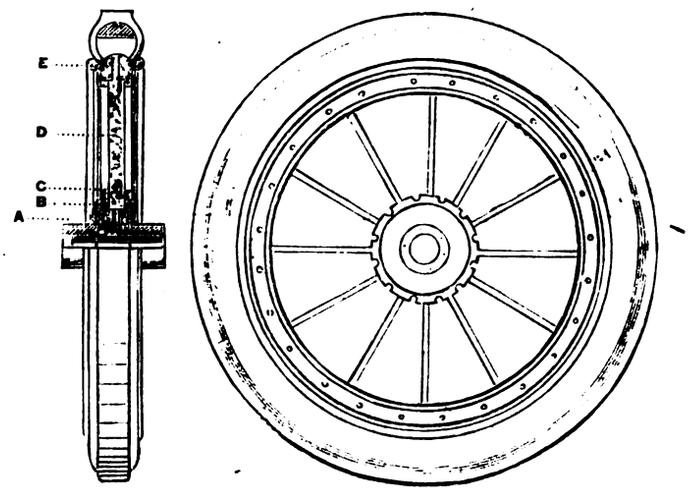
◆ ◆ ◆

SPARKING plugs frequently short-circuit across the porcelain; this can always be stopped by smearing a little oil on the latter.

MESSRS. OCKS, LIMITED, has been registered with a capital of £12,000 to acquire the business of manufacturers, importers, vendors and exporters of motor-cars and accessories now carried on by Mr. H. L. Cocks at 77 and 78, High Street, Marylebone, W., as La Société des Automobiles Francaises, and to carry on he said business.

A NEW MOTOR-CAR ROAD WHEEL.

FOR a long time considerable attention has been devoted to the matter of increasing the lateral stability of road wheels for motor-vehicles, and numerous new types or methods of construction have from time to time been brought under our notice. The illustrations given herewith depict an improved road wheel which is made under Harvey's patent by Messrs. Ireland and Johnson, Wolverhampton. It will be seen that the wheel proper is of wood, as usual, the nave and spokes, however, being reinforced by, or rather encased in, metal sheaths. The hub proper consists of two metal flanges, A, mounted upon a bearing sleeve of bronze, having between them the wooden nave, B. Into the latter are recessed the reduced ends of the spokes, through which and the flange fixing bolts are passed, as shown in the drawing. The tubular steel casing, C, of the spokes is also let into the nave for a certain distance, so that the greatest strength possible can be obtained at the junction of the spoke with the nave. In order to give still greater strength to the spokes, a metal casting, C, is placed around the nave, with its inner periphery slightly below the edges of the hub flanges. At their outer ends the wooden spokes, together with their steel casings, are recessed into the felloes of the wheel. This construction, in conjunction with an oval section spoke, gives an exceedingly strong wheel, particularly laterally, so that the risk



A—Metal Flange.
B—Wood Nave.
C—Metal Ring.
—Wood Spoke.
—New Flange Fix

of collapse in turning sharply or when travelling round bends at speed is very much reduced. It is claimed to be impossible to break the spokes or buckle their casings.

SEVERAL entries have already been received for the races to be held during the automobile week a Ostend; they include Baron de Caters, who will drive a Mercedes, Messrs Hautvast and Augieres (Pipe), Coppee (Panhard), H. Fournie and A. Fournier (Hotchkiss).

THE drivers of the various cars in the eliminating contest for the French Gordon Bennett team will, it is expected, be as follows:—

De Dietrich: Jarrott, Baron de Forest, Gabriel.
Panhard-Levassor: H. Farman, Tart, Teste.
Mors: Salleron, Lêger, Lavergne.
Turcat-Mery: Rougier, de la Touloubre.
Gardner-Serpollet: Le Blon, Chanliaud, Pelzer.
Gobron-Brillie: Rigolly, Duray, Alex. Burton.
Darracq: Baras, Béconnais, Wagner.
Clement-Bayard: A. Clément, Hanriot, Guders.
Georges Richard: Stead, Théry, Caillois.
Hotchkiss: H. Fournier, A. Fournier, X...

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CORRESPONDENCE.

THE AUTOMOBILE AND CYCLE ENGINEERS' INSTITUTE.

To the Editor of *The Motor-Car Journal.*

Sir,—For some time past a large proportion of the members of the Cycle Engineers' Institute have held the opinion that the time has come when the Institute should endeavour to widen its sphere of influence by embracing all forms of road locomotion. Probably the fact that a number of its most influential members—many of whom were founders of the Institute—have now entered the automobile business has been an important factor in the movement. It is only necessary to mention the names of some of the members of the- Institute, such as Mr. Austin, of the Wolseley Tool and Motor-Car Company, Mr. Craig, who has had so much to do with the design of more than one well-known car, and Mr. Garrard, of the Clement Talbot Co., who have attained important positions in the profession of automobile engineering, to show that in including the younger trade the Institute is following its natural line of development and evolution.

It is understood that at the general meeting, to be held in the near future, the council will recommend members to adopt a resolution to the effect that the name of the society be altered to that of the "Automobile and Cycle Engineers' Institute." The step has been taken after considerable deliberation and frequent consultations with engineers directly and exclusively engaged in the trades connected with the motor business, and it is believed that some of the official organizations connected with the latter business are of opinion that the proposed extension at the Cycle Engineers' Institute will meet the requirements of automobile engineers to a more complete extent than would be possible if an entirely new institute were formed, which, under existing circumstances, would only include a portion of the men interested in road locomotion. It is assumed that, in the event of the resolution being passed, more or less radical alterations will be made in the constitution of the body, in order that the younger trade shall be represented in an adequate manner on the council and official positions of the re-constituted body.—Yours truly,

A. S. Hill,
President of the Cycle Engineers' Institute.

BENZ v. LIGHT CARS.

To the Editor of *The Motor-Car Journal.*

Sir,—I almost regret that I wrote my first letter, as the gentleman owning the car I referred to cannot spare the time to give the information which my letter has created a desire for. He says that to do it thoroughly would require several drawings and much technical description; that even then not one engineer in five, nor one amateur in five hundred, could do the job successfully, and that if a mess were made of it he would be blamed. I will try to describe what I remember of the improvements that were made in the car. I spent my holidays last summer with the owner, and I was desirous of learning the "whys and hows" of things with the view of getting a motor-car myself.

The alterations consist of a new valve chamber casting to admit of larger valves. The inlet valve is made 1¼ in. diameter, double the area of the former one; it requires a shorter lift and is mechanically operated. The exhaust valve is also 1¼ in. in diameter. The port hole in the cylinder is also made twice the area, and the compression chamber was reduced to give greater compression. Larger exhaust pipes and a very large silencer (five times larger) were fitted, as well as a Star carburettor, which contributes greatly to the power and to the economy of petrol when once it is started. At first it was very difficult to start the engine with this carburettor (which is its great fault); but this has been overcome, so that the engine is now quite easy to start. We have now got a very powerful engine—the power is more than doubled. Formerly, the engine would run, when the car was standing, at about 600 or 700 revolutions per minute; but putting a little pressure on the fly wheel with a handful of cotton waste would instantly reduce it to half, thus showing that the power was lost in internal work and heat. Now it will run at 1,200 revolutions and all the pressure you can put on it in the same way will not appreciably reduce the speed. There is less heat in the jacket-water, and it can be run as slowly as before with less liability to stop. It can be run at a high speed, too, almost without noise, except the clicking of the cams. At the highest speed it will run at the vibration is terrible. The vibrations are not large in amplitude; they are very small, but very penetrating, and will start every bolt and nut about the car. This brought a surprise, and necessitated something being done, called balancing, which I don't understand. The next consideration was how to turn this great increase of power to advantage. This involved putting the largest pulleys that could be got on the countershaft. To further gear down, 30 in. artillery driving wheels were substituted, with a stronger axle and stronger springs and more powerful brakes. The full power is not used on the level road, only on hills. The car carries five gallons of petrol or paraffin, as it runs equally well with either, but the smell of the latter is not agreeable. The best paraffins, "water white" or "white rose," are nearly as dear as petrol, and even they are not odourless. The car will run over forty miles on one gallon. There are no extra water tanks that I am aware of. The water is so effectually cooled that, I repeat, the car can run two days (100 miles a day) without calling for water or fuel.

The vehicle was run some time after the improvements were made with one belt, but since then some other little improvements have been added, and the other belt brought into use again. The engine is started from the seat, seldom from the back. There is one little drawback—the car has to be handled with more care than formerly, owing to the machinery generally being of too light a construction to permit of any injudicious use of the extra power, but it is a delightful little car in its owner's hands. During my holidays I rode some scores of miles in the car. On one occasion we were away three days. The first day was fine. The next was about as foul "as they make 'em," it rained unceasingly, but we went through it all, "splashing, dashing like a fish." Our outer garments defied the rain and the car defied the roads, which enabled us to enjoy ourselves under the worst conditions of weather. I still believe that the old Benz cars have got plenty of grit in them, but——.—Yours truly,

W. H. W.

IGNITION AND OTHER QUERIES.

To the Editor of *The Motor-Car Journal.*

Sir, Would you kindly tell me in your *Journal* why it is that motor-cycle makers keep so persistently to high tension ignition instead of using the magneto? If a wire becomes disconnected, is the magneto machine seriously injured owing to its working without the electric current flowing? Would any danger of violent electric shock, or fire, owing to the burning of the magneto generator, arise in such a case?

I noticed that the magneto igniters shown at the Crystal Palace would give a spark even when turned quite slowly; are magneto-ignited engines really any harder to start than those fitted with high-tension ignition?

Do pupils learning to drive at polytechnics have to have licences to drive?—Yours truly,

Cecil Jackson.

[The reason that cycle makers usually fit the high tension ignition in preference to magneto is, that it is much cheaper and more simple to fit. With reference to a wire becoming disconnected, nothing is likely to be seriously injured, nor would there be any possibility of getting a severe shock. The up-to-date magneto machines give great satisfaction with regard to starting easily, these being made to give a spark at a very low speed, making them quite as satisfactory as the high tension. Students learning to drive at the Polytechnics all have licences, although steps are being taken to try and do without this during their course of instruction.]

CHARGING ACCUMULATORS.

To the Editor of *The Motor-Car Journal.*

Sir,—As owner of two large cars and one motor-tricycle I have for several years had more than an ordinary experience with respect to accumulator charging for electrical ignition. In all I have fourteen accumulators, which I keep charged by means of my Boron cells, four in number. I obtained these through the advice of a friend of mine who had discarded the various dry cells as useless and was about to adopt accumulators. I had previously tried two makes of primary cells which had been much advertised but which only gave me incomplete results. Since employing this as a means of electric power I have never had any trouble with my accumulators, and I would most emphatically advise any owner of a car or tricycle to invest in one of these sets. I have no interest in the Boron Company save that of a satisfied user of their cells.—Yours truly,

Eustace Morgan, M.D.

THE MOTOR-CAR ACT.

To the Editor of *The Motor-Car Journal.*

Sir,—Will you allow us to call attention to what appears to us to be an injustice to dealers and would-be purchasers of motors? We had examined and repaired a motor-tricycle we had to sell, and a probable customer came into our place (at Birmingham) on Saturday, February 20th, just before six o'clock. Seeing the machine, he asked us to let him try it. We did so, and at 6.15 p.m., whilst he was relighting the lamp, an officer asked him if he had a licence. He replied, stating the circumstances under which he had got the machine, but he was summoned and fined, last Thursday, £1, and 9s. costs, for not having a licence. Now, we had paid £3 for a dealer's licence, and we have also a driver's licence, and it seems hard that we cannot let a probable purchaser try a machine unless he has got a licence first. Besides, it was impossible for him to get one first, as it was too late.—Yours truly,

J. Edmonds and Sons.

STEAM V PETROL.

To the Editor of *The Motor-Car Journal.*

Sir,—I notice in your last issue a letter from "Steamer." I am entirely in agreement with him *re* the steam car fitted with paraffin burner compared with the petrol, but I do not agree with him *re* a wheel valve to use as a starting valve, in place of the usual starting lever supplied on most steam cars. Nothing could be simpler, it being applied quicker. I have run this kind of car for two years, and can always start slowly, say at half or one mile per hour, if necessary; in fact, a cautious driver will do this. If the hand is applied simply to the lever it is impossible to start slowly, but with the hand resting on the car I adjust the lever by the thumb and first finger with ease. I have known

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cars fitted with return water system, but then the steam is passed through the condenser. "Steamer" states he exhausts direct into the water tank; it would be interesting to know how long he can run in this way. I should consider the tank, in fact the whole car, gets very warm, and this I object to very much, and have fitted an automatic air arrangement to cool the seating.

There are many reasons why the steam car is going out of fashion with the public, viz., they were too lightly built, especially the wheels, the spokes of which were only bicycle gauge. I had mine taken out and replaced with No. 7 gauge, as I could not go a 30 mile journey without some out on my return. This has stopped a nuisance; in fact, I go over any roads without thinking of such a thing as a broken spoke. I have also fitted steam, air, and water pumps, superheater, water-lift, force draught, cut petrol supply down from seat, enlarged fuel and water tanks, also the water pipes, Klinger gauge, improved lubrication. I altered the hand pumps to work from seat, also the blow-off cock, which both entailed taking up footboard and putting your hands among a bed of hot pipes. The blow-off arrangement is most important, and is used every time the car is used, five out of six boilers have been scorched through this not being done. These are details only, but they make the car what it should be; there is no worry with a vehicle fitted up in this way, and I contend it is only this that has made the steam car go out (so to speak) of fashion. A practical man can make this kind of vehicle preferable to any petrol car at the price.—Yours truly,

VAPEUR.

THE MEASUREMENT OF GRADES.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—Referring to your article on "The Measurement of Grades," I think you will find that old locomotive practice consisted of taking the rise, dividing by the *actual length* of the slope, and multiplying by 100 to get the percentage grade, or in other words by putting $sine \times 100$, instead of $tan \times 100$, as you do. I believe the present practice still remains as I have mentioned. Of course, with locomotive gradients there is little difference between one method and the other; but if motor-cars are to be taken up the side of a house, as I noticed was being done at the last show (though on the poster only), there is considerable difference. By the older method you will see that 45 deg. would be a gradient of $\frac{1 \times 100}{1 \cdot 414} = 70$ per cent. or a little over.

It all turns upon whether we are to measure the rise in terms of the road length or in terms of an imaginary horizontal base that cannot be obtained directly. The method you describe is best mathematically; but is it best conveniently? The opinion of your correspondents would be valuable. Some of them might be able to say what is done on the Swiss railways, where "one in one," as on Mont Pilatus, is not uncommon.—Yours truly,

WILFRID J. LINEHAM.

THE COMING OF THE TWO-SEATED CAR.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—The Automobile Club's Show at the Agricultural Hall is now close upon us, and there will doubtless be many who will visit this show to order their two-seated cars. It is now perfectly plain that there is an extremely good market for the two-seated car of any price from £150 to £190; but the question is, Which type of two-seated car is going to last?

In the writer's opinion, all the little single-cylinder cars are underpowered *at times*. Given a fine day and perfect roads, it will indeed be a poor car which cannot trot along at twenty miles an hour with two or even three people up. This is one side of the question, and the other is this—pouring rain, roads fearfully heavy, the little car doing its best on the slow speed.

Now, the price that people are paying for little cars is about £175, *e.g.*, Wolseley, Belsize, Horbick, Siddeley, Baby Peugeot, Little Star, and others, and it is reasonable to suppose that a purchaser will go to another £10 or so to secure a little car, just exactly as the above-mentioned, only with a two-cylinder engine instead of the single-cylinder. Now a car of this type is, without a shadow of doubt, bound to be a success. It is cheap, it will easily carry three when required, as there is ample power, and there is the beautiful smooth running of the two-cylinder engine compared to the kicking of the single cylinder.—Yours truly,

C. A. R.

CHANGING SPEEDS.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—I should be greatly obliged if some of the readers of the *Journal* would give me their advice as to changing speeds, or rather as to the manipulation of the clutch when changing gear. What I am particularly anxious to know is whether it is better to let the clutch in as quickly or as slowly as possible. One friend has recommended the former while another is equally in favour of letting the clutch in slowly, and between the two I am in a quandary.—Yours truly,

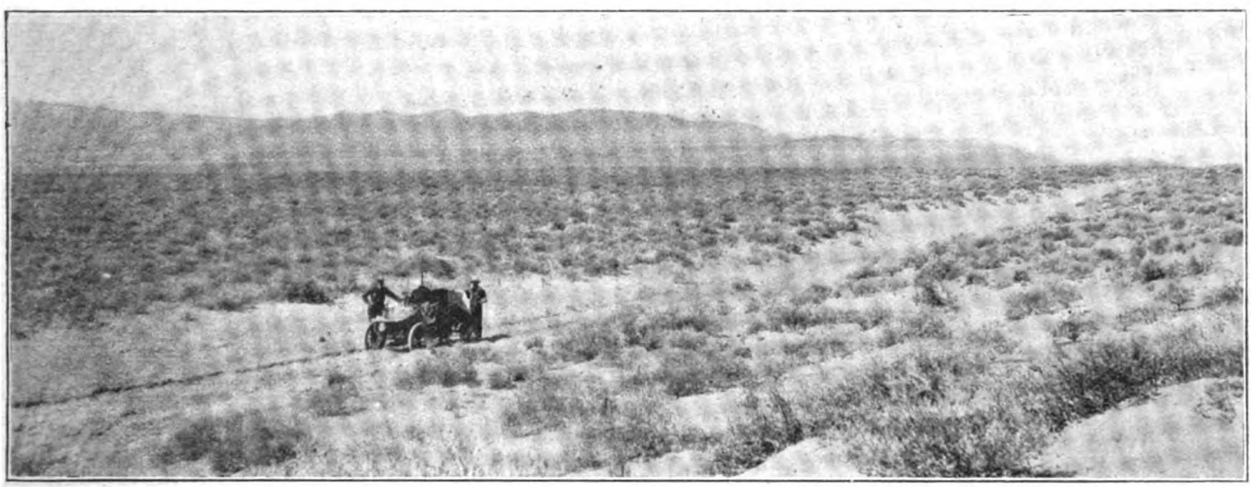
F. J. R.

PROPOSED LAMP TEST.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—It would be of very great interest to a vast number of your readers if the question as to which lamps are most suitable for motor-cars could be clearly demonstrated by a series of reliability trial runs and competitions. Looking back on some of the most serious accidents which have shocked people, it was too often the case that the powerful headlights have failed in the task they are intended for. Hardly a day passes now but one reads of motorists being summoned and heavily fined because their tail lights have not been burning, though they might have been lighted over and over again. I think this is a matter of great urgency, to which the attention of the A.C.G.B.I. should be drawn, as the most suitable body to include in their programme of this year's trial runs also a reliability competition for motor-car lamps, to be used as headlights, sidelights, or tail lights. Perhaps motor-car owners who might be interested in such trials will give their views of the practicability of such a competition.—Yours truly,

E. BAEDEKER.



Motoring Across a Nevada Desert.

CLEAN VALVES.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—In answer to query of "W. A. W." in your issue of March 12th, I think he will find that the reason of one cylinder fouling its valves with soot is because t is cylinder gets more lubrication than the other. This can be remedied by cleaning out the small pipes which conduct the lubricating oil to the pistons and crank chambers It is best to do this with a piece of flexible picture-wire.—Yours truly,

W. H. CRUNDALL.

THE FRENCH ANTI-SKIDDING COMPETITION.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—Being one of the successful competitors at the anti-skidding competition held in France recently, will you kindly permit me space to make a few remarks? Although the French competition was a very exhaustive one and excellently managed throughout, I think the jury made a mistake in dividing the different apparatus into so many cate-

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gories, and as a result it made their task all the more difficult. In dealing with an anti-skidding competition of this kind I maintain that one class should be ample and that all should come under the same category. I would allocate the points on the following basis :—

Skidding under sudden application of the brakes ...	150	points.
Skidding on curves	150	,,
Wear and tear of the apparatus	100	,,
Effect of Anti-Skidder on speed of car	60	,,
Ease of adaptation and of fitment	20	,,
Ease of replacement of worn out parts	10	,,
Advertisement selling price	10	,,
	500	

In dealing with these points it will be necessary to have an extended trial of 600 or 700 miles, or more if possible, in order to test the endurance of the different devices, and so far as the skidding itself is concerned I think 50 yards on both specially prepared macadamised roads and sets would be sufficient.

It would almost seem that the public have an incurable tendency to confound the Anti-Skidder with the unpuncturable tyre. This is confounding two very desirable qualities for a tyre, but they should be treated independently of each other. Therefore I hold that in the French competition they fell into the error of confounding these two points, and in order to deal with all the various forms of anti-skidders they were obliged to classify them into four categories, whereas had they eliminated the three and treated with the Anti-Skidder pure and simple, then the public would have known the best device on the market, but the fact of taking the tyres into consideration makes the question of merit still an open one.

I pen this with a view to bring the point under the notice of the Automobile Club of Great Britain and Ireland, so that they can deal with it in their forthcoming anti-skidding competition.—Yours truly,

W. R. McTaggart.

DRIVERS.

To the Editor of *The Motor-Car Journal*.

Sir,—I would like to congratulate "Mechanic" on his practical suggestion for a way out of the difficulty, and to suggest that the test follow somewhat on the lines of that instituted by the Board of Trade for marine engineers. As a preliminary qualification the test should require the production of the candidate's indentures, or a proof that he has worked for at least three years with some engineering firm. If this were carried out, and the test made really searching, I feel sure that thousands of good men would soon secure their "First," "Second" or "Third-class" motor-engineer's certificate. If the certificate were kept up to a good standard, very few cases like the one described by "Chirurgeon" would occur.—Yours truly,

Ad Sum.

To the Editor of *The Motor-Car Journal*.

Sir,—The average mechanic and driver is now displaced by the one with three months' or perhaps six months' experience. It is practically no use for a man who has had three or four years' experience, and who has a present situation in the country, to try and obtain a new berth in town. He must leave his present position and go to town, and wait, perhaps, two or three months, or even more, before he obtains one. While there and out of work he sees the new and, may I say, the modern driver (with his long experience of around the park) obtain a situation for the enormous weekly wage of 25s. If a man asks £2 10s. to £3 to attend to a 16 or even 24 to 30 horse-power car he is looked upon as a lunatic. Taking, for instance, a car worth £800 to £1,000; does a gentleman want a man who runs his engine hot, takes off a wing or two, or when the engine is missing pull out a book on "how to motor," or would he prefer to have a mechanic who avoids all such calamities and keeps his valuable plaything in proper trim? If so, then the only thing is to judge between the two specimens of mechanic and driver, and see in the end which costs him the most.—Yours truly,

B. W.

To the Editor of *The Motor-Car Journal*.

Sir,—In the *Journal* you remark that the correspondence on drivers has called forth the denunciation of the certified driver. Are the mechanics justified in their remarks? They would have owners believe that it is dangerous for anyone but a mechanic to drive their car. A man who has been thoroughly taught the working and management of a car, can do running repairs, and show a responsible certificate, should at least be allowed to compete. Thorough mechanics of several years' standing, as nearly all of them claim to be, should not be out of work for several months, as there is a demand for such men at the motor works. If they are not thorough mechanics then it is dangerous for them to tamper with valuable cars, as your correspondent "Chirurgeon" can testify. All owners may not feel justified in paying mechanics' wages all the year round, especially if they are near a competent repairer, and a car carefully used should run a long time without requiring that gentleman's attention.—Yours truly,

Certified.

Accumulator Charging Sets.—Replying to Messrs. F. S. Filby and Co., the makers of the charging sets illustrated in the *Journal* for the 5th inst. are Messrs. Everett, Edgcumbe and Co., 151 and 152, Great Saffron Hill, London, E.C.

NOTES ON AUTOMOBILES.*

By B. Hopps.

Automobilism has now reached a stage when it may justly claim the attention of any engineering body. The motor-car was primarily designed as a pleasure vehicle, but it is steadily coming to the front as a means for conveying goods, etc., and may in this connection become of considerable importance, as, for example, in postal and military transport, and also in forming feeders to our main railways, thus cheapening the conveyance of country produce to the towns.

By far the greater number of motor-cars running to-day are driven by oil engines using either petrol or alcohol as fuel. There are several factors which go to make the petrol engine the most satisfactory motor for driving automobiles. In the first place it is a very compact, and is practically self-contained, requiring no equivalent to the boiler or the heavy storage battery. Fuel and cooling water can conveniently be carried, to enable the motor to run for long distances without stopping for replenishment. The petrol motor has the further advantage of being extremely light for the power developed, the weight of an average engine being in the neighbourhood of 18 lb. per h.p. Satisfactory engines have been built weighing as low as 5½ lb. per h.p. Other points favourable to the petrol engine are the fact that it requires but little attention when running, the lubrication being entirely automatic. It can be instantly started at any time, and is comparatively cheap to run, costing on an average for petrol and lubricating oil for a 16-h.p. car carrying four passengers, about 0·75 of a penny per mile, equivalent to ·58 of a penny per ton mile.

The most serious disadvantage of the petrol engine is its inability to exert an increased torque at low speeds. For this reason it is necessary to introduce a change speed gear, to enable the car to climb steep grades. A great deal of attention is at present being paid to improve the flexibility of the petrol engine, as, for example, by increasing the number of cylinders, and therefore the impulses per revolution. To this end several of the leading makers are introducing six, and even eight-cylinder engines in their new models. Whether the advantage gained by this multiplicity of cylinders will out-balance the additional complication remains to be seen. A second disadvantage of the petrol engine is that it requires starting either by hand or by some auxiliary power. It is a fact, however, that some four-cylinder engines will restart by themselves, providing they have not been standing too long; this is owing to one out of the four cylinders always coming to rest with the piston on the firing stroke; if this cylinder is then fired, the engine will start away without any further trouble.

Considering now the component parts that go to make up a modern petrol car: We have in the first place the engine. The general type in use to-day has vertical cylinders working on the Otto cycle, *i.e.*, an impulse every other revolution. In all but the smallest-sized engines two or more cylinders are used, thus providing a more regular turning moment, and less vibration. General practice shows the following relation between size of engine and number of cylinders used :—

Up to 8-h.p.	Single cylinder.
From 8 to 12-h.p.	Double cylinder.
From 12-h.p. upwards	Four cylinder.

From the exhibits at the recent shows, it appears that three-cylinder engines are receiving considerable attention from the leading makers. They are undoubtedly cheaper than the four-cylinder type, take up less space, and are probably quite as flexible in their running qualities.

Cylinders, pistons, and piston rings are usually made from cast iron; cylinder, combustion head, and valve seats being cast in one. Steel tubes have been tried for cylinders with varying success. Crank shafts and connecting rods are of best steel forgings, though nickel-steel is largely used for this class of work, bearing liners are of phosphor bronze, and crank-chamber cases of aluminium alloy. Valves are of the mushroom type, and are generally of nickel-steel, which metal seems better able to resist the burning action of the hot gases. With a few exceptions, two valves only are used per cylinder, *i.e.*, inlet valve and exhaust valve. The exhaust valve is held to its seating by a spring, against which it is lifted by a cam keyed to a shaft, running at half the speed of the engine main shaft and driven therefrom by the gear wheels, generally enclosed in the crank-chamber case. The inlet valve is either automatically operated by the suction of the piston, or—which is a more modern practice—is mechanically operated in the same manner as the exhaust valve, and from the same shaft. There has been considerable controversy as to which is the most effective method, but, judging from results, engines with mechanically-operated inlet valves are quieter in running and have a wider speed range than those with automatic valves; the latter, however, are simpler and cheaper, and more often used on smaller engines.

The automatic inlet valve is made as light as possible, and is held to its seating by a comparatively weak spring, the tension of which is overcome by the suction of the piston on its downward stroke drawing in the explosive gases through the valve opening. At the bottom of the suction stroke the valve should immediately close, and allow the explosive charge to be compressed by the upward movement of the piston. In actual practice, when the exhaust valve closes after the exhaust stroke, the combustion space is filled with burnt gases, which are slightly above atmospheric pressure; the piston has therefore to travel some distance on its downward stroke to allow these gases to expand before sufficient suction is obtained to open the inlet valve. It is therefore late in opening, which

* Abstract of a paper read before the Rugby Engineering Society.

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is detrimental to obtaining the full power of the motor. Again, at the end of the suction stroke the valve tends to remain open longer than is necessary, owing partly to its own inertia and that of the inrushing gas—a portion of the cylinder charge is therefore blown back before the valve has time to close. This has a greater tendency to occur with large valves. To overcome the valve inertia and to reduce the lift, one firm uses three small valves arranged in a triangle, giving the same area as a large single valve. It is obvious, from what has been said, that with automatic valves a great deal depends on the strength of the inlet valve spring, and to obtain the best results this should be varied with the speed of the motor. It is interesting to note that with an engine running at 1,000 revolutions per minute, the inlet valve must open and close in three-hundredths of a second. Under these conditions the inertia of the valves must play an important part in the operation of the engine. The mechanically-operated valve is held to its seat by a strong spring, against the tension of which the suction of the piston has no effect. The opening and closing is definitely determined by the shape and position of the cam by which it is lifted. The disadvantages inherent to the automatic valve are, therefore, to a great extent overcome.

Nearly all motors with the exception of the smaller sizes are governed. The method usually adopted is to vary the amount of explosive mixture delivered to the cylinder. This is accomplished either by introducing a throttle valve in the inlet pipe, or by varying the amount of lift on the inlet valve itself; in either case a centrifugal governor is used to obtain the necessary motion. This method of governing is theoretically bad, as it reduces the compression, and, therefore, the economy of the motor. In automobile engines, however, economy plays but a secondary part where simplicity of construction is of primary importance. Another method is obtained by varying the lift of the exhaust valve, thus retaining more or less of the exhaust gases in the cylinder, which prevents a fresh charge from entering until they are expanded below atmospheric pressure Whichever method is used, an arrangement is generally provided in the shape of a foot or hand lever, which enables the governor to be cut out and rendered inactive; the speed of the engine may then be accelerated beyond the normal. Such a device is known as an accelerator.

At the speed at which petrol engines are run, the time allowed for the explosion stroke is about three-hundredths of a second. Quite a considerable part of this short space of time is required for the explosive gas to actually ignite, from the instant the firing spark occurs. To obtain the full expansion value of the gas, it is found necessary to advance the period of ignition, that is to say, to cause the firing spark to occur at some time before the piston reaches the end of its upward compression stroke. The amount of advance to be given to the spark will depend on the speed of the engine. At starting, the spark is arranged to occur just as the piston passes the dead centre on its downward explosion stroke. If attempts were made to start the motor with the spark advanced, the slow piston speed at starting would give time for the charge to ignite before the piston reached the top of the compression stroke, the piston would therefore kick back, and probably cause some personal damage in the shape of a broken arm or wrist.

The temperature of the burning gases inside the cylinder of a petrol engine is in the neighbourhood of 2,000 deg. F. To keep the cylinder walls at a temperature below the flashing point of the lubricating oil it is usual, with all but the smallest motors, to water-jacket them. With small motors up to 3-h.p. placed in an exposed position—as, for example, on a motor-bicycle—the rush of air when the machine is in motion, against radiating ribs cast on the outside of the cylinder, is sufficient to keep it cool, except when such a motor has to climb a long steep grade at a necessarily slow speed. Then the cylinder may over-heat—this is followed by a loss of power from the motor, probably due to the inrushing gases striking the hot cylinder walls, and immediately expanding, thus preventing any further gas from being admitted. The result is a lower mean pressure on the explosion stroke, and therefore less power. It is also obvious that too high a cylinder temperature may burn up the lubricating oil, and cause the piston to seize.

The exhaust gases on leaving the cylinder are driven into the atmosphere at a comparatively high pressure, and unless some silencing device is used, the rapid expansion produces a noise that can only be compared to that of a Maxim gun. To deaden this sound it is necessary to slowly expand the gases, and eventually exhaust them at a low constant pressure, but this must be done without creating an unnecessary back pressure, which would otherwise reduce the power of the engine.

Petrol is the name given to spirit obtained by distilling petroleum. Its specific gravity ranges from ·68 to ·72; its boiling point is about 38 deg C. It is extremely volatile at all ordinary atmospheric temperatures, and when mixed with air in the proportion of one volume of liquid petrol to 10,000 volumes of air, forms a highly-explosive gas, which, when compressed and ignited, expands from three to four times in volume.

Passing from the engine and its accessories, the next important feature is the transmission gear. The engine is connected to the gear-box through a clutch by means of which the driving power may be gradually applied, as in starting, or may be temporarily disconnected to enable the gear wheels to be moved in and out of mesh when changing speeds. To further reduce shocks to the mechanism, some makers transmit the power between clutch and gear box through a stiff spiral spring, which is very effective in taking up any sudden shocks. The general type of clutch is the cone variety, in which the engine flywheel forms one portion, and a leather-faced cone forms the driven member. The rim of the engine flywheel is overhung, and the inner face is turned conically. The engine shaft is extended beyond the flywheel boss, in order to carry the main portion of the clutch; the two portions thus mounted together on the same shaft cannot get out of line A strong spring is arranged to press the faces of the cones together, but in such a manner as to cause no end thrust on the engine or gear box bearings. The clutch is, therefore, nominally in engagement, but can be released by means of a foot pedal, which compresses the spring, and draws the cones apart This type of clutch may give trouble by slipping caused by water, or an excess of oil getting on the face of the leather. An adjustment is always provided whereby the compression of the spring may be increased. There are other forms of clutches, a novel one being a magnetic variety which has the advantage of being very gradual in its action, and easily controlled, and in which all degrees of slip can be obtained without causing excessive wear. It requires, however, a battery or small dynamo to excite the magnetising coils, which can be controlled to a nicety by a small rheostat.

The gear box, after the engine, is the most important piece of mechanism in a petrol car. Innumerable schemes have been devised for obtaining a variable speed ratio between engine and road wheels, but so far the Panhard type gear seems to be the only really successful system, and is generally adopted. It consists of two sets of gear wheels of different diameters. One set is rigidly fixed to the shaft they drive, whereas the other set, driven from the engine, is movable by means of a lever under the driver's control, and allows each gear wheel to be slid into mesh sideways with a corresponding gear wheel in the fixed set, thus providing various speed ratios. The gears are enclosed in an aluminium oil-tight case, which is filled with grease and oil.

The two accepted methods of transmitting the power from gear box to road wheels are either by a live back axle or side chains with a fixed axle, the former method for cars up to about 25-h.p. and the latter for larger-powered cars. It is necessary with the live axle to divide it at some point to accommodate the differential gear, and this undoubtedly constitutes a weak point, and limits its use for high-powered heavy cars, although it has the advantage of requiring less attention, and being quieter in running than chains.

The gear box is connected to the live axle by means of a flexible shaft and a bevel gear, inside of which is arranged the differential gear, which compensates for unequal turning of the road wheel when rounding corners. The flexible shaft is arranged to telescope, in order to allow for the alteration of centres, as the car frame rides on the springs. With the fixed axle, the bevel and differential gears are located in the gear box, from which a shaft projects each side, on the ends of which are keyed sprockets, which drive through chains to chain wheels fixed to the road wheel hubs. In either method of drive radius rods are fitted from the back axle to a joint on the car frame, their function being to relieve the back springs of any driving strains, and, in the case of the fixed axle, to afford a means of tightening the driving chains.

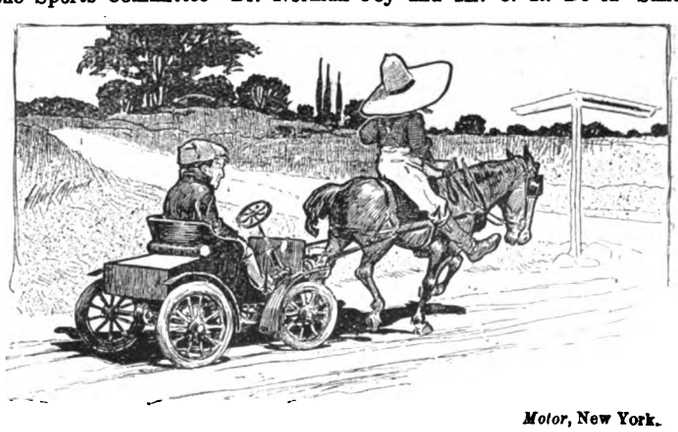
CLUBS AND ASSOCIATIONS.

EASTERN COUNTIES.

The Eastern Counties' Automobile Club has issued a neat pamphlet containing a list of members, the rules of the club, a directory of local petrol dealers, and other useful information. An interesting programme of club runs has been arranged, commencing on May 28th with a trip to Felixstowe. The meet will take place at the Great White Horse Hotel, Ipswich, at 3 p.m., and tea will be taken at the Felix Hotel, Felixstowe, at 4.30 p.m.

BERKSHIRE.

On Saturday the general meeting of the Berkshire Automobile Club was held at the Great Western Hotel, Reading, Sir Gilbert East, Bart., in the chair. On the motion of the chairman, Mr. Carew Gibson was elected to the committee, and the proposed rules were unanimously adopted. Suggestions were then invited for the membership of the Sports Committee and other matters connected with the arrangement of meets, &c. The names of two gentlemen were proposed as members of the Sports Committee—Dr. Norman Joy and Mr. C. R. De la Salle.



Motor, New York.

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The chairman had already given an invitation for the first of the sports fixtures, to be held at Hall Place on the Saturday in Whitsun week (May 28th) and to take the form of a "gymkhana." It was further resolved that, beginning with this fixture on May 28th, there should be "meets" or other fixtures at different places on the last Saturday and second Wednesday in each month, except August, up to and including September. The club, it was incidentally mentioned, has already seventy-one elected members.

WOLVERHAMPTON.

The sub-committee appointed by the Wolverhampton Automobile Club for the purpose of finding quarters for that organisation has gone fully into the matter, and the committee have agreed to secure three rooms in the new London Buildings, Lichfield Street, Wolverhampton, for a term of three years, from the 25th of March, which will be converted to the purposes of the club. The annual subscription, it is suggested, will be two guineas. There is no doubt that the accommodation provided will do much to promote the prosperity of the club. At the annual general meeting, the following officers and members of the committee were appointed:—*President:* Mr. J. Osmond Evans; *Vice-presidents:* Alderman Levi Johnson (Mayor), Sir Alfred Hickman, Bart., M.P., Mr. H. Norman, M.P., Captain Burnett (Chief Constable, Wolverhampton), Mr. J. H. Cooksey (Town Clerk, Bridgnorth), Mr. E. Lisle, and Mr. W. Owen; *Committee:* Messrs. F. C. Bishop, T. Cureton, G. Evans, W. H. Evans, H. W. Jenks, T. Lisle, T. Mills, and T. Young; *Hon. Treasurer:* Mr. A. E. Jenks, Southbank, Compton, Wolverhampton; *Hon. Secretary:* Mr. S. R. Rhodes, Lichfield Street, Wolverhampton. It was resolved for the present not to affiliate with the A.C.G.B.I., but to devote the amount which would be necessary for that purpose towards furthering the interests of automobilism locally.

MIDLAND.

In the annual report of the Midland Automobile Club, the membership is recorded as having increased to 116. Reference is made to the various competitions and runs held during the year, and the hope expressed that members of the club will make more use than hitherto of the club headquarters at the Grand Hotel, Birmingham.

NOTTINGHAM.

The Nottinghamshire Automobile Club had a run to Melton Mowbray on Saturday, and a hill climbing competition at Abb Kettleby Hill, some three miles distant. Upwards of forty cars took part in the run, and a good many in the competition, which was over a measured mile, the first six being as follows:—Mr. W. Foster, 24-h.p. Georges Richard, two passengers, 1; Mr. H. Belcher, 25-h.p. Humber, two passengers, 2; Mr. W. Bartleet, 18-h.p. six-cylinder Napier, four passengers, 3; Mr. R. Sutton Clifford, jun., 18-h.p. Mercedes, three passengers, 4; Mr. W. H. Arnott, 14-h.p. Gladiator, three passengers, 5; Mr. E. W. Wells, 14-h.p. Daimler, two passengers, 6. The annual dinner of the club was held the previous evening, Mr. C. E. Lucas in the chair. A very enjoyable evening was spent.

SOUTH LINCOLNSHIRE.

A committee meeting of the South Lincolnshire Motor Club was held at the headquarters, the Red Lion Hotel, Boston, on Monday, the chief business being to arrange meets for the coming season. Dr. Miller occupied the chair, and there was a full attendance of the Committee present. The following meets were arranged for:—

April 4th (Monday), Spalding.
April 28th (Thursday), Boston.
May 7th (Saturday), Holbeach.
May 19th (Thursday), Woodhall Spa.
June 2nd (Thursday), Spilsby.
June 16th (Thursday), Wrangle.
June 23rd (Thursday) Horncastle.

Later meets will be arranged at a subsequent meeting of the committee.

A DRUNKEN DRIVER SENT TO PRISON.

H. W. Sewell, a motor-car driver, after finishing his work with his employer went for a ride on his own account one day last week. He came into collision with a cab, injuring several persons. Upon the police stopping him it was discovered he was drunk, and at the Marylebone Police Court he has been sentenced to a month's imprisonment.

MOTOR-CAR REPAIRS.

At the Bow County Court, Wm. George Conningham, a motor expert, brought an action to recover £8 4s. 7d. from Dr. Noble, of Church House, Hoe-street, Walthamstow. The claim was made in respect of repairs which had been done to the doctor's motor-car from time to time. The doctor admitted most of the items, but took exception to charges of three guineas and £1 3s. respectively for repairs, and a small sum for oil, which he said had been charged for at too high a rate. The judge said he thought some reduction should be made in the charges for repairing the car after it broke down, for it was evident that a great risk was taken in running it in such a condition. He should also reduce the charges for oil, and give a verdict, with costs, for £6 2s. 7d. or two guineas less than the amount claimed.

CASE DISMISSED.

On Monday, at the Steyning Petty Sessions, John T. Hampton, of Haywards Heath, denied driving a motor-car at a greater speed than 20 miles an hour at Henfield on the afternoon of February 28th last. P.C. Thomson said that a measured half-mile along the Woodmancote road was covered in 1min. 13secs., which was about 24½ miles an hour.

Mr. E. E. Humphrys, instructed by Messrs. J. E. Dell and Loader, of Brighton, defended, and elicited from witness that when he set the watch going he did not look to see if it started directly. He questioned witness closely as to the system of timing, pointing out, during the course of it, that an ordinary stop-watch and not a chronograph was used, and also questioning the measurement of the distance. P.C Collyer, who also gave evidence, had a watch in his possession which Mr. Humphrys intimated was the proper kind to use. For the defence, Mr. Humphrys stated that during the five years his client had been driving he had never had an accident and never been summoned, nor even cautioned. A watch of the nature used by the witness Thomson was absolutely unreliable. Mr. Humphrys further contended that, as his client had slowed up to almost a walking pace on negotiating the corner, around the other side of which was the constable Collyer giving the signal, he could not have been going at his top speed (18 miles an hour) on passing that official. Reverting again to the stop-watch question, Mr. Humphrys declared that Major Lang, the East Sussex Chief Constable, used the electric signal, because he had come to the conclusion that stop-watches were unreliable, while, in a case in Surrey, a summons had been dismissed because it was thought that the stop-watch in question might have "hung fire," such as the one used by P.C. Thomson was likely to do. Superintendent Hooker having questioned defendant, Ernest Adams, principal assistant to Mr. Booth, of Preston-street, Brighton, gave expert evidence on stop-watches. In the case of a watch similar to that possessed by P.C. Thomson, he said, should it happen that the balance wheel—which was stopped in that kind of watch—was in a resting position, it would require other than the power of the main spring and the hair spring to make it go, and they could not absolutely rely on their always acting properly. He intimated that under this condition a slight vibration was required before a watch of this class would go even directly after being wound up. Eventually the magistrates decided, under the circumstances, to dismiss the case.

MOTORIST v. MOTORIST.

At the Basingstoke County Court, Earl Russell has brought an action for damages sustained by his motor-car in a collision with one belonging to the War Office at Basingstoke, on September 26th last. After a lengthy hearing, his Honour Judge Gye delivered judgment for the defendant with costs. He had, he said, had considerable doubts as to what that judgment should be till he was half-way through the case. At the outset he would like to say that Lord Russell had disproved the truth of the saying about the man who was his own lawyer. He had never heard a layman conduct a case with so much skill, patience, and good temper as Lord Russell had done. The facts were that up a somewhat narrow street Lord Russell drove his motor-car at a speed of nine or ten miles an hour, that the Market Place was full of stalls, and being therefore unable to cross that he had to turn the corner into the London Road. Just as he was doing that the military motor-car was approaching in the opposite direction at a rate which the driver said was about four or five miles an hour. The evidence given on behalf of Lord Russell was that he had turned the corner and drawn the motor in fairly close to the kerb, short of the lamp-post. Lord Russell said the car had stopped dead, and almost immediately the collision occurred. It was admitted that there were waggons on the other side of the street, and that the military car, in order to pass these, had to go towards the wrong side of the road, which it was entitled to do. Having passed the waggons, the military driver was just steering his car back to its proper side, when he saw the plaintiff's car quite close. Immediately he saw that he shut off the power and put the brakes on. This was only done at a point of time which allowed the military car to run a yard and a half before the collision occurred. That, Lord Russell said, was evidence of negligence on the part of the defendant, but the answer might be that Lord Russell's car was going a great deal faster, and covered several yards while the defendant's car ran a yard and a half. In conclusion his Honour said he found that the accident was caused by Lord Russell turning the corner at too fast a pace, and that there was no evidence of negligence on the part of the defendant. The result of that was judgment for the defendant, with costs.

A motor service will be inaugurated from Llanstephan to Carmarthen on the 2nd prox.

With reference to the non-stop run of the 6-h.p. Wolseley from London to Edinburgh, the Northern Counties Motor Garages, Limited, write that they have a large garage at 27, Pilgrim Street, Newcastle-on-Tyne. A resident engineer is always in attendance, and the garage can be opened any hour of the night by simply pressing the electric bell fixed on the left hand side of the door

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THE

Motor-Car Journal.

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COMMENTS.

AS was recorded in a recent issue, His Majesty King Edward has lately added a 18-24-h.p. Mercedes to his fleet of motor-cars, and on Tuesday of last week made his first run on the vehicle, of which we give an illustration on page 66. The car, which is the second of the 1904 18-24-h.p. models turned out from the Cannstatt works, was ordered last year through Messrs. Arnold Spitz, & Co., of Vienna. The illustration shows Herr Eidlitz, of that firm, at the wheel. The vehicle is superbly finished and equipped, and forms a notable addition to His Majesty's numerous stud of cars, which now, we believe, includes examples of English, French and German construction.

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Activity at Winchester.

THE Local Government Board having appointed one of its inspectors to hold an inquiry at the Guildhall, Winchester, on Thursday, the 24th inst., with respect to the City Council's application to have the ten miles limit put in force on all the roads in the Borough, the Club Committee of the A.C.G.B.I. appointed Earl Russell and the Hon. J. Scott Montagu, M.P., as a sub-committee, to watch over the interests of the Club at the inquiry and to instruct counsel on behalf of the Club. On Saturday last Earl Russell and the Administrative Secretary visited Winchester and instructed Mr. Warner, solicitor, and through him, Mr. Ricketts, to appear at the inquiry on behalf of the Club. The Hampshire Motor Union will also be represented by Mr. Ricketts in opposition to the proposal, and amongst the witnesses to be examined are Earl Russell and the Admistrative Secretary, on behalf of the A.C.G.B.I.; the Hon. John Scott Montagu, on behalf of the Hampshire Motor Union; and a number of local motorists, hotel proprietors and leading ratepayers who are opposed to the proposed speed limit being put into force.

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The Exhibition.

THE reputation of Cordingley's Motor Car Exhibition as the place for actual business as well as for gaining publicity has again been demonstrated this week, and the attendance of buyers and really interested persons as distinct from mere sight-seers has been extremely satisfactory to exhibitors, who seem to have been well pleased with the business done and the enquiries they have had. It now remains for these introductions to be keenly followed up by the firms concerned.

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Some popular Features.

AT 10 p.m. to-day (Saturday) the Exhibition will close its doors, and the event of the year will be over. Those who have not already visited the Hall have therefore little time to lose, and will no doubt take the last chance that remains to see a show that has been welcomed by press and public as attractive beyond the ordinary range of exhibitions. To this popularity the Air-Ship Section has contributed its quota, while the presence of a band and the general pleasing character of the display made by exhibitors must be regarded as other factors in the success.

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Up in the Air.

IN the Aero Club's exhibition is a model of Dr. Barton's air-ship, the central point of interest being the Beedle air-ship. In one corner Messrs. Spencer, the well-known balloonists, have a display of balloon cars, tractors, grappling irons, ropes, and other "things of the air" with which their name has been connected for three generations. Mr. Spencer is confident of the ultimate success of their airship schemes, and they are now actively engaged on another which should be ready for further experiment in the autumn. It was rather curious to hear that there is a brisk demand for balloons, several English gentlemen having lately purchased such luxuries. There is apparently something attractive in the idea of taking tea in the clouds as a minor pleasure in connection with a garden party.

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The Motor Union.

THE annual meeting of the Motor Union was held at the Agricultural Hall on Tuesday, Lt.-Col. Holden, the new chairman of the A.C.G.B.I., being in the chair. The report for the past year was moved by the chairman, and having been seconded by Mr. C. T. Langridge, was adopted, after some discussion. The various items on the agenda were severally considered and adopted with the exception of the clause relating to the revised rules, which was referred back to a small sub-committee to be appointed by the general committee. The findings of this will in due course be submitted to the members of the Union, in general meeting, for consideration. The proceedings terminated with a hearty vote of thanks to the chairman, and a similar vote, proposed by the chairman to Mr. Roger Wallace, K.C., the late chairman, as an appreciation of the enormous amount of labour and time he had given to the Motor Union.

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A Motor May Day.

DESCRIBING the parade of motor vehicles along the Thames Embankment last May Day we ventured on the suggestion that the assembly of heavy vehicles might become an annual institution, and that "Motor May Day" would be an appropriate addition to the calendar of events. The idea is about to be realised, and the first work of the newly-formed Motor Van and Users' Association will be to arrange for a Motor Van Parade that will be associated with the early springtime. This was decided upon at a meeting held at the Agricultural Hall, London, on Tuesday, when a fund was opened to meet the expenses of the Parade. These will necessarily be heavy, but the educational value of the event should prove sufficient to induce firms interested in the development of the movement to subscribe with the liberality and promptitude that has characterised other branches of the industry in the organisation of trials and the like.

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The Motor Van Users' Association.

At the meeting of the Motor Van Users' Association, already referred to, some useful appointments were made. Colonel Crompton, R.E., was elected chairman, Mr. E. Shrapnell Smith, hon. treasurer, these two gentlemen, with Mr. Douglas Mackenzie, being also appointed to represent the society on the general committee of the Motor Union. Mr. W. Rees Jeffreys is the secretary. The election of Mr. Staplee Firth as solicitor was confirmed upon which fact both that gentleman and the Association are to be mutually congratulated. Mr. Firth's services in connection with the Motor Union have proved of such value to automobilism that it is gratifying to know he will continue to act as solicitor to that body, and, altogether, it would appear that the legal rights of users of heavy vehicles, as well as of motorists generally, are to be keenly guarded.

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Cardiff and Motor-'Buses.

The outcry raised in some of the outlying districts around Cardiff at the refusal of the Corporation to grant licences to the South Wales Transport Company to run motor-'buses from Cardiff to Llanishen and Llandaff has had its effect, and already the question has been mooted that if it would pay a private company to run motor-'buses over these routes it would also prove profitable to the Corporation. One or two members of the latter body have decided to bring the matter before the Corporation. In addition to Llandaff and Llanishen, other districts which might well be served in this way are Whitchurch and St. Mellon's.



Photo by] The 24-h.p. Georges Richard Car which last week made a non-stop run of 1001 miles—Mr. J. T. Overton at the Wheel. *[Argent Archer.*

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A New Record.

On Tuesday of last week Messrs. Mann and Overton subjected one of their 24-h.p. Georges Richard cars to a long distance non-stop trial. A start was made from the Automobile Club House in Piccadilly, W., and the run was *via* St. Albans, along the main road to Nottingham. Unfortunately, about thirty-eight miles from the start, the engine was brought to a stop accidentally, in changing gear when encountering a herd of cattle on the road. The stop was only momentary, and the journey was recommenced, the route after Nottingham being *via* Lincoln, Newark, and along the great North road to Hatfield and St. Albans. At this point a return was made to Nottingham, practically the same route being followed, the round trip being made four consecutive times. Altogether 1,038 miles were covered, no less than 1,001 of which consisted of an absolutely non-stop run so far as the engine was concerned, while, as for the car itself, it was only stopped once in this long journey owing to an understanding when changing drivers, this change being made at St. Albans at the end of each round. Petrol was carried into a large tank in the tonneau, whence it was run into the ordinary fixed tank. No water was taken in after the start, and at the conclusion of the trial only seven pints were found to have been used. Mr. J. T. Overton and Mr. Ross Browne shared the onus of driving, the Observers being Messrs. F. Straight and C. Stevens, appointed by the Automobile Club. This notable journey creates a new record in non-stop runs on the road. The accompanying illustration depicts the car and its passengers at the end of the trying journey. We may add that the vehicle is on view at the Exhibition at the Agricultural Hall.

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Rules of the Road.

Occasioned by our remarks on the speed of pedestrians in last week's issue, Colonel J. R. Magrath writes suggesting that it is not those who walk on the roads who are foolish, but rather the rules by which they are governed. He points out that whereas mounted people are required to keep to the left, the roadway pedestrians are advised to keep to the right when walking along the path; and to absent-minded persons this is a source of confusion, often resulting in accidents. We quite agree with the gallant Colonel that uniformity in this matter is as advisable as it is necessary in many others, but the point to which we wished to give importance was the indecision which characterises a good many people when attempting to cross a roadway, and the noise of a motor-car or even a horse-drawn vehicle is heard. Every driver knows the risks that are run on this account, and hence our comment of last week.

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Marine Motoring.

In view of the interest taken by visitors to the Exhibition in the motor-boats on view, some importance attaches to the annual general meeting of the Marine Motor Association, which has just been held at the Golden Cross Hotel, Charing Cross, S.W. There was a fair attendance of members. Major Lindsay Lloyd was elected president, and Captain R. T. Dixon and Mr. H. G. A. Rouse vice-presidents. The membership now includes close upon 100 of the leading owners in the kingdom. A new treasurer was appointed in Mr. B. Redwood, while Mr. Linton Hope was re-elected hon. secretary. Evidently the organisation of owners of motor-boats is proceeding at a rapid rate.

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Alleged Police Perjury.

Cases of alleged perjury by the police have lately been too frequent to be comforting either to members of the force or to motorists who run the risk of falling victims to the over-zealousness of officialism. A case of this kind has been mentioned at the West London Court, and one heard at the Epsom Petty Sessions has just been dismissed. A constable was summoned for wilful perjury in giving evidence against a motorist. But although the evidence of the gentleman who hired and drove the car was given in corroboration of the dealer, who was apparently wrongly summoned, the magistrates, while acknowledging that mistakes had been made, dismissed the case.

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Innkeepers and Motorists.

We understand that the Innkeepers' Bill which was introduced into Parliament last session is again to be brought forward, but the prospects of further legislation on the subject with which it deals are rather far removed in the present state of political parties. The provisions which it seeks to enforce are such as will commend themselves to everyone in the habit of touring or travelling on the great roads of our country. The licensed victuallers are often in a much better position than those in any other class of trade to cater for the creature comforts of people who journey by road. Especially is this noticeable in country districts and in small villages, where, as a rule, the public inn, now grandiloquently designated as an hotel, is the only place where the wayfarer, whose appetite has been whetted by a long motor-ride, can find refreshment. To restrict, therefore, the facilities of obtaining both food and drink is an unwise policy which the licensed victuallers cannot afford to pursue, in view of the unsettled state of public opinion.

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Colonial Automobilism.

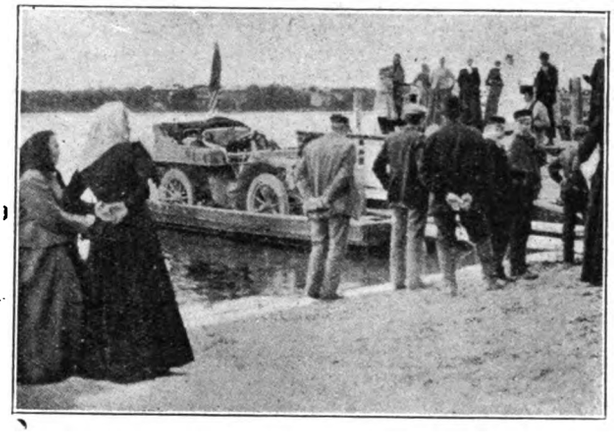
Some idea of the progress of automobilism in the colonies comes to hand with the last issues of the New Zealand journals just received. These are devoting columns to the publication of notices on "Motors and Motoring," which not only record Colonial doings, but also comment on the advance being made by the motor-car movement throughout the world. At Auckland a motor-wagonette is now plying for hire, and amateurs there have combined in an automobile association. Great doings have taken place and a carnival was held on a recent day, in which motor-cars were prominent. At Rotorua, near the New Zealand capital, a motor-'bus syndicate has been started, and has already proved a success, so that the automobile movement at the other end of the world is as varied and healthy as it is at home.

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Motor 'Buses at Eastbourne.

Our reference to motor-'buses at Eastbourne last week has brought a letter from Mr. J. K. Brydges, the borough municipal engineer, who points out that "the large expenditure on account of the tyres was entailed in consequence of the wrong size and type of rubber tyres being fitted in the first instance, owing to there being no reliable data to go upon as a guide in this respect. I think all those now running motor-'buses have come to the conclusion that twin tyres on the driving wheels are a necessity, single tyres being so liable to sideslip. No doubt, the cost of tyres per car mile, 4·09d., will be largely reduced in the future, and, as a matter of fact, we have a guarantee from a firm with whom we are now doing business to maintain tyres at 2 2-5 pence per car mile, so that the cost will certainly not exceed this, and should they be purchased in the ordinary way without a guarantee the chances are that the cost will not exceed 2d. per car mile." The profit of only £67 to which we referred was the net profit after deducting £169 for interest and the redemption of the sinking fund, so that the gross profit was really £236. When the additional 'buses that are now on order for the Eastbourne service have been delivered there will be nine at work, consisting of seven single deck and two double deck cars, two of the former and one of the latter being driven by steam, generated from a paraffin burner, and the others driven by internal combustion engines.

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Crossing the Ferry. [*Motor, New York.*

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A Social Colonial Club.

The Automobile Club of Victoria has been holding several meetings, at which the question of trade or amateur has been exercising the minds of the speakers to a considerable extent. Several resolutions on the subject of members of the trade being allowed on the committee have been considered, and after much discussion it has been decided that the trade element shall be wholly eliminated from the committee. Attempts to introduce even three members of the trade were unsuccessful, and it is evident that the Australian Club has decided to get on social lines rather than those of encouraging and developing the industry.

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Dealers' Marks.

Very curious is the way in which the various local authorities have assigned marks to dealers. In most places a haphazard distribution of letters has been made, without any settled plan by which the traders can identify one another's vehicles. In some small places the initials of firms have been allowed as the index letters. Perhaps the most satisfactory method is that which was followed at Birmingham, where, as far as possible, the first and last letters of the firms' names have been combined as the mark. Thus L R. indicates Lanchester Company, W.Y. at once establishes the identify of the Wolseley Company's vehicles, and so on. This is really an adaptation of the suggestion we made that the names of the counties should be considered by the Local Government Board in assigning letters.

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Nothing like Leather.

THE leather trades, which, a few months ago, were seriously alarmed at the advance of the motor-car, are now beginning to adapt themselves to the altered condition of things. This is the right policy, and one that coachbuilders have carried out with considerable advantage to themselves. It is true that the motor-car will, of course, affect the number of horses employed; but, on the other hand, the leather trade will find an increased outlet in travelling bags, tool kits, leather upholstery for carriage seats, etc., and the score and one other things which have to be constructed of leather. There is no reason for weeping and wailing. All that the leather trades will have to do is to study the details of automobilism, and to attempt to cater as efficiently for the motor-car as they have hitherto done for the horse.

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The Catalogue of the Show.

GREAT success has attended the catalogue of the Exhibition, and visitors have rightly regarded it as a comprehensive guide to the automobile industry at the present time. The catalogues at successive shows give a good idea of the progress of the industry, and are filed by many motorists as a real index to the advance of the automobile movement. The catalogue of the show, which closes to-morrow can be obtained in the Agricultural Hall by visitors, or will be sent, post free ninepence, from the permanent office of the Exhibition, 39-40, Shoe Lane, E.C. Some idea of the development of motor-car exhibitions may be gleaned from the fact that the catalogue of last year's Exhibition at the Agricultural Hall contained 184 pages that of the Crystal Palace Show this year only 164, and was sold at one shilling. That of the present exhibition at the Agricultural Hall extends to 200 pages, and is published at sixpence in order to secure the widest possible publicity for exhibiting firms.

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The South African Club.

FROM the Automobile Club of South Africa comes a handbook which gives a good idea of the popular favour with which automobilism is being received among the governing classes of the Colony. In addition to a report of the annual meeting and a membership roll containing sixty names there is a useful table of distances between Cape Town and various places in South Africa We welcome the growth of such organisations in the colonies and abroad, for their existence should make easy the way of motorists from other lands journeying along their roads.

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The Use of the Highway.

LAST week, at the Automobile Club. Mr. Morsby White read a paper on the use of the highway, and gave the following advice:—When overtaking give plenty of room. The driver of a vehicle is not entitled to try experiments as to how little space will suffice for a car to get by. If foolish or malicious driving of a vehicle caused a motorist damage, the driver must answer for it, though the motorist might have lost his head or acted hastily, thereby perhaps contributing to the accident. The driver had no right to deliberately put anyone in a difficult position where, unless he was absolutely cool and courageous, an accident might occur. Again, no one was entitled to take advantage of another person's neglect and ride over him. If a driver shouted and another did not hear him he must stop to avoid the threatened accident. If he was going too fast to stop, it was evidence of contributory negligence on the part of the driver. A driver was bound to have his vehicle in proper order. Supposing he had no brake, that was evidence of negligence, and would turn almost conclusively against him. A driver, however, was not liable for a latent defect in the workmanship or in the material of the machine which caused an accident. To leave a car unattended on a public thoroughfare might be negligence. Suppose two children commenced to play with it and one of them started it, and somebody was thereby hurt, the owner of the car would be liable. Again, if a mischievous person removed a car that had been left at the roadside unattended and placed it in the roadway, whereby an accident resulted to somebody coming along the road, the owner of the car would be liable for the damage done as well as the mischievous individual who removed it. Finally, it could not be too clearly or widely recognised that no action lay against a road authority for the bad state of the road or for any accident arising therefrom.

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A Dictionary of Motoring.

MR. R. J. MECREDY has been well advised in issuing in volume form the dictionary of motoring, which ran through some issues of his Journal. Since they appeared the pages have been brought well up to date, and the book should be of value to motorists, both novices and experts. The arrangement is alphabetical, and the pages contain full definitions of every term used in motoring, with special articles on roadside troubles, electric ignition, and similar important subjects. The illustrations and explanatory diagrams are extremely clear, and add much to the lucidity of the letterpress. Altogether the book is the most practical of the kind yet brought to our notice, and Messrs. Mecredy, Percy and Company, Limited, should find the demand quickly run this dictionary of motoring into a second edition. As an instance of the completeness with which the book has been written, we may mention that the chapter on roadside troubles, occupies some seventy-five pages, and apparently deals with nine hundred and ninety-nine of the thousand difficulties which beset motorists when on tour.

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The Side-Slip Test.

THE track at the new works of Messrs. Clement Talbot, near Ladbrooke Grove, W., where the side-slip competition will take place, is of wood pavement, which will be made greasy. The cars will have to make a right-angle turn on the grease, to describe "S" curves, and also to be subjected to brake tests. The power absorbed by the device will be tested by running the car down hill by gravity, both with and without the device fitted, and measuring the distance between the stopping places in each case. Points will be given for ease of attachment and renewal, and for price, and a device which gives the best control of the car under all possible conditions—that is to say, whether for side-slipping of front or back wheels, or of forward skidding—will be considered the better. Eighteen cars will actually take part, and each of these will carry a hon. Observer throughout the whole of the 1,000 endurance miles to see that nothing is done to the device.

BELGRAVIA GARAGES, LIMITED, has been registered with a capital of £1,000.

THE Brush Electrical Engineering Co., Limited, are about to open a showroom at 105, New Bond Street, London, for the sale of Brush cars.

THE 90-h.p. Panhard racer on which Mr. D. M. Weigel last year established some new records has been converted into a four-seated car, and has been acquired by the Honourable Maurice Egerton.

UNDER arrangements with "Automobilia," Messrs. Laing, Waters, Furnivall and Company have commenced periodical auction sales of motor-cars on the premises of the former concern in Oxford Street, W.

THE Duke of Sutherland has been elected president of the Automobile Club of Great Britain and Ireland, and the following will act as vice-presidents:—The Earl of Dudley, Lord Lieutenant of Ireland; the Earl of Onslow, Minister of Agriculture; Lord Stanley, the Postmaster-General; and Sir David Salomons, Bart. The new chairman is Lieutenant-Colonel H. C. L. Holden, R.A., F.R.S., superintendent of the Royal Gun Factory at Woolwich.

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Mr. Carnegie's Motor House.

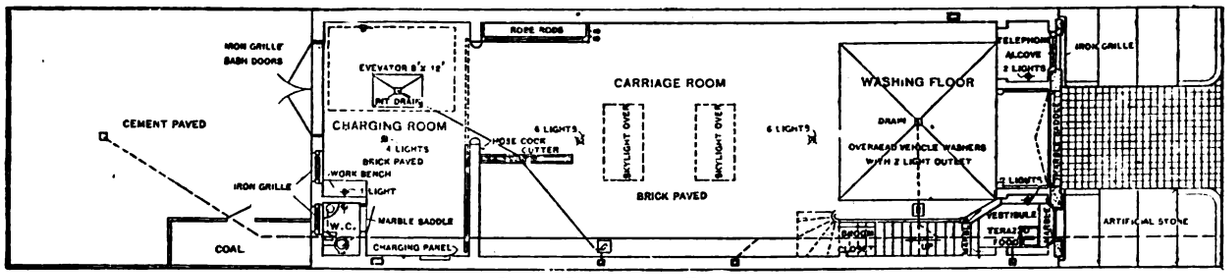


Fig 1.—Plan of Motor House.

EIGHT thousand pounds is not a very considerable sum to Mr. Andrew Carnegie, who has made dozens of presents of libraries to various communities, endowed universities, and in a hundred ways endeavoured to share his wealth with the world, but it is a large amount to spend at his initiation to the ranks of automobilists. Mr. Carnegie is noted not only for his generosity but for his economy as regards the expenditure of money for his own pleasures, and so the outlay may be said to be a considerable one, half of it going for five cars which he will keep for his use and the balance for a motor-house which will be erected close to his new residence on upper Fifth Avenue, New York.

Contrary to the usual practice of buying cars and afterwards looking out for their care and storage, Mr. Carnegie is taking up both details at the same time, and it is understood that his five new cars will be delivered by the manufacturers direct to his new motor-house.

The cars which he has purchased are all electrically propelled, selected with regard to their serviceable qualities and special fitness for town use.

The plans for the motor-house, which will be located at 55, East 90th Street, New York, comprise a three-storey building 25 feet wide by 70 feet deep. The front will be of standard Dutch red brick, laid in English cross bond with recessed joints and marble trim. The entire ground floor is to be given over to the storage and care of the cars. The upper storeys will be fitted up in the front for living apartments for the mechanicians and drivers, with sitting rooms, bedrooms, bath and kitchen. The rear portion of the second storey will be used for the storage of extra vehicles or cars of visitors, with a large lift for easy access thereto.

The walls of the first floor will be lined with white enamelled brick and the entire floor will be paved with Flintic tiles, a French material affording a surface easily cleaned and with acid resisting qualities. A hydraulic lift is one of the innovations projected for use in the inspection pit. In the charging room, which is 14 ft. by 23 ft. 4 in., is the usual charging panel, lift, pit, work bench, and lavatory. Large double doors open from the charging room on to the cement-paved yard at the rear.

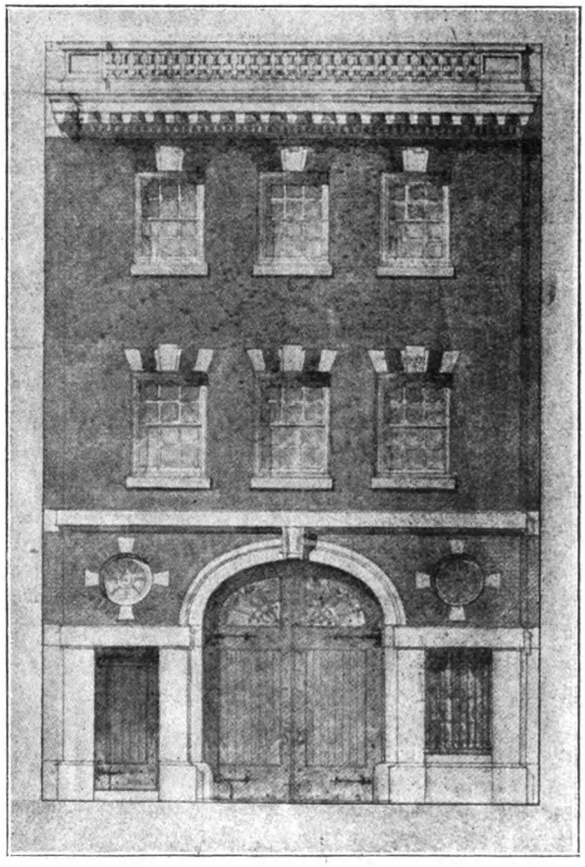


Fig. 2.—View of Exterior.

The front pavement will be granolithic; all outside wood work will be of oak with hand-wrought fittings and the double doors will have leaded lights with antique hinges and handles. Among the conveniences provided is, states the "Automobile," a telephone at the right of the entrance door, and a closet for the storage of lap robes.

The building throughout will be of Roebling fireproof arch construction, and all details of outside finish will be carried out in cut stone. The estimated cost of the building is £4,000.

MESSRS. PETO AND RADFORD, LIMITED, have issued a new catalogue of their electric storage batteries. This is arranged upon a good plan, facilitating reference and giving the user exactly the information he wants, but which has hitherto not been obtainable in so convenient a form. Specifications are given of each type of accumulator made by the firm, and these set forth the size, ignition capacity, both nominal and actual, weight, charging rate, and mileage capacity. The armoured accumulators of the firm are dealt with in the same way. Illustrated particulars are also included of the P.M. sparking plugs, the "Compound" sparking plug, the "Perfect" terminal, voltmeters, and other accessories.

MESSRS. STARLEY, LIMITED, has been registered to manufacture and deal in motors, etc.

THE United Motor Industries, Limited, have just issued a supplementary list of low-priced voltmeters, amperemeters, charging boards, and charging apparatus, known as the "F.A." series. The articles appear to be excellent value at the prices charged.

THE Devon Engineering Company, Limited, has been registered with a capital of £5,000 to acquire the business of the Devon Engineering Company, and part of the assets of the Devon Traction and Motor Company, Limited, to adopt an agreement between Messrs. W. J. Dart, P. C. Noble, and J. E. Parnell of the first part, Mr. G. T. Clarke of the second part, the Devon Traction and Motor Company, Limited, of the third part, and Mr. C. A. Pooley (for this company) of the fourth part, and to carry on the business of mechanical engineers, makers of motors, etc. The office is at Harbour Works, Paignton.

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CONTINENTAL NOTES.

IT is announced that arrangements are being made to open the Gordon Bennett Cup course to competitors for one month previous to the contest, in order to allow them to study its peculiarities. The teams will probably be permitted to make high speed runs over the route from 11 to 3 o'clock each day, and special precautions will be taken by the authorities in the villages and at the sharp corners, etc., *en route*. Extra expense will be incurred on this account, and the competitors who use the course will be asked to defray it. A number of regulations have been drawn up concerning these trials, and should any driver cause a fatal accident all the cars belonging to his firm will be debarred from taking part in the great event. It is announced that the municipal authorities of Bingen have offered to place at the disposal of the Gordon Bennett race organisers a large building capable of accommodating at least 200 motor-cars. The town is about forty-five miles from Homburg, and it is stated that there are many well-equipped hotels there, where accommodation can be obtained at moderate prices. It is also stated that there are plenty of rooms still to be had in Darmstadt, which is only about twenty-five minutes' run from Frankfort. The Motor-Cycle Union of the Austrian Automobile Club has decided to organize a tour to Homburg on the occasion of the Cup race.

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IT is reported that the F.I.A.T. Company are building six cars for the Italian team in the Cup race. Three will be of 65-h.p., and three of 105-h.p. The actual competing cars will be selected after all the vehicles have been submitted to trial on the road.

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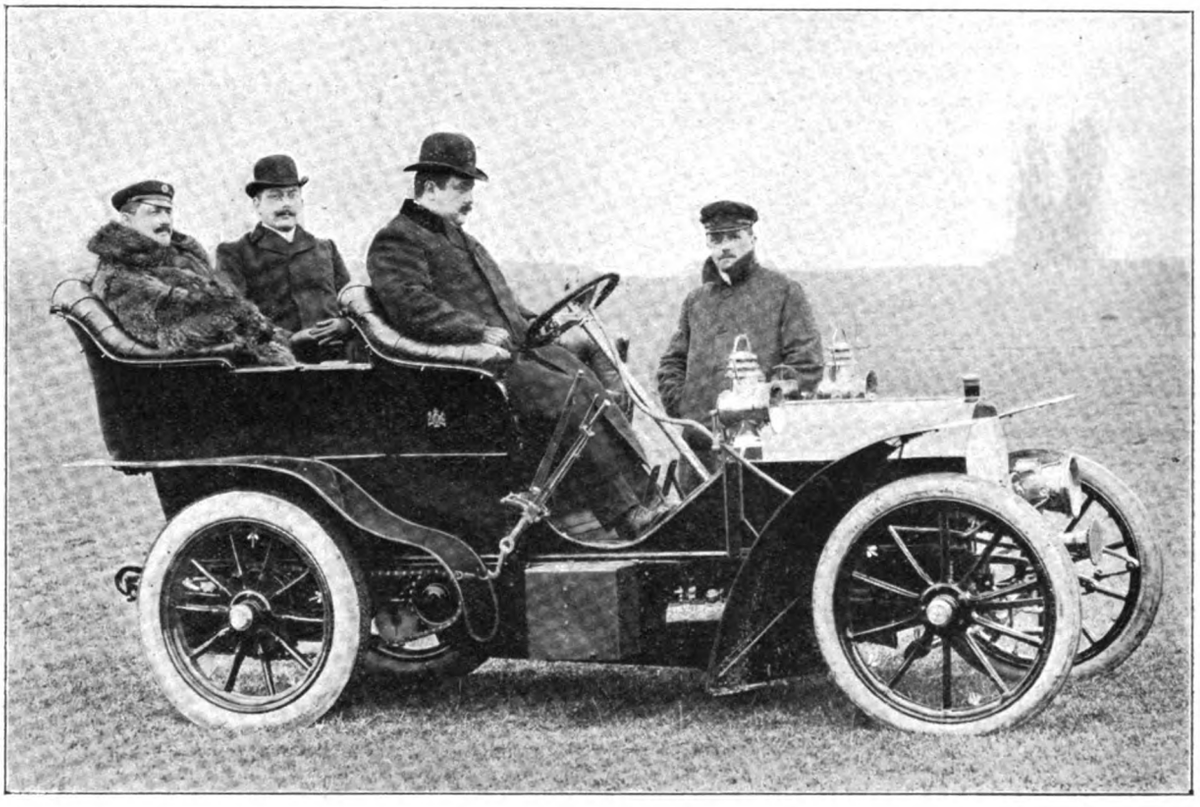
A NOVEL competition was held on Sunday last by the Antwerp Automobile Club. It was known as the "Course à l'Envelope," seventeen competitors taking part in it. Each was given a sealed envelope in which a village about ten miles away was named; they had then to drive to a café at this place, where they were given a second envelope containing fresh instructions. Altogether fifty kilometres were covered, the mysterious course being traversed in one hour thirty minutes by the winner, M. Joostens, on a Talbot car.

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THE Cannes Automobile week is now an event of the past. On the 15th inst. there was a series of mile trials and a hill-climbing competition. The best time for the mile was made by Mr. A. Burton, who, on a 130-h.p. Gobron-Brillié, covered the distance in 46 3-5 secs., equal to over 78 kilometres per hour. M. de Cesti on a 60-h.p. Mercedes was second in 48 1-5 secs. The hill-climb was over a 500-metre course of an average gradient of 8 per cent. and this also was won by Mr. Burton in 33 2-5 sec. or a speed of 54 kils. per hour. On the 16th a consumption trial was held, the competitors being each allowed a litre of essence. A Clement machine made the best distance in the motor-cycle class, covering 29 1-4 kil., a Renault light car did 14 3-4 kil., a Peugeot in the 650-1,000 kilog. class did 11 1-4 kil., while the best in the heavy car class was a Rochet-Schneider which had 6·3 kil. to its credit.

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THE Nice automobile week commenced on Tuesday by a touring competition over an 180-kilometre route. Among the entries were M. de Bary (18-h.p. Mercedes), M. Clerissy (Rochet-Schneider), M. Millo (14-h.p. Renault), Prince Lubecki (60-h.p. Mercedes), and Mr. C. Gray Dinsmore (60-h.p. Mercedes).



King Edward's Newest Car—a 1904 18-24 h.p. Mercedes. (*See page* 61). [*Allgemeine Automobil Zeitung.*

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THE municipal authorities of Spa, Belgium, have voted a sum of £500 towards the expenses of the "Automobile week" which is being organised by the Automobile Club de Spa.

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M. DE MOT, the Burgomaster of Brussels, has invited the Belgian Automobile Club to organise a fete next year in celebration of the 75th anniversary of the national independence.

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IT is proposed to organise an international motor-car service between Aosta, Italy, and Moutiers, France, via Pre-St. Didier, Seez, Bourg St.-Maurice and Aimé. The vehicles used will be 16-h.p. and 24-h.p. de Dietrich omnibuses.

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A 400-KILOMETRE automobile test, termed the Circuit du Pas de Calais, is being organised in connection with the exhibi-

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tion to be held at Arras in May. This event will be open only to small cars weighing under 400 kilogs. and to motor-bicycles. The trial will include hill and speed tests, but no average speeds for the entire run beyond 30 kilometres per hour will be recognised.

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DETAILS of the various French cars for the French Gordon Bennett eliminating trials are gradually leaking out. It has already been stated in this column that the Panhard cars will, for the first time, be of the chainless variety. The 1904 De Dietrich will for the most part be similar to those which took part in the Paris-Madrid race, except that they will be slightly longer. The steering column will be more inclined than before, while it is reported that the engines will develop about 80-h.p. The Georges Richard Company are building three light racers, the four-cylinder motors of which are expected to develop about 75-h.p. The cars will be chain-driven, with direct drive on the top (third) speed. A novel feature will be found in the clutch, which will be of the usual leather-faced cone type, but with the addition of a positive drive which may be put into gear by means of bolts which slip into corresponding holes in the flywheel.

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TO utilise the energy stored in the exhaust gases, a French engineer, M. Chevalier, has hit upon a method which he deems practicable. He utilizes the flame which rushes through the exhaust port of one cylinder to ignite the fresh charge in another cylinder, and thus, of course, his plan is workable only with multiple-cylinder engines. By connecting a series of small tubes with the exhaust valves, and joining up one cylinder with another M. Chevalier has contrived that portion of the exhaust gases from one cylinder will rush as a tongue of flame into the next cylinder at the proper moment and explode the charge. When this cylinder is fired it will similarly send a flame into the next cylinder, and thus the process goes on. Valves worked from the cam shaft govern the time of the flame entering the cylinder, and by a simple and ingenious arrangement this time can be advanced or retarded, thus altering the time of firing as in electric ignition. On starting the engine the first explosion is caused by an electric spark or other device, and after that the automatic firing comes into use. It remains to be seen how the new arrangement will work in practice.

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AN International Automobile Exhibition was opened at Frankfort-on-Main on Saturday last. It is being held under the auspices of the Germain and Frankfort Automobile Clubs, and is proving a great success, there being close upon 200 exhibitors. All the leading German makes of cars are on view, as well as the majority of the principal French types. The exhibition remains open until the 27th inst.

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THE automobile week at Ostend is to be held from the 15th to the 21st July next. On the first two days there will be a touring competition, while on the 17th July a series of kilometre and mile speed trials will be held. On the 18th there will be a fifty kilometre race between Ostend and Blankenburg, while the 19th and 20th will be devoted to a second touring trial. A driving competition will be held at the Hippodrome, Ostend, on the 21st July, and on the 22nd a start will be made for Namur, where the automobile sports will be continued.

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THE Motor Club of Nice has decided to organise a reliability trial for motor-cycles and cars. It will probably be held on the 9th of June.

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THE Swiss postal authorities are about to make some trials in Berne with an Orion motor-wagon, having a carrying capacity of 1½ tons.

IT is satisfactory to learn that British makers of motor-cycles are already cultivating foreign trade. The official returns for the two months ending with February, now available, show that during that period 161 machines valued at £6,147 were exported. The shipments of motor-cycle parts amounted to £853, giving a combined total of £7,000.

THE MOTOR CAR ACT.

Transfer of Registration.

P. P. writes:—Will you advise me through your paper as to the following point. If I purchase a second-hand car which has been registered, I can by paying five shillings have the number transferred to me. Kindly say if I must pay the five shillings in my own town or where the car came from."

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When buying cars we should advise the purchasers to suggest that the sellers should see to the transfer of ownership being effected. This would save much trouble provided the new owner was satisfied as to the proper entry of all the necessary particulars. When the ownership of a car is changed notice of the fact must be given to the Council with whom the vehicle is registered and an application made either to cancel the registration or to continue the same under the new ownership. Should the buyer register the car in his own place, the application will be treated as a new registration.

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Motoring in Egypt—At the Foot of the Great Pyramid of Cheops.

Numbers of the Home Counties.

A. G., who frequently sees cars with various numbers passing through London, asks for the numbers of the places near the Metropolis.

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A full list of the numbers for England and Wales appeared in our issue of November 28th last. The following are given in response to the foregoing request:—London County Council, A; Kent, P; Essex, F; Middlesex, H; Surrey, P; East Sussex, A P; West Sussex, B P; West Ham, A N; Croydon, B Y; and Reading, D P.

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A Suggestion.

"No doubt," writes an Eastbourne correspondent, "it must have occurred to others, but it seems to me that instead of the present letter numbering, if the word shire were dropped each county could be lettered with its first and last letter without any confusion or duplicating, *e.g.*, D.Y., Derbyshire; D.N., Devonshire; S.P, Shropshire; S.D., Staffordshire; and so on."

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THIS idea was suggested a few months ago, but the Local Government Board apparently preferred the haphazard arrangement that now confuses everyone in place of the sensible suggestion of facilitating identification by giving the letters some readily recognised geographical significance.

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THE MOTOR VOLUNTEERS.

PROGRESSIVE has been the career of the Motor Volunteer corps since Mr. Mark Mayhew, then an officer in the Imperial Yeomanry, gave automobile assistance to Sir Evelyn Wood and Sir Redvers Buller at the Aldershot manœuvres three years ago. This branch of the Volunteer Army has received full recognition from the War Office, its officers have been officially presented at a Levee, and altogether the favour which has been bestowed upon the corps must have been particularly gratifying to those who have devoted time and trouble to furthering its fame.

Since September last the Motor Volunteers have been continuously busy, and, although some of the services have been of the Carter, Paterson variety, other shave been of real importance and value to the military authorities. Staff officers have been enabled to undertake extended rounds of inspection in the minimum time, and it has been conclusively shown that the automobile can be relied upon in cases of emergency. For March no fewer than seventy cars have been requisitioned for service, and at the end of the month some particularly interesting work will be given the Corps. The London defences are to be visited for the purpose of conducting the Scottish Volunteer officers over them. These are practically unknown to the general public, so that those motorists who have enlisted in the Volunteers will be given an insight into military matters that should add a zest to their enthusiasm for the movement. On the 28th to 30th the corps will take part in a staff ride in connection with the Staff College in the neighbourhood of Brighton. During the past few days some of the Motor Volunteers have been taking part in a staff ride under the general officer commanding the 1st Army Corps, in the neighbourhood of Chichester, while the first days of March were occupied in a reconnaissance for officers of the Royal Artillery at Woolwich.

Some information with regard to the *personnel* of the corps will be of interest. Lieut.-Col. Mark Mayhew, the commanding officer, is not only an enthusiastic advocate of our citizen army and a motorist who has driven cars from the early days of the modern movement, but he has also encouraged the purely utilitarian aspect of automobilism, as can be seen from a visit to Battersea, where the name "Mark Mayhew, Ltd.," can be found inscribed on heavy lorries which are conspicuous in the traffic of those parts. Captain G. Skeffington Smyth, D.S.O., who served with distinction in the South African campaign, is adjutant.

For the purpose of organisation, the country has been divided into commands and sub-commands as follows:—Major W. G. Windham is in charge of the London district, which is divided into sub-commands for London (5 officers and 25 members), Hounslow (2 officers and 6 members), Oxford (1 officer and a member), Woolwich (1 officer and a member), Kingston (2 officers and 3 members), Reading (1 officer and 1 member), Colchester (1 officer and 7 members). In the Aldershot command there are 2 officers and 3 members. The York command is divided into two districts, with York and Chester as headquarters, the present composition of the command being three officers and sixteen members. Naturally the south and west of England supply a goodly contingent of these motoring volunteers. Major J. M. Benett-Stanford is in charge of the Salisbury command, which has sub-divisions with head-quarters at Plymouth, Portsmouth, and Dover, the responsible officers being Lieut. O. H. Bayldon, Captain A. H. Lee, M.P., and Captain E. Midgley respectively. In this command there are three officers and twenty-five members. Scotland supplies two officers and a member and there are two officers and two members in Ireland. These with four other members constitute the strength of the Motor Volunteers.

MOTOR-CYCLING NEWS.

THE Ormonde Motor Company have just issued a very useful descriptive handbook of their Kelecom motors and Ormonde motor-bicycles. Illustrations and descriptions are given of the various parts of the motor, such as the contact maker, carburettor, switch, chain, belt, etc. The Ormonde complete machines — motor-bicycle, tri-car, and side car, are also fully dealt with.

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CONSIDERABLE discussion is now taking place in motor-cycling circles anent chain-driven motor-cycles, and also as to devices destined to prevent any jerky action due to the impulse stroke of the motor being transmitted to the chain and rear wheel. The accompanying illustrations of the friction clutch and spring wheel used on the machine built by Messrs. Bruneau of Tours, France, will therefore not be without interest. The machine itself follows the usual arrangement of motor-bicycles, the 2½-h.p. air-cooled engine being located in a vertical position, just forward off the bottom bracket. Fig. 1 gives a sectional view of the clutch, which is mounted on the engine shaft. *a* is a leather-faced cone running loosely on the shaft *d* and having rigidly attached to it the chain wheel. The female part of the clutch *b* is fitted on the motor shaft, which at its end is made square instead of round. A spring *g* is held between the cap *f* and the part *b* of the clutch. By means of a lever on the

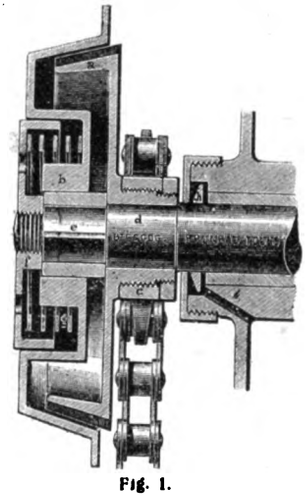


Fig. 1.

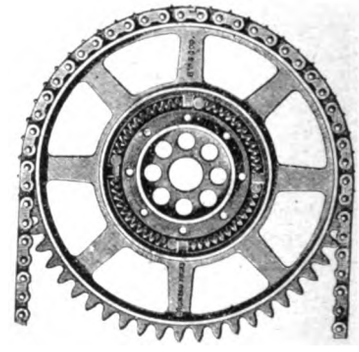


Fig. 2.

top bar of the frame the spring *g* can be compressed, bringing the two frictional surfaces of the clutch together at will. Fig. 2 depicts the Bruneau spring chain wheel connected with the rear road wheel of the machine. As will be seen, the wheel is made in two parts, the outer portion being so fitted that it can slide round a disc attached to the hub of the wheel. In a channel in the disc are fixed four spiral springs with which projections on the outer part engage. In starting a machine there is, of course, a tendency for the driven chain wheel to run faster than the road wheel to which it is connected, and it is to allow for this that the springs are introduced. Until the speed of the road wheel is equal to that of the sprocket any difference is taken up by the compression of the springs. When equilibrium is attained between the two wheels, that is to say, when they are both running equally fast, a condition which is reached after a few revolutions, the springs are no longer called into action.

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THE Manchester Motor-Cycle Club hold a social gathering on Friday of this week at the Blackstock Hotel, Upper Brook Street, Manchester, when a lecture will be given by Mr. J. T. Ward on "Desirable Improvements in Motor-Cycles," after which a discussion will be held. The club is also organising a four days' tour in North Wales, the first day's journey being on Good Friday to Bangor, where the further excursions will be decided upon by those taking part in the tour.

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HERE AND THERE.

POWERS are being sought by the Cambrian Railway Company to run motor-cars.

MAJOR COURTENAY MORGAN has ordered from the British Automobile Commercial Syndicate, Limited, a 24-h.p. "Fiat" car.

THE Highgate Bench has threatened to deal severely with cases in which motorists are summoned for having no lights on their cars or cycles.

THE Newport (Mon.), Watch Committee have now decided to impose the ten mile limit only between the town end of the Cardiff Road and Clarence Place.

MR. H. RAMOISY, who has for some time been connected with the London Motor Garage, Limited, is now devoting his attention to Germain cars, he having transferred his services to Captain Theo Masui.

A CATALOGUE of their motor clothing has been issued by the North British Rubber Company, Limited, who are going thoroughly into this department. Included in the illustrations and descriptions are motor-car covers, flexible buckets, rugs, overboots, and other accessories.

ONE firm, recognising the attractive properties of the Airship section at the Show, invested in some of the elephant balloons of Messrs. Spencer, and having placed them on the driving seats of their vehicles, have apparently sought thus to demonstrate the simplicity of the steering mechanism.

THE Brown and Sharpe Manufacturing Company, of Providence, R.I., U.S.A., the well-known makers of machine tools, are now turning their attention to the production of spur and bevel gears for use on motor-cars. Cylinder castings is another branch of automobile work which has been taken up by this concern.

DURING the first hours of Saturday the fitters engaged in connection with the construction of the stands at the Exhibition found their resources fully taxed, the large number of exhibitors having apparently taken them somewhat by surprise. This feeling seems to have been general throughout the stand-fitting trade, and there is no doubt that rarely before have those who have arranged stands for exhibitors at the Agricultural Hall been so busy.

AMONG the minor matters of transient interest in connection with the Exhibition must be mentioned the enterprise of Messrs. Dunhill, Limited, who every year seem to have some new idea for attracting attention to their display. "Living pictures" have again appeared, whilst the tall man of a year ago is now accompanied by two small boys, whose facial adornments add a solemnity to their appearance which has proved amusing to visitors.

THE Rex Patents, Limited, have lately brought out a combined carriage clock and speed indicator for use on motor-cars. Briefly, it is a combination of a carriage clock showing the time in the usual manner with an additional hand or pointer indicating the speed in miles per hour. The speed pointer indicates on a separate circle of figures ranging from 10 to 60 miles per hour. The figures are clear and bold and easily read at some distance. The instrument is constructed to operate from one milestone to another, or known distances of a mile, such as can be afforded by the signal cyclometer, or a cyclometer in view of the motorist. The combination can be fitted anywhere on the car, and there are no connections to make and no attention required beyond the daily winding of the clock. The indicating hand is normally at zero, a pressure on the brass slide at the side of the clock starts it, and on the completion of a mile the hand will indicate the exact speed in miles per hour at which the car has travelled. A second pressure on the stud in a reverse direction returns the hand to zero. The clock runs independently of the speed hand and indicates the correct time whether the latter is used or not.

AN automobile club has just been formed at Genoa, Italy.

FROM the Non-Skid and Non-Puncturable Tyre Company, Manchester, comes a circular of a tyre fitted with a corrugated steel tread which is claimed to give full protection to the tyre.

AN American contemporary defines a patent as a sort of thing that gives one person the exclusive right to all the litigation in connection with some sort of a thing for a certain number of years.

THE Electric Ignition Company, for whom Messrs. Brown, Bros., Limited, are wholesale agents, send a catalogue of their sparking coils, contact breakers, accumulators, switches, and other electrical accessories for automobiles.

OWING to the increase of business, the Forman Motor Company, Limited, are removing from Day's Lane to larger premises in High Street, Coventry, and from the 25th inst. all communications should be sent to the new address.

WE learn that Messrs. Van Raden and Company, Limited Coventry, have received the orders for high-speed coils and woven glass accumulators from the Wolseley Motor-Car Company for use on their 1904 Gordon Bennett racers.

MESSRS. ARMSTRONG, STEVENS AND SONS, of Birmingham have issued a catalogue of motor fittings for the coming season. Their work is characterised by general excellence, and in tubular radiators and bonnets are some good designs of interest to makers of cars.

MESSRS. G. T. RICHES AND COMPANY have just issued a new catalogue of spare parts and accessories for all the leading types of motor-cars. The list, which extends to eighty pages, is conveniently arranged and provided with an index, which considerably adds to its usefulness.



The Gordon Bennett Race.—A View near the Starting Point at Saalburg.

WHAT is claimed to be the fastest performance ever made by a woman on a motor-car has, according to telegraphic advices from New York, just been achieved by Miss Leah Russell, who drove the racing car known as "Ford 999" a straightaway mile in 53 1-5sec. under the observation of official timekeepers.

MR. HENRY SPURRIER, JUN., of the Lancashire Steam Wagon Company is about to visit the United States, with a view to a study of the engineering methods in certain American industrial establishments, and a survey of the problem of heavy motor traffic as it confronts the Americans.

THE start of the Whitsun run to Edinburgh of the Motor-Cycling Club is fixed for 10 p.m. on Friday, May 20th, from the G.P.O., London. Those riders who reach Edinburgh within twenty-four hours will qualify for a special badge and club certificate, while those who reach the Scottish capital within thirty hours will be awarded certificates, setting forth the actual performance.

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The Motor-Car Exhibition at the Agricultural Hall.



Photo by] GENERAL VIEW OF THE EXHIBITION. [Argent Archer.

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The Motor-Car Exhibition at the Agricultural Hall.

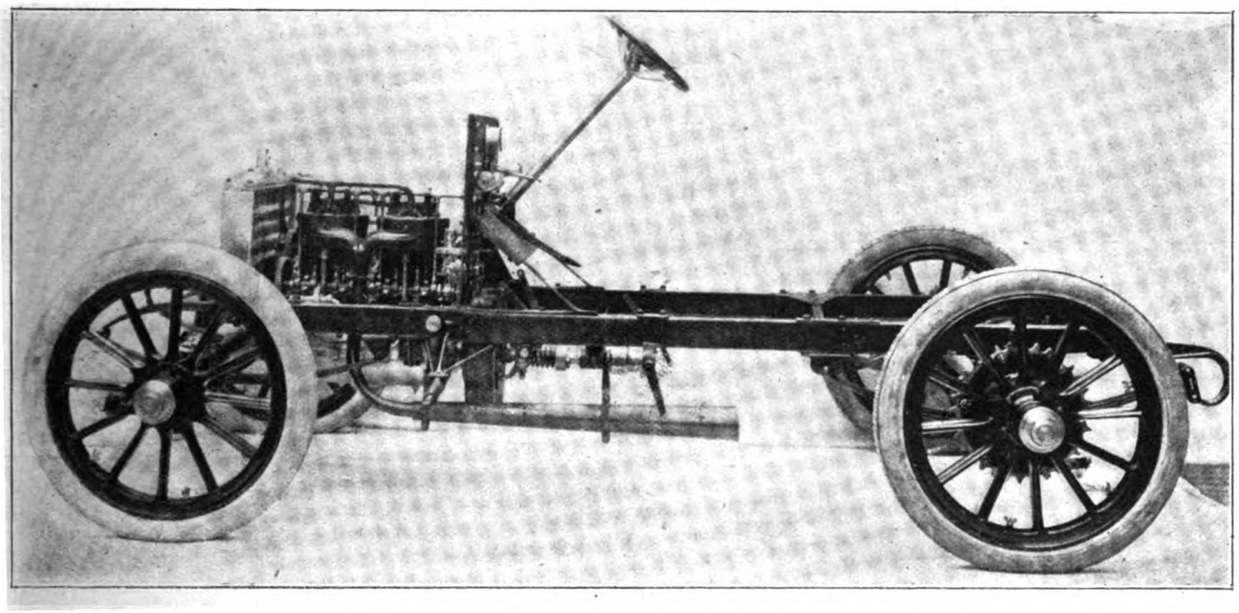
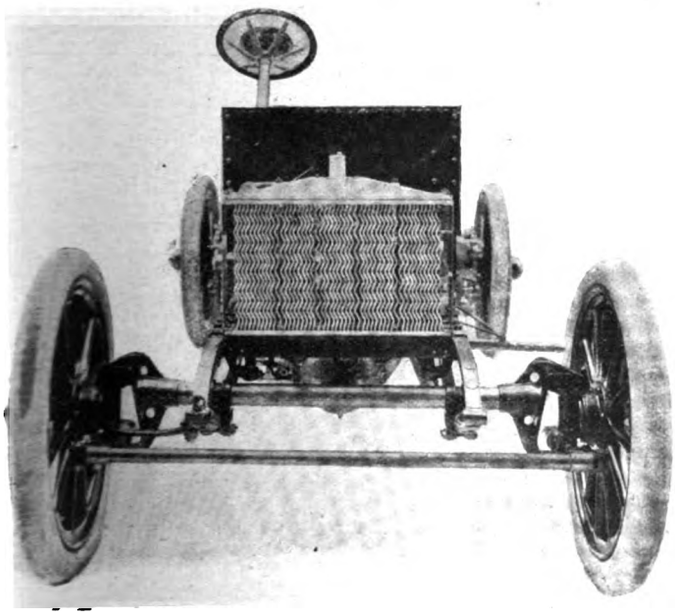


Fig. 1.—Chassis of the Hutton 20-h.p. Car, showing New Silencer.

BELOW we commence our review of the Motor Car Exhibition now in progress at the Agricultural Hall, London—an Exhibition which in the number of exhibitors and variety of automobile exhibits exceeds anything previously seen in this country. On all hands Mr. Charles Cordingley has been congratulated on the comprehensive character of the Exhibition, and so satisfactory has been the business done that many firms have already booked space for next year's show. Obviously it



g. 2.—Front View of Hutton 20-h p. Chassis, showing New Radiator and arrangement o Front Axle.

is impossible to deal with all the exhibits in one issue of the *Journal*, but exhibitors and readers alike may have an assurance that no stand will be unnoticed, and that reference will be made to the many features of real interest and value.

PETROL CARS.

One of the *clous* of the Exhibition is undoubtedly the *chassis* of the new 20-h.p. Hutton car shown on the stand of Messrs. J. E. HUTTON, LIMITED. The car, which is constructed in accordance with Barber's patents, has a frame of pressed steel. The engine has four cylinders cast in two pairs. The valves are mechanically actuated off one cam shaft; the inlets, which are located on the top of the cylinder heads, are provided with a variable lift device. The governor is mounted on the half-speed shaft. The cylinders are 90 mm. diameter by 124 mm. stroke, the normal speed being 1,000 to 1,200 revolutions per minute. The radiator (Fig. 2) is of novel design, and made of aluminium; it consists of a large number of tubes bent to a special shape, and arranged in five groups; it is stated to be very efficient, while its weight is only 30 lbs. The pump is gear driven, and the ignition is by means of a chain-driven magneto.

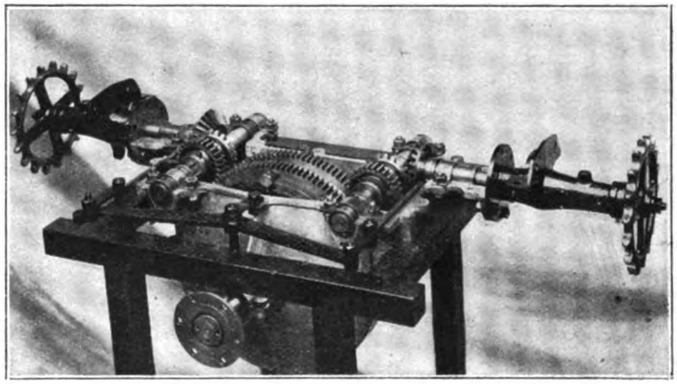


Fig. 3.—The Barber Variable Speed Gear used on the Hutton Car.

The carburettor is of novel design and automatic in action; the governor is connected up to it in such a way that when the speed of the engine becomes excessive more air is admitted, with a corresponding reduction in the degree of suction of the petrol. The valve stems are lifted by steel balls instead of the usual rollers. The motor itself is supported on the frame through four square spiral springs, which take up any vibration due to the engine. The exhaust box, too, is of original design. It consists of a taper pipe, the outer end having the largest diameter. The pipe itself has a series of holes pierced in it, through which air is drawn in and mingled with the exhaust gases, which have a straight outlet from the motor, without meeting

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any baffle plates on their way to the atmosphere. A Barber variable gear (Fig. 3) is shown separately; this is quite a radical departure, and cannot be well described without drawings. It must suffice for the moment, therefore, to say that it gives infinite variation of speed between zero and the maximum, this being obtained by means of a variable throw eccentric on the driving shaft. To this are pivoted a series of arms, at the outer end of which are shoes, the faces of which, like the brake shoes, are provided with V-shaped projections, fitting into corresponding grooves in the discs surrounding the eccentric. The rotation of the discs is obtained

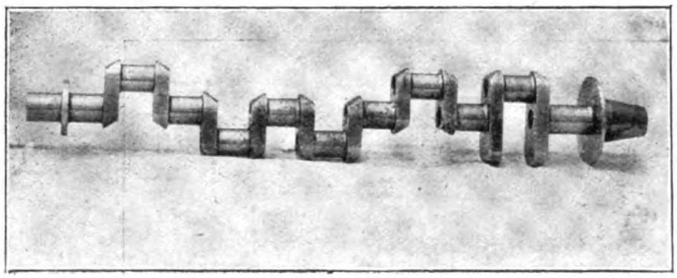


Fig. 4.—Crank Shaft of the Hutton Five-Cylinder Gordon Bennett Racer.

by a series of rapid pushes, one shoe after the other taking up the drive at rapid intervals. The periphery of the two discs, which travel in opposite directions, is provided with spur teeth, each disc meshing with its own pinion on a side shaft. On the rear ends of the latter are bevel pinions gearing with bevel wheels on the cross shaft. On the ends of the latter are sprocket wheels, which convey the power to the rear road wheels by side chains in the usual way. To obtain the reverse motion, the spur pinions, which are free to slide on their shafts, are each disengaged from their discs and brought into mesh with the other. The brakes on drums on the rear wheel hubs are actuated hydraulically, they each having in conjunction with them a cylinder and piston, which, when the oil is admitted to them, recede from one another. When the oil pressure is released a small spring lifts the band off the drum. A pedal controls expanding band-brakes on the inside of the same drums, the latter having V grooves into which fit corresponding projections on the brake shoes, the contact surface being thus increased. The brakes are metal to metal, and work in oil. The oil supply to the variable speed gear is controlled by two

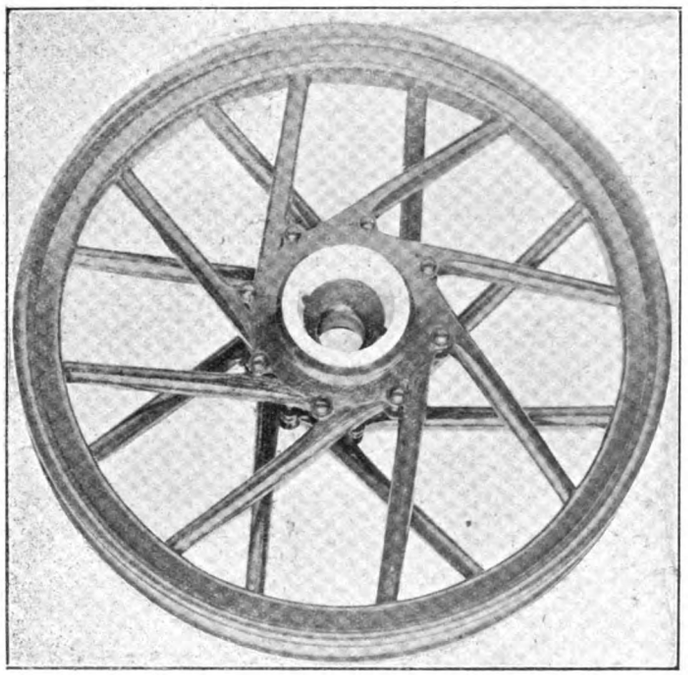


Fig. 5.—Tangent Road Wheel for the Hutton Gordon Bennett Racer.

buttons on the steering wheel. Sufficient oil is contained under a pressure of 300 lbs. per square inch, in a special reservoir on the dashboard, for three charges of the hydraulic brakes, while the variable-speed gear is kept full. The starting handle, contrary to the usual practice, is at the side of the car. The front and rear axles are of straight nickel steel tube of large diameter, supported directly on the springs. The road wheels run on ball-bearings, 1 in. balls being used for the front wheels, and 1¼ in. for the rear. The steering gear is of strong construction, the standard having a ball bearing. The front steering rod is of large diameter tubing. The steering pivots have plain bearings at the bottom and ball bearings at the upper end. A spring buffer box is introduced into one of the steering rods to take up any shock.

The crank shaft of the Hutton car for the Gordon Bennett race is also on view. An illustration of it is given in Fig. 4. Contrary to expectations, the new racer will have a five-cylinder engine. It will be noticed that one of the cranks is fitted with counterweights, these being intended to balance the action of the throw of the eccentric in the variable speed gear. It is interesting to add that as regards the working of this large engine, which is expected to develop about 100-h.p., the two outer cylinders will be fired simultaneously, the two plugs being arranged in series to obtain synchronous sparking. After cylinders Nos. 1 and 5 have fired, Nos. 2, 3, and 4 follow in the usual order. The mixture for the five cylinders will be furnished by two carburettors. Fig. 5 shows one of the wheels intended for the Hutton Gordon Bennett racer. As will be seen, it is of the tangent type, each of the wooden spokes being entirely in compression. The design is such that a wheel of extreme rigidity is obtained, and one capable of withstanding all possible side strain. Altogether, the new Hutton cars bristle with novelties, the behaviour of which on the road is being looked forward to anxiously by all motorists. Messrs. Hutton also have an excellent display of Panhard cars of the 8-h.p. three-cylinder and 10-h.p. and 20-h.p. Panhard cars, as well as a 12-14-h.p. Brooke car, with tonneau body.

Messrs. Deasy and Co. have on view a *chassis* and complete tonneau of the Martini car, which, since Captain Deasy drove one up the cog railway on the Rochers de Naye, near Caux, have come rapidly to the front. For 1904 only one type is being made, a 16-20-h.p. four-cylinder vehicle; the engine, although on the same lines as last year's model, being slightly more powerful. Mechanically-actuated inlet valves are employed, together with a combined honeycomb radiator and water tank, a feature being the provision for drawing off all the water, when necessary, from the radiator, tank, pump, and cylinder jackets. Four speeds forward and a reverse are pro-

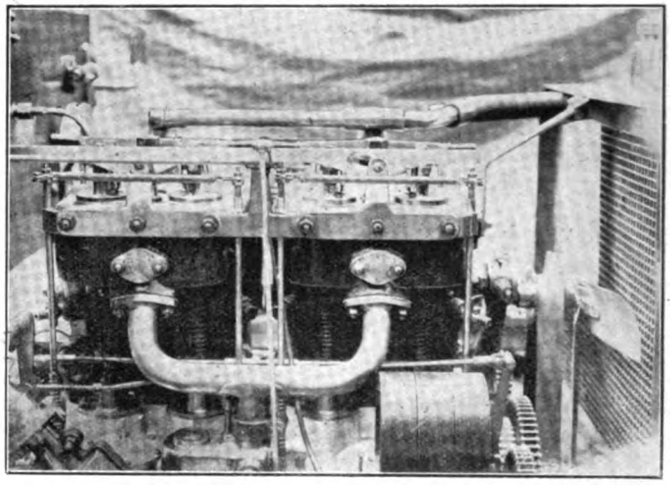


Fig. 6.—The Martini 16-20-h.p. Engine.

vided; a direct drive is obtained on the fourth, and the single lever controlling all the speeds has only a forward and backward movement. The clutch is of the leather-faced cone type, and a universal joint is introduced between it and the gear box, to prevent any strain being thrown on the latter. The main frame, as well as the secondary one supporting the engine and gear box, are of pressed steel. With the exception of one hand-controlled lubricator for the pump and radiator fan spindle, the lubrication is entirely automatic; the base chambers are provided with cocks, by means of which it can readily be ascertained whether they contain the desired amount of oil. The engine and gear box are entirely protected below, while the steering rod is placed behind the front axle, and is thus well protected in case of accident. An example of the 16-22-h.p. Rochet-Schneider cars is also to be seen at this stand.

A *chassis* and a complete tonneau of the 1904 18-28-h.p. Mercedes form the exhibit of the Cannstatt Automobile Supply Association. The principal new features of this interesting and well-known vehicle have already been dealt with in the *Journal*. We may briefly mention, however, that the vehicle varies in several details from last year's type; the engine has four cylinders, 100 mm. diameter by 130 mm. stroke; all the valves are mechanically operated and interchangeable, the inlets being on the left and the exhaust on the right, looking from the dashboard. The carburettor is located quite close to the admission ports. The magneto, which is on the right side, has in connection with it a plug switchboard, by means of which any one of the cylinders may be cut out for testing purposes. The variable lift to the inlet valves has been abandoned. The flywheel is of larger diameter than last year. The gear box shows little alteration, but an ingenious arrangement is provided for automatically opening a cock when the brake pedal is applied, allowing water to flow to the band brake on the differential shaft. The frame is somewhat longer than last year, being now 8 ft.

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UNDOUBTEDLY one of the features of the Exhibition is the *chassis* of the 20-h.p. Hotchkiss car to be seen on the stand of PARIS AUTOMOBILE, over which M. Henri Fournier, the well-known racing motorist, is presiding. The leading details of the new vehicle, which is built by the great French gun-building firm of Hotchkiss, were described in our report of the Paris *Salon*. The frame is of stamped steel, and is supported on four side springs and a transverse one at the rear. The engine comprises four vertical cylinders, cast in pairs; both the inlet and exhaust valves, which are arranged on opposite sides of the cylinders, are mechanically actuated and interchangeable. The ignition is by magneto, while the water circulation is maintained by a gear-driven pump. The radiator is of the honeycomb type, of a circular shape. The tubes of the honeycomb are of a triangular section, giving a large radiating surface. The fan, inducing a current of air through the tubes, is made in such a way that the inclination of the blades or vanes can be varied from the driver's seat, and the air draught increased as desired, as, for instance, in mounting long hills. The clutch is on novel lines; it is of the leather-faced type, and is provided with a locking device which prevents any tendency to slip. Four speeds forward and a reverse are provided, the power on the top speed being transmitted direct to the rear live axle through a cardan shaft and bevel gearing. The rear axle is entirely enclosed; the case which encloses the differential and large bevel gear being divided in a horizontal, instead of, as usual, in a vertical plane, enabling the interior to be quickly inspected. The front axle is of tubular construction, and the pivots on which the front wheels are mounted lie in the centre of the hubs (Fig. 8), the arrangement being such as to provide large flat guide surfaces over and below the axle end, and the steering rod is placed out of harm's way behind the forward axle. The brake on the countershaft is of the contracting band type, and those on the rear wheel hubs of the internal expanding variety. Ball bearings are used throughout, not only for the gear-box, the live-axle, and the road wheels, but also for the crank-shaft of the motor.

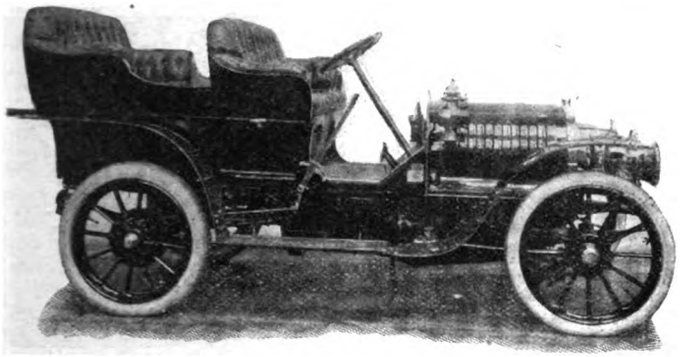


Fig. 7.—General View of Hotchkiss Car.

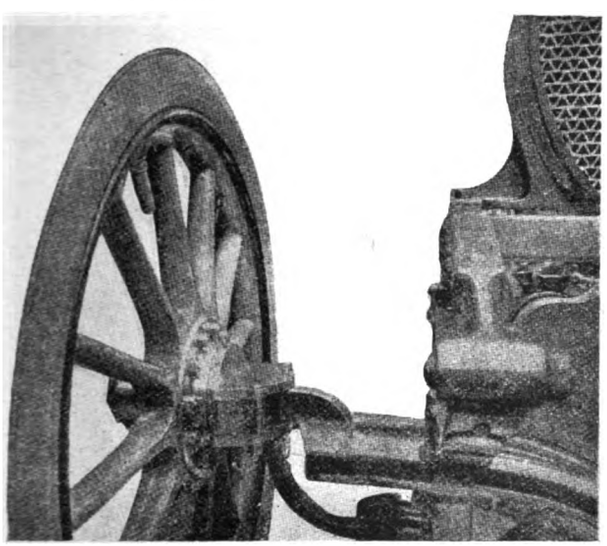


Fig. 8.—View of Steering Pivot and Part of Radiator of Hotchkiss Car.

The "National" is the name of a new British-built car exhibited by MESSRS. LAMB BROTHERS AND GARNETT, the selling agents for the makers, Messrs. Rose Brothers, of Gainsborough. The vehicle exhibited is of 10-12-h.p., but the standard type is one of 15-17-h.p., having a frame of pressed steel, to which is riveted a steel underframe carrying the engine and gear box. The motor has three vertical cylinders, 4 in. diameter by 5 in. stroke, cast separately, with combination chamber and water jacket complete. The valves are all mechanically operated off one cam shaft. The commutator is conveniently arranged in an inclined position at the rear end of the crank case, and is gear driven. The carburettor is of the self-adjusting spray type. The governor only comes into action when the maximum number of revolutions is attained, the normal speed being 850 revolutions per minute. The inlet valves are provided with a variable lift device controlled by a small lever on the steering wheel. The water circulation is effected by a gear-driven pump in conjunction with a tubular radiator. The fan which induces a current of air through the latter is designed so that the slack or stretch of the belt can be instantly taken up by a spring device. From the engine the power is transmitted by a conical friction clutch of improved design, and thence by means of large gear wheels to cardan shaft and a live axle. A feature of the clutch is that the male portion, on being released, runs idly on the gear shaft, so facilitating the changing of the gears. The gear box is made in halves—on removing the top half both shafts and gears are exposed. Three speeds forward, with direct drive on top speed, and a reverse, are operated by one lever. A double-acting metal-to-metal internal expanding band brake is fitted on the main shaft outside the gear box, actuated by foot lever. Double-acting internal expansion brakes are also fitted to each of the rear wheels, these being controlled by a hand lever. On this stand is also to be seen the body, in the rough, of a well-designed landaulet, with forward roof extension and front glass.

AUTOMOBILIA, LIMITED, confine their exhibit to a display of Darracq cars, the details of the 1904 models of which have been already dealt with in the *Journal*. One of the cars is of 15-h.p., while of the 12-h.p. type two, fitted with specially-finished tonneau bodies, painted in green, are on view. MESSRS. VAN TOLL AND CO., of Twickenham, exhibit three finished cars, viz., an 18-24-h.p. Mercedes, a 7-h.p. Panhard, and a 12-h.p. Talbot, the details of which have already been given in these columns. MESSRS. PRITCHETTS AND GOLD, LIMITED, have on view two types of their "Meteor" cars—12-h.p. and 16-20-h.p.—both fitted with four-cylinder engines. They are on standard lines, the 12-h.p. vehicles being made with cardan shaft or side chain transmission. The frames are of pressed steel; the gear box gives three speeds forward and one reverse, with a direct drive on the top speed. The motors are fitted with a special carburettor, which enables the engine to be run down to a low speed. Without comprising any startling departures from standard practice, the "Meteor" cars appear to be of sound construction.

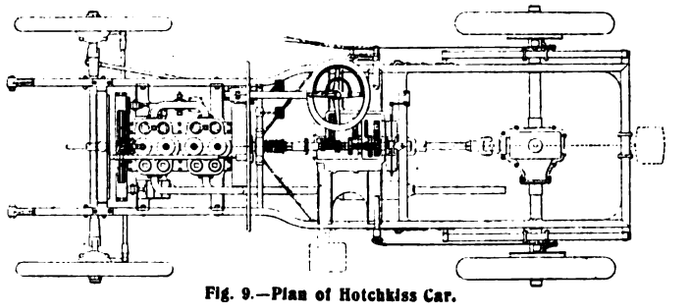


Fig. 9.—Plan of Hotchkiss Car.

The HIGHGATE MOTOR-CAR COMPANY, in addition to several Darracq cars, display a new two-seated car which they have named the "Highgate"; these follow the usual lines of cardan driven vehicles, being fitted with 6-h.p. De Dion motors. They are made in two patterns, one having two and the other three forward speeds, in addition to the reverse; they appear to be of sound construction and good value for the price demanded.

The HORLEY MOTOR COMPANY show a new two-seated petrol car, of which, in view of its extremely low price, a good number are likely to be seen on the roads in a short time. In general arrangement it follows the usual lines of cardan-shaft driven cars; the motive power is supplied by an 8-h.p. M.M.C. motor, with mechanically-actuated inlet valves. Three speeds forward and a reverse are controlled by one lever, and 3½-in. pneumatic tyres are fitted to the artillery type road wheels. The body is trimmed in real leather, and painted in cream, with fine red lines. Ample space is available at the rear for luggage, or a detachable tonneau can be fitted.

MESSRS. C. S. ROLLS AND CO. have a large stand devoted to a display of various types of Panhard cars, the body work of which is of special interest. The details of the 1904 Panhard cars have already been dealt with in the *Journal*, so that it will suffice to mention that the vehicles exhibited include examples of the 7-n.h.p. two-cylinder, the 8-n.h.p. three-cylinder, the 10-n.h.p., 15-n.h.p., and 24-n.h.p. four-cylinder. The largest size has steel cylinders with corrugated brass water jackets. Ignition is by means of a chain-driven high tension magneto on the dashboard. The wood and steel frame is retained, as well as the Krebs automatic carburettor. A ribbed radiator, set in a frame which forms the water tank, is employed, a fan being provided to induce the necessary current of cool air through the same. The 24-n.h.p. car is fitted with a side-entrance tonneau body, with seating accommodation at the rear for three persons. The 8-n.h.p. has well-upholstered landaulette body, and is designed to serve not only as a long-distance car, but to be equally as suitable for town use as regards quiet running as an electrical vehicle. On the 15-n.h.p. *chassis* is mounted a double phaeton side-entrance body, both seats of which are covered by a hood. The front seats are in addition fitted with a storm apron extending to the top of the hood, and having two celluloid windows. The 7-n.h.p. car has a single landaulet body, the feature being that the steering wheel and control levers are in the interior, thus providing an entirely covered vehicle for those motorists who wish to drive themselves.

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The "GERMAIN" cars are displayed by CAPT. THEO. MASUI, principal interest being centred on the *chassis* of the Germain Standard 16-h.p. four-cylinder car, which is noticeable for its extreme quietness in operation. The four cylinders (Fig. 11) are separate and are each made from a solid bar of steel. The water-jackets are of brass. The inlet and exhaust valves are interchangeable, and actuated mechanically off the same cam shaft. The inlet valves are provided with a device, controlled from the steering wheel, by means of which the lift of the same can be varied, and consequently the speed of the motor regulated. Both battery and Eisemann high-tension magneto ignition are fitted, one advance and retard

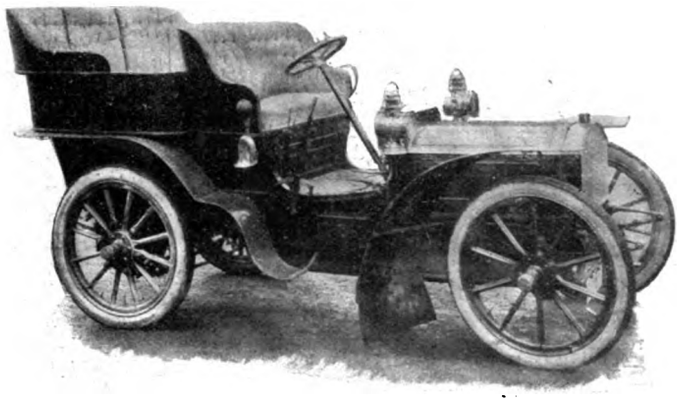


Fig. 10.—The Germain Standard 16 h.p. Car.

lever controlling both systems. The radiator is of the honeycomb type, the arms of the fly-wheel being formed to act as a fan to draw a current of air through the radiating tubes. Three point suspension has been adopted for the change speed gear box, which provides four forward speeds and reverse, controlled by one lever. The *chassis* can be fitted with any type of carriage body. On the stand is shown a most luxurious "tonneau royal" fitted with a detachable brougham top. Mr. Masui also makes a large display of the Samson non-skidding unpuncturable bands for pneumatic tyres.

For the 1904 season the SWIFT MOTOR COMPANY, LTD., have brought out two new models which, while following the standard lines of gear-driven vehicles, bear evidence not only of careful design, but of sound construction. We first examined a 9-11 h.p. car with wood and steel frame (Fig. 12). The engine is an Aster two-cylinder with mechanically-operated inlet valves. The latest type of Longuemare automatic carburettor is fitted, while the car is gear driven, three speeds and a reverse being available. Provision is made in connection with the change-gear lever that the latter cannot accidentally be dropped into the reverse motion notch in the sector. The motor is provided with a governor acting on the inlet, a pedal accelerator being also provided. In addition to a tonneau, this type of *chassis* is also being furnished with a side-entrance double phaeton or landaulette body. The Swift Company are also building a 7-h.p. car which has a tubular frame, in the fore part of which is set a single cylinder engine, 95 mm. bore by 110 mm. stroke, and running at a normal speed of about 1,700 revolutions per minute. The motor has internal flywheels, and is cooled by means of a gear-driven pump, the water circulating through a combined tank and frame and ribbed-pipe radiator. On the outer end of the crank shaft is mounted a drum, which forms part of a conical clutch, transmitting the power to the gear box, which is adapted to give three speeds and reverse with direct drive on the top speed. From the gear box the power is conveyed through a cardan shaft and bevel gearing to a rear live axle, which runs on four ball

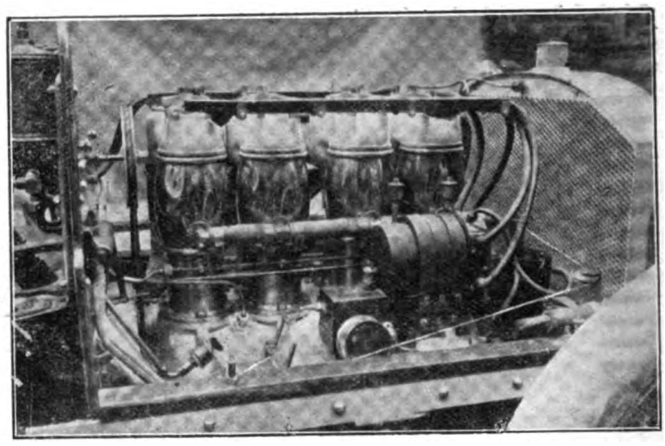


Fig. 11.—The Germain Steel Cylinder Motor.

bearings, and is well supported by tie rods. The foot brake is of the metal to metal type mounted on the rear end of the gear shaft, while the hand brake acts on drums connected with the rear wheels. The speed of the engine is controlled by a lever acting on the exhaust valve. The tubular frame is carried on four long and flexible springs, and it is also worthy of note that the fore part of the body is independently mounted on four cushion springs, which eliminate all vibration at the footboard. The steering is of the irreversible worm and segment type. Altogether the new 7-h.p. Swift is an excellent production, and should prove as successful as its forerunner. Examples of the Swift 3½-h.p. belt-driven and 2¾-h.p. two-speed worm-gear driven motor-bicycles are also to be seen at this stand.

In the Minor Hall the CADOGAN GARAGE AND MOTOR COMPANY, LIMITED, display a new petrol lorry of Belgian construction, of which an illustration was given in a recent issue of the *Journal*. It is designed to carry a load of 5 tons and capable of hauling a further 3 tons on a trailer. The frame of the vehicle is of channel steel. The motor, which is located in the fore part of the *chassis*, is of the Gobron-Brillié type, having two cylinders and four pistons; it is stated to develop 34 brake h.p. Four speeds forward and reverse are provided, the quadrant on which the change speed lever works having a neutral stop between each notch or gear, so that the latter can be put in the free position at any point. From the gear box the power is transmitted by side chains. The tare weight of the

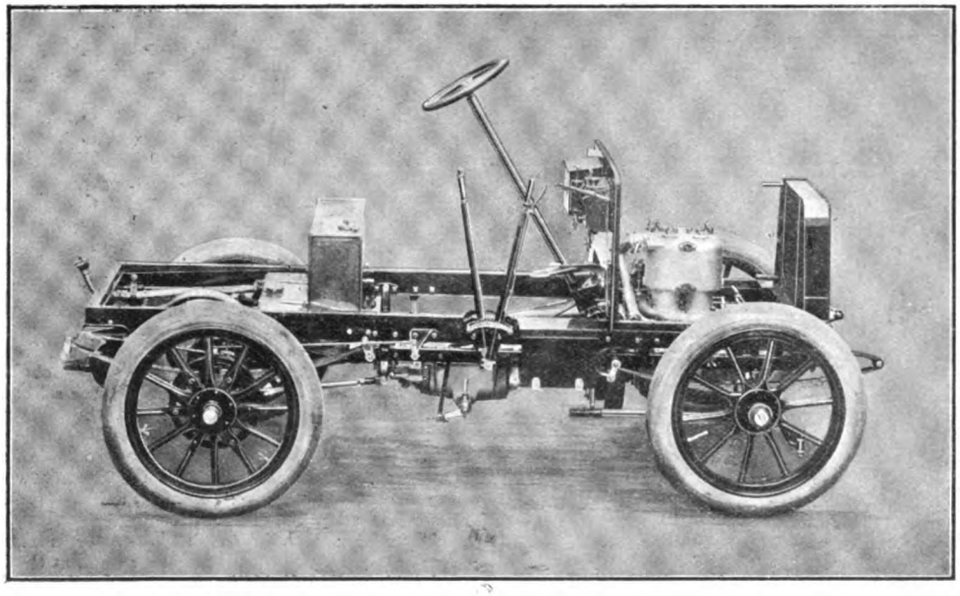


Fig. 12.—Chassis of 9-11-h.p. Swift Car.

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wagon is under 2½ tons, and with its full load it can attain a speed of 10 miles per hour. One of its features is the low consumption of fuel—it being claimed to carry 5 tons a distance of 5 miles on one gallon of ·74 petrol, the cost of which is said to be 7½d. per gallon.

While the well-known two-seated Baby Peugeot is still being turned out in large numbers, it has now got a younger but more powerful brother in the shape of Baby Peugeot No. 2. Both are to be seen at the stand of Messrs. Friswell, Limited. The No. 1 Baby is now too well known to need lengthy description, but among the many minor improvements we note that the rear axle is now being made stronger, and that adjustable ball bearings are fitted in the centre, outside the differential gear box. The wheel base has also been slightly lengthened. A new three-speed and reverse gear is now employed, ball bearings being fitted to the second shaft. An interesting little detail is that the oiler is now arranged so that it can be actuated by the foot. With a hood, side doors, and front glass, the Baby makes a decidedly smart little car, one of which on the stand is, we may mention, fitted with solid rubber tyres. For those who require a rather more powerful car the No. 2 Baby (Fig. 13) has been introduced. This has a tubular frame, in the fore part of which is set a 6½-h.p. vertical single-cylinder engine. The water cooling is maintained by a friction-driven pump and combined honeycomb radiator and water tank. The usual high-tension ignition is adopted, the contact maker being driven by bevel gear off the cam shaft and located in a very convenient position. The internal leather-faced clutch is also provided with an easy means of adjustment. Three speeds forward and a reverse are provided by a gear box of the usual type; we notice, however, that the lay shaft runs on ball bearings. From the gear box the power is transmitted by a cardan shaft and steel bevel gear to a live axle. A special form of silencer is fitted, which renders the car very quiet in operation. The artillery type road wheels are shod with 3 in. pneumatic tyres. The body comprises two bucket seats upholstered in real leather. Ample space is provided at the rear to carry tools and luggage. The largest car on Messrs. Friswell's stand is a 15-h.p. Peugeot with four-cylinder motor, the cylinders of which

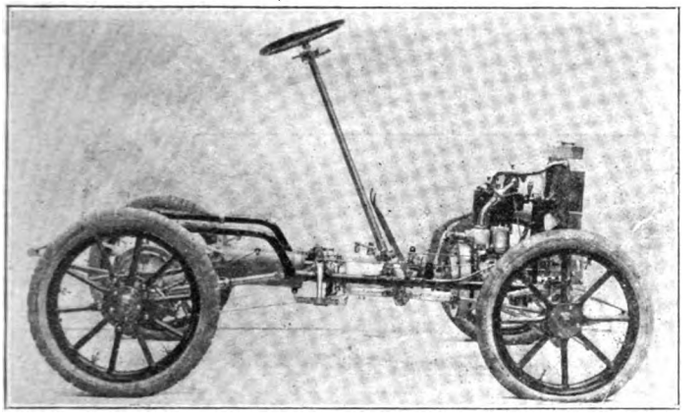


Fig. 13.—Chassis of Baby Peugeot No. 2.

are cast in two pairs; the inlet valves are mechanically actuated, and the carburettor, which is of the automatic variety, has a jacket through which hot water can be circulated as desired. The governor acts not only on the admission, controlling the amount of mixture passing to the engine, but as the supply is cut down the air inlet is varied. Both high-tension and magneto ignition, controlled by one lever on the steering wheel are provided. The flywheel is of larger diameter than last year, being now 18 in.; the clutch is so arranged that it can be dismounted without disturbing the gear box. The latter, which provides four speeds forward and one reverse, is of novel design, in that the usual lubricators connected with the bearings are conspicuous by their absence, they receiving their oil from the mechanical lubricator on the dash-board. The gear box is made in two halves, and in the planed faces of the lower one a channel is formed to which oil is fed by means of two pipes. The oil then finds its way to the different bearings, which are provided with chain oilers as used on dynamos, and finally falls into the gear box. From the latter the power is conveyed to the rear road wheels by means of side chains. The frame is of pressed steel with long springs, the car, with tonneau body, having the appearance of being both speedy and comfortable.

The Fiat cars, shown by Fiat Motors, Limited, are of Italian construction. They take a very high place in modern automobiles, and in many respects are closely allied to the Mercedes; they possess many features of their own, however, among which may be mentioned the automatic advance and retard of the magneto ignition, this being provided with its own centrifugal governor. Needless to say, the frame is of pressed steel, and the engine is of the four-cylinder type. The 16–21-h.p. type has cylinders 110 mm. in diameter by 110 mm. bore, the normal speed being 800 to 1,000 revolutions. The engine speed can, however, be varied from 150 to 1,800 revolutions. The carburettor is of the automatic variety, regulating both the supply of air and petrol by means of a needle valve and plunger, acted upon both by the governor and from the steering wheel. The clutch is of the coil type, while the transmission is by side chains. A special point is the lubrication, all bearings being oiled from the dashboard. The oil is contained in a reservoir in which is a spindle driven by the engine through a belt and worm gear. To the spindle are provided a number of very small buckets, which, as they rotate, pick up a certain amount of oil, which is emptied into its corresponding pipe. There are many other points of interest in the Fiat cars, of which a handsome 16-h.p. side-entrance

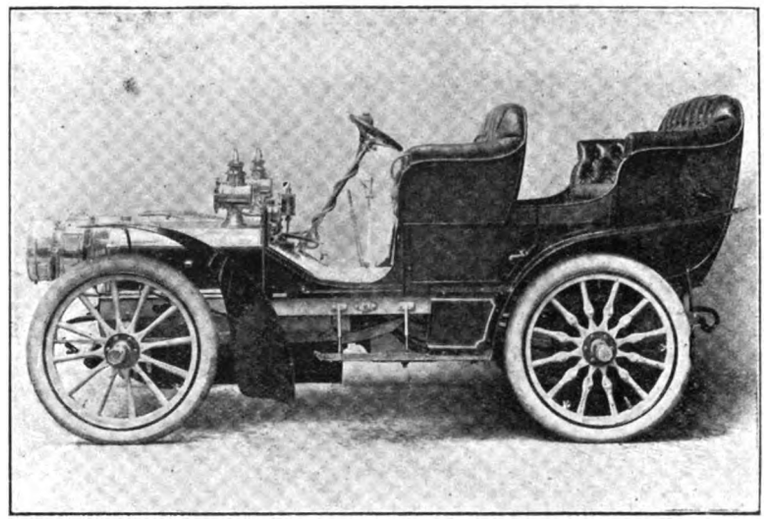


Fig. 14.—A Fiat 16–21-h.p. Car with Shrewsbury Phaeton Body.

double phaeton (Fig. 14), one with a tonneau, and one with a landaulette body are being displayed.

The Maudslay Motor Company's exhibit consists of three complete cars and a *chassis*. One of the vehicles is fitted with a convertible omnibus body, designed to meet the requirements of country gentlemen whose places are some distance from the railway; in its wagonette form it serves as a roomy touring car, whilst the omnibus top makes it specially suitable for night work. It is fitted with the Maudslay 25-b.h.p. three-cylinder vertical balanced engine. The second car is fitted with a double phaeton side-entrance body. The mechanism is similar to the 25-b.h.p. car, but the engine is of 18-b.h.p. Removable casings of sheet aluminium are fitted, which completely protect the whole of the mechanism from mud and dust below the car, this being now a standard fitting on all the Maudslay cars. The third vehicle is an 18-h.p. double phaeton with brougham top. A *chassis* to illustrate the new features of the 1904 type is also staged, which embodies the latest developments in English and Continental practice. The inlet valves of the motor are mechanically actuated, and both inlet and exhaust valves are placed in line on the cylinder head, so that they are easy of access. A fan-cooled radiator is fitted, and forced lubrication is provided throughout, the oil being circulated by a special design of geared pump. We notice that the composite frame, constructed of rectangular solid drawn steel tube, into which ash is driven, is retained in the 1904 patterns. The triple cylinders of the engine, together with their combustion chambers,

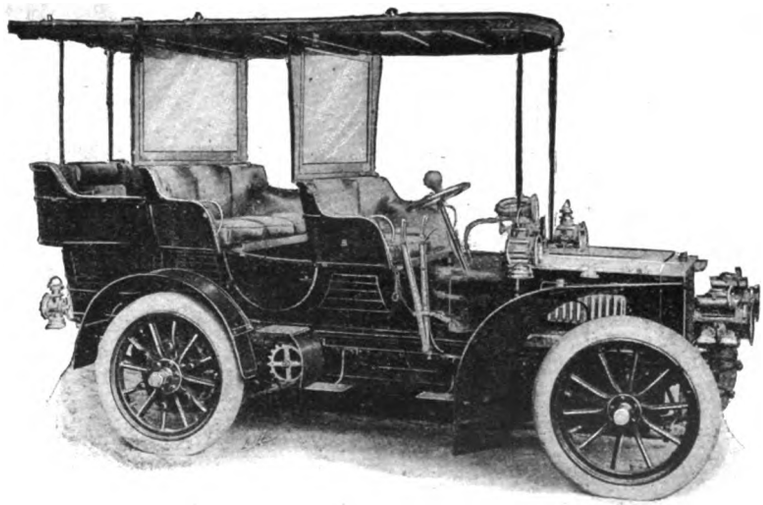


Fig. 15.—The Maudslay Eight-Seated Touring Car.

are a single casting, ensuring freedom from leaky joints, and allowing the use of a high compression. With the foregoing exceptions, the details of the car are similar to those described in these columns early last year, they having been found to give satisfactory results in practice. The Maudslay Company are now devoting attention to marine motors, and have on view a large three-cylinder engine fitted with propeller shaft, etc.

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The WESTON MOTOR SYNDICATE are again well to the front with a display of the Chenard-Walcker cars, the main features of which have already been fully dealt with in the *Journal*. It may, however, be briefly that two types are being made—18-h.p. and 12-h.p. The 18-h.p. cars have four-cylinder engines with mechanically-operated inlet valves located on the opposite side to the exhaust valves; the characteristic point of the

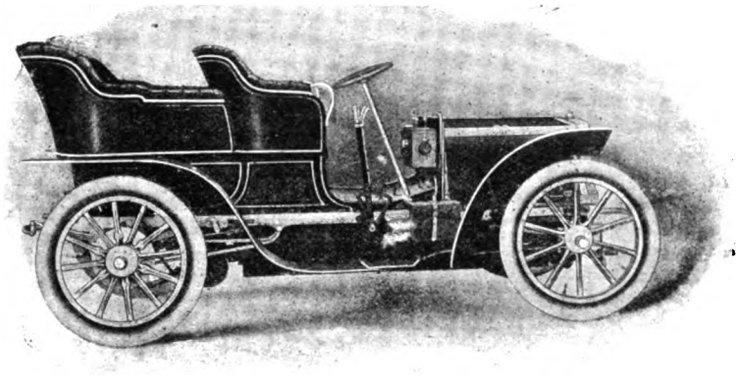


Fig. 16.—The Chenard-Walcker 18-h.p. Car.

motor is, of course, the peculiarly-shaped cam, by means of which not the lift, but the duration of the time the inlet valves are kept fully open, can be varied, and the speed of the engine consequently controlled. The automatic carburettor which furnishes a quality of mixture to correspond to the engine speed was illustrated and described in a recent issue; it comprises a compound valve, part of which regulates the supply of air and the other portion the supply of petrol. The water-circulation pump has been discarded in the 1904 Chenard-Walcker, the thermo-syphon system in conjunction with a special honeycomb radiator being relied upon. Magneto or high-tension ignition, with a chain-driven commutator on the dash board, can be fitted. The special combined clutch and brake is still retained, as is also the Chenard-Walcker transmission, in which, it may be remembered, the power is transmitted through a cardan shaft to a differential shaft below and parallel with the rear axle. On the ends of the differential shaft are pinions meshing with internally-toothed rings attached to the rear road wheels. The governor can be set to act at any desired speed from the steering wheel, a pedal accelerator cutting out the governor, no matter at what point this is set to act. The Chenard-Walcker has a record for economy in fuel consumption, while the special control results in an exceedingly silent-running and flexible engine. The 12-h.p Chenard-Walcker car has a two-cylinder motor; it is provided with the special valve control found on the 18-h.p. car; an ordinary type of carburettor is used. The transmission is by means of side chains, three speeds forward and reverse being provided, the drive on the top speed being direct. As regards complete cars, attention may be drawn to an 18-h.p. tonneau with entrance at the side, and adapted to be fitted with a detachable brougham top, and to a 12-h.p. touring car with tonneau body, with canopy, side curtains and front glass screen.

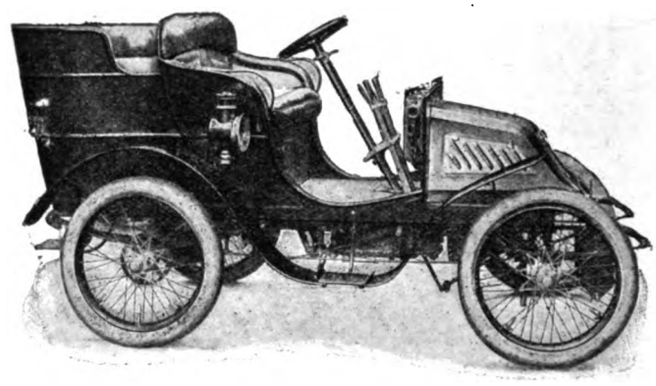


Fig. 17.—The British Peerless 8-h.p. Car.

The exhibit of the BRITISH PEERLESS MOTOR COMPANY comprises a "British Peerless" *chassis* and a complete tonneau car. These, as the name implies, are of English construction. The frame is of tubular construction, in the fore part of which is set an 8-h.p. single cylinder vertical motor. The cylinder is 4½-in. diameter by 4½-in. stroke. A feature of the engine is that the crank case and girder supports, the latter being equal to the full width of the frame, are made in one piece. The pump is so made that it can quickly be detached, while a throttle valve is provided. Three speeds and a reverse are available by the usual type of sliding gears, controlled by one lever. From the gear box the power is transmitted by universally-jointed shaft and bevel gearing; a flexible joint is also fitted between the clutch and gear box. The steering is by wheel, worm, and segment. A foot brake is provided, and in addition an emergency brake is fitted at either end of the back axle, controlled through



Fig. 18.—The Beaufort 15-20-h.p. Beaufort Princess Car. (*See page 77*).

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qualising gear, from a lever at the driver's right hand. A 10-h.p. car is also being made by this concern: this has a two-cylinder engine, 3¾-in. bore by 4½-in. stroke, the inlet valves being mechanically actuated. Ignition is by chain-driven Eisemann high-tension magneto. The transmission is by

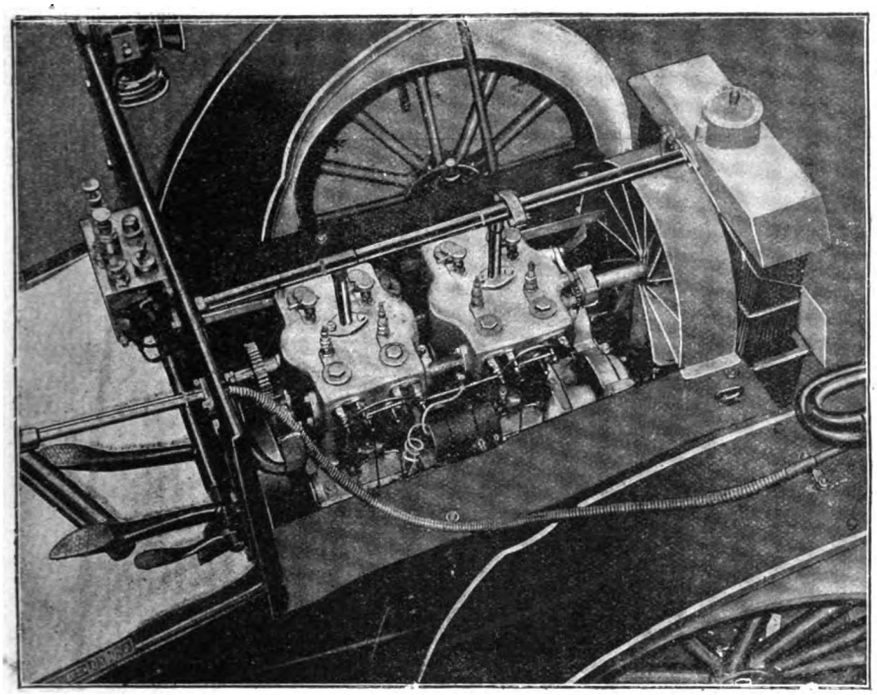


Fig. 19.—The Beaufort 24-h.p. Four-Cylinder Engine.

cardan shaft and bevel gear on to a live axle. Three forward speeds and a reverse with direct drive on top speed are provided. The brakes on this car are worthy of special attention, the bands of those on the rear wheel hubs being lined with blocks of poplar wood, fixed in a dovetail groove, and which, while having great holding power, are claimed to be not liable to fire.

An excellent display of the popular "Beaufort" cars is made by the Beaufort Motor Company; for the 1904 season these vehicles are being made in five sizes, ranging from 9-h.p. to 24-30-h.p. The latter is a new model; it is a chain-driven vehicle, having a pressed steel frame and four-cylinder motor, the cylinders being 110 mm. diameter by 125 mm. stroke. The valves are all mechanically-actuated; while two ignitions, the Bergmann magneto and the high-tension system by coil and accumulators, are provided, both being advanced and retarded by one lever. A small four-way switch is mounted on the dashboard, by means of which the two systems may be used together, or each separately, and all interrupted. Four speeds forward and a reverse are provided, while the driving wheels are shod with 920 mm. tyres. The other cars are of the cardan-shaft driven type, with live axle running in a sleeve extending the whole of its length. The 9-h.p. has a single-cylinder motor, the 10-h.p. and 12-h.p. two, and the 15-20-h.p. four cylinders; all have gear-driven magneto and three speeds, in addition to the reverse. The larger cars are fitted with a governor, which, in addition to controlling a throttle valve on the admission pipe, allows, when the latter is closed, fresh air to be drawn into the cylinders. The quality of the mixture can also be regulated by means of an adjustable cap on an air inlet on the dashboard leading to the carburettor. The brakes are of the internal expanding type; while on the 15-20-h.p. car, which is fitted with the "Princess" side entrance double phaeton body (Fig 18), we noticed that the steering pivots are now mounted within the hubs of the front road wheels. On the stand are also to be seen examples of the Beaufort 9-h.p. single-cylinder cars, which are so well known as to render a description unnecessary at this time, although special attention may be drawn to one vehicle of this type, which is specially designed for doctors' use, having a hood and front glass screen.

The new models of the Georges Richard Company, shown by Messrs. Mann and Overton's, Ltd., comprise quite a number of special features. For the 1904 season, 8, 12, 16, and 24-h.p. cars will be available. Two-cylinder engines are fitted to the 8-h.p. and 12-h.p., while those of the 16 and 24-h.p. have four cylinders (Fig. 20). Except that the 8-h.p. car has only three speeds forward in addition to the reverse, while the others have four, the following remarks apply to all four vehicles. The main frame is of stamped steel, the engine and gear being supported on a secondary frame of tubular construction. The cylinders, which are cast in pairs, have mechanically operated inlet valves, these being set on the opposite side to the exhaust valves. Magneto ignition is being retained, but the Georges Richard Company have struck out a new line in deciding to abolish the pump, relying on the thermo-siphon action in conjunction with a fan-cooled radiator for the water circulation. The carburettor is an automatic air-regulation one of the Georges Richard Company's own patent. The transmission is by means of a cardan shaft and bevel gear on to a live axle, a new point being the introduction of a universal joint between the engine and gear box, this not only relieving the shafts of the latter of all strain, but permitting the clutch to be dismounted without interfering with the gear box in any way. With the object of rendering the cars quieter than ever, and also of keeping down the dust, a new form of silencer is being adopted; it is of large size and is placed transversely across the rear of the car, the burnt gases finally emerging through two flattened pipes projecting at an angle to the silencer. Enclosed internally-expanding brakes are now fitted, while a new point which will appeal to all who have suffered from "back kicks" of the motor, owing to the ignition not having been retarded, is an arrangement whereby the act of putting the starting handle into gear at the same time automatically retards the ignition; the moment the handle is released the ignition returns to its normal position. The 12-h.p. and 16-h.p. *chassis* are of sufficient length to take bodies with side entrance, while the 24-h.p. type is made with *chassis* of two different lengths. The *clou* of the stand is the identical 24-h.p. Georges Richard car which last week established a new record by running a distance of over 1,000 miles without a stop, and of which an illustration is given on another page of the present issue.

The Vousemoi Company have on view a new two-seated car of 10-h.p. The frame is built up of steel and wood and carries in the fore part a vertical two-cylinder Gnome engine, the cylinders being 98 mm. bore by 130 mm. stroke, and the normal speed 750 revolutions per minute. The inlet valves are mechanically actuated, and a governor acting on the admission is provided. Three speeds forward and a reverse are provided by a gear box of the usual type, the power being transmitted to the rear live axle by a cardan shaft and bevel gear. A pedal operates a band brake on a drum fixed to the gear shaft, and a side hand lever operates equalised band brakes on the rear road wheels; both brakes act equally well in each direction. The car, which has a wheel base of 6 feet 10 inches, is provided with two large bucket seats, and fitted at the back with a large sloping box with compartments for tools and luggage;

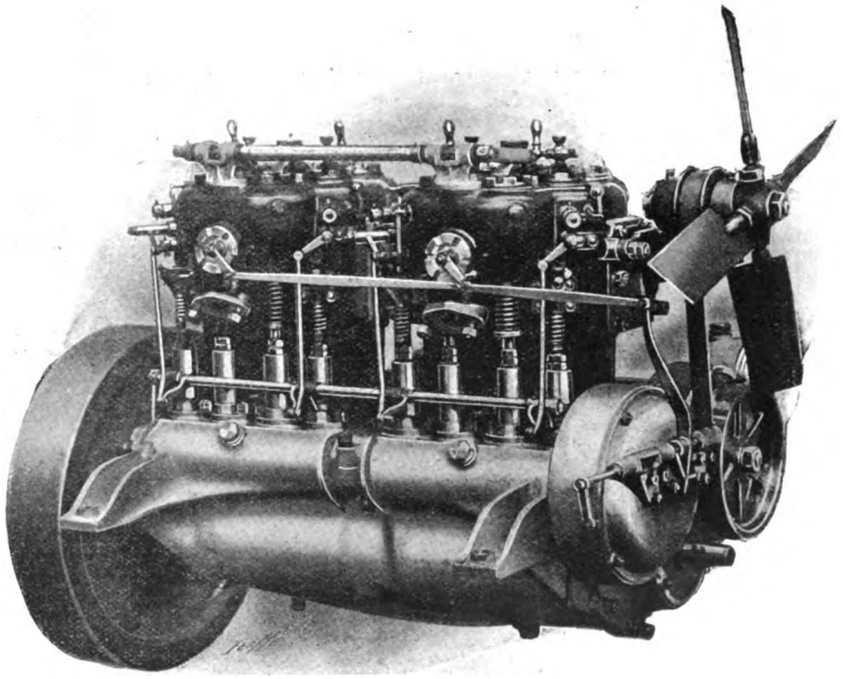


Fig. 20.—The Georges Richard Four-Cylinder Engine.

it can also be fitted with a four-seated body. The speed of the engine is controlled by the ignition as well as by a throttle valve, permitting, with the change gear, speeds from 3 to 35 miles per hour to be attained.

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The stand of the STAR MOTOR COMPANY is attracting much attention, the cause being the *chassis* of the new 7-h.p. double-cylinder two-seated Star car. In view of its relative low price, the new vehicle is likely to become very popular. The frame is of the usual wood and steel type and the general arrangement follows that usually adopted in chain-driven cars. The engine has cylinders 3½ in. bore by 4½ in. stroke. The cam shaft is outside the crank case, and a new feature is the fitting of a guide piece and double springs to the exhaust valves. Three speeds forward and a reverse are available, the drive on the top speed being direct through the clutch, differential shaft and side chains. One of the "Little Star" 6-h.p. two-seated cars, which has already been illustrated in the *Journal*, is also on view. It is fitted with a single-cylinder engine, and at its reduced price is excellent value. On the stand are also examples of the Star Company's 18-h.p. and 12-h.p. cars. The first-named vehicle is well worthy of examination; it is fitted with a vertical four-cylinder engine of 18-h.p., the inlet as well as the exhaust valves being mechanically actuated. Four speeds forward and a reverse on one lever are available, the chain system of transmission from the differential countershaft being adopted. A large silencer is fitted, rendering the car very quiet in operation. We notice that the side chains of this vehicle are provided with oil-containing gear cases. The body is of high-class finish, the *chassis* having a long wheel base, enabling one with side entrance to the rear seats to be fitted.

MR. MORGAN DONNE, the British agent for the Rochet-Schneider vehicles, exhibits an excellent example of the 16-22-h.p. car of this type. The vehicle (Fig. 22), has a wheel base of 8 ft. 6½ in., the *chassis* weighing 650 kilos. The frame is of pressed steel, and is narrowed in front to increase the "lock" of the steering wheels. The steering rod connecting the front wheels is behind the front axle and consequently protected from accident. The clutch and brake pedals, which are of the "push" type, are mounted upon a transverse shaft underneath the footboard, which actuates the clutch, and also the countershaft brakes. Although there is no radical alteration in the engine as compared with that of last year, there are a number of improvements; it is of the double twin cylinder type, having the inlet valves, sparking tappets, and the vertical rods and levers for actuating the same on one side of the engine and the exhaust valves on the opposite side, the inlet and exhaust valves being interchangeable and mechanically operated. The ignition is by a low-speed rotary magneto with tappets and advance sparking device. The governor acts directly on the carburettor; a throttle lever is also fitted on the steering wheel, while adjacent to the wheel are two levers, one for regulating the air to the carburettor and the other for the advance sparking. Four speeds and reverse, with direct drive on the fourth, are provided. The top shaft in the gear-box, which is square in section and connected with the clutch, has mounted upon it the sliding gears; the latter are in two portions, and are operated upon by two forks, one of which controls two speeds and the other two speeds and reverse. These forks are actuated by means of a locking bar, which has several projections and recesses to give the desired motion necessary for placing the various gears in and out of mesh. The male portion of the clutch is connected to the gear by means of a cardan joint (Fig. 23), which counteracts any undue strain on the gear-box and engine; the joint also permits of the male portion of the clutch finding its true position in the flywheel. Any type of carriage body can, of course, be fitted to the *chassis*. A handsome 24-30-h.p. car on similar lines is also on view.

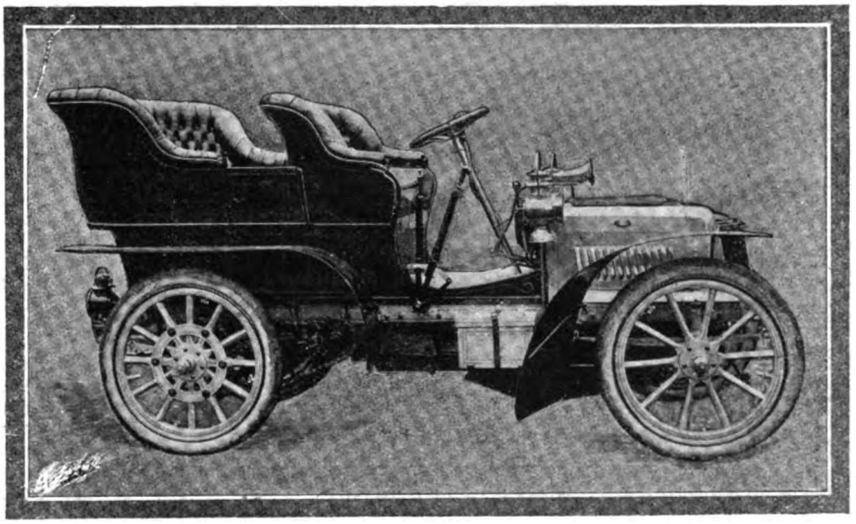


Fig. 21.—The Star 18-h.p. Four-cylinder Car.

The LANCASTER MOTOR GARAGE have a large display of cars, including a 6-h.p. De Dion Populaire and several 8 and 10-h.p. Panhards, the latter including a neat landaulette with the engine under the driver's seat, and a 10-h.p. tonneau with Cape cart hood and storm apron, in which is fixed a large transparent panel of celluloid. Chief interest at this stand, however, lies in the *chassis* of the Mass 12-h.p. car. This is a French production, and contains a number of novel features. The motor is a two-cylinder 12-h.p. De Dion engine with automatic valves, set in the fore part of a pressed steel frame, the cylinders being 100 mm. bore by 110 mm. stroke, and the normal speed 1,500 revolutions per minute. It is fitted with two carburettors, one to each cylinder, and with automatic lubrication, operated by a pump forcing the oil from the crank chamber to a reservoir placed on the left-hand side of the engine, whence the oil drips by gravity on to the crank shaft. The engine is controlled by a foot throttle or moderator pedal, by means of which the car can be driven at a crawling pace on the top speed. The clutch is of novel type, giving a metal-to-metal contact and an easy and gentle action, so that it is claimed to be possible to drive in traffic on top speed. As will be seen from Figs. 24-25, the male portion of the clutch consists of four bronze shoes pressed outwardly against the inner surface of the flywheel by spiral springs. These shoes can be withdrawn from contact with the flywheel by depressing the clutch

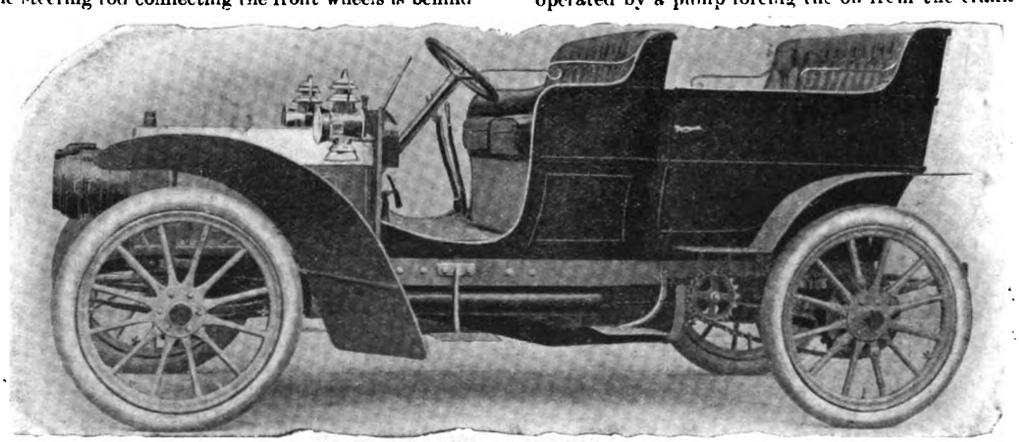


Fig. 22.—The 16-22-h.p. Rochet-Schneider Car.

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pedal through the intervention of the bell crank levers. It will be noticed that the movement of the shoes is a radial one, and that centrifugal force acts on them in a direction tending to increase the pressure between their surfaces and the inner surface of the flywheel. The drive is from the clutch by a long propeller shaft to the change speed box, which is attached directly to the casting enclosing the bevel and differential on the live axle. From this disposition of the gear box the clutch can be taken out by merely disconnecting one joint of the cardan shaft. The change-speed gear is of the sliding pinion type, giving three speeds forward and a reverse on the same lever, the top speed being a direct drive. The pinions are made of manganese silicious steel, and the teeth are nearly an inch in

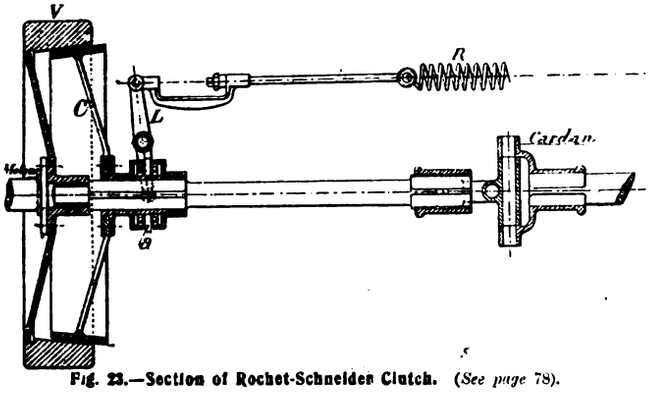
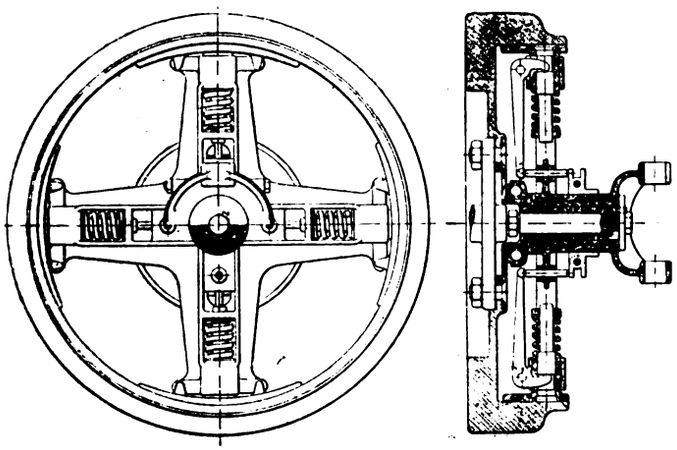


Fig. 23.—Section of Rochet-Schneider Clutch. (See page 78).

breadth. The nickel steel shafts on which they are mounted are approximately 1½ in. in diameter. The shafts carrying the pinions in the gear box are also very short. In fact, the length of the gear box, measured from bearing to bearing, is only 4¼ in. It has been continually urged as a defect in cars with a live axle that the rotating portions of the axle are subject to all the strains set up by the unevenness of the road. In the Mass car this difficulty is got over in a simple and effective manner. In effect, the car has two back axles, one of which supports the car and the other transmits the drive, so that no shock can possibly be transmitted to the running parts. Among so many novel features it is invidious to select one as particularly original, but there is no doubt that the method of lubricating the gear box, bevel and differential, is as novel as it is simple and effective. The bevel acts as a pump; it picks up oil from the bottom of the bevel case and projects it into a cavity situated at the top of the bevel casing, as shown in Fig. 26. From here the oil flows along a passage bored in the axis of one of the bolts connecting the gear box to the bevel case, whence it falls under the action of gravity into the bearings of the change-speed gear. From these it drips into the bottom of the change-speed box, and thus lubricates the teeth of the change-speed pinions, and returns by a similar passage bored in one of the lower bolts serving to attach the change-speed box to the bevel case, to the latter, thus having completed its circuit. In this way a forced lubrication is provided to both the bevel gear and differential, without the intervention of a pump.



Figs. 24 and 25.—Front and Sectional View of Clutch on 'Mass' Car.

Ball bearings are fitted to the thrust of the differential and the hubs of the back wheels; all other bearings are of phosphor bronze. Another point to which attention may be directed is the accessibility and detachability of the various parts. For instance, to take down a cardan joint it is only necessary to remove one bolt. To take out the internal member of the clutch, only one nut has to be removed; while to get the gear box as a whole out of the car, six bolts in all have to be detached. Both the foot and hand brakes act on drums on the rear wheels, one contracting and the other expanding in the same drum. Altogether, the new Mass car is an interesting production.

The feature of the stand of the ELSWORTH AUTOMOBILE COMPANY is a Spyker *chassis* (Fig. 28) of what is known as the 1905 model. The 12-16-h.p. engine on this car resembles more than anything else a dynamo at first sight. Two cylinders and their valve chambers are cast in one with a large circular water jacket which surrounds the whole. The two castings to form the four-cylinder engine have faces which fit closely together, and are kept in position by bolts. A large body of water—about 1½ gallon—is always maintained around the cylinders, this being circulated in the usual way by pump and fan-cooled radiator. The frame of the Spyker cars is of a special pressed steel shape, filled with ash. The *chassis* are adapted to take all types of carriage bodies, including those with side entrance. The cars follow the usual lines of cardan-shaft transmission vehicles, among the features being the ready means of access to the pinions in the gear box,

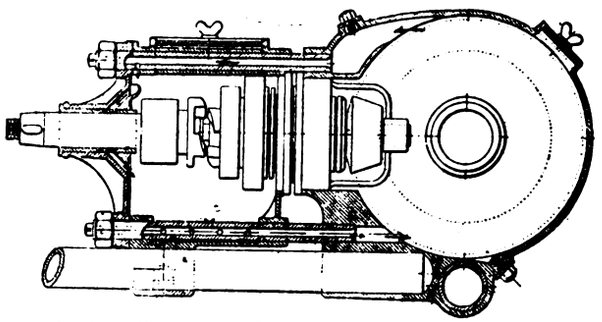


Fig. .—Sectional View of Gear Box and Differential Gear on "Mass" Car, howing Special Lubricating System.

and the pivots of the front wheels, which are entirely enclosed, and work in an oil bath. A 20-24-h.p. Spyker car, with highly-finished limousine body, and with the usual type of four-cylinder vertical engine (Fig. 27) is also displayed.

In addition to a complete Siddeley 6-h.p. light car and a *chassis* of the same (of which an illustrated description was given in our issue of the 20th February last), the SIDDELEY AUTOCAR COMPANY have on view examples of their new types of 12-h.p. and 18-h.p. cars built to their specification by the Wolseley Tool and Motor-Car Company, Limited. The 12-h.p. car has a two-cylinder motor, with cylinders of 4½ in. by 4½ in., while the 18-h.p. car (Fig. 29) has four cylinders, 4 in. bore and 4 in. stroke. With the exception of the engines, the main features of each of these vehicles are identical, so that the following particulars may be taken as applying to

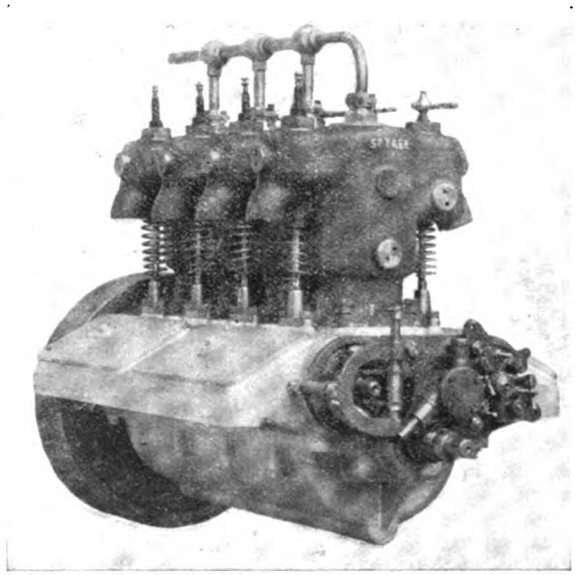


Fig. 27.—The Spyker Four-Cylinder Vertical Motor.

both. The frame is of pressed steel, strongly braced at intervals and strengthened by plate webs at the angles. The motor is located in the front of this, under a bonnet in the usual way. The cylinder jackets are of aluminium, and are cast in one piece with the top half of the base chamber, cast-iron liners for the cylinders being forced into the aluminium casing. The top of the cylinders and valve pockets are a separate casting bolted on. Ample spaces have been provided for the water circulation, and the jackets of the head and cylinders are connected by outside pipes, so that there are no water joints in the cylinders proper. Both valves are mechanically operated by a single cam shaft on the left-hand side of the engine. The

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inlet valves are located directly over the exhaust, and actuated by means of vertical rods and tappet levers. The inlet valves are provided with a variable lift device, controlled by means of a small lever on the steering wheel. The water circulation is maintained by a gear-driven pump and a framed ribbed pipe radiator, these being so arranged that but short lengths of piping are required. The carburettor is of the automatic air-positive stop at each speed. The change gear box and the differential are also carried in what is practically one casing. The shafts are on ball bearings throughout and are provided with ball thrusts where required, this applying to the countershaft as well as to the two shafts in the gear box. The teeth of the pinions in the latter are one inch in width, the gear throughout being strong enough to take a much higher power than it will ever be

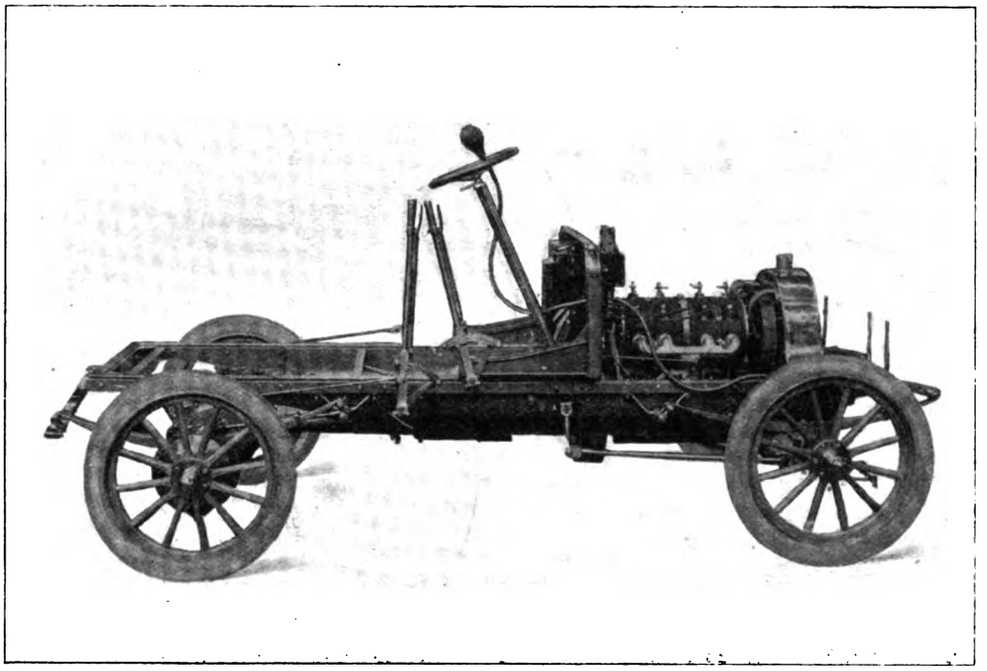


Fig. 28.—Chassis of Spyker 16-h.p. Car. (*See page 79.*)

regulating type, a disc held by a spring being raised as the speed of the engine rises, and thereby admitting a further supply of air in direct proportion to the requirements of the engine. The governor is of the usual form and acts on a throttle of the pierced disc pattern between the carburettor and the motor. It can be put out of action by the usual foot accelerator. The combination of the automatic carburettor and variable lift of the inlet valve results in a very elastic engine, the speed of which can be regulated between 80 to 1,800 revolutions per minute, the normal speed being about called upon to transmit. From the differential shaft to the rear road wheels the power is transmitted by side chains. Both the hand and foot brakes are concentrated on the rear wheels, the pedal brake expanding inside the brake drums, and the side brake being of the ordinary external band type, provision being made for keeping the bands away from the rings when the brakes are out of action. The *chassis* of the 18-h.p. car weighs 14¾ cwt., and has a wheelbase of 7 ft. 10 in. That of the 12-h.p. weighs about 3 cwt. less, and has a 7 ft. 1 in. wheel base. There are many

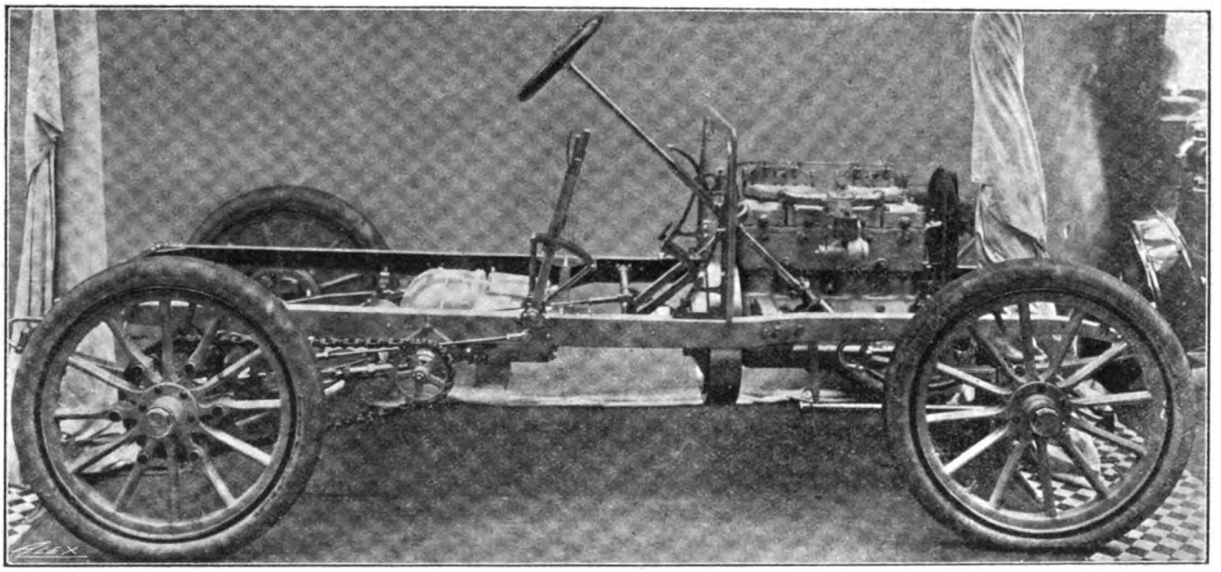


Fig. 29.—Chassis of Siddeley 18-h.p Car. (*See page 79.*)

1,000. Ignition is on the high-tension system, the accumulator being located on the dash-board. Coming to the transmission, the power is conveyed through a large diameter leather-faced clutch. The connection with the primary shaft of the change-speed gear is by a universally-jointed shaft, so arranged that the clutch can be detached without disturbing the gear. Four speeds and one reverse are controlled by one lever, which has a points of interest in the new Siddeley cars which can only be clearly explained by means of drawings, the vehicles throughout bearing evidence of the care which has been taken both as regards design and construction.

The "Ludgate" light runabout—a two-seated car at a low price—is shown by Mr. J. F. Bentley. This is a chain-driven car with a 4-h.p. water-cooled motor and having two speeds.

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STEAM VEHICLES AND OTHER EXHIBITS.

MANN'S PATENT STEAM CART AND WAGON COMPANY, LIMITED, again display one of their steam vehicles. This is of novel design, and is intended to carry a load of three tons. It is provided with a boiler of the locomotive type, with the fire-box sides carried back to form the engine bed and support the brackets for the necessary shafts and gearing. The same plates also

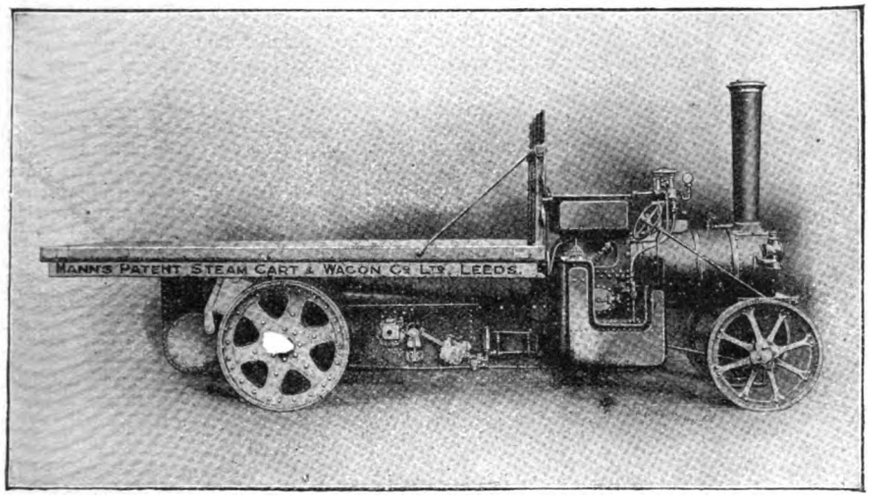


Fig 30.—Mann's Steam Wagon

compose the water tank, and form an exceptionally strong girder frame to carry the whole vehicle. The engine is of the compound type, with single eccentric reversing gear, and the whole runs in a dust-proof oil bath. The gearing is of cast steel throughout, with no chains, either for driving or steering. The road wheels are fitted with an effective arrangement for locking the differential gear on occasion. Two speeds, one of 5 and the other of 2½ miles per hour for hill climbing, are provided. The exhaust steam is passed through a separator, and superheated to prevent the emission of visible vapour, and the boiler is constructed to burn coke for the same reason. In general design and construction the wagons follow traction engine practice. They can be fitted with any class of sides or van bodies to suit individual requirements, or with tipping gear of such construction that one man can readily tip the full load.

MESSRS. FODENS, LIMITED, exhibit two heavy steam vehicles, one being intended for general hauling purposes for loads up to 5 tons, and one with tipping body and 14 in. wide road wheels for municipal purposes (Fig. 31) In general appearance the Foden wagons take the form of a small traction engine, behind which is mounted a platform upon which the load is carried. The boiler, which is of the horizontal multitubular type, forms the front part of the framework. The sides of the frame are constructed of channel steel, tied and braced together in such a manner as to secure great strength in the complete lorry. The boiler can be fired with coke, coal, or wood. The wagon is driven by a compound steam-engine fixed on the top of the boiler The cylinders are 4¼ in. and 6½ in. diameter by 7 in. stroke, and are fitted with high-pressure gear, by means of which both can, in case of emergency, receive live steam from the boiler, and each cylinder exhaust independently into the chimney. The reversing motion is of the ordinary link type. The power is transmitted by spur wheels to the compensating gear shaft, and thence to the rear axle by an extra strong roller chain. The gearing is arranged for two speeds. The vehicle is mounted on laminated springs, with angle axle guards containing the sliding axle boxes, similar to those on the modern railway carriage. During the last twelve months over forty of these wagons have been turned out by Messrs. Foden, who are now arranging for an increased output.

The "Little Giant" steam motors are shown in two forms by MESSRS. W. TASKER AND SONS, LIMITED, one being fitted with a single-acting motor and the other with a compound engine. These are miniature traction engines, designed to haul loads of from five to six tons on trailing wagons. MESSRS. WALLIS AND STEEVENS, LIMITED, exhibit one of their miniature traction engines for hauling loads of from three to six tons. The firm claim to be the pioneers of this type of motor, and now have a large number in use in various parts of the country. They are fitted with enlarged smoke-box, spark-catcher, a patent arrangement for controlling the draught, and an auxiliary valve which enables the engine to be started instantly.

MESSRS. J. AND F. HOWARD make their *debut* at the Agricultura Hall Exhibition with a steam-wagon built to carry a load of 5 tons. As an illustrated description of this vehicle was given in our issue of Feb. 6th last, it is only necessary to mention that it is adapted to burn coke or coal, and that the working pressure is 200 lb. per square inch. It is fitted with a compound engine running in an oil bath. There are two feed pumps, and the regulation of steam is controlled by a foot lever without the driver having to remove his hands from the steering-wheel. Altogether the Howard is an interesting addition to the heavy steam vehicle family.

High-class lubricants for motor-cars are shown by the STERN SONNEBORN OIL COMPANY. Sternol-automotor oil and Sternol valve oil are among the specialities of the company. Vacuum Mobiloils for the lubrication of automobiles are on the stand of the VACUUM OIL COMPANY, whose sight-feed lubricating appliances and Pony Rochester lubricators are well known among motorists. The "G. B." motor requisites are shown by the COUNTY CHEMICAL COMPANY, LIMITED, whose specialities include motor repair outfits, celluloid cements, etc. The company possess their own process for treating motor carbide so as to secure slow decomposition and a high percentage of gas. They have also a petrol intensifier, in connection with which mention may be made of the "G. B." picric funnel for conveying petrol into the tank. It is made of copper, fitted with a fine gauze sieve, below which is a chamber containing enough picric acid for intensifying forty gallons of petrol. Just sufficient acid passes into the petrol to fortify it, whilst the gauze prevents any crystals getting into the tank. The "Sisco" motor oils and greases are making their initial bow at a motor-car exhibition, being shown by Messrs. SISSONS BROTHERS AND CO., LIMITED, in an attractive form. The "Sisco" motor oils are made in two qualities, for air and water-cooled cylinders respectively. These oils are claimed not to clog or carbonise, and ensure smooth and easy running. PATCHO, LIMITED, make a display of their liquid tyre cement for repairing covers and tubes without the aid of rubber or chalk. The "Unicorn" motor oils are being shown by MESSRS. J. FOUIGER AND SONS, who have several varnishes and enamels suitable for motor work. They have also brought out a can which is specially adaptable for pouring thick oils, and this is being shown at their stand in the Berner's Hall.

The "Vortex" tubular radiator, shown by MR. J. RUSSELL, secures a free circulation of water through an uninterrupted cooling surface of tube. The tubes are arranged perpendicularly, a wire with frequent bends being passed along the whole length, thus breaking up the column of water and imparting a rotary motion. There is a minimum of soldered joints, and

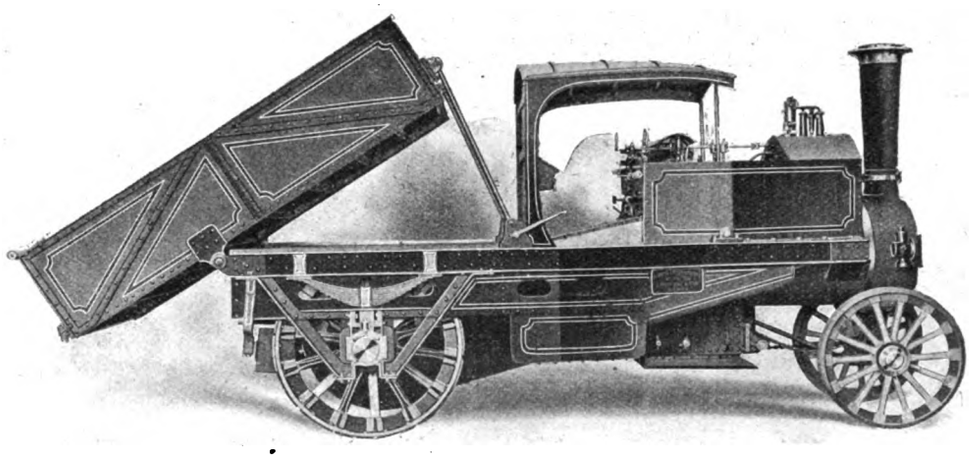


Fig. 31.—The Foden Steam Wagon.

this particular form of radiator requires a very small quantity of water. The Herz sparking plug, which is claimed to work even when covered with oil, is another special feature of this display, which is completed with a selection of asbestos packing rings, detachable cable terminals, induction coils, etc.

MESSRS. FLOYD AND FLOYD, LIMITED, have a good collection of malleable iron castings for motor-cars, engines, etc., and thus emphasize their capacity for meeting the demands of those requiring the productions of that branch of the trade.

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The Yorkshire Patent Steam Wagon Company are again among the exhibitors of heavy steam vehicles, they having on view a wagon capable of carrying loads up to 5 tons and of hauling 2 tons on a trailer. A detailed description with drawings of this wagon was given in our issue of August 3rd, 1901, but since then many small improvements have been introduced. The boiler is on the locomotive principle as regards the fire-box, but has two short barrels instead of a long one and is fixed across the front end of the frame, making a compact arrangement. Two sets of fire tubes connect the fire-box with the chambers. At each end of the barrels

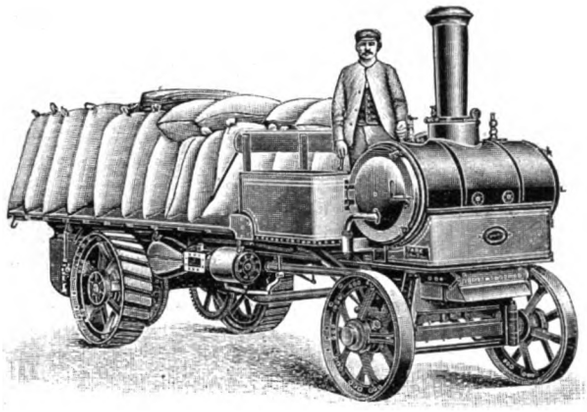


Fig. 32.—The Yorkshire Steam Wagon.

the return tubes convey the gases to another chamber at the base of the chimney. The engine is of the horizontal compound type, with long stroke. Cylindrical guides are provided for the piston crossheads, these having large wearing surfaces, and fitted with dust-proof covers. The power is conveyed to the rear road wheels entirely by spur gearing. The crankshaft is carried in two inverted pedestals bolted to the wagon-frame; to each of these pedestals a strong steel bracket is hinged, which carries the second motion shaft and rear axle bearings; the other ends of these brackets are free to slide on strong guides. The wagon-frame is carried on laminated springs fixed to the brackets by joint pins, and can rise and fall without any material variation in the working centres of the shafts. There are only two bearings to each shaft, and all the gearing is between them; the second motion shafts and rear axle run in swivel bearings, so that, however unequally loaded or how uneven the road, the shafts cannot bind in the necks. The frame is built up of channel steel, and braced with diagonal stays to resist the severe cross strains in travelling on uneven roads. Two speeds are provided, corresponding to 6 and 2½ miles per hour. The front axle is free to rock on the springs, so that no cross strain is thrown on the frame by the unevenness of the road; the road wheels are of the gun-carriage type, drag rods being fitted on the driving wheels to relieve the strain of driving through the spokes.

Messrs. J. Robertson and Son are another firm showing a steam-wagon for the first time. It is designed to carry 5 tons, and is capable of drawing a trailer with 2 to 3 tons The boiler is of the central fired

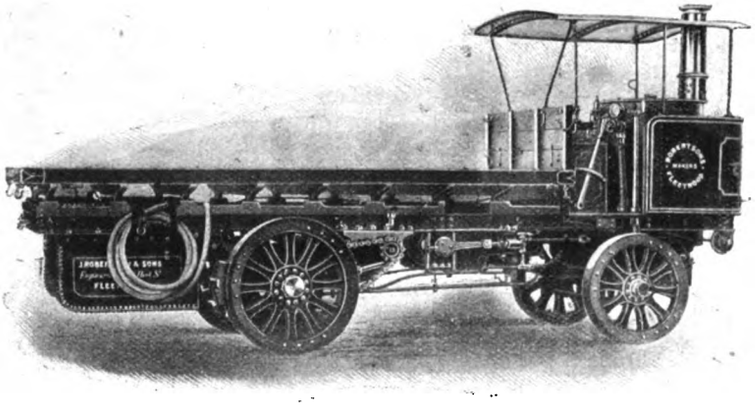


Fig 33.—The Robertson Steam Wagon.

vertical type, but constructed to the firm's patented design, having all the fire-tubes fixed radially and below the water level. The shell is almost completely enclosed by the smoke-box casing, thus giving additional heating surface and ensuring dry steam for the engines. The engine is of the enclosed self-lubricating type developing 25-b.h.p. An illustrated description of this wagon was given in the *Journal* of November 7th last. Messrs. Robertson also have on view one of their patent boilers having an heating surface of 80 square feet and a grate area of 26 square feet. A crank shaft for one of their wagons with all the cranks and eccentric sheaves machined out of the solid forging is also to be seen.

Messrs. Savage Brothers, Limited, who are now devoting considerable attention to the construction of heavy steam vehicles, have a couple of well-finished wagons on view, one of four-ton capacity, having a flat-top lorry body; the other having a tip-wagon body, able to carry a load of five tons. The main framing is of channel steel section, stiffened by gussets and stays. The boiler, which is located in the fore part of the frame, is of the water tube type, suitable for a constant working pressure of 200 lb. per square inch. The steam chamber is a solid-drawn mild steel tube. The circulating tubes are of the "Mannesmann" solid-drawn type. The inlet feed valves are of a patent accessible pattern, which allows of examination of the valve and seating whilst under steam. Welsh coal or coke is used as fuel, 3½ cwt. being carried, sufficient for a day's working. If desired, liquid fuel firing can be adopted. The engine is of the double-cylinder high-speed compound type. The valves are of the piston type and work in valve liners, which can easily be replaced when worn. The valve and reversing motions are of a specially-designed single eccentric principle with large wearing surfaces. All the necessary stop valves and reversing gear are placed within convenient reach of the driver. The feed pump is worked by reducing gear from the crankshaft. A water heater in connection with the exhaust steam pipe is provided, which raises the feed water to a high temperature before entering the boiler. An auxiliary feed pump is also fitted. We noticed that all the steam, exhaust, and other pipes are of solid-drawn copper. Two speeds are provided, the crankshaft being connected by steel gearing with the differential shaft. From the latter the power is conveyed to the rear road wheels by side chains. The chain wheels are attached to the hind or driving wheels by means of steel brackets containing spiral springs, which come into compression when starting the load, thereby relieving the sudden jar on the gearing and motor. The steel driving shafts are carried in malleable steel brackets having compensating gun-metal bearings, which allow for any unevenness of the roads and prevent cross binding. Messrs. Savage also display a number of artillery

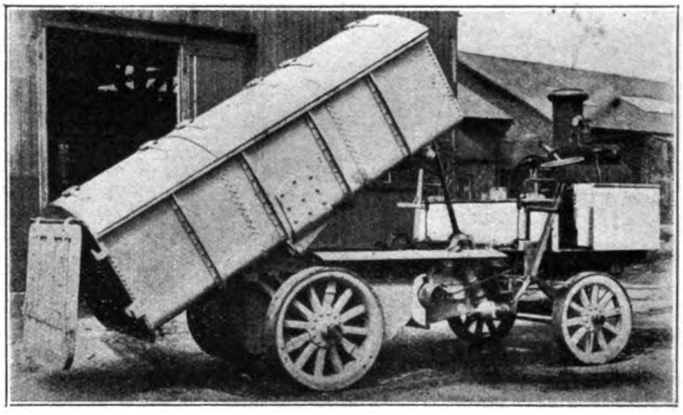


Fig 34.—The Savage Sanitary Wagon

pattern road wheels for use on motor-cars, of which they make a speciality. These are made with twelve or fourteen spokes, in sizes from 34 in. up to 58 in. diameter.

The Begbie Manufacturing Company, Limited, who are known throughout the trade in connection with "Aster" engines, gears, and coils, have a long range of carburettors, Begbie-Audin radiators, back and front axles, lubricators, Begbie-Lamplough steering gears, and other automobile parts. The new models of "Aster" engines are fitted with mechanically-operated valves, and supplied in sizes of 10–12-h.p. and 14-h.p. with two cylinders and 16–20-h.p., 24-h.p., and 30-h.p. with four cylinders. The "Aster" three-speed and reverse gears, actuated by one lever, are supplied complete with differential and clutch, and are suitable in connection with the chain drive. Induction coils of all kinds are supplied by the Begbie Company, and those interested in the subject will find page 9 of their excellent catalogue useful for reference. The Begbie-Oleo sparking plug has been recently referred to in these columns, so that detailed description of its merits is now unnecessary. A good display of lubricators is made by the company, including automatic pressure-feed lubricators working from the exhaust. These are made in three leading types, A being a cast aluminium reservoir with a pump fitted for the crank chamber or gear box, having a black enamelled brass reservoir without a pump, and C working on the same principle as the first-named, but with the sights and feeds arranged on the top of the reservoir instead of the front. The supply of complete sets for motor-car builders is a special line in the Begbie Company's business, and they exhibit a *chassis* of high finish and excellence that is proving very attractive to many visitors thinking of entering the trade.

A puncture-proof device for motor-cars is shown by The Wilton-Cox Device Company. This is made of hide cured by a secret electrical process which renders it very tough, and at the same time soft, light, and durable. It consists of two pieces, one narrower strip lightly sewn on to the wider strip, and thus making a channel or passage right round the

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inside of the cover. Punctures do not occur direct, but penetrate gradually sideways, lengthways, or across. Therefore, should any nail, flint, or glass penetrate the first wide strip it is detained in the passage or channel formed by the narrower strip, thus entirely protecting the inner tube. The device is unaffected by water, as is being demonstrated at the stand in the Exhibition, and is a non-conductor of heat.

M. ANDRE A. GODIN, whose name is identified with the Ducellier lamps in this country, has a bold show of those powerful illuminating agencies, a conspicuous feature of the display being a yacht lamp throwing its beams across the Gallery. Tail-lights, head-lights, and side-lights for motor-cars are also shown, the exhibit being arranged in pleasant order. Oval paraffin lamps are also on view. In horns is a wide range, including the "Auto-phone," a deep-sounding horn, the volume of groan emitted being increased by the three bends provided to ensure the maximum of noise without adding to the size of the instrument. The "Stentor" is another pattern, which is secured by merely being screwed to the dash-board, no piercing of the latter being necessary. The Sclaverand tyre pump exhibited by M. Godin attained much notice at the Paris Salon, and its introduction to this country will be appreciated by motorists. The pump is fixed on the car, and is put into gear with the motor, air, of course, being pumped into the tyre with each stroke of the piston. Fig. 35 gives a general idea of the arrangement, which has the merit of simplicity. It will be seen that a gauge is provided; this has a two-way tap communicating with the safety valve. The latter has a whistle to indicate when the inflation is completed, and a turn of the tap opens the vent for surplus air. Small and compact—it measures less than a foot, and is only four inches wide—this tyre pump will save time, labour and temper, a triple combination that should be appreciated by every busy motorist.

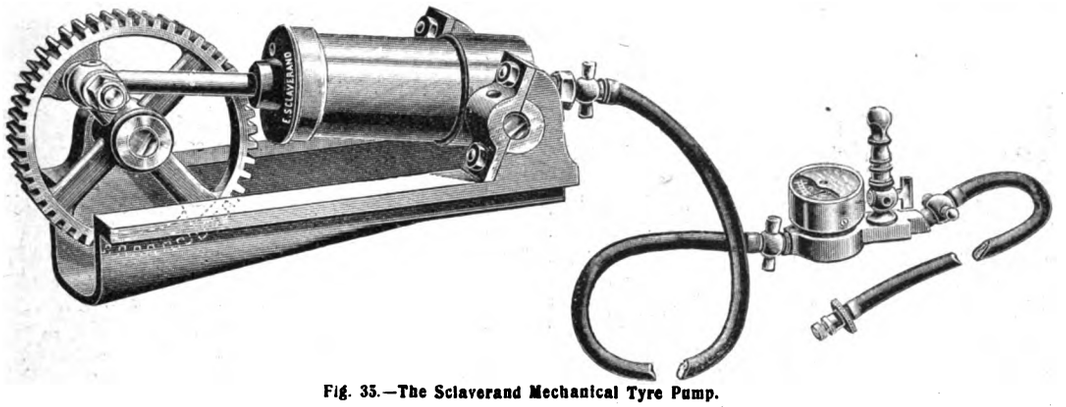


Fig. 35.—The Sclaverand Mechanical Tyre Pump.

Motor castings are shown by MR. ROWLAND HILL, whose productions are well known in the trade. On the stand is a channel steel frame, as well as a selection of radiators, bonnets, tanks, &c., forgings and stampings, cylinder patterns, gun-metal and phosphor-bronze castings, aluminium alloy castings, etc. Mr. Hill undertakes everything of this kind.

The Collier tyres are shown by the COLLIER TYRE COMPANY, LIMITED. Their good qualities and safety under all conditions of travel are well known, and now that a new mode of attachment has been devised there is a renewal of interest in a tyre which has so consistently proved its serviceability. This new plan will be clear from the two illustrations herewith. It is extremely simple, and enables an easy manipulation of the tyre. Fig. 36 shows the new flange fixing with one side of the tyre lifted; and Fig. 37 gives an idea of the tyre with the flange fully fixed in position. Further description would seem superfluous, the two illustrations demonstrating the ease and facility with which the tyre can be attached—an important point which should give still further favour to the Collier tyre.

Of attractive and pleasing appearance is the stand of the BIRMINGHAM ALUMINIUM CASTINGS (1903) COMPANY, LIMITED, whose facility for production enables them to deal with orders promptly as well as efficiently. They have a wide range of motor castings, and number among their *clientele* many of the leading firms in the industry. As a matter of fact, the productions of this company are to be met with on many stands in the Main Hall as well as on their own place in the Gallery. They have a good show of mudguards and number plates, as well as castings, and the general clean and clear-cut appearance of the latter is a characteristic that should help the concern to go even further forward in their particular line of business.

The "Polkey" headlights for burning paraffin are on the stand of MESSRS. GEORGE POLKEY, LIMITED, who have sought to make these popular among motorists who tour frequently. Each lamp contains two cylinders, in which duplicate chimneys can be carried without risk of breakage. These lamps give a well-diffused light and have met with much favour. The Polkey motor and tail lights are made at the requisite angle to illuminate the number on the rear of the car, and comprise an exhibit of real value as well as of interest to motorists.

The latest patterns of the Bleriot lamps, which have sustained a long reputation both on the Continent and in this country, are to be seen at the stand of MESSRS. WELDHEN AND BLERIOT, the special patterns worthy of detailed inspection including the "Populaire" and the "Eclaireur Elliptique" headlights. The combined lamp and horn is another novelty, and there is also a good range of head, side and tail lights designed to meet the new regulations of the Local Government Board, including those mentioned in the *Journal* last week. A new foot-warmer is among the special features of an interesting display, which is completed by a long range of horns.

"LEWIS'S" is the title of a North of England firm identified with the clothing industry for many years, and one which is now becoming favourably associated with that branch which caters for the varied and still-changing requirements of the motorist. They are making a special feature of garments lined with leather, as well as fur overcoats and the like. Several ingenious designs have been incorporated into the making of these motor clothes; hence the interest taken by the trade in the exhibit. One interesting feature of the business is that they are fully equipped to undertake bespoke work at short notice. Lamps, horns, etc., are also on the stand, some special agencies having been acquired by the firm.

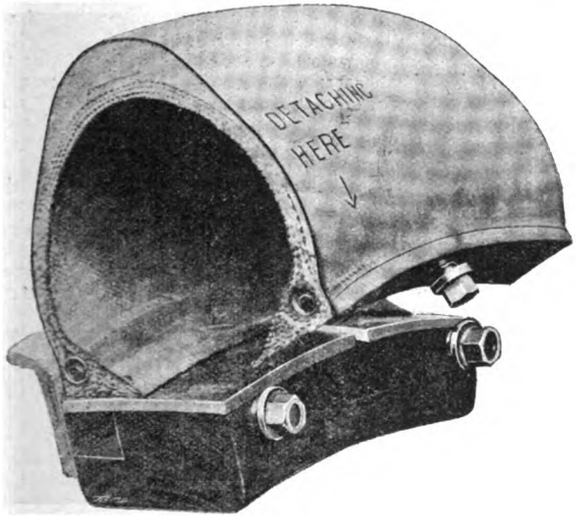


Fig. 36.—The Collier Tyre Detached.

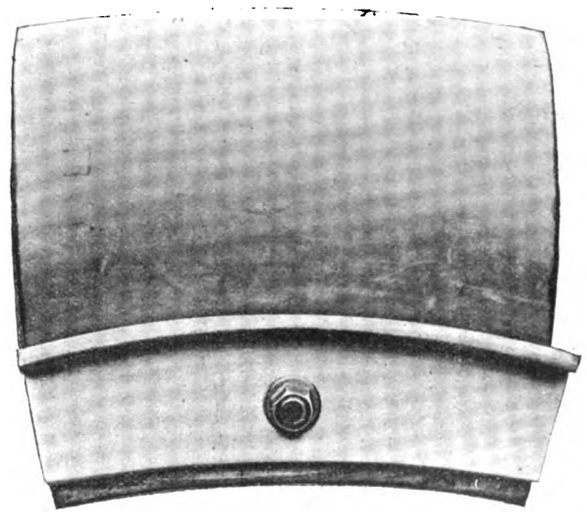


Fig. 37.—The Collier Tyre with Fixing Flange in Position

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All wool clothing for motorists is attracting attention to the stand of Messrs. Hoare and Sons, whose "Rex" and "Pioneer" motor coats are recognised as standard articles of attire. The "Sandringham" motor coat is another speciality of the firm, whose liveries for drivers complete a representative assortment.

The Imperial Tyre and Rubber Company, Limited, are prominent in the Gallery with recommendations of their work as repairers and vulcanisers of tyres and tubes. This is a branch of work they have made their own, and their wide experience of all classes of tyres is being placed at the service of many leading motorists. They are placing upon the market the "Imperial" tread, consisting of a band of steel leather with steel studs to prevent side slipping. Another excellent idea which finds embodiment on this stand is the "Imperial" grooved flat head, the groove giving the appearance of safety in use. We may add that the company have extensive vulcanising works at Clerkenwell, and are in a position to deal promptly as well as efficiently with motor-car repairs.

"Everything but the motor" is a saying freely published about the stand of Messrs. Alfred Dunhill, Limited, whose collection of waterproof clothing, including umbrella coats and capes, has assumed large and still growing proportions. Neat designs in ladies' millinery, suitable for wear when driving, are quite a feature of this firm's exhibit, and their drencher tweed motoring coats have attracted much attention. In goggles quite a hundred different patterns are to be seen, and in the accessory branch of the business variety and completeness are characteristics. Few firms have gone so completely into the business as Messrs. Alfred Dunhill, Limited, who have lately added to their extensive stock a Duplex lens headlight, to which further detailed reference will be made in a later report of the exhibition.

A new coat is shown by Messrs. H. J. Nicoll and Co. This has a stand-up collar for motoring, which can be turned down in the ordinary form. At the back is a band which buttons across when the wearer is walking, thus taking in the wide skirt, which adds to the comfort of the owner when sitting. A good collection of rainproof coats and garments in frieze is also shown.

Non-skidding devices distributed about the Hall form an interesting section of the Exhibition. In King Edward's Hall is the "Parsons" non-skidding device, shown by the company of that name. This consists of a chain going round the tyre, a creeping movement being maintained when on the road, which prevents the tyres being marked in any one point. These non-skids are made for motor-'buses, heavy and light cars, and also for motor-cycles.

At the stand of the Motor Tyre Manufacturing Company—a company that has facilities for the prompt as well as the efficient repair of motor tyres—will be seen an interesting non-skidding invention in a band of chrome leather with steel inserts. This can be fitted to any make of pneumatic tyre, and is attracting considerable attention.

The Palmer Tyre, Limited, have a good show of their cord motor-car tyres, which have become well known to motorists since first described in our issue of January 9th last.

Accumulators and a general range of motor accessories are to be found on the stand of Messrs. Harvey, Frost and Co., who, however, make a special feature of their "H. F." steam tyre vulcaniser—a machine of equal interest to motor repairers in the trade as to those who have the fortune to own three or four cars with the liability to many tyre troubles. The vulcaniser consists of a bell-shaped base frame for bolting to a bench. Above the frame are the various fittings. These include a hollow cradle, forming a steam chest for live steam. Under it, hidden from view by the flange and upper portion of the bell base, is a dome-shaped bottom, which holds the water, and forms what is practically, in conjunction with the cradle, an ordinary boiler. The whole is tested to more than five times its working pressure. Steam is generated by means of a Bunsen gas burner concealed under the frame, and a door is provided for convenience in lighting the burner. The cock just under the flange of bell base serves the purpose of a water gauge, and the dial and adjoining pipe a steam gauge.

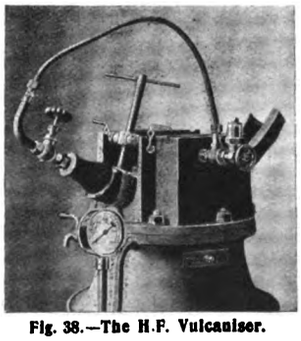


Fig. 38.—The H.F. Vulcaniser.

Steam pressure is generated in the cradle, and inside this is laid a cylindrical-shaped mandrel, the curvature of which conforms to the curvature of the cradle, also of the tyre. The mandrel is tapered at the ends to allow of convenient inlet and outlet connections. Steam is conveyed from the cradle to the mandrel by the means of a flexible metallic tube, with unions at each end, and is regulated by the inlet valve on the end of mandrel, the corresponding valve at the other end being of course for emitting air, steam, or water. A vertical screw with a cross-head is provided to bring adequate pressure to bear upon any given point of the mandrel while resting in the cradle. Tubes of any size, up to 120 mm., can be repaired with this machine without any difficulty in the most rapid way, with consequent economy of time and expense. It is extremely simple, and secures sound repairs by vulcanisation in the most thorough manner; hence its value to the trade.

Motor lawn-mowers of good design are shown by Messrs. T. Green and Son, Limited. These were recently referred to in our columns, and their points of interest are attracting many visitors to a noteworthy stand in the Exhibition.

Messrs. J. Bartlett and Co. are going seriously into the motor-car world, and, in addition to the lamps exhibited, have also for inspection the drawings of new designs of side wings and tanks they are about to put upon the market. In motor-bicycle lamps some good novelties are shown, including an acetylene generator to supply ten lights to a car. This is of the portable type, is very compact, and has two purifiers. There is also on the stand a motor-bicycle lamp with an independent generator which fits on the front fork of the machine. The charge of carbide is sufficient to last for twelve hours, but it need not all be consumed at one lighting. It may be used a few hours, then put by and re-lit, an advantage of real economy. Another generator is designed to fit in the back of the motor-bicycle. All the "Bartlite"—that being the name given these specialities—lamps have a good substance and weight, being of sound construction and workmanship.

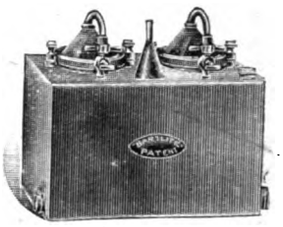


Fig. 39.—The Bartlite Generator.

M. Alfred Dinin, for whom M. Godin acts as manager in this country, has a good show of accumulators, of which, so far as automobile work is concerned, he may be said to have been a pioneer. Here are accumulators for traction and lighting purposes, and charging boards in various sizes, both for garages and private motor houses.

The patent "twin-spoke" artillery wheels, specially designed to withstand side strains, are exhibited by the Artillery Wheel Works, Limited. These were illustrated in the *Journal* so recently as the 27th ult., so that further reference seems unnecessary. Their pleasing appearance, however, is doing something to secure their adoption by builders of cars. On the stand is a twin-tyre wheel with 3½ in. solid tyres fitted on a 8-inch rim, for a steam motor-'bus ordered by the North-Eastern Railway Company.

Messrs. Peto and Radford, Limited, have their usual large selection of batteries, accumulators, plugs, etc., as well as a varied assortment of electrical testing instruments. Minor improvements are noticeable in several of these, the firm apparently being always experimenting with a view to increasing the efficiency and reliability of their devices. In the accumulators we notice the terminals are now being placed as far apart as possible, and the fine finish given to all these productions is a demonstration of the care with which Messrs. Peto and Radford are catering for automobile work.

Among the miscellaneous exhibits will be noticed the "Bluebell" metal polish, the "Buttercup" metal polish, the "Rocket" metal polish (which is free from acid and non-inflammable), and "Quixol," a preparation for cleaning and renovating leather.

Seddon's motor tyres are shown in the Arcade Gallery, these being produced by Messrs. D. Moseley and Sons, Limited, from red rubber, in accordance with the ideas of Mr. E. H. Seddon. Previously has reference been made in these columns to the Seddon tyre, and it remains but to be said that the construction is designed to secure great strength, and to prevent the chafing of the cords used in the manufacture. A square tread of about 1½ in. in width is provided, covering so small a road surface that side-slip is obviated.

Messrs. Holding and Sons are drawing the attention of motorists to the "Car Poncho," illustrated in our issue of February 27th. This is a capital idea for a motor waterproof, combining the familiar *parapluie* with a collar of stylish appearance. The "Ayrshire" motor ulster, the "Holding" patent apron, the "Kangaroo" motor vest, are other specialities shown at this stand, where will also be found a good assortment of dustcoats and smocks, ladies' coats and furs, as well as drivers' liveries and motor-cycling outfits. A camp outfit is also on view.

Varnishes and paints for motor-cars are to be found on the stand of Messrs. Docker Bros., Limited, who have adopted an improved process in the manufacture of their specialities. Their motor paints are ground in a specially prepared quick medium, no dryer of any kind being used. The covering power of the paint has been increased, and work of a high and smooth finish ensured, as can be seen by inspection of many of the cars in the Hall. The paints have the valuable property of resisting the effects of heat, an important point in automobile work, and they may be congratulated on their first appearance at these Exhibitions.

Messrs. Bowley and Son are taking advantage of the Exhibition to draw attention to their lubricants for petrol motors, and to their motor-spirit. This oil is supplied in two gallon rectangular tins, and has attained considerable celebrity. During the past few days it has been prominent in connection with the 1,001-mile non-stop run of the Georges Richard car, it having been used for the whole of the distance. In lubricating oils are also shown their "Champion" oil, this being specially recommended as one that will not "gum," give any acid reaction, nor at increased temperatures appreciably lose its viscosity.

The Motor Castings Company have a large assortment of motor accessories and castings of all kinds. Special attention is drawn to their complete set of motor-bicycle castings, and also water-cooled castings for a 6-h.p. set De Dion pattern. A collection of tools, including spanners, bolts, etc., complete a very comprehensive display.

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Engineers' stores and motor-car requisites are a feature of the display of Messrs. George Skudder and Co., who have long been associated with the preparation of special oils and lubricants for automobiles. They have on their stand samples of Skudderlene oil for water-cooled and air-cooled motors for bearing and for gear boxes, as well as Skudderlene lubricant for steam, petrol and hot air engine bearings, differentials, etc. Gripolene is a preparation for preserving belts of every description and preventing them from slipping. Raw hide belts, asbestos and rubber goods, belt lacing, etc., are also to be found on this stand.

A. W. Gamage, Limited, have a large stand for the exhibition of the thousand and one motorists' requirements stocked by them. Patent tyre levers, new trembler coils, etc., are here to be found as well as the Cossor combined petrol gauge and densimeter for attaching to petrol tanks.

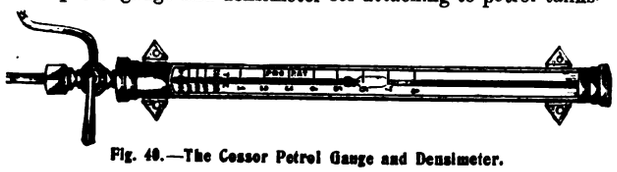


Fig. 40.—The Cossor Petrol Gauge and Densimeter.

and of which an illustration is given in Fig. 40. Non-slipping tyre devices and a complete selection of accessories for motor-cyclists should attract attention to this display. The clothing section of the exhibit is an important one, the special features including the firm's patent coat with detachable camel-hair lining, enabling the garment to be used either as a driving coat or an ordinary walking coat.

Mr. David Perry is showing his patent Acme Packing for the glands of steam-cars. This packing consists of three cores, so arranged as to present an oval appearance in cross section, two of the cores being laid side by side as concentric rings, while the third lies upon and intermediate to the other two, thus forming a packing of great elasticity and frictionless working. In some engines packed with it the tool marks are not out of the piston rods after constantly running for nearly two years, day and night. The packing also possesses a compensating property, so that as the layer next to the rod (or plunger) wears, it is caused by the pressure of the gland to slide upon the adjacent layer and is automatically replaced by fresh material, a large portion of the packing being actually utilised. The result thus attained is a large saving of steam, a proportionate saving of fuel, and the life of the packing greatly increased.

A high style of coach work is to be seen at the stand occupied by Messrs. W. and F. Thorn, who have given study to the design of appropriate bodies for automobiles. Vehicles with side doors, removable canopy and wind shield are a prominent feature of this display, Messrs. Thorn having thought out some minor points of construction which should do much to popularise these particular bodies among the trade. Attention is being given to providing bodies of a detachable or adaptable character—a feature in which coach building firms are endeavouring to meet the requirements of the motor-car industry. Messrs. J. Liversidge and Son, Limited, make a bold show of artillery wheels and patent radial wheels, many of which are fitted with the De Nevers patent solid motor tyre—a type of tyre designed to prevent skidding and secure a good grip of the road surface.

Patent solid rubber tyres for motor-'buses and similar heavy vehicles are the main attraction on the stand of Messrs. J. E. Hopkinson & Co., Limited. The idea embodied in the construction of this tyre is well brought out in the accompanying illustration, Fig. 41, which is a view of the lateral section of the tyre, showing the method of fixing. The rubber tyre is fixed in an endless circular steel flange, which is secured

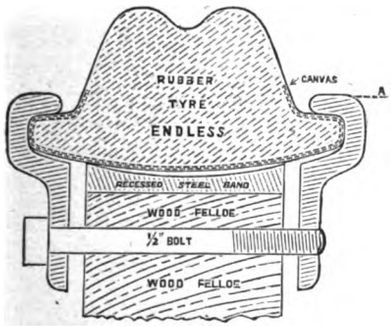


Fig. 41.—The Hopkinson Tyre, before fixing.

to the felloe by a retaining bolt. There are no wires embedded in the rubber, and the makers claim that this method secures strength and durability, as well as resiliency and efficiency.

Motor-cycle belts, tyre gaiters, and raw hide belting form the substance of the display made by Messrs. Elliott Hallas and Sons, Limited. The motor-cycle belt is made from selected raw hide butts, each strip being without joint. Their "Elothas" belt has been in use during the past season, and one rider reports having used a large section belt for upwards of 9,000 miles, with very good results. The "Elothas" dressing for leather belting is also shown by this firm, whose motor tyre gaiters present some points of excellence.

Messrs. W. Beardmore and Co., Limited, have a capital display of pressed steel frames in various sections, special features including mild steel pressed frames for 12-h.p. and 16-h.p. cars. Sections are also shown of hydraulic riveted joints, as well as of flanged steel plates for steam wagon boilers, and a steam wagon wheel with weldless angle rings and cast steel shoes.

Their well-known patent mowers with 2¾, 3½, or 6-b.h.p. motors are exhibited by Messrs. Ransome, Sims, and Jefferies, Limited, who have long—so far as the automobile movement is concerned—been identified with this class of work. The smaller size machine is specially devised for use in small grounds of from one to three acres.

The Car and General Insurance Corporation, Limited, draw attention to their several departments of business in which the issue of insurances and indemnities in connection with motors and motoring figure largely. A special feature is made of insurance against driving accidents. To cover all risks incurred by motorists the General Accident Assurance Corporation, Limited, now issue policies of insurance, and wisely take occasion of the opportunity presented by the Exhibition to make the fact known to those who motor. Similarly, the Law Accident Insurance Society, Limited, draw attention to their system of insurance, which includes indemnity against personal injuries, claims by the public, damage to cars, or loss by burglary, etc. The Horse, Carriage and General Insurance Company, Limited, are not unmindful of the growth of automobilism, hence their appearance at the Show to issue policies of various kinds.

The Gare patent tyre-setter, a hand-power machine for fixing without heating rims and tyres on any class of wheel, is on the stand of the Gare Patent Tyre and Wheel Company, Limited, of Liverpool. Two steel bands are placed round the circumference of the wheel, the two ends of each being drawn together by levers worked by left and right hand screws. As these are drawn, the wheel is contracted to the size required. Then it is measured, and accuracy having been obtained, the tyre is welded up exactly to that size. When the tyre is ready for fixing on the wheel, the top steel band is taken off, the bottom one being left on the wheel, being still under tension. Tyre levers are utilised to pull the tyre on the wheel and force it down to the bottom band. The remaining band is then taken away and the tyre forced down, the work taking only a few minutes. The machine is a saving of time and labour, and highly efficient. It also provides a good test for wheels, and is proving an object of interest to those associated with the trade. The "Gare" tyre tangent spoke wheel and patent resilient motor-wheel are also on view at this stand, the latter being shown in Fig. 42. This is for heavy motors, and, while being somewhat heavier than the ordinary type, has advantages in its greater resiliency and non-skidding qualities. It is built up with blocks of wood placed tangent to the hub, V-shaped sections, embedded in rubber, form the wearing surface, being held by metal flanges.

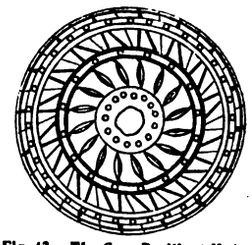


Fig. 42.—The Gare Resilient Motor Wheel.
For heavy vehicles, the hub, with V-shaped sections bedded in rubber.

Of jacks Messrs. Lake and Elliot have a great selection, several patterns and sizes giving a practical turn to their exhibit. Long handles and quick adjustments are points of value in connection with these necessary adjuncts to the motorist's equipment. A new pattern of the firm's "Millennium" jack is on view, and for motor-cycles there is a neat carrier stand known as the "Millennium," in which the luggage may remain on the carrier when the stand is in use. This will practically fit all motor-bicycles.

Ignition coils of good design are exhibited by the British Ignition Coil Works, who have a special department for the repair of coils, and have recently laid down a new plant for the manufacture of coils in large quantities.

Messrs. J. W. and T. Connolly, Limited, have an important exhibit of Goodrich side wire motor tyres in 5-in. and 6-in. sections, as well as of artillery wheels, etc. In view of the development of motor-vehicles for heavy traffic, the Goodrich tyre deserves attention, and its long career of advancing usefulness in the United States is likely to have equal repetition in this country. The method of attachment is simple, there being cross wires at intervals of every inch to the side wires, absolutely securing a reliable tyre for the heavier class of motor-vehicles.

Messrs. Van Raden and Co., Limited, may always be depended upon to have a good show of electrical accessories, and among the special objects of interest on the present occasion are the coils and accumulators to be used on the Wolseley cars entered for the Gordon Bennett Eliminating Test. New patterns in the woven glass accumulators, a new petrol gauge and drip, by means of which the amount of petrol in the carburettor can be regulated, and also be made known to the driver, and an electric portable lamp for use in petrol stores, motor houses, and similar places are other notable exhibits in an interesting collection.

Motorists who find a difficulty in obtaining anything like a permanent motor stable will be interested in the motor-car house which occupies the stand of Messrs. Quibells. This is known as design E, and is 8 ft. wide, 12 ft. long, and 7 ft. high. It is roofed with 1 in. grooved and tongued and filleted boarding, the sides being of feather-edge boarding, tarred. Models of other houses are also on view, and sufficient is shown to testify to the firm's capacity for a large output of well-designed houses.

(To be continued.)

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BECOMES OF OLD MOTOR-CARS.

WHEN a motorist decides to part with his car in favour of a new one the step is taken not so much through the failure to perform its function as a self-propelled vehicle, but rather on account of its lack of speed, some inconvenience or unpleasantness of operation, and more particularly on account of its not conforming to accepted standards of taste in appearance or equipment. These vehicles, when "cast off" by their buyers, usually are but little worn in any parts save those which are readily replaceable, and oftentimes years of service may still be expected from them. The engines of petrol vehicles, even those which were constructed very early in the history of the art, were, as a rule, quite long lived, and this may also be said of many of the earlier change-speed gears, and of some other parts of the mechanism. Quite a number of these veteran machines are still capable of service according to their merits. The majority of them were discarded simply because they were out of fashion, and, as the dictates of the fickle goddess are most imperative in large cities, and the standards of automobile taste are there most highly developed, such vehicles find their way to the smaller communities, where a motor-car is judged more by its ability to get about than by the shape of bonnet which it wears. After a time these machines generally find their ultimate fields of usefulness in country places, where they often do good service before the final denouement on the scrap heap.

It has been decidedly interesting to note this constant stream of discarded vehicles making its way from the metropolis to the rural communities, and it has been particularly well marked in the case of the light steam car which was so popular a few years ago. While formerly these cars were common in large centres, they are now quite exceptional, but if one visits the more remote districts one will find them held in high esteem.

During the vicissitudes of its eventful life history, the discarded vehicle suffers, remarks the "Horseless Age," many changes in appearance and equipment, and frequently is so modified by its successive owners as to become unrecognisable to its first possessor or to its builder. Its wheel base may have been lengthened, a new body with tonneau may have been put on, it may have been supplied with wheel steering, with an improved ignition system, with a radiator of advanced type and with other up-to-date improvements, so that the engine and perhaps the change speed gear are about the only means of positively identifying it. Its period of usefulness is greatly protracted by these changes, and it is likely, if intelligently refitted, to do good service until it arrives at an honourable old age.

A MOTOR-CAR competition up Buckham Brow is one of the suggested attractions at the next show of the Settle Agricultural Society.

WITH reference to the receivership in connection with the Lanchester Engine Company, Limited, we are asked to give an assurance that this is only of a temporary nature, pending the scheme for reconstruction now under consideration. Orders placed with the concern will receive immediate attention, and business is being carried on without a break.

THE Agricultural Hall presented a lonely sight on Sunday, when, deserted by public and exhibitors, it was practically empty of humanity. Three or four firms, however, took advantage of the occasion to make sundry alterations to their stands, and in some cases to practically construct their vehicles. In fact, one stand we saw looked more like an engineer's workshop than anything else.

MR. JULIAN W. ORDE, secretary of the Automobile Club, arrived at Douglas on Tuesday to make arrangements for the holding of the English eliminating trials in connection with the motor race for the Gordon Bennett Cup in the Isle of Man. He was met by Lord Raglan, Lieutenant-Governor, the chairman of the Manx Highway Board, and others interested, with whom he had a conference. On Wednesday he went over the proposed course accompanied by Lord Raglan.

OUR DIRECTORY OF "NUMBERS."

[ALL RIGHTS RESERVED.]

Below is a further instalment of Automobile Numbers. Motorists who have not yet communicated with us are invited to forward their Names, Addresses and Numbers.

Armstrong, Robert H., Five Rocks, Blackgang, Isle of Wight	D.L.	17
	D.L.	10
Armstrong, W. A., Grove Farm, Highgate Road, N.W. ...	A.	2431
Adey, Chas., 20, Clapham Road, S.W.	A.	2331
Arnold, J., The Towers, Torquay	T.	76
Boyes, C. F. S., Wolverhampton	D.A	15
Bird, Alfred and Sons, Upper Thames Street, E.C.	A.	384
Benyon, Austin E., Craiglands, Barry Island, Glam. ...	L.	217
Barr, Harold, Hillfoot Hey, Woolton, Liverpool	K.	563
Beveridge, C., 37, Tithebarn Street, Liverpool	K.	127
Briggs, W., Bank Hall, Heaton Mersey, near Manchester ...	N.	87
Branton, F. G., Greenhithe, Kent	D.	292
	A.	3727
Clift, E. H., 51, Sinclair Road, Kensington, W. ...	A.	1437
	A.	2924
Crompton, L., 19 and 21, Brook Street, Hull	A.T.	39
Cook, T. W., Taxley, Peterborough	E.W.	76
	E.W.	79
Crerar, J. W., 11, High Street, Maryport	A.O.	40
Gill, Councillor F., 22, East Street, Marylebone	A.	2128
Gatis, T. G., Wolverhampton	D.A.	14
Gill, C., 7, Elm Grove, Higher Tranmere, Birkenhead ...	C.M.	68
Holman, Lennox, Benfleet Hall, Sutton	P.	897
Higham, T. E., Wood Nook, St. Annes-on-the-Sea	B.	56
Hozier, M.P., Hon. James, 36, Grosvenor Square, London	V.	40
	S.V.	5
Immisch Electric Launch Co., Ltd., Hampton-on-Thames ...	P.	950
Johnson, H., Chaderton, Boston, Lincs.	D.O.	12
Johnson, Dr., Ashton House, Seaview Road, Liscard ...	M.	97
Kirk, James, 5, Regent Moray Street, Glasgow	S.B.	3
Leeds, Motor Car Co., Ltd., 5a, King Street, Leeds	U.M	10
Pashley, H. M., Ecclesall Road, Sheffield	W.	6
	W.	7
	W.	8
	W.	9
	W.	10
Palm, Dr. W. S., Largo	S.P.	13
Pope-Bartlett, Dr. B., Bourton, Dorset...	B.F.	15
Powell, Colonel L. L., The Elms, Melton Mowbray	A.Y.	10
Parsons, E. Hazeldene, Elburton Cross, Plymouth	T.	38
Page, John, 197, Stanhope Street, Regent's Park, S.W. ...	S.P.	29
	A.	1682
Rose, Donald, Methill	A.	1683
Reach, O., 26, Claremont Road, Cricklewood, N.W. ...	A.	3429
Ransford, J. E., Landguard Road, Southampton	C.R.	9
Rose, M.P., C.D., Hardwick House. Reading	A.	605
	A,	606
	A.	1309
Russell, S., Gledholt, Huddersfield	C.X.	11
Stagg and Mantle, Leicester Square, W.	A.	420
Sutton Bros., Swansea	C.Y.	19
Sandwell, J. W., 185, Evering Road, N.E.	A.	1539
Sutton-Clifford, R., Burton Walks, Loughborough	R.	51
Stimpson, S., Stratford-upon-Avon	A.C.	253
Shanks, H., London Street, Chertsey	P.	253
	P.	254
Shaw, Frank, Birkby, Huddersfield	C.X.	51
Tanke, F. W., 282, Old Kent Road, S.E.	A.	1603
Taylor, Vernon, Ranelagh Road, Pimlico, S.W.	A.	2005
Vernon, Arthur, Borshams, High Wycombe	B.H.	
	B.H.	9
Waite, R. H., 5, Hemingford Terrace, Birkenhead	C.M.	60
White, H. W., Avondale, Milton Road, Copnor, Portsmouth	B.K.	33
Walsh, G. E., 24, Craven Terrace, Yorks.	C.P.	4
Watts, J. Heathfield	A.P.	233
Young, T. C., 75, Windsor Road, Neath, Glam.	L.	32

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CORRESPONDENCE.

THE EXHAUST VALVE LIFTER AND VALVE GRINDING.

To the Editor of *The Motor-Car Journal.*

Sir,—As there is considerable discussion going on among motor-cyclists just at the moment in regard to the advantages and disadvantages of the exhaust valve lifter, we thonght possibly the experience of one of our clients at this stage would be interesting. Some writers appear to be under the impression that the now almost universal use of exhaust valve lifters upon motor-cycles is the cause of frequent valve grinding being necessary; and to those who complain that their valves require grinding in every 500 miles we should without hesitation say that this is more likely owing to the material used not being satisfactory. We have received a letter from one of our clients who has ridden over 10,000 miles upon a motor-bicycle fitted with one of our own engines, who writes as follows:—"After 10,000 miles it has never overheated; the exhaust valve has never been ground in; the inlet and exhaust springs are the original ones and are as good as new." During practically the whole of this time our client assures us that he has had an exhaust valve lifter fitted and has been in the habit of driving upon the exhaust valve. Some riders appear to think that the cause of the exhaust valve seating getting burnt and pitted is that owing to driving on half compression the charge passes out of the exhaust port in the form of a flash. The same thing happens whether an exhaust valve lifter is fitted or not; and to riders who hold this opinion we would recommend that they run their machines in the dark with the exhaust connection to the engine removed; and it will be found, when the machine is running at anything like an average pace, that a large proportion of the ignited charge passes through the exhaust seating in the form of a flash. In our opinion there is far too much valve grinding done by the average novice; it is almost an impossibility to grind a valve in properly in the way that a good many adopt, *i.e.*, with an ordinary screwdriver, and unless the valves are ground in properly they are far better left alone. We think a word of warning at the present juncture is really needed.—Yours truly,

The Ariel Cycle Company, Limited.

CHANGING SPEEDS.

To the Editor of *The Motor-Car Journal.*

Sir,—In answer to "F. J. R.'s" enquiry in the last issue, I may state that in charging speeds it is usual to let the clutch in as quickly as possible after the gear is changed, although not with a "bang," as a great deal depends on this as to whether the car picks up speed or not, especially in the case of a small-powered car. The idea of a change speed gear is, of course, to work the car up gradually to a speed, and if time is lost in letting the clutch in, the vehicle naturally slows, and in some cases the engine becomes overworked and eventually stops. The only time it is necessary to put the clutch in slowly is when pulling away from a standstill, but once the car is moving it is best to get it in as quickly as possible.—Yours truly,

H. J. T.

BENZ v. LIGHT CAR.

To the Editor of *The Motor-Car Journal.*

Sir,—In answer to "Doctor," "G. L. B.," "Solid Tyre," and others, I thoroughly fall in with what they say, and especially so about the confusion with the types of Benz cars. It seems to me that when a Benz car is mentioned the majority of people laugh, and think the old 3½-h.p., driven with two or three narrow belts, is referred to. I have one of the 7-h.p. geared Benz cars, with tonneau body to carry four persons, referred to by "Solid Tyre." I have had it twelve months, run it over 5,000 miles on good roads and bad, and the same belt is on now as came with the car when new. It has been taken up only twice in the year. The car caused no trouble whatever; it has three forward speeds and reverse, and can mount any hill with full load—in fact I have passed cars of much larger power on hills. I find the belt drive a sweet one and free from jumping when starting, as is the case with some clutch cars I have seen—in fact, I would not exchange my belt-driven Benz for any other of the same power. I believe it to be most reliable and one I can always get back home on. I have solid tyres—no fear of having to pump wind on my journeys. The car is so beautifully sprung that I find it as easy as many that have pneumatic tyres; I have had no trouble in getting overheated, and the lubrication is so simple and efficient it is almost impossible to run dry. I may say I am not interested in any car firms; I am only speaking of my car as I find it.—Yours truly,

Belt and Gear



The Baby Peugeot No. 2. (*See page* 75.)

THE MEANING OF THE TERM "HORSE-POWER."

To the Editor of *The Motor-Car Journal.*

Sir,—Will you kindly state the actual meaning of the term "horse-power" as ordinarily used in connection with motor-cars? When a salesman informs me that a certain car is of 10-h.p., what does he mean? Is it a fact that a motor will develop more horse-power at 1,000 revolutions per minute than at 800? Does the advertised horse-power of a

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car mean its greater possible output, or is it understood that the term applies to the vehicle at a definite rate of speed? A few days ago, a motor agent told me that the horse-power of a certain car was 12, and a few minutes later the engineer of the company building the vehicle said that it was 10.—Yours truly,

PUZZLED TYRO.

[The meaning of actual brake horse-power of an engine is the greatest power developed at a given speed, but by an increase of speed the horse-power also becomes increased. Therefore if an engine is tested to develop 10-h.p at 800 revolutions, by increasing it to 1,000 revolutions the horse-power also increases in proportion. The advertised horse-power of a car is usually the power of the engine that is fitted to same, no allowance being made for friction through the transmission.]

MOTOR RACING ON ENGLISH SHORES.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR, In America they run their motor races on the seashore, where they have plenty of room. Have we ever considered the possibility of racing on the hard sandy beach of Filey Bay, in Yorkshire? When the tide is out there is a beautiful stretch of hard, solid, dry sand, five miles long at least, and very wide. I have often cycled there, and the going should be excellent for motor-cars. Why go to the Isle of Man when we have so good a track in Yorkshire?—Yours truly,

YORKSHIREMAN.

THE AUTOMOBILE AND CYCLE ENGINEERS' INSTITUTE.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—I am quite in accord with Mr. Hill's letter of last week; in fact, I for one have advocated for some time past the amalgamation, if possible, of the two bodies. I would suggest, however, that the new society be termed "The Institute of Automobile and Cycle Engineers," this being more in conformity with that of other institutes. The word "Automobile" would, of course, prevent any possible clashing with the Institute of Civil Engineers.—Yours truly,

A. A. HURREN, A.M.C.E.I.

WATER IN CRANK CHAMBERS.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—In clearing out the oil-containing crank chamber of the motor on my 6-h.p De Dion car the other day I was surprised to find a large quantity of water flow out with the oil. I have been puzzling over this, but cannot understand where the water originally came from and how it got in the crank chamber. Perhaps some fellow motorist who has had a similar experience can give an explanation.—Yours truly,

LUBRICANTOS.

[This is perhaps due to a small leakage through the plug in the cylinder head, which is fitted under the sparking plug for water inlet, but failing this it may be caused by condensation in the cylinder, and then work itself by the rings, or it is quite possible that water may have found its way into the oil tank, either whilst washing the car or perhaps in the can containing the oil when purchased.]

WATER CIRCULATION.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—Will you kindly tell me if it is wise to fill the tank with cold water when the engine is very hot? If my tank and engine are very hot after a forty miles run, I should otherwise find it necessary to wait a considerable time for the water to cool naturally. By adding cold water my engines, etc., become cool very quickly.—Yours truly,

FACTA.

[In answer to "Facta's" letter *re* putting cold water in the tank when the engine is hot, there is no danger whatever in doing this, providing the water is constantly above the cylinder head. If the water be allowed to get below, and the cylinder become over-heated, there would be the danger of cracking the cylinder, but if care be taken to give a plentiful supply, there is no danger of this, as by putting in cold water the heat gradually diminishes.]

STEAM CARS.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—As a strong admirer of the steam car I have been greatly struck by the uniformly good reports from America of a car called the Stanley. I would like to hear the experience of some users of the car on this side of the water. Of course we all know that the higher priced cars, such as the White and the Serpollet, give every satisfaction, but this Stanley is a cheap car, and I would like to know if what the Americans claim for it is borne out in practice.—Yours truly,

NORTHERN STEAMER.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—I notice a writer this week speaks against the wheel valve being used for driving in place of the usual lever throttle valve. My experience is that this method is far superior to the lever, as a more steady start can be made and no fear of the handle being jerked forward by jolting of car. I propose that the valve used is not under one-quarter or better three-eighths and fitted with a coarse screw about eight to the inch. With this only about three-quarters of a revolution is required to drive at a fair pace, and all racing of engines is avoided. To obtain best results from a steam car one has to be a careful, observant driver, and I consider this kind of car is best suited for users of moderate means, the upkeep being very low owing to absence of gear boxes, sparking plugs, coils, &c. I have made use of my Locomobile about the City and find I obtain best result by arranging automatic regulation to cut down fire at 150 lbs.; this allows the car to stand a long time without steam pressure getting up too much; the regulator can be readily set for country work when wanted. I quite agree that the steam cars are too lightly built, but if driven with care and moderation a lot of useful work can be got out of one. Many motorists expect far and away too much from these little cars, consequently they have trouble and condemn the car for what is purely their own fault. I have driven many hundreds of miles and never been hung up yet, but have passed plenty of splendid petrol cars (of more value than fifty of mine) in a bad way and once towed one for several miles.—Yours truly,

W. T. W.

A MOTOR-CYCLE ACCIDENT.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—I have read your advice to "tap twiddlers" in the last issue of the *Journal*. While I agree with you as to the danger of such practice, I feel that the paragraph may lead some of your readers to infer that my son was of the tap-twiddling class, while, as a matter of fact, he was not only a competent motor-driver, but had also been through the mechanics' shop, and had fully three years' experience of the motor trade, being within a few weeks of the 17th birthday. From evidence of eyewitnesses my son was not riding at an excessive speed, but it was outside his power to do other than he did, and the combination of a tradesman's truck pushed by a boy from a side street on to the main road, and the electric light standard in the centre of the road, proved fatal obstacles.—Yours truly,

J. W. GREGG.

[We regret very much that our remarks were open to the inference that the accident to Mr. Gregg's son was due to incompetency. Our object was more to draw the attention of motor-cyclists to the dangers of traffic riding and of urging them to exercise caution. We extend our sympathies to Mr. Gregg in the loss of his son, who was a young and promising motor-engineer.—ED. *M. C. J.*]

THE ROADS INTO WARRINGTON.

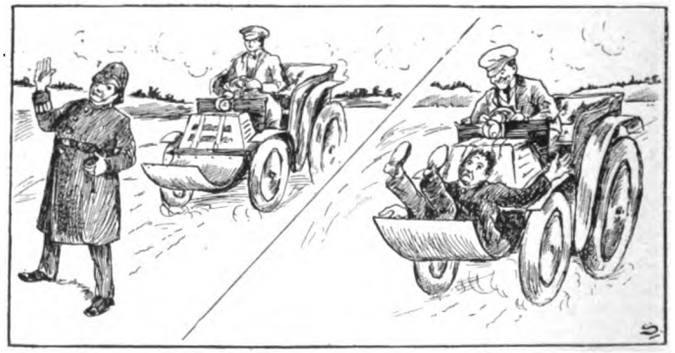
TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—May I be allowed, in the interests of motorists and motor-cyclists, to call the attention of your readers to the above-named town, which I must class as by far the most dangerous place in the British Isles in wet or greasy weather. There is, both on the northerly and southerly entrance, a double line of tram-lines—ruts should be their name—about as wide as a motor-car tyre, and once in them on a greasy day to get out of them is impossible without a skid, the size of which depends on the driver mostly. The sets between same are always very dirty and are covered with a black ooze or slime. I know many of the most expert and careful drivers who have got into lumber there; bent wheels and axles are a common occurrence. The tram "ruts" occupy the whole road, thus making it impossible to give them a miss.—Yours truly,

ONE WHO KNOWS.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—Your comment regarding the stupidity of pedestrians is not fair. It is the silly, stupid rules of the road which confuse pedestrians. It will, I think, be admitted as an axiom, that one rule, or one anything, is more easy to remember than two. Why, therefore, try to perpetuate two "Rules of the Road"? What possible advantage is there in requiring mounted people to "keep to the left," and requesting pedestrians to "keep to the right"? It is a source of serious danger. Why, therefore, do not the authorities issue an order that there is but one "rule of the road" for all—mounted and dismounted? Then it would become an



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instinct, now it is very confusing. I get off my bicycle and go into the stores, and if I am not thinking, I instinctively keep to the left, and find myself going up the wrong stairs, and, as a vast majority of the public ride something, this causes confusion. Again, two rules of the road necessitate a third rule—namely, the rule between mounted and pedestrians, and this, as far as I know, has not been defined, and if ever published, will never be correctly carried out.

At present, if I am on my motor-car and meet or overtake a mounted person, I know exactly what he will do (except, of course, in Ireland, where we always "go agin the law,") and what I will do. But if I meet pedestrians they do not know what to do, nor do I. Is not this a source of serious danger? And would it not be easily got over by having but one "rule of the road," and this rule instilled into children at school? I wrote on the subject to the Lord Mayor of London and other local mayors, to the head of the London police and others. Most of them seemed to agree with me, but wound up with *non possumus*, which is non-sense. I am surprised that the motor press has not taken up the subject. In towns the roadway and the two pavements should be each considered separate roads, and in the country the roadways and footpaths.—Yours truly,

J. R. MAGRATH (Colonel).

DRIVERS.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—As a reader of your valuable paper for some years past, I have always taken a keen interest in your correspondence. The question *re* drivers that has arisen has greatly interested me. I have to take on hands for motor work and driving for the firm I am with. For my part I should never think of employing a present-day certified man or youth. I have tried two or three of this class, and found them inefficient in every manner. If the car stops, say, for a petrol pipe being choked, they will certainly never think of looking for trouble in that direction, they generally take out sparking plugs and valves to look for the trouble. I find it pays better to have a good fitter than half-a-dozen certified men, and I shall continue to think so until men have to pass an examination such as "Adsum" and "Mechanic" suggest.—Yours truly,

FOREMAN.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—I will give an example of another trouble as regards drivers. I was driving a car for a large shipbuilding firm, and it became necessary to have an extra driver. Judge of my surprise when a so-called driver came on for 25s. a week (married), with the usual tale of the knowledge of about a dozen different cars. He did not know what a scriber was for. Anyway, I drove out with him to see what he was like, and I pitied the engine. He is the same to-day, so I left him to it and went back to the bench.—Yours truly,

A. A.

PRIMARY BATTERIES FOR CHARGING ACCUMULATORS.—Replying to Mr. W. A. Woodley, these are made by the Boron Battery Co., 131, St. Domingo Road, Liverpool, and Messrs. C. Fuller and Son, of Woodland Works, Wick Lane, Old Ford Road, London, E.

BOOK ON PETROL MOTORS.—Mr. H. Downing, who enquires for a work on the petrol motor, is recommended the one on "The Automobile," by Paul N. Hasluck, and published by Messrs. Cassell and Company.

MOTOR PLOUGHS.—Mr. J. J. Clark, who enquires for the names of makers of motor ploughs, is referred to Mr. Dan Albone, Biggleswade, Beds.

CLUBS AND ASSOCIATIONS.

THE SCOTTISH AUTOMOBILE CLUB.

THE third annual general meeting of the Western Section was held at Glasgow, on Monday, Mr. John Adam, of Larchgrove, chairman of the section, in the chair. The annual report showed the membership of the Club to be 226, an increase over that at the corresponding date last year of ninety-six, and that there was a considerable balance at the credit of the accounts. The report also stated that the handbook of hotels, petrol and charge depots, etc., will be ready for publication very shortly, and that the question of fixing a standard of density of motor spirit and other matters in relation thereto has been under the consideration of the Committee. Reference is further made to the relations between the club and public authorities, and to negotiations which have taken place with regard to the Motor Car Act, 1903, and matters arising therefrom, as well as to restrictions on the use of motor-cars which have been proposed in various instances. It is claimed that considerable advantage has resulted to the club and automobilists generally from the action of the club in these connections during the year. The report and accounts were unanimously adopted. The Honourable the Lord Provost, Sir John Ure Primrose, Bart., was re-elected Honorary President, and the following were elected the Committee for the ensuing twelve months:—Messrs. John Adam, H. W. Brock, Nicol P. Brown J. B. Talbot Crosbie, W. H. Kingsbury, D. McColl, T. Blackwood Murray, Henry M. Napier, James R Nisbet, H. Prosser, John M. Ross, J. B. Shanks, Robert J. Smith, Thos. Symington, and William Weir.

YORKSHIRE.

A GENERAL meeting of the Yorkshire club has been held at the Leeds headquarters, under the chairmanship of Mr. King, of Harrogate. The new draft of rules was thoroughly gone through, and with a little alteration was finally adopted, and the hon. secretary instructed to have them printed and sent to members. Runs were arranged for April 9, 16, 23 and 30, to Aberford, Ilkley, Doncaster and Boroughbridge respectively.

THE BRAKE POWER OF MOTOR-CARS.

SOME official tests were made by Mr. E. Hall Brown, Vice-President of the Institution of Engineers and Shipbuilders in Scotland, on the 14th and 15th inst., for the purpose of ascertaining the distance which a 10-h.p. Argyll car would travel after the brakes had been applied. The car was of the standard 10-h.p. Argyll pattern, fitted with tonneau, and carried the driver and the Observer. It was equipped with the usual foot brake and hand brake, and the tyres were pneumatic. On the 14th the roads were not quite dry, as there had been frost in the morning and the sunshine had softened them slightly without completely drying them. On the 15th the roads were somewhat dryer.

Mr. Brown in his report states:—The method of testing was as follows: The car was run on the level road and timed between milestones, and was set for a speed of practically 20 miles per hour. The speed having been fixed, the adjustment of the engine was allowed to remain unaltered during the tests. The distance travelled after the application of the brakes was determined in the following manner: A body of suitable shape to prevent movement after it fell upon the road was dropped from a height of four feet above the ground at the same instant that the signal was given to the driver to apply the brakes. The distance between the body lying on the road and the position in which the car stopped was then measured. To this measured distance was added the distance which the body would travel forward while falling four feet. In other words, as the body would take half a second to reach the ground from a height of four feet, and would at the same time have the forward velocity of the car at the speed for which the engine was set, viz., 20 miles per hour, the distance of 14·6 feet would have to be added to the measured distance on the road.

Upon this basis, the results of the tests were as follows:—

Speed of Car.	Number of Brakes Used.	Distance traversed after application of Brakes.
Trials, 14th March, 1904.		
20 miles per hour	one	17·88 yards.
15 „	two	13·66 „
20 „	two	13·55 „
19·6 „	two	13·88 „
20 „	one	10·88 „
Trials, 15th March, 1904.		
21·5 „	one	10·91 „
20 „	one	14·21 „

The Hozier Engineering Company decided on having these private tests made in order to prove the actual distance in which one of their cars can be stopped when going at approximately twenty miles per hour, they having found a great deal of doubt about this matter in the public mind. In concluding his report Mr. Brown states that he is convinced that upon ordinary macadamized roads, under the conditions in which the tests were made, this car can be stopped at a speed of twenty miles per hour within twelve to eighteen yards from the point at which the brake or brakes are applied. It would also seem that as the foot brake is sufficiently powerful to cause the wheels to skid, as quick a stop can be made with one brake as with two.

RESPONSIBILITY IN REGARD TO DRIVERS.

AT the Marylebone County Court, on Monday, before Deputy Judge Fitzroy Cowper, Friswell, Limited, sought to recover £21 5s. from Dr. F. F. Burghard, of Harley Street, W., the claim being in respect of the supply of a chauffeur, and of work done to a motor-car. The defendant counterclaimed for £40 for loss alleged to have been suffered owing to the negligent driving of one of the plaintiffs' servants.

It was explained that the case involved an important question as to trade custom, namely, whether the plaintiffs were responsible for negligent driving on the part of the chauffeur sent out by them to the defendant's orders—presuming there was, in fact, such negligence.

Mr. G. Lewin, manager to the plaintiffs, said that two accidents which had occurred while the chauffeur was driving the car were caused through the car being defective. Both before the first accident and after it witness explained to defendant's wife that his people did not accept any responsibility on regard to the supply of chauffeurs. A notification to this effect was also on their notepaper. It was the custom of the trade to accept no responsibility when sending out a chauffeur.

In re-examination, witness said that when a chauffeur was supplied to customers the man was always under the control of the customers, and so it would be unreasonable to expect those who supplied him to be responsible for any negligence on his part, if there were any.

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The defendant stated that he bought the motor-car in question last October, and understood that it was new a few months previously. The chauffeur sent was incompetent, and he could not rectify most simple things in the arrangement of the gear. On one occasion the chauffeur ran into a stationary tramcar, apparently omitting to put on the brakes.

In cross-examination, defendant denied that when on the car he had told the chauffeur when to drive slowly, or given such instructions.

Mr. Charles R. Andrews, manager to the Paddington Motor Company, said it was a recognised custom of the trade that no responsibility should be taken by a firm in regard to the acts of a driver sent out by them.

Mr. F. Partridge, manager to the Holland Park Motor Company, Notting Hill, agreed with the last witness as to the custom of the trade.

John Barker, chauffeur, referred to above, stated that he was twenty years of age. He had duly served his apprenticeship and had driven all types of cars, altogether some 50,000 miles or more. There was no "governor" on the defendant's car, and the "clutch" was very "fierce." The accidents occurred in consequence of the brakes being defective.

The judge found in favour of the plaintiffs on the claim. With regard to the counterclaim, his Honour said he was not satisfied that there was a custom of the trade to the effect that firms sending out drivers did not hold themselves responsible for what might happen while the driver was working the car. The onus was upon the plaintiffs to prove the custom, but his Honour thought they had failed to do so. The contract was to supply a competent driver, but his Honour came to the conclusion that although the man was not absolutely incompetent he was not thoroughly competent, and in one or two respects it appeared that the driver was negligent. On the counterclaim there would be judgment for the defendant for £29 5s. 6d., with costs on both sides.

MOTOR v. HORSE TRACTION.

In a recent issue we gave the testimony of a user of a Foden steam wagon as to the economy it had effected over the horse traction formerly employed. We are now able to give exact figures of the economy a five-ton Yorkshire steam wagon has shown in the service of Messrs. Bellamy Brothers, Limited, mineral water manufacturers, Grimsby, as compared with horses.

This firm report that the wagon, doing thirty-five to forty-five miles per day, with full loads, will do the work of eight horses (working in pairs) on one ton of coké per week. They have found the relative weekly cost of each, in their work, runs out as follows :—

HORSES.

	£.	s.	d.
8 horses—Keeping, Shoeing, etc.	5	12	0
2 Drivers at 25s.	2	10	0
2 Youths at 12s.	1	4	0
	£9	6	0

MOTOR.

	£	s.	d.
1 ton Coke	0	10	0
Oil, etc.	0	3	0
1 Driver	1	5	0
1 Salesman	1	5	0
1 Youth	0	12	0
	£3	15	0

Messrs. Bellamy add that the horses doing country work can only work on alternate days, and that thus one driver requires four horses, whilst the motor, having proper attention, is ready every morning. As to interest on cost and depreciation after twelve months' experience with the motor-wagon they find it greatly in favour of the latter.

WARRANT ISSUED.

At the Alfreton Police-court, Frederick Holborough, of Sheffield, has been charged with negligently driving a motor-car at Alfreton on February 20th. Henry Stoppard, of Somercotes, said he was driving a horse and van in Alfreton on the evening in question about seven. The defendant was standing for a short time and afterwards started his car, which ran into plaintiff's vehicle, breaking both shafts. Witness asked the man for his name and address, but he drove off as quickly as possible. In the excitement witness did not take his number, but fortunately he got it from a constable who had seen the defendant pass through another portion of the town. Holborough did not appear, and the question arose in the minds of the magistrates as to the identity of the defendant. In the end they adjourned the case for a fortnight, and ordered a warrant to be issued for the arrest of the man.

CASE DISMISSED.

On Wednesday the Earl of Wicklow appeared at Mortlake to answer a charge under the Motor Car Act of last year of driving a motor-car at an alleged speed of 22½ miles at Castlenau, Barnes, on February 27th. Mr. Staplee rth appeared for the defendant and the case was dismissed.

MOTOR-CAR CONSTRUCTION.

At a meeting of the Cleveland Institution of Engineers, held at Middlesbrough on Monday, Mr. Arthur M. Hall read an interesting paper on "Motor-Car Construction." The author gave at some length the early history of the motor-car, stating that the French considered Cugnot with his steam carriage the inventor, while the English would look upon Trevithick, the Cornishman, and the right hand man of Boulton and Watt, as the inventor. But for fifty years after their day little was done, until several Englishmen, among them Gurney, Somers, Ogle, Hancock and Stone, constructed steam passenger coaches with which they were able to run considerable distances and practically without breakdown. Gurney's carriage averaged fourteen miles per hour, Somers' and Ogle's thirty-five, and Hancock's twenty-four. But further progress was stopped in 1832, when the House of Commons passed a law requiring that a man with a red flag during the day and a red lamp at night should precede every motor-vehicle at a distance of 100 yards. Little more was heard of motor-cars till about 1873, when Leon Bollée constructed his first steam car, which attained a maximum speed of twenty-four miles per hour, and weighed 3½ tons. De Dion, Serpollet and others followed with steam carriages, with which they attained satisfactory results; but it was not till 1889 that the first internal combustion engine was applied to automobiles under the patents of Daimler and also Benz. In 1894 Panhard and Levassor commenced the manufacture of motor-cars with petrol motors, which they constructed under the Daimler patent. Their first cars embodied many features which have since been almost universally adopted by other makers, among them being motor in front of the car under bonnet, cone friction clutch, variable meshing gears, differential and chain drive.

The petrol engine as used in motor-cars was almost universally of the four-cycle type, the four strokes of the piston comprising the cycle being suction, compression, explosion, and exhaust. The cylinders were generally of hard cast iron, the water jacket, ports, and valves being all cast in one piece. During 1902 and 1903 many prominent makers built their cylinders by casting the water jacket, ports and valve chambers in one piece of aluminium, and screwing into the casting a steel cylinder for the piston to work in. That had not fulfilled expectations. The unequal expansion of the different metals and the difficulty of keeping the water joints tight had prevented its general adoption. It was found difficult to lubricate the cylinder, and it was stated the steel walls of the cylinder set up more friction than cast iron.

The author then described and detailed the recent improvements that had been made in the various parts of the motor-car, particularly the valves, flywheels, piston, clutch, carburettors, transmission gear, brakes, control, etc. With regard to the future of the motor-car, Mr. Hall said that a first-class one was as reliable as the best type of locomotive on our British railways, but, like all other pieces of mechanism, material and workmanship must be paid for. Any one who wanted one cheap would buy an inferior article and spend many an hour on the road doing repairs. The very reliability and automatic action of a motor-car was a source of many of the troubles met with by careless users; it was quite easy to run a car all day and not look at its mechanism, but that could not be continued every day. If the average motor-car received a quarter of the attention which a good locomotive received or that a man would devote to his horse, much less trouble would result. The motor-car was more economical, notwithstanding its cost; it was more reliable and obedient to the driver, quicker and more comfortable. Although its use was extending considerably every day, it was only the social side of motoring that had made much progress, the commercial side—that of road haulage and delivery of goods—was almost untouched. When those who are interested in heavy haulage begin to appreciate the advantage and economy of motor-haulage on roads the industry will receive great impetus.

TO CORRESPONDENTS.

All communications intended for insertion in this Journal or relating to Editorial matters should be addressed to The Editorial Department, Motor-Car Journal, *39 and 40, Shoe Lane, London, E.C., and must be written on one side of the paper only. Letters must in all cases be accompanied by the name and address of the writer, as no notice will be taken of anonymous communications.*

The Editors cannot undertake to return MSS. or drawings, although every effort will be made to do so in the case of rejected communications. Where such are regarded as of value, correspondents are requested to retain copies.

To insure insertion communications and contributions must be in the Editor's hands by Tuesday forenoon of the week in which the same are intended to appear. Disappointment may be caused by non-compliance with this rule, and to avoid this earlier receipt, if possible, is necessary.

The Editors do not hold themselves responsible for the opinions expressed by their correspondents, or for statements and facts which do not appear in the editorial columns.

The Editors and Publishers beg also to state that they will accept no responsibility for unsolicited contributions, even if used, unless payment for same is directly specified in forwarding, and the terms arranged before publication.

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THE

Motor-Car Journal.

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COMMENTS.



AS already announced, the application of the Winchester city authorities to restrict the speed of automobiles passing through the area of their jurisdiction to ten miles an hour has been the subject of an enquiry by the Local Government Board. After the representatives of the A.C.G.B.I. had given evidence, three magistrates testified to the absence of any real reason for such a restriction—Colonel Willan, chairman of the Southampton County Bench; Colonel Stratton Bates, a J.P. of forty-one years' standing; and Alderman Scott Foster, of Portsmouth, the latter of whom said that his borough had streets quite as narrow as Winchester, and tram lines as well. There had been no motor prosecution in Portsmouth for more than a year. Among other witnesses was the proprietor of the George Hotel, who said that he had forty to fifty motoring visitors a week, and would undoubtedly lose their custom if the ten miles limit were imposed. The report of the Local Government Board on the subject will be sent to the Winchester Council in due course.

An End-to-End Run.

MR. DOUGLAS WHITEHEAD'S motor-car run from John o' Groat's to Land's End on a 10-h.p. Argyll car has attracted considerable attention. Starting at 8.15 on the morning of Thursday, the 24th ult., he arrived at Glasgow shortly after midnight, crossing the border at 5 o'clock on Friday morning. The party reached Kendal at 8 a.m., and Warrington at 11.20. The weather changed as they proceeded southwards and heavy rain threatened, but there were only occasional sleet squalls, not affecting the roads. The car arrived at Bristol at 6.50 p.m. on Friday, having covered 700 miles in 34 hours 35 minutes. Here relays of petrol were not ready, the car being two hours before its time. Thus there was a delay of an hour and a half. This was in part atoned for by an excellent run to Okehampton, near which place the driver missed his way in the dark, went several miles astray, and finally pulled up in a churchyard. Turning back, the party reached the village and found that everybody was in bed. They knocked at several houses, but, getting no response, had to sleep in their seats. Resuming the run after three hours and a half, and taking local guidance, they arrived at Bodmin, stopped 58 minutes for breakfast, and pushed on to Land's End, which was reached at 12.50—making an end-to-end run of 52 hours and 35 minutes, and beating the record held by Mr. J. W. Stocks by nearly ten hours. The time actually spent in running was 45 hours and 3 minutes, lowering the record by 3 hrs. 10 min.

Difficulties of Non-stop Runs.

THE attempt to make an absolute non-stop run had to be abandoned on the first day, closed gates at level crossings being insuperable difficulties. Then, again, droves of sheep twice compelled a halt. The drivers had no sleep for two nights, and food and drink were taken under some difficulty. Mr. Whitehead was relieved in driving by Mr. R. Carlisle. The Hozier Company may be congratulated on the successful run of their car over a route of 927½ miles.

An Ex-Coachman's Views.

THE correspondence on drivers is getting personal, and "One with the Times" gives a hint which must not be overlooked. He compares the personal appearance of the groom and the mechanic, and apparently pays heed to the importance of the collar. This is a point that many mechanics overlook; it is a small one—and one that should not be neglected. Probably this ex-coachman's letter will bring some other motor drivers into the fray.

The Motor Volunteers.

SEVERAL members of the Motor Volunteer Corps have been engaged on a tour of inspection under the General Officer commanding Eastern District, visiting Brentwood, Bently, Kelvedon, Hatch and Ongar, etc., Messrs. E. E. Bentall, W. Bloomfield, C. Knight, and F. Sinclair being prominent in this connection. Mr. J. P. Dean has driven from Warminster to Southampton, and from thence he drove the Quartermaster-General Southern District to Lyndhurst, Romsey, and Botley in connection with a Staff ride. Mr. Harvey Dixon drove from Emsworth to Southampton, and thence drove the General Officer commanding Southern District to Beaulieu, Brockenhurst, Lyndhurst, and back to Southampton, on a Staff ride, on the 9th ult. Captain and Adjutant G. Skeffington Smyth has rejoined the corps from leave of absence, and resumed his duties with this useful auxiliary to the military forces of the country.

Motorists on Local Authorities.

BY securing election to local authorities motorists can do much to assist the movement, as was evident from some remarks which fell from the lips of the President of the East Surrey Club at the meeting of that body on Saturday. Major Foster said he was now a member of the Highways Committee of the Surrey County Council, and he considered it the blue ribbon of the Council. He asked all the members to let him know if they came across any bad pieces of main road, when he would at once bring the matter before the highway surveyor. Such an invitation should be readily responded to.

The Motor May Day.

THE May Day Parade of Motor Delivery Vans under the auspices of the Motor Van and Wagon Users' Association, to which we made reference last week, will take place on the afternoon of Saturday, the 30th inst. Should the Commissioner of Police assent to the proposal it will probably be held on the Thames Embankment, London, at 3 p.m., and only good weather will then be required to make the venture a thorough success. The work of organising the Parade will be no light task, but Mr. Basil Joy, the Technical Secretary of the A.C.G.B.I., who will be responsible, may be expected to have everything in perfect order and to make the event run as smoothly as the vehicles themselves.

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The object of the parade is to encourage the drivers of heavy vehicles to pay careful attention to them with a view to the reduction of wear and tear and the cost of up-keep. Prizes to the amount of £50 will be given to the drivers for the best kept vehicle, and, up to the present, very favourable replies have been received to a circular letter which has been sent out to van owners who, even if they are unable to take part, have been good enough to wish the Automobile Club every success in its enterprise.

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Lamps.

ACETYLENE lamps are a source of worry as well as of illumination, and many are the devices made to obviate their disadvantages. Many of these were shown at the recent Exhibition, and some of the inventions in this direction were nearly perfect. Some discussion on the subject of acetylene lamps has lately arisen in fire brigade circles, and advocates have come forth to defend the old plan of filling a lamp with pieces of camphor, pouring oil into it, and using the wick. The idea will probably be tried by some of our readers using paraffin lights, and their experience might provide some useful reading. We believe the tendency of such a plan is to hasten the charring of the wick; otherwise a clearer and whiter light is obtained. In connection with acetylene lamps, it is often found that some solid particles will pass with the gas to the burner, resulting in clogging it. To obviate this, a small piece of sponge placed at the outlet of the reservoir where the gas emerges will be found useful; this soaks up the moisture and likewise acts as a purifier, with most beneficial results, as only dry gas can then pass to the burner.

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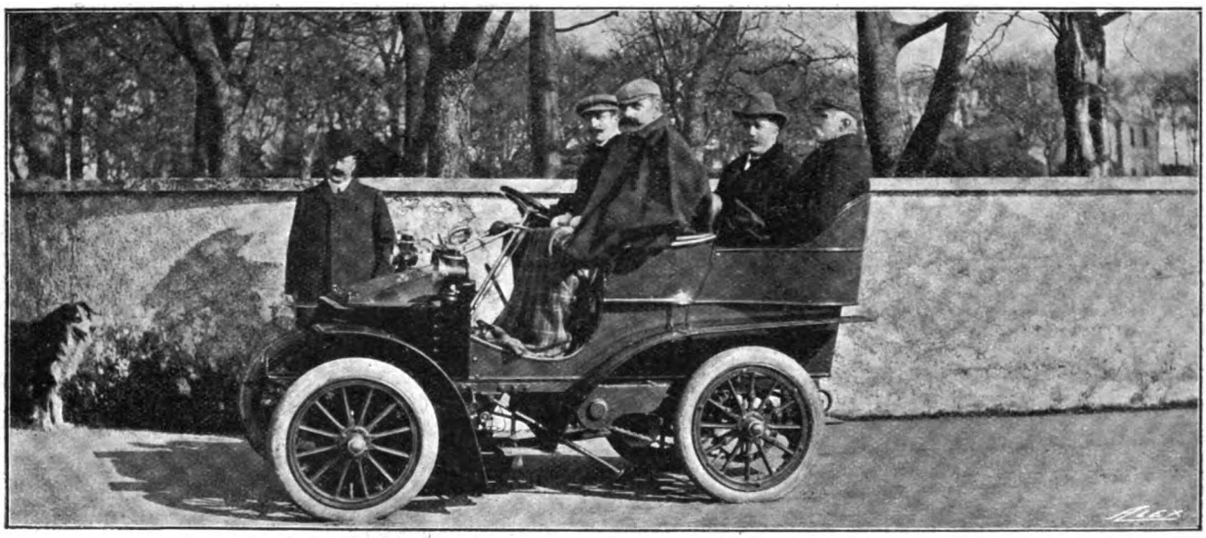
Motorists as Robbers.

FREQUENTLY have we told of the assistance rendered to the police by motorists who have placed their cars at the disposal of the limbs of the law for the pursuit and capture of evil doers. At Widnes the tables have been turned, and investigations in connection with a recent highway robbery in that district seem to indicate that the outrage just committed was the work of a well-organised gang—just the same as that which was responsible for an unelucidated daylight robbery some months since. In the latter instance strong suspicions were attached to a motor-car which was seen in the village at about the time when the robbery was committed. In the present case the trap containing the assailants was preceded along the roads leading to Rainhill by an automobile, to which it is believed the booty was transferred. Strength is lent to the supposition that the two conveyances were in league with one another by the fact that at the later stage of the journey—during which the assailants frequently changed their attire—the driver of the trap was seen to be wearing a motorist's cap. It has also been ascertained that a strange motor-car, which the police have so far been unable to trace, was seen in Lymm on the same evening as that when the horse and trap used by the thieves were stolen.

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Motoring Law for Bombay.

IN the Bombay Legislative Council, a Bill to regulate the use of motor-cars in the Presidency has been introduced, and in moving the second reading Mr. Fulton said it had been decided that it was not desirable to prescribe any definite limit of speed. What they did prohibit in the Bill was reckless driving, and they reserved to the Government power to make rules limiting the speed at which motor-cars could be driven in particular places if it should be found necessary. It would, perhaps, be needful to lay down a limit of speed on the Ghauts on the way to Mahableshwar, and there were certain crowded streets of Bombay in which he thought it might be necessary to put notices regarding speed, but such regulations would have to be worked out by degrees. The Bill proposed to make rules for the numbering of cars in the same way as was being done in England. They proposed to prohibit public motor-cars from being let or from plying for hire in any particular roads except with Government permits. With regard to the granting of monopolies it had been decided that in the first instance none should be given to any company. They would see after two or three years if public competition was sufficient to provide an efficient service of cars. If it were, the question of a monopoly would not be revived, otherwise they might encourage some company by offering them the exclusive rights for a limited number of years.



The Lieut.-Governor, the Chief of the Police, and the Chairman of the Highway Board surveying the Eliminating Course in the Isle of Man. Mr. Julian Orde, Secretary of the A.C.G.B.I., at the wheel. (*See page* 95.)

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Feeders to Railways.

SOME time ago Sir Wilfrid Lawson, who is chairman of the Maryport and Carlisle Railway Company, referred to motor-cars as likely feeders to railway companies. Mr. J. Dixon, of Maryport, has lately urged him to bring before his co-directors the advisability of establishing a motor-car or a motor-'bus service between Allonby and Silloth. This he has promised to do, and Mr. Carr, the manager of the company, is, we believe, sympathetic to the idea. All over the country the railway directors are beginning to recognise the necessity of assisting the travelling public by the provision of such

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services. We shall be glad to hear of similar enterprises by smaller railway companies elsewhere.

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Police Zeal too Zealous.

THE superlative character of the zeal shown by the police in some localities in the enforcement of the Motor-Car Act is really too pathetic. At the Woolwich Police Court a young gentleman, living at Chislehurst was summoned by the police for driving a motor-cycle on the highway at Eltham, and failing to produce his licence when demanded by the police. The defendant pleaded guilty, but said there were extenuating circumstances. He started to drive to London, and running short of petrol he took the cycle to a shop for a further supply. He saw another motor there and asked whether he might try it. Without knowing that the numbers were not on he took it for a short spin, but he had not gone far before he met the constable, who asked to see his licence, which he had naturally left in the saddle of his own machine. Mr. Baggally (to the constable).—Did he tell you this? The Constable.—Yes. Mr. Baggally.—Why did you not tell me this? "It makes all the difference. A man may accidentally leave his season ticket at home; but that is altogether different to the case of a man who travels on the railway without a ticket. This is the sort of thing that makes people so angry with the police. The defendant not producing his licence is accounted for, and the summons is dismissed." We would congratulate the magistrate, Mr. Baggally, on his display of judicial common sense—a quality which might well be extended beyond Woolwich.

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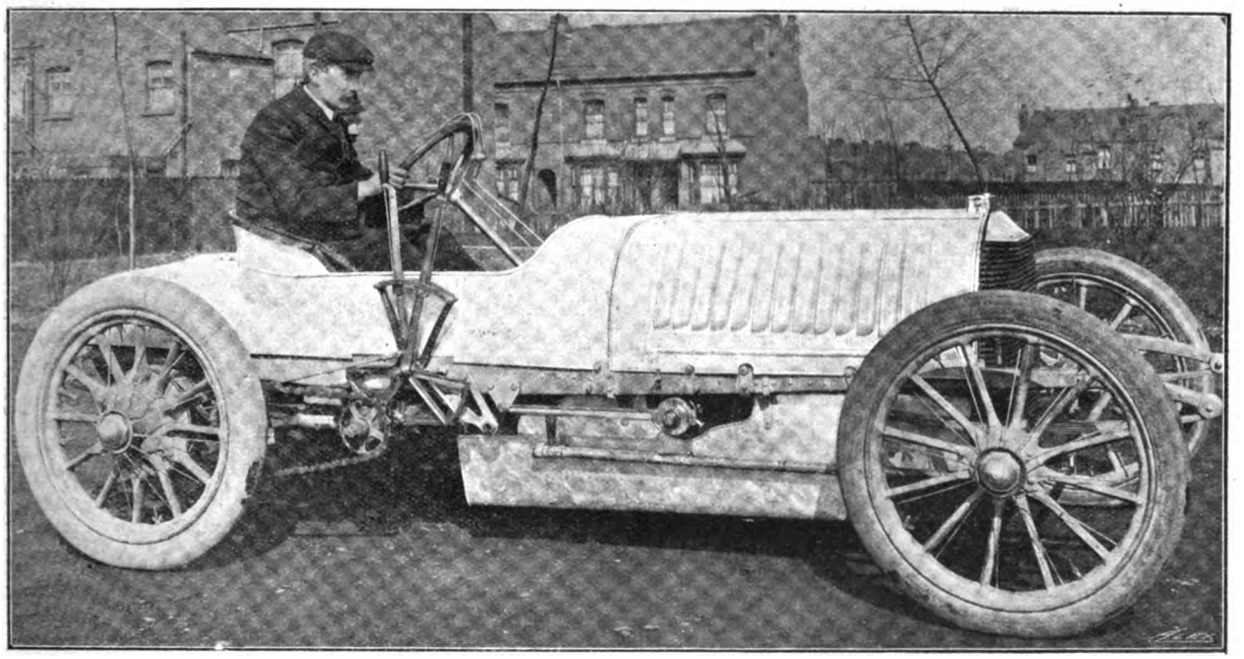
Motor Parties.

BOTH at the Exhibition and since the closing of its doors we have received requests from people living in the north of London asking if we are organising any Motor Parties this summer—a development of journalistic enterprise in which we do not propose to embark. But the fact that such applications have been made testifies to the good influence of the Show in inciting public interest in motoring. Throughout the past fortnight cars have been so freely seen in the district that the curiosity for motor-car rides is undoubted, and any firm that would start a regular series of day trips from the northern suburbs to Windsor, the Garden City, Buckinghamshire, and other districts in that direction should find profit as well as pleasure in the scheme.

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Electricity and Automobilism.

BEFORE the eastern section of the Scottish Club, Mr. R. W. Hogarth has been lecturing on the electrical associations of automobilism. He reviewed three leading aspects of the subject, viz., the use of electricity as a means of igniting the explosive mixture in petrol cars, the electrically propelled motor-car, and the combined petrol-electric car. In dealing with the first, the respective merits of the battery and induction coil method and the magneto machine were discussed. A preference was expressed for accumulators over primary batteries as a source of energy for the induction coil method, and the author believed that many failures of ignition apparatus in the past had been due solely to slipshod work, particularly in regard to details of wiring and terminals, &c. He was also of opinion that the magneto method would shortly oust the battery system, since the sparking was much more powerful and regular, and moreover the system lent itself better to the multi-cylinder engines now being made. The latest Simms high-tension magneto was shown, this being a very compact apparatus which can easily be applied to any car. In regard to electric motor-cars these of course were driven by energy supplied by accumulators carried on the cars, which accumulators had to be recharged after a comparatively short run. They were both heavy and costly to maintain, and although great improvements in accumulator detail had recently been made the author did not think much advance would be made in this type of motor-car until some radical improvement in accumulators was effected. The combination of a petrol engine and dynamo with driving by electric motor had been experimentally tried and promised well, although at first sight the method might appear to be a very roundabout one. The method gave all the well-known advantages of electrical driving and control, and if, as seemed probable, the petrol turbine could be made a practical machine, there appeared to be a future for the combination. There certainly was room for improvement in efficiency of all the types of cars. In steam-driven cars it was computed that the efficiency as expressed in the ratio between the energy contained in the fuel burnt and the energy utilised at



The Welseley 72 h.p. Gordon Bennett Racer. (*See page* 95.)

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the tyre was less than 4 per cent., in petrol driven cars about 6 per cent. or 7 per cent., and in electrically driven motor-cars (accumulators being originally charged by steam driven dynamos) the total efficiency on the same basis was about 4 per cent.

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Slow Progress in Ireland.

Now and again news of the Pirrie-Iveagh motor transport scheme filters across the Irish Sea, and, apparently, matters are moving slowly. A special meeting of the Galway County Council has been held for the purpose of considering the proposal of Lord Iveagh to establish a motor-car service for the conveyance of live stock and merchandise between Galway and Costelloe, in Connemara. The promoters desired that before entering on the enterprise the roads leading from Galway to the place of destination should be put in thorough order, so as to meet the requirements of the Local Government Inspector. The Council decided to afford every facility for the purpose, even to the extent of expending a couple of thousand pounds on the roads if necessary. The Urban Council at their meeting also gave permission to have the roads in their jurisdiction used for motor traffic. Local authorities are thus assisting the movement; why do not the central movers in the scheme travel more rapidly in the matter?

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Excitement in Singapore.

EXCITEMENT is great among the rikisha pullers of Singapore at the advent of the motor-car, and one of these gentry with his Chinese fare had a startling time in the High Street a few weeks ago. The rikisha was proceeding along the thoroughfare at the usual leisurely pace, when, it is alleged, a motor-car dashed into it. The passenger described a double somersault in the air and landed on his feet; the puller disappeared beneath the remains of his vehicle, which was smashed, and when he came to his senses he began picking up the fragments so that none might remain. In time he had an armful of firewood, which represented his rikisha. The Chinese passenger was too amazed to say or do anything. The motor-car, according to spectators, was uninjured.

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Lights on Vehicles.

THE L.N.W. RAILWAY COMPANY have a service of huge horse-drawn lorries running between Berkhamsted and Chesham, and during the past winter there have been several narrow escapes from accident brought about by these lorries carrying no tail lamps. The matter was taken up by one of the Committee of the Hertfordshire Automobile Club, and as a result of his correspondence with the Company, these vehicles are now furnished with very efficient red tail lamps. It is due to the railway authorities to say that their attitude with regard to the matter has been eminently reasonable, and that they have shown a prompt and praiseworthy regard for the rights and safety of other road-users. The Club may congratulate itself on its success in this matter, which may rightly be regarded as establishing an important principle.

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Steam Carriages.

FROM Messrs. Longmans, Green and Company we have received a copy of Mr. William Fletcher's new book on English and American Steam Carriages and Traction Engines. This is not the first volume Mr. Fletcher has written on the subject, but is practically a continuation of the same author's work on Steam Locomotives on Common Roads, published three years ago. Mr. Fletcher was a contributor on the subject to "Industries" from 1886 till the time it was practically merged into the *Motor-Car Journal*, and is as familiar with the subject as anybody who has written upon steam carriages. The work is divided into a dozen chapters, and includes sections devoted to self-contained passenger coaches, modern steam carriages, modern road locomotives, and traction engines, as well as road locomotives and trains for passengers and goods. The value of its 400 pages is enhanced by some 250 illustrations, including all the modern types of traction engines with which we are now familiar on the road. To those who have followed the history of this interesting branch of automobilism, Mr. Fletcher's work will be of undoubted interest and value.

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1905.

BEFORE the last of the cars had departed from the Agricultural Hall sufficient spaces had been let for next year's exhibition to warrant the prediction of continued success for this annual series of motor-car shows. The plan and prospectus is now ready, and several firms who were late in inquiring for stands at the Exhibition just closed have decided to book spaces without delay to avoid disappointment for 1905.

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To Advertisers.

A CORRESPONDENT, who apparently finds our advertisement columns of considerable interest, makes a suggestion which we commend to those gentlemen in the habit of using our small advertisement pages to make known their wants, whether in the way of cars or of drivers. He suggests that advertisers should use the name of their county when inviting replies to be addressed to a box number. The advantage of such a plan would be that drivers seeking situations would have some idea of the district with which they were concerned, while those on the look-out for cars would learn equally well, without actually identifying the seller, where the vehicle was to be found. It is a matter, however, in which no hard and fast lines can be suggested, but probably our advertisement columns may shortly show that some enterprising advertisers have taken the hint.

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Club News.

ON Saturday next, the 9th inst., the Yorkshire Club will commence the season with a run to Aberford, and on the succeeding Saturdays in April meets will be aranged to Ilkley, Doncaster, and Boroughbridge respectively. The Hertfordshire Club held its inaugural run last Saturday, starting from St. Albans, and, after a stop at Hatfield, proceeded to Hertford, and thence to Stevenage. From the latter place a return was made to the Red Lion Hotel at Hatfield, where tea was served. About thirty members took part in the event, and a most enjoyable afternoon was spent. Yet another item of club news comes from Preston, where it has been decided to form an Automobile Club, with Mr. J. Todd as president, Mr. Charles Wilding as secretary, and Mr. Humphreys as treasurer. Hardly a week now passes when we do not hear of the formation of an automobile association in some part of the country or other, and it is evident that these local clubs are forming an important factor in the automobile education of the public.

A RECENT distinguished addition to the ranks of motorists in Mexico is Sr. Ramon Corral, the Minister of the Interior, who has acquired a Winton 20-h.p. car.

THE new catalogue issued by Messrs. A. W. Gamage, Limited, extends to seventy-two large pages and will be found handy book of reference to motorists generally.

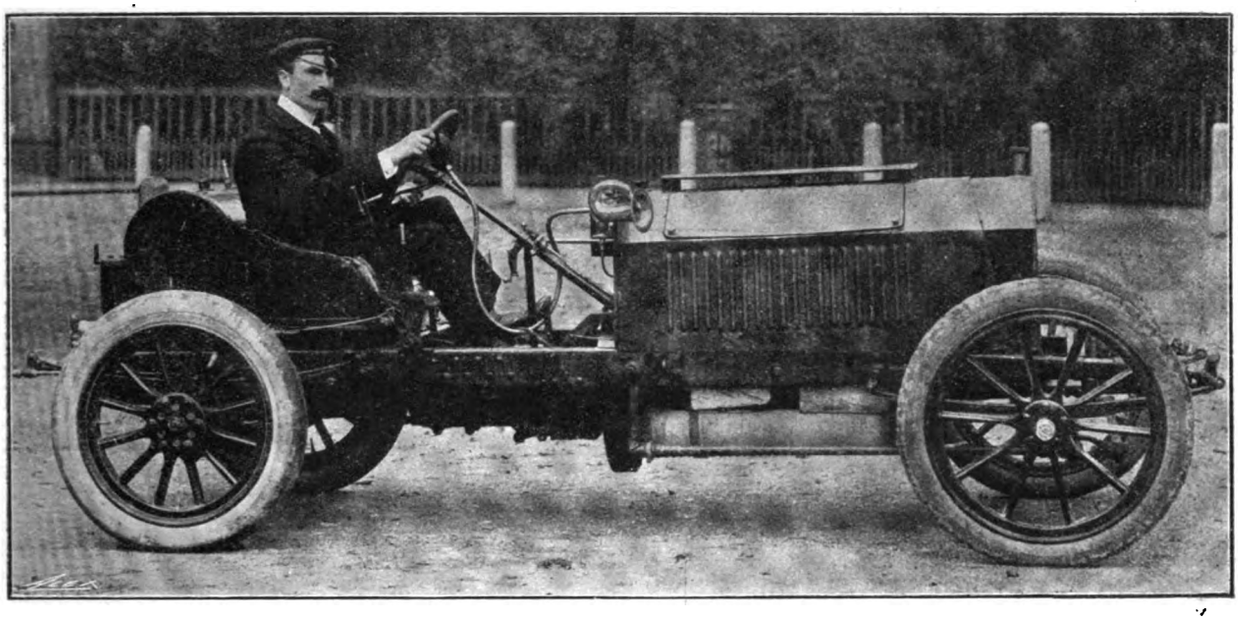
THE value of the foreign motor-cars imported into Germany during last year is returned at £253,750, as compared with £177,700 in 1902. By far the largest imports were of French origin.

A NEW feature of intercollegiate sport in America is likely to be introduced this year in a speed contest between the universities of Pennsylvania, Harvard, Yale and Princeton, all four having flourishing automobile clubs.

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GORDON BENNETT RACE NOTES.

THE accompanying illustration shows Mr. S. F. Edge on his Napier 1904 Gordon Bennett racer—a four-cylinder car with the usual type of Napier engine. Of 80-h.p., the motor is extraordinarily light, its weight being only about 500 lbs. The engine differs from that of Colonel Mark Mayhew's by having multiple port suction valves atmospherically operated instead of mechanically, as Mr. Edge considers that in a four-cylinder racing engine one gets more life from the atmospheric valve. The motor is of course fitted with the Napier high-tension synchronised ignition. Every effort has been made to ensure that the car shall start and stop very quickly. It has three speeds forward and one reverse, and metal-to-metal clutch, exceedingly long springs, a steel frame tapered at both ends, with the springs carried right outside to the frame. On top speed the drive is direct from the engine to the live back axle. Mr. Edge informs us that the engine is exceedingly flexible, enabling the car to run from twenty to eighty miles per hour on the top speed without changing speed. The road wheels are 34 in. in diameter, shod with 120 mm. tyres on the back and 90 mm. on the front. The weight of the complete car is 963 kilos, so that it is well under the permitted weight.



Mr. S. F. Edge on his 80-h.p. Four-Cylinder Napier Racer.

WE are also able to illustrate on page 93 the 72-h.p. racer which has been entered by the Wolseley Company for the British eliminating trials in connection with the Gordon Bennett contest. The main dimensions are:—Wheel base, 8 ft. 7 in.; track, 4 ft. 6 in.; rear wheels, 36 in. diameter and 5 in. tyres; front wheels, 24 in. diameter and 3½ in. tyres. The motor has four cylinders of the horizontal type; it is suspended in the frame immediately below and in front of the dashboard, and is in such a position that the *mecanicien* may be able to make adjustments whilst travelling. It is fed by an equalising carburettor of special design, one jet supplying the four cylinders. The flywheel is of extra large diameter and the motor can be very rapidly accelerated. The radiator consists of a nest of tubes encircled by the water tank, placed in front of the car, with a fan working immediately behind it, driven from the motor by means of gearing. The gear box is suspended from three points, and is provided with four speeds forward and one reverse. All the gear shafts run on ball bearings. Both front and back axles are of I section steel, and the wheels are of the artillery type reinforced with wire spokes to take the side strains. The steering pillar is placed at an angle of 35 degrees, the ignition and throttle levers being brought into a very convenient position for the driver. The body takes the form of a very low boat-shaped hood extending from front to back. Louvres are provided in the bonnet to assist in cooling the motor. The petrol and oil supplies and pressure gauges are all placed so that the *mecanicien* has them constantly under observation, the commutator especially being placed so that it can be got at without trouble. Both foot and hand brakes act on the back wheels, the foot brakes being of the Wolseley special internal expansion type, the hand brake operating bands working on drums which are part of the chain wheel castings. In its road trials this car has proved itself very reliable, the chief features being its stability and easy running at high speed. Owing to the low centre of gravity obtained by the arrangement of the mechanism it has been found possible to take corners at a very high rate of speed.

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MR. RAWLINSON and Mr. Girling have been motoring in the Isle of Man during the last few days, and with other well-known motorists will become well acquainted with the proposed route before May 10th—the date of the Eliminating Contest. Meanwhile Mr. Orde has been on the island actively engaged in making preliminary arrangements for the trials; he has gone over the proposed route with the Governor and Deemster Kneen, and has met the members of the Highway Board, whose workmen are making repairs to the roads where needed as rapidly as possible. Mr. Orde made his headquarters at the Peveril Hotel, Douglas. It is proposed to have the starting point on the Quarter Bridge Road, between Woodlands and Bray Hill. The competitors will go southwards over Richmond Hill and through Ballasalla; they will pass King William's College and go along the Victoria Road, avoiding the narrow and busier streets of Castletown. Thence the route turns northwards to Foxdale, Ballacraine, Glen Helen, Creg Willey's Hill, Michael, Ballaugh, and Sulby, to Ramsey. Turning homewards, the route, instead of being taken by way of Laxey, will be by the new mountain road over Park Llewellyn and the shoulder of Snaefell, and down the hill past Creg-na-baa to the starting point. It is considered that this amended route has several advantages over that originally fixed upon. The cars will have to ascend Richmond Hill and Creg Willey's Hill instead of descending them. On the other hand, they will have a rather steep down grade from Snaefell. The greatest advantage of the route is, however, that it will avoid in the most convenient manner going through Ramsey, Laxey, and Onchan, where the possibility of danger, and the establishment of "controls," might militate against the success of the race.

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There is very little difference in the mileage of the amended and the former route.

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ANNOUNCEMENT is made that Mr. Joseph Tracy will be the driver for the entry of the Peerless Motor Car Company in the Cup race. Mr. Tracy, who drove the old Cup racer a mile over the Ormonde Beach in 45 2-5 seconds, will drive a car in the A.C.A. elimination trials, and, if selected, will start for Europe early enough to familiarize himself with the course. The Peerless Company is building three machines for the trials, and beside Mr. Tracy, Mr. L. P. Mooers will, it is said, again try his hand at speed work. The car which works the best will be sent to Germany in charge of Mr. Tracy.

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THE engines of the racing cars which the Opel Company are building for the German eliminating trials will have four separate cylinders, the crank shaft having altogether five bearings.

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THE Villiers Hotel Company have taken the Drill Hall, in Douglas, for the storage of the cars of guests who will be staying at the hotel during the contest.

MESSRS. LEGROS AND KNOWLES, LIMITED, has been registered with a capital of £20,000 to carry on the business of manufacturers of motor-cars, etc.

THE British Automobile Commercial Syndicate, Limited, have been appointed sole agents for the "Hotchkiss" cars, which attracted so much attention at the Exhibition last week.

THE North British Rubber Company, Limited, have issued a new art catalogue of india-rubber motoring clothing, etc. Special attention may be called to the calendered coats mentioned on the first page, and to the envelope motoring rugs.

HIS EXCELLENCY SIR REGINALD TALBOT, Governor of Victoria, has just placed an order with the British Automobile Commercial Syndicate for a 16-h.p. F.I.A.T. and also a 20-h.p. Talbot. The two cars are to have bodies fitted to them by Messrs. J. Rothschild et Fils.

MR. JUSTICE KEKEWICH was engaged for two days last week in hearing an action to enforce an agreement made on June 4th, 1903, between the plaintiff, Mr. M. S. Napier, and the defendant, Mr. Charles Jarrott. In the end there was judgment for the plaintiff.



The Gordon Bennett Course.—The first important Curve near Saalburg.

A DAIRY farmer of Swaythling has, in the Southampton County Court, obtained £22 1s. 6d., "damages and expenses caused by defendants or their servants negligently driving their motor engine and running into a cow belonging to the plaintiff, and causing such injuries that the said cow had to be slaughtered."

THE ARROL-JOHNSTON MOTOR LORRY.

THE accompanying illustration shows a petrol motor lorry built by the Mo-Car Syndicate, Limited, for Mr. Robertson, of the Stonefield Laundry, Paisley. This gentleman, we believe, is the first to run motor-lorries for laundry purposes in Scotland, and his experience has been most successful. The vehicle is fitted with one of the Mo-Car standard 12-h.p. motors running at a normal speed of 800 revolutions per minute. Four speeds forward and a reverse are available, enabling a load of three tons to be carried at a speed of about



nine miles per hour, and a load of 30 cwts. at about twelve miles per hour. The drive from the engine to gear box, and from the latter to the differential countershaft, is by Renold silent chains, and thence by the usual side chains to the rear road wheels. Two brakes are provided, one acting on the gear shaft and countershaft, and the other an internal metal to metal brake on the inside of the hind wheels. Adjustable non-reversible wheel steering, with extra long double-threaded screws and ball bearings to prevent back lash, is provided. The Mo-Car Syndicate, which have now supplied three separate laundry companies with motor-vehicles with marked success in each case, are building lorries to carry loads up to six tons.

USE your car considerately and it will return the favour in improved and lengthened service.

WE learn that King Edward has just placed an order for one of the latest type of 28-36-h.p. Daimler motor-cars. A few weeks ago the Prince of Wales ordered a vehicle of the same type.

AMONG frequent visitors to the Exhibition just concluded was Mr. Oliver Stanton, wearing a scarf pin lately presented to him by the Prince of Wales as a souvenir of the introduction of His Royal Highness to automobilism by Mr. Stanton.

THE motor-car drivers at San Francisco have recently formed the Automobile Chauffeurs of California. The object of the association is stated to be "to protect automobile owners and dealers." Each man entering the association will be subjected to an examination and furnished with a certificate specifying exactly what car he is able to manage, and none other.

AT a recent meeting of the Florida East Coast Automobile Association it was decided that next year the races on the Ormonde-Daytona Beach will be all invitation events, and an increased entrance fee will be charged. New timing clocks are to be purchased, which will time every mile of a long race, and thus render possible records at intermediate distances. The dates for next winter's meet will be between January 17th and February 6th.

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CONTINENTAL NOTES.

ARRANGEMENTS for the French eliminating trials are being rapidly completed. Every precaution will be observed to ensure that no accidents occur to the public. The roads through villages and sharp turns will be oiled, and both sides of the streets through the villages will be railed off, with protected passages at every 55 yards, permitting the crossing of traffic. Two trumpeters will be stationed at the entrance of each village to announce the approach of every car. M. Tampier, the time-keeper of the A.C.F., has estimated that there will be 15 kilometres of road treated with oil, and 35,000 metres of fencing erected along the course. The general public will be restricted to the fields adjoining the course, and an official will be placed at intervals of 110 yards on either side of the entire course. There will probably be two neutralised portions, viz., at Bethel and Vouziers, and in addition five stops of one minute each, viz., at the sharp turn at Chemery, the cross roads at Flize, and the level-crossings at Ballay, Novy, and Pont du Chesne.

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THE automobile fetes at Nice commenced on Tuesday of last week by a touring competition with a run to San-Dalmazzo-di-Tenda and back, via Vintimille, Mentone, and La Turbie. Out of thirty-one entries twenty-one started, and of these nineteen finished, the first home being M. Parran on a 40-h.p. Berliet car. The competition was continued on Wednesday, the 23rd ult. The outward route to Saint Tropez was via Cannes and Sainte-Maxime, the return journey being through Le Luc, Le Muy, and l'Esterel. Nineteen cars started, of which eighteen finished. During the run a hill-climbing competition with a standing start and a stopping finish was held over a two-kilometre course on a stiff part of l'Esterel. The best time was made by M. Giraud on a 40-h.p. two-seated C.G.V. car (3 min. 4 1-5 sec.). M. Coste on a 30-h.p. three-seated Pilain was second in 3 min. 34 2-5 sec., M. Martini on a 16-h.p. two-seated Martini third in 3 min. 37 1-5 sec., M. Garin on a 16-h.p. Rochet-Schneider fourth in 3 min. 56 1-5 sec., Prince Lubecki on a 60-h.p. Mercedes fifth in 3 min. 57 sec., and M. Parran on a 40-h.p. Berliet sixth in 3 min. 59 2-5 sec. The programme on Thursday, the 24th ult., comprised a gymkhana, while on Friday a *rallye-papier*, or an automobile paper chase over a 60 kilometre course, was held. Owing to an unfortunate change in the weather the programme had to be altered, the flower fete being postponed until Monday, and the mile and kilometre trials until Thursday.

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THE Frankfort Exhibition, which closed on Sunday last, was the largest motor show so far held in Germany. Naturally native makers held the field as far as quantity was concerned, but French and Belgian makers did not hesitate to send some of their best products. The usual chain transmission was to be found on the majority of the cars, only a few have cardan joints; and of the latter the Benz-Parsifal cars were the most conspicuous. The stands of the Cannstatt Daimler and Opel concerns created great interest, as did also that of Messrs. Durkopp, who exhibited three and six-cylinder cars. The Martini cars were shown by Messrs. Deasy and Co., while among French cars the Clement-Talbot, Decauville, Gladiator, and Mors vehicles may be mentioned. Two-cycle motors were exhibited by Herr H. Soehnlein, of Wiesbaden, and Messrs. Koerting, of Koertingsdorf, near Hanover.

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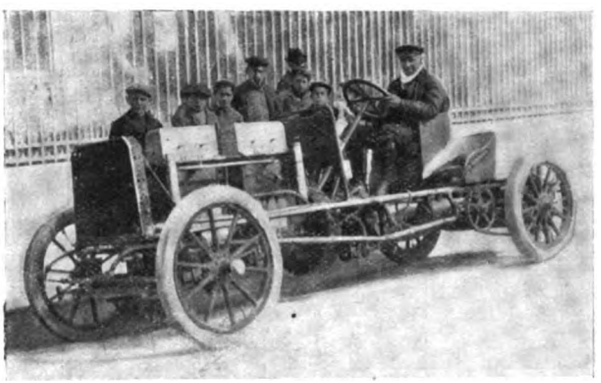
THE French Association Générale Automobile is organising a practical scheme of examinations for motor-car drivers. A special committee has been appointed, with the Prince D'Arenberg as chairman, to draw up a provisional programme for these examinations, and to submit it to the Administration des Mines. In connection with the scheme it is proposed to establish a large instruction track on which lessons will be given and examinations held.

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AN International Cup is to be offered by the Motocycle Club de France for motor-bicycles under 50 kilogs., based upon the same lines as the Gordon Bennett Cup. The cup will be of the value of £80, and will be run for the first time in France in July next.



At the Starting Point of the Tourist Competition.



Duray on the New Gobron-Brillie Racer.

THE NICE AUTOMOBILE WEEK.

A TORPEDO boat, fitted with a petroleum motor, has just been launched at St. Petersburg. It is intended for the Russian navy, and is the first of its type.

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THE Automobile Club of Dordogne will hold a kilometre competition on the 15th of May near Perigueux.

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AN Automobile Technical Society has just been formed in Berlin, with Prof. Lutz, of Aix-la-Chapelle, as first president.

MR. CHAS. J. GLIDDEN, of Boston, U.S.A., has completed his itinerary for a proposed automobile tour of the world, and computes the distance at 20,000 miles. The entire route has been carefully outlined on maps of the countries to be visited. The roads of China, it may be mentioned, are narrow and totally unfit for motoring outside of Hong Kong, and the restrictions imposed by the Government make a drive of any extent impossible. Of unusual interest will be the drive in Spain, Portugal, Algeria, far into the desert of Sahara, in Palestine and India, skirting the Himalayas, under the feathery bamboo and bread fruit trees of Ceylon, on the islands of the East Indies and in the flowery kingdom of Japan. If time will permit and climatic conditions are favourable when in the locality, the Philippines will be included in the tour.

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IMPROVEMENTS IN LUBRICATION METHODS.

THE earlier types of motor-cars were the subject of well-deserved criticism in regard to the very large and annoying escape of lubricating oil which frequently took place from their engines and gear cases, but it is a matter for congratulation that in modern vehicles this evil has been well-nigh eliminated. Among the causes which have led to this improvement are the substitution of force feed for gravity or capillary flow, the more complete enclosure of working parts, and the more careful fitting of cases. In the use of gravity cups, negligence in regard to stopping the flow when the vehicle was at rest frequently resulted in the feeding of an excess of oil, which usually found its way to the outside surfaces of the mechanism and thence to the road. On the other hand, with the force-feed system the flow of oil ceases with the stopping of the engine. In motor crank cases and gear boxes as now constructed, whether or not intended for splash lubrication, the greatest care is taken to secure oil tightness. The oil pockets in which the shafts have their bearings are frequently separated from the walls of the gear box by a space or channel through which the lubricant, after escaping from the outside end of the pocket, may return to the case instead of following the shaft to the outside air.



The Ormonde Side-Car.

Non-fluid greases furnished from compression cups are being applied for the lubrication of parts of the mechanism which hitherto were supposed to imperatively demand a fluid oil. Lubrication by grease is, remarks the "Horseless Age," not attended by any appreciable escape of the lubricant, and is very economical and perfectly efficient under all conditions within its range of usefulness. The oil in gear cases is much more efficiently applied than formerly, great pains being taken to distribute it over all parts of the bearing surfaces. Ring and chain oilers, drawing their supplies from oil pockets—devices which have been most successfully used in electrical and other machinery—are being applied freely in automobile practice.

MOTOR-CYCLING NEWS.

THE Easter tour of the Motor Cycling Club will be in the Shakespeare country, with headquarters at Dunchurch.

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THE opening run of the season of the Glasgow Motor-Cycle Club will be held on Monday next, the destination being Ayr.

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FORTY-FOUR entries have so far been received for the motor-cycle reliability trial from Paris to Bordeaux and back, which is being organised by the Auto-cycle Club de France. The entry list will be definitely closed on the 15th inst.

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MOTOR-CYCLISTS assembled in gratifying numbers at the Agricultural Hall, London, on the last day but one of the Exhibition, to hear a paper by Mr. Victor Hart, elaborating some suggestions previously made for the conduct of the motor-cycle Reliability Trials to be organised during the present year by the Auto-Cycle Club. Mr. Robert Todd presided, being supported by Mr. F. Straight, the Secretary of the Club, and several well-known members of the trade, as well as riders whose names are familiar to our readers. In the course of his paper Mr. Hart suggested that the west or north-west of London seemed to be the best situation for the starting point if clear of the suburbs; there are plenty of hills near Oxford, High Wycombe, Henley, etc., to fully test the power of the engines. If variety was desired in the routes, the south and south-west could be easily reached via Hampton Court Bridge, and kept clear of streets and greasy tramlines. He would limit distances to 100 miles a day, and start not earlier than 9 or 9.30 a.m., thus enabling the men to obtain their breakfasts in comfort. The convenience of the riders ought to be considered, for these trials were not a test of the endurance of the men, but of the machines. It was easy enough to talk of 150 to 200 miles in a day whilst the discussion took place in a comfortable room; those who were anxious for big distances in the day should try the effect themselves of only 100 miles per day for ten days in succession in a repetition of the fearful weather experienced in the last trials.

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HAVING discussed the means of checking riders, Mr. Hart went on to deal with marks for speed and cheapness. These he would omit altogether, but to ensure equality between varying size engines, two, three, or six classes, with a maximum cylinder capacity in each, might be made, starting at 68 mm. by 68 mm., and rising a few millimetres per class, with a final class of unlimited capacity provided the machine, as a fully-equipped roadster, did not exceed the weight limit to be fixed by the new Committee. A machine with multi-cylindered engine could enter in any class up to its capacity limit. Two-speed gears would be in evidence, and without experience of suitable conditions for hill tests, no rules ought to confine inventor's efforts. Perhaps the fixing of a minimum gear ratio of about 6 to 1 might get over the difficulty which caused the introduction of the speed tests in 1903. The sealing of parts should be carried out fully so that no part of the engine or details necessary to working of same or propulsion of machine could be touched without the eventual knowledge of the judges. Each maker should be limited to entering three machines.

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THE Local Government Board had practically created a new type of vehicle, viz., the three-wheel motor-cycle, weighing under 3 cwt. unladen. Their inclusion would not entail any extra expense for organisation; the same entry fee as for single machines, or not more than an addition of 25 per cent., would invite a number of entries, and the fees thus received would enable the organisers to spend money more freely than was possible with the limited amount at their disposal last year. No limit as to size of engine should be imposed; the passenger should be named and provided by the entrant, but carried upon another competitor's machine. In conclusion, Mr. Hart advocated the abolition of the section for private riders—a view that found considerable support in the subsequent discussion.

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HERE AND THERE.

SIR JAMES BELL, of Kilmarnock, has just acquired a 12-h.p. Wolseley car.

AMONG the purchasers of cars at the Exhibition were the superintendent of the L. & N.W. Railway Works at Wolverton and the chief officer of the Chingford Fire Brigade.

THE net premiums received by the General Accident Assurance Corporation, Limited, last year amounted to £262,479. Mr. A. Nixon is manager of the company's motor department.

IN view of the demand for a two or three speed gear for motor-bicyles, Mr. Henry Sturmey has just patented both a two and a three speed gear for attachment to the crank shafts of bicycle motors.

AT the Cadena Works, Allen Street, Sheffield, Messrs. C Harlow and Company are making petrol and oil reservoir tank for fitting to the dashboard of cars, and are also specialising on similar work for motor-cycles.

MESSRS. PANHARD AND LEVASSOR have received an order for two large motor carriages from Lord Londonderry. One is a 24-h.p. with large body to seat eight, similar to that used by the Prince of Wales. The other is a 15-h.p. landau.

THE Continental Caoutchouc and Guttapercha Company have just published the 2nd Edition of the Automobile Guide for Germany. The book for 1904 is even more complete than the edition of 1903, and contains no less than 1,400 towns, with full particulars of petrol stations, repair places, garages, etc. The volume extends to over 900 pages, and is an indispensable guide to automobilists visiting Germany.

THE members of the Ladies' Automobile Club of Great Britain and Ireland were invited to visit the motor-car show at the Agricultural Hall, and many of the members were present with their friends at the reception given in the Automobile Club's rooms by Mr. and Mrs. Charles Cordingley and Miss Pursehouse. An orchestra played selections during the course of the afternoon, and tea was served.—*Morning Post.*

MR. W. D. VENNING has retired from the Motor-Car Industries Company, and in future the business will be carried on under the same title by Messrs. Ledbetter and Beazley as motor factors, repairers and dealer in all makes of steam and petrol cars. The firm have a well-equipped garage at 55, College Street, South Kensington, W., which is open night and day. A staff of competent drivers is also available, while a feature is now being made of hiring out petrol cars.

THE chairman of the touring committee of the American Automobile Association is arranging to accommodate 1,000 automobiles likely to take part in the run to the World's Fair at St. Louis in August next. He believes that fully this number will be stored in the grounds when the caravan reaches the Exhibition. New York motorists will leave on July 26th, the Boston section will leave on July 25th, and meet the New York delegation at Buffalo. The section from Buffalo will leave on July 26th and a Columbus division starts on August 4th. There will also be runs from Minneapolis, St. Paul, Denver, Omaha and Kansas City.

THE question as to whether Virginia Beach is to successfully rival Ormonde Beach, in Florida, as an automobile racecourse is still unsettled, notwithstanding the inspection trip made by a number of New York automobilists for the express purpose of deciding this point. Five powerful cars made short runs along the beach on the 13th ult., one getting up a speed of nearly 60 miles an hour for a short stretch. The sand was, however, wet and soft, its condition having been much impaired by a strong gale, and a real test was out of the question. It is expected that another trial will be made at a date not yet determined, when the weather is likely to be more propitious. A big Mercedes had a narrow escape from being buried in the quicksand. While running off the course the wheels sank deep into the sand, and only after a hard struggle did the car respond to the efforts of the party, who hauled it out with ropes.

THE Motor-Cycle Club of Denmark has just been formed in Copenhagen.

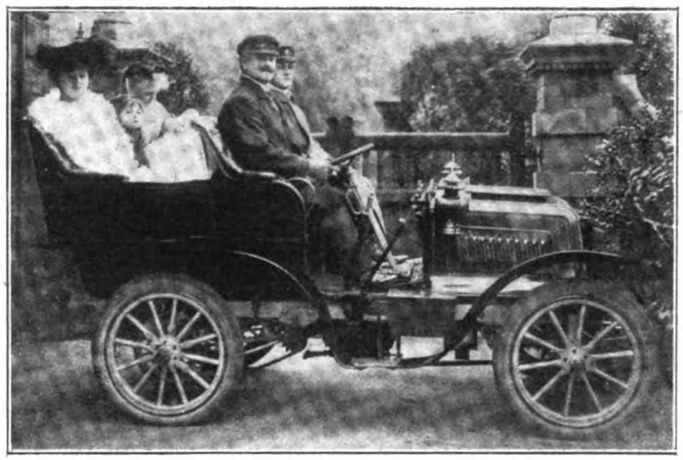
THE Velox Engineering and Autocar Company, Limited, has been registered with a capital of £2,000.

WITH the title "How to Choose a Motor-Car," Messrs. J. R. Richardson and Co., Limited, have just issued an interesting booklet descriptive of their 12-h.p. Richardson car.

A PUBLIC motor-car service has been started between Brunswick and Wendeburg. The vehicles used are 26 seated petrol 'buses built by Messrs. H. Bussing and Company, of Brunswick.

THE Warner Differential Gear Company, of Muncie, Ind., U.S.A., have sent us a booklet illustrating their spur differential gear for use on motor-cars, of which they make a speciality, and for which they are seeking an English agent.

THE American National Association of Automobile Manufacturers having decided not to hold an endurance contest during the present year the prospects at present are that there will be few competitive events, other than track races, in the United States during the coming season.



Mr. and Mrs. Eugene Sandow with their two little Daughters and Nurse, on his 12-15-h.p. Argus car. The gentleman at the side of Mr. Sandow is Mr. Max Karminski.

A VERY interesting and useful handbook of the Triumph motor-cycles has been issued by the Triumph Cycle Company, Limited. The various parts of the machines are fully illustrated and described, while a number of pages are devoted to hints to users of this company's motor-cycles.

THE City Automobiles, Limited, has been registered with a capital of £10,000 to adopt an agreement between Messrs. R. Clegg and A. H. Salmon for the transfer of certain premises, and to carry on the business of motor-car stores, etc. The first directors are Messrs. E. Manville, J. M. Gorham, and E. A. Locock, and the registered office is at 34, Queen Street, E.C.

THE Clipper Tyre Company, Limited, has been registered with a capital of £65,100 to acquire and turn to account certain licences, agreements and privileges relating to the manufacture of pneumatic tyres with a view to adopt an agreement between the Clipper Pneumatic Tyre Company, Limited, of the one part, and Mr. W. S. Tinkler (as trustee for this company) of the other part.

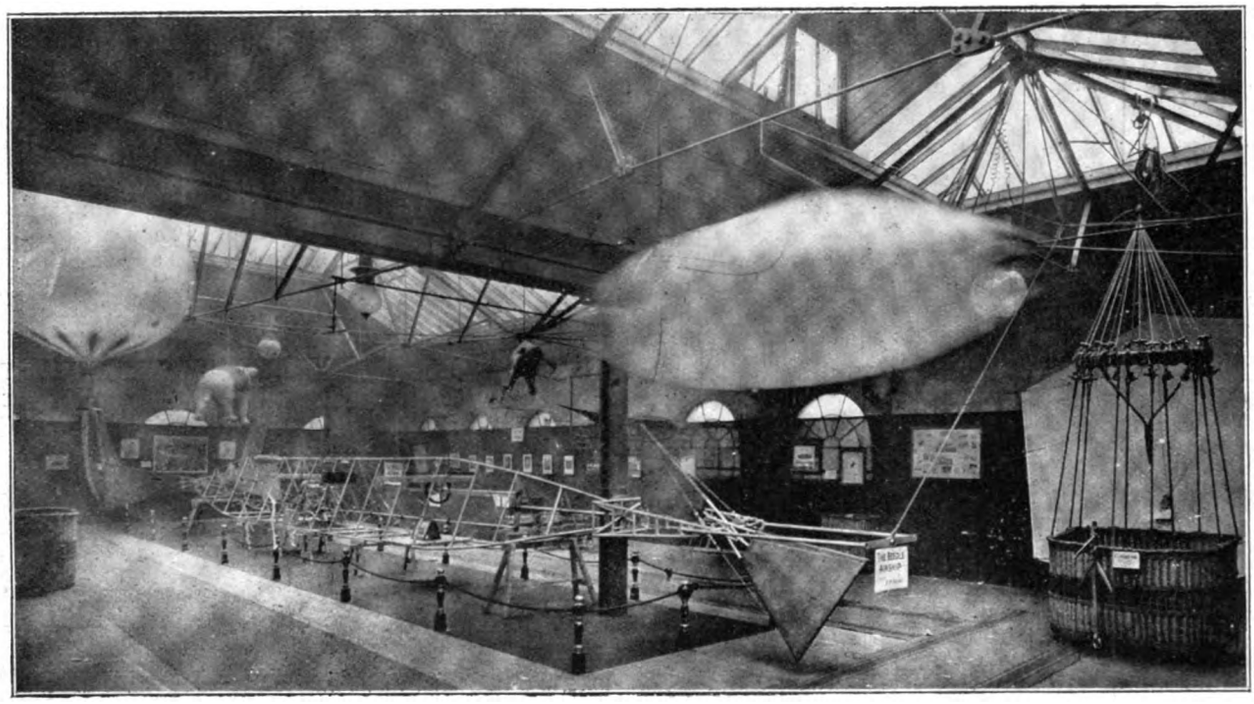
THE Doherty Motor Accessories Company, Limited, has been registered with a capital of £5,000 to acquire the business now carried on by Messrs. W. H. Doherty, F. J. Page, J. Welch and J. Bayley at Trafalgar Works, Upper Well Street, Coventry, as the Doherty Motor Accessories Company, and to carry on the business of manufacturers of motor parts and accessories, etc. There will be no initial public issue. The first directors are Messrs. J. M. Fenton (chairman), W. H. Doherty, F. J. Page, J. Welch, and J. Bailey.

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The Motor-Car Exhibition at the Agricultural Hall.

[SECOND NOTICE.]



[*Photo by* **General View of the Display by the Auto Club in the North Annexe.** *Argent Archer*]

THIS week we give the second instalment of our report of the Exhibition held last week at the Agricultural Hall. This proved an unqualified success, and the attendance of the trade and of actual motorists as well as of prospective owners of cars showed how well the organisation of the event had been previously thought out. In the Gallery business was as brisk as in the Main Hall, and the permanence of the display was assured by the re-bookings of space for next year's Show, which will take place from March 18th to the 25th, 1905.



Fig. 43.—The Decauville 14-h.p. Double Phaeton with Side Entrance.

PETROL CARS.

THE MOTOR CAR COMPANY, LIMITED, exhibited five complete Decauville cars and a *chassis* of the new 12-h.p. type, an illustration of which was given in a recent issue of the *Journal*. The various types of bodies fitted include a coupé and a Roi des Belges tonneau, as well as the standard pattern tonneau fitted to the 10-h.p. *chassis*. The 12-h.p. and 14-h.p. types embody all the latest Decauville improvements, including the fortified back axle and the metal shield which, securely bolted to the frame, affords additional support to the motor and protects the mechanism from mud, wet, or dust. All are fitted with the Decauville dynamo, by means of which the ignition accumulators are re-charged whilst the engine is running. The new 12-h.p. car is fitted with a four-cylinder engine, having cylinders 90 mm. diameter by 110 mm. stroke; the inlet as well as the exhaust valves are mechanically actuated. The centrifugal governor acts on the inlet, a pedal accelerator being fitted, by means of which the speed of the engine can be increased to 1,200 revolutions per minute. A combined

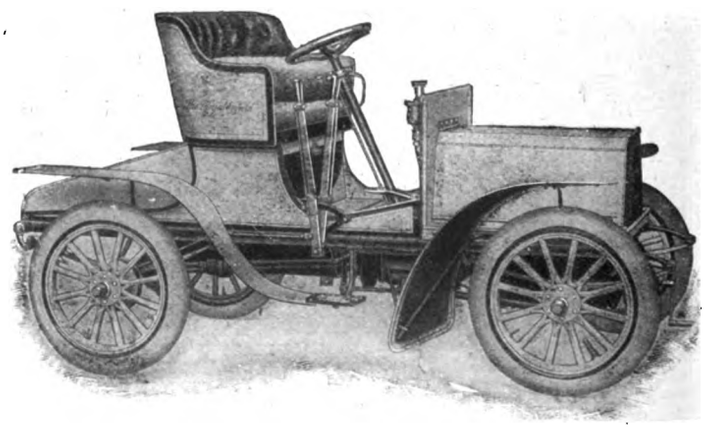


Fig. 44.—The Royal Enfield 6-h.p. Car. (*See page* 101.)

honeycomb radiator and tank is now employed in connection with the water circulation. The carburettor is of the automatic air regulation variety. Three speeds forward and a reverse are controlled by one lever, the drive on the top speed being direct, the power being transmitted through bevel gearing to a live axle. As usual in Decauville cars, the engine and gear are entirely protected, and the new model should prove as successful

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as its forerunners. Fig. 43 shows the 14-h.p. side-entrance double phaeton, the *chassis* having a longer wheel base than usual. A novelty on the stand was an 8-h.p. petrol motor-tramcar capable of seating twelve persons.

The "Royal Enfield" cars made by the Enfield Cycle Company, Limited, were exhibited by MESSRS. GOY AND CO. We first inspected the 6-h.p. two-seated car, of which an illustration is given in Fig. 44. This has a tubular frame, in the fore part of which is set a 6-h.p. De Dion engine, cooled by means of a friction driven pump and a ribbed-pipe radiator set in a frame. The car is of the cardan shaft and live axle type, with three speeds forward and a reverse; on the top speed the drive is direct. The brakes are of the metal to metal expanding type, and both the hand and foot brakes are so arranged that on application the clutch is first disengaged. The car, which has a wheel base of 5 ft. 11 in., has accommodation for two persons, while a large amount of luggage can be carried at the rear. The Enfield Company are also now turning out a 10-h.p. car fitted with a two-cylinder engine of their own construction like the smaller car; this has a frame of tubular construction. The cylinders are 4 in. in diameter by 5 in. stroke, with inlet and exhaust valves operated mechanically off one cam shaft, Longuemare carburettor and centrifugal governor. The two cylinders and water-jacket are cast in one piece; the valve chambers are also an integral part of the cylinder, this construction ensuring reliability of running. The crank shaft gives large and ample wearing surface for the thrust bearings, and also for the connecting rod bearings. The fly-wheel is of large proportions, ensuring great regularity in the running of the engine. The latter is cooled by a gear-driven pump and honeycomb radiator. The tubular frame is carried on four springs slung so that they will give a comfortable suspension under the most trying conditions. The change-speed gear gives three speeds forward and one reverse, the drive on the top speed being direct. The foot brake acts directly on the transmission shaft from the change-speed gear. Several excellent arrangements have also been devised in other parts, while the comfortable tonneau should make the Royal Enfield a popular car for the 1904 season. Examples of the Royal Enfield 2¾-h.p. belt-driven and 2½-h.p. chain-driven motor-bicycles were also exhibited. Part of Messrs. Goy's stand was also devoted to a display of the well-known Lanchester cars, for which they are agents. Of special interest was an 18-h.p. water-cooled car with front bucket seats and a large double tonneau at the rear. The vehicle, which is fitted with an arrangement whereby the engine can be started from the seat, is claimed to be able to attain a speed of 55 miles per hour.

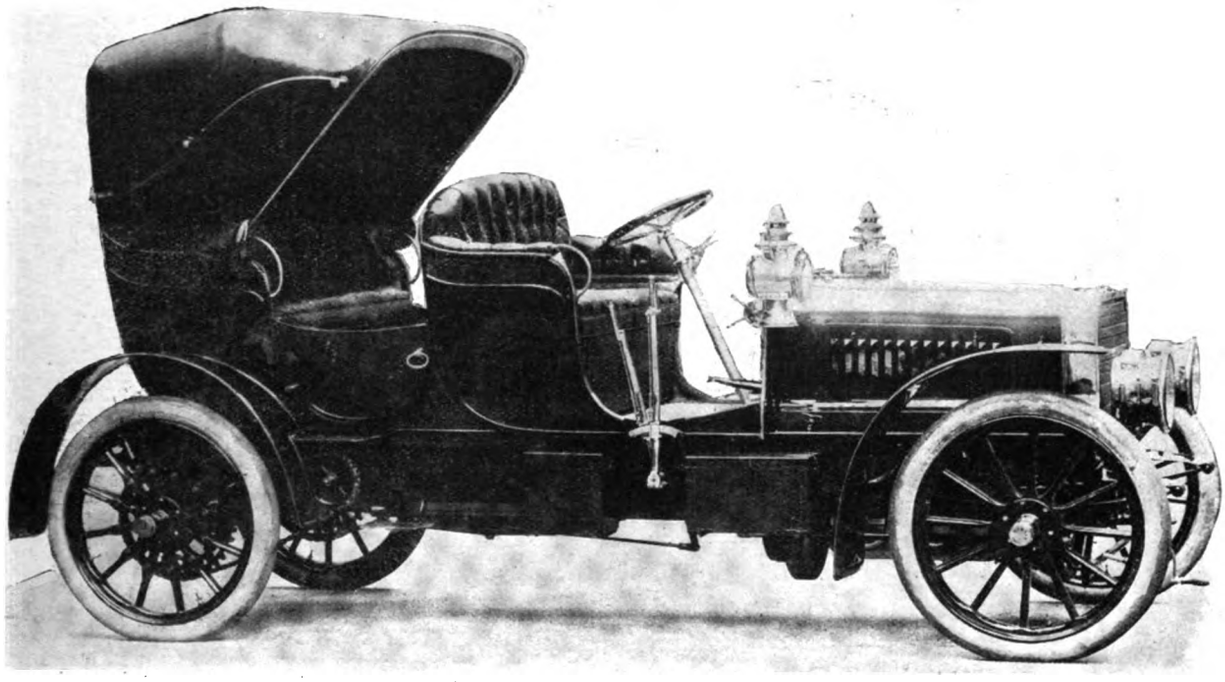


Fig. 45.—The "Herald" 24-h.p. Side-Entrance Double Phaeton.

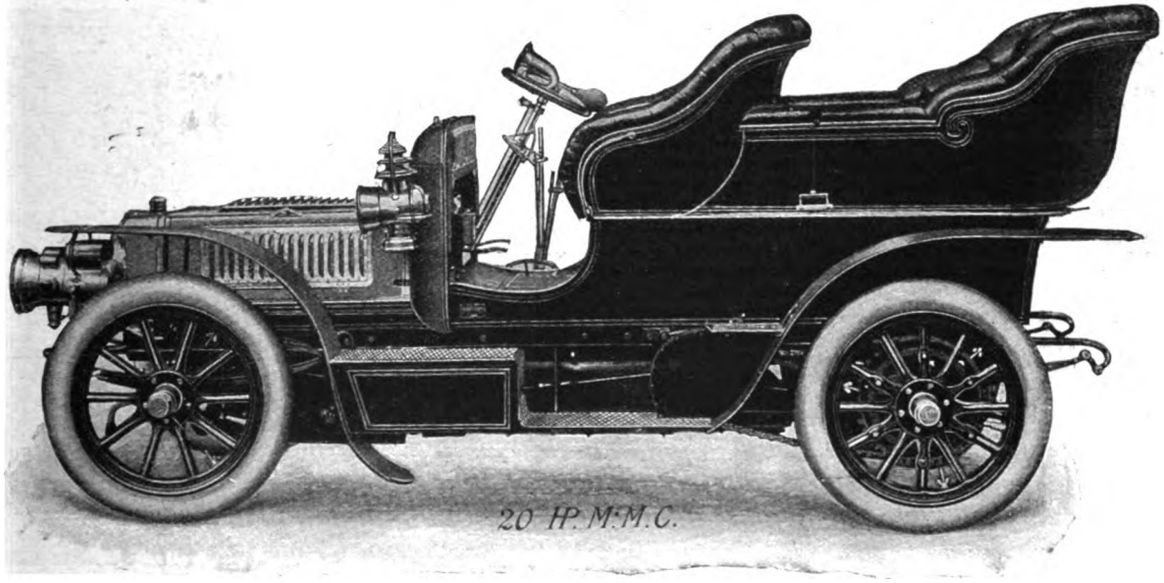


Fig. 46.—The 20-h.p. M.M.C. Roi des Belges Car with Side Entrance. (*See page* 102.)

In addition to the "Pelham" 6½-h.p. voiturette illustrated and described in a recent issue of the *Journal*, MESSRS. S. R. BAILEY AND LAMBERT, LIMITED, had on view two excellent examples of "Herald" cars, for which

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they have secured the British agency. The first one we examined was a 12-h.p. car with wood and steel frame and double-cylinder engine. The water-circulation is maintained by a friction-driven pump and ribbed-pipe radiator set in a frame, a manometer being mounted on the dashboard to enable the driver to see that the water circulation is in proper order. The governor is adapted to act on a throttle valve; it can, however, be put out of action by an accelerator pedal. The clutch, which is of the leather-faced cone type, is so arranged that it can be dismounted without disturbing the gear box. Three speeds forward and a reverse are controlled by one lever. The gear is of the sliding type, and arranged somewhat on the lines of that adopted in the Mors cars, that is to say, the drive on the top speed

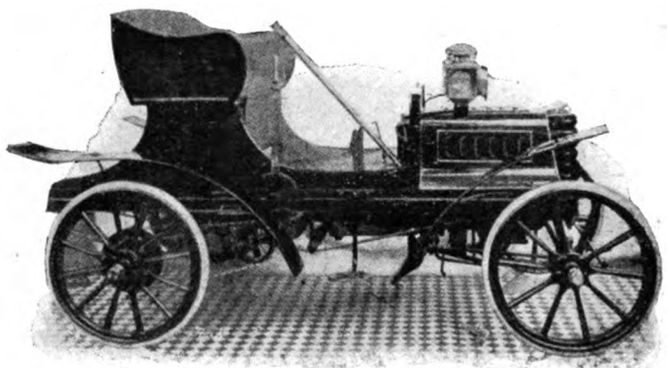


Fig. 47.—The "Thor" 6-h. . Two-seated Car.

is direct through a separate bevel gear to the differential shaft. The latter is connected to the rear road-wheels by Brampton roller chains. Special provision is made for lubrication, an oil reservoir, with pump, sight-feeds, and gauge glass, being fitted on the dashboard, leading to all important bearings. A pedal operates a metal-to-metal band brake on a drum fixed to the gear shaft, and a side hand lever actuates equalised band brakes on the rear road wheels, both brakes acting equally well either forwards or backwards. Fig. 45 depicts the handsome 24-h.p. side-entrance double phaeton "Herald" car exhibited on this stand. Except that the engine comprises four cylinders, and that four speeds are available, in addition to the reverse, the general details are similar to those of the 12-h.p. car. As will be seen, this vehicle has a very pleasing appearance, the finish, generally, being of a very high class.

The Motor Manufacturing Company, Limited, had a large stand, on which were exhibited well-finished examples of the M.M.C. 25-h.p., 20-h.p., 10-h.p., and 8-h.p. cars, all of which have been dealt with in recent issues of the *Journal*. A new addition to the latter is a mechanically-operated inlet valve and a governor, as a result of which the running of this vehicle has been made much quieter. Several new designs of bodies were shown fitted to the 8-h.p. *chassis*, these including a mail phaeton. A 20-h.p. car (Fig. 46) with Roi des Belges body, having entrance at the side, was another vehicle to which reference may be made. It was pleasing to find that the M.M.C. concern had two *chassis* on view, one of the 20-h.p. type and one of the 8-h.p. Both were excellent specimens, and attracted much attention on the part of visitors.

A new comer to the show was the "Thor" Motor-Car Company, of Leicester, which exhibited a two-seated car, the principal feature of which is the special arrangement of the springs on which the channel frame is supported. Altogether there are four springs—a transverse one at the front and another transverse and two side springs at the rear. They are all so connected to the frame as to so reduce the vibration that solid tyres may be used in place of pneumatics. The motive power is supplied by a Simms single-cylinder engine, giving 6-h.p. at 1,200 revolutions, and 8-h.p. at 1,600 revolutions per minute. The ignition is by Simms-Bosch magneto, controlled from the dashboard. Three speeds forward and a reverse are operated by one lever, the power being transmitted through a special friction clutch to the gear box, and thence by side chains to the rear road wheels. Metal to metal brakes are fitted, while the steering can either be by tiller, as illustrated in Fig. 47, or by wheel. The Thor Company are also builders of heavy artillery wheels, samples of which were to be seen at their stand.

In addition to their well-known "Traveller" voiturette, the Alldays and Onions Company, Limited, exhibited a new light car, of which an illustrated description was given in the *Journal* of the 19th ult. The motive power is supplied by a 7-h.p. single-cylinder engine with external fly-wheel and mechanically-operated valves. Two forwards speeds and reverse, with the direct drive on top gear, are provided, the power being transmitted by bevel gear on to a live axle. The standard car has seats for two persons, but one vehicle exhibited had accommodation for three, a separate seat being provided for the driver. An interesting display of their new pattern motor-cycles was also made. The 2½-h.p. engine is made throughout by Messrs. Alldays, and all parts are interchangeable. The frame is designed with special cradle for carrying the motor in an upright position. The tank has compartments for two accumulators, coil, lubricating oil, and sufficient petrol for 160 miles. A float register is provided for showing the quantity of petrol in the tank. The Alldays 5-h.p. "Traveller" voiturette, which has already been described in these columns, shows a few changes in detail, but is otherwise unaltered.

Messrs. Brown Brothers, Limited, had an interesting display of "Brown" cars, chief among which is the *chassis* of a new 8-h.p. car they are introducing to meet the demand for a relatively powerful car at a moderate price. The general arrangement is that of the standard bevel-gear driven type of car, but the workmanship appears to be of a high grade character. The motive power is supplied by a 8-h.p. vertical engine set in the fore part of a wood and steel frame. The water circulation is maintained by a gear-driven pump and honeycomb radiator; the motor is provided with a governor, which acts on a throttle valve on the inlet pipe. The engine and gear box are mounted on an auxiliary frame, the two being connected by an internal leather-faced clutch, so arranged that it may be disconnected without disturbing the gear box. The latter is of the usual sliding pinion type, giving three speeds forward and one reverse, the drive on the top gear being direct. The rear axle is well supported, while provision is made for lubricating the driving bevel pinion from the dashboard. The usual three brakes are provided, those on the hubs of the rear road wheels being of the expanding metal-to-metal type. On the same stand were also shown specimens of the "Brown" 8–10-h.p. double-cylinder standard cars, these being made either with side-chain or cardan shaft transmission, and of the "Brown" 12-h.p. cars. The latter have four-cylinder motors and chain drive, the various details, such as radiator, governing, etc., being of the approved pattern. On a separate stand Messrs. Brown Brothers had an extensive display of motor-car and cycle components and accessories to give even a list of which would more than fill a page of the *Journal*. Reference may, however, be made to the new "Motorite" belting for motor-bicycles, which is made of one piece of Balata canvas, wound into V shape, so that there are no joints or plies to come apart. It is also claimed to be unbreakable and unstretchable, the tensile strain being equal throughout the whole length.

At the stand of Autocars and Accessories, Limited, were displayed specimens of the 10-h.p. two-cylinder Minerva cars, built by La Société La Minerve, of Billancourt, near Paris, and a 12–16-h.p Clement car, constructed by the Clement-Gladiator Company, of which a description was given in our report of the Salon in December last. Interest at this stand was mainly centred on the working models of the Hitchon change-speed gear, the pinions of which are mounted on free-wheel clutches. The pairs of pinions are so arranged that there are always at least two pairs in mesh, the power being transmitted through the pair giving the higher gear. Thus, while the other pair is running it is doing no useful work, being overrun by the higher gear. As the speed is changed down by bringing the pinions of the lower gear already partly in mesh fully so, this takes up the drive. In this way the changing of gears is facilitated, as there is always a gear partly in mesh to take up the drive when necessary.

A novel form of double-purpose car was displayed by the Motor Carrier Syndicate, it having been designed for the use of tradesmen. For business purposes the rear part of the *chassis* can be fitted with a parcels chest capable of carrying a load of 6 cwt. The chest is made so that it can be quickly detached, and a seat wide enough for two persons fitted in

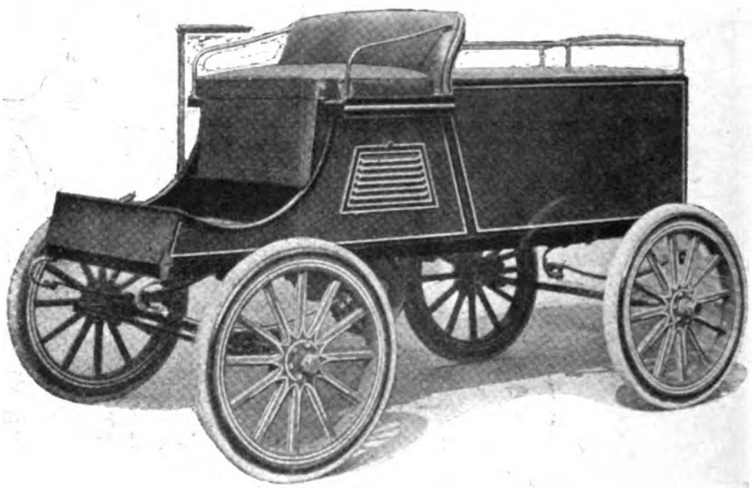


Fig. 48.—The 6-h.p. Motor Carrier.

its place, the vehicle then having the appearance of a double phaeton. The motive power is supplied by a 6-h.p. vertical engine located under the front seat. A carburettor is provided, which will, it is stated, work either with petrol or paraffin. Combined with the motor is a speed-reducing gear, the speed of the engine being reduced from 1,700 to 700 revolutions. On the slow-running shaft is a chain wheel, which transmits the power to a chain wheel forming part of an epicyclic gear on the rear axle. Two speeds forward and a reverse are available, the gear only being brought into use on the first and reverse speeds. The car, which weighs 7 cwt., is able to attain a speed of twenty miles per hour.

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Messrs. O'Neil and Co., who have secured the British agency for the Corre cars, had a number of these vehicles on view. They are of French construction, and in many points closely resemble the Renault cars, the frames being of tubular construction. The largest car was of 16-h.p., fitted with Mutel or Aster four-cylinder motor with mechanically-operated inlet valves. The cooling is on the thermo-syphon system. Three speeds forward and a reverse are controlled by one lever, the drive on the top speed being direct through the cardan shaft on to the rear live axle. The brakes are all of the expanding band type. The 12-h.p. car (Fig. 49) is on similar lines throughout, except that the power is furnished by a De Dion double-cylinder engine, while the 9-h.p. car has a De Dion single-cylinder motor. The Corre cars are well known in France, having figured successfully in several of the races and competitions of recent years.

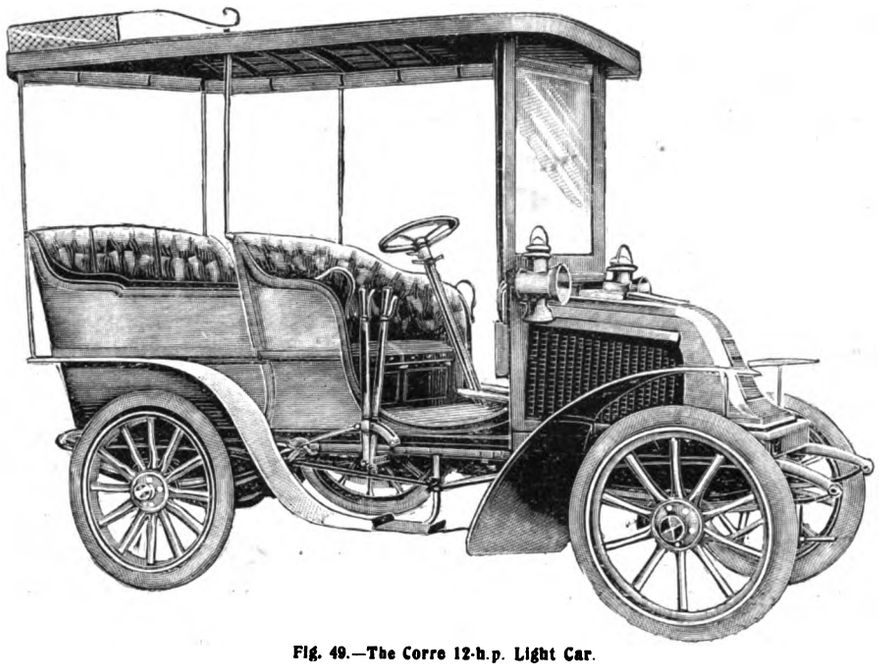


Fig. 49.—The Corre 12-h.p. Light Car.

The London General Automobile Company, Limited, confined their exhibit to a couple of well-finished examples of their 16-h.p. "Maxim" car, which, while possessing no striking departure, is on modern lines throughout. The frame is of pressed steel, in the forepart of which is set a double-cylinder engine having cylinders 110 mm. diameter by 120 mm. stroke, and developing 16-b.h.p. at a speed of 1,000 revolutions per minute. The inlet valves are mechanically-actuated, and are interchangeable with the exhaust valves. A special form of automatic carburettor is employed, this being so arranged as to give a correct mixture at all engine speeds. Three speeds forward and a reverse are provided, the transmission being by means of side chains. The plan adopted of hinging the carriage body at the back upon the frame allows of its being tilted up entirely, so as to expose all portions which may occasionally require adjustment. The Maxim cars are very wisely kept within moderate limits of gearing, so that frequent use of the speed lever is avoided, and the wear and tear of the gear lessened.

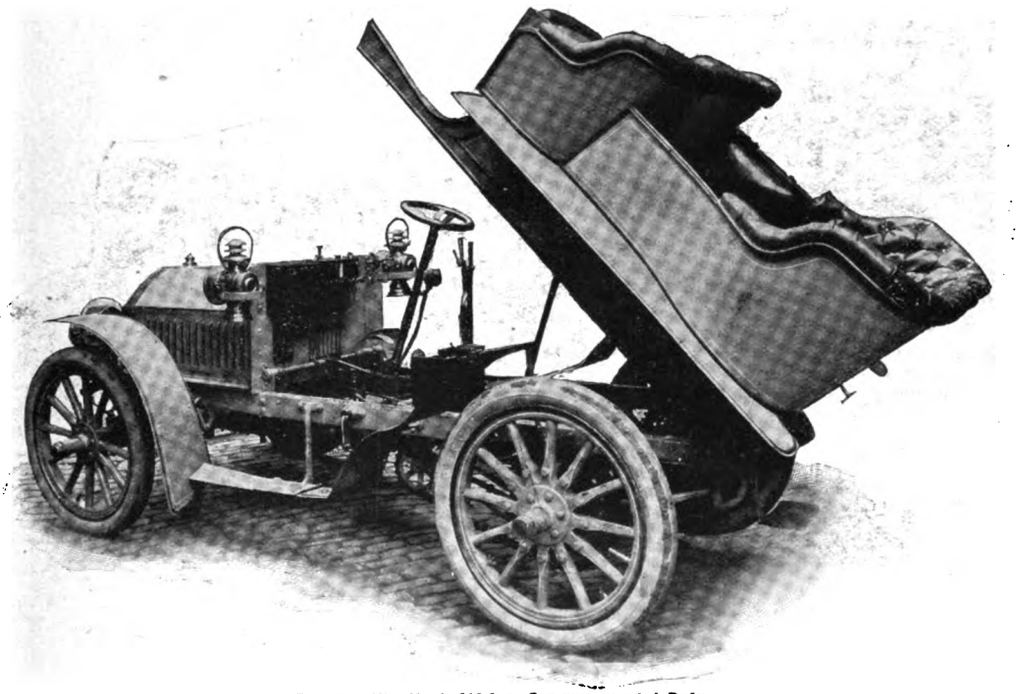


Fig. 50.—The Maxim 16-h.p. Car with hinged Body.

At the stand of the Automobile Components, Limited, a special point was made of the "Automotor" voiturette, fitted with a 4-h.p. single-cylinder motor. The transmission can be varied to meet the wishes of the prospective owner, being either by chain or from the engine to change-speed gear and back axle by single belt. The change-speed gear gives two speeds forward, steering being by means of an inclined hand wheel. The car is of simple design and extremely light, while its long wheel base is an important point to be noticed. A light car set for those contemplating going into the automobile trade was also on view, as well as the "Automotor" 10-h.p. *chassis* and the 10-h.p. car with tonneau body and bucket seats. The motor is a two-cylinder one, and is said to develop 14-h.p., the cylinder dimensions being 105 mm. by 125 mm. Various sets of car components and spare parts completed an interesting display.

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The exhibit of MINERVA MOTORS, LIMITED, consisted of examples of the two, three, and four cylinder Minerva cars, of 10, 15, and 20-h.p. respectively. The general lines of construction follow the chain-driven type of car, the engine being identical except for the number of cylinders, each cylinder being entirely separate, with the inlet valves on one side and the exhausts on the other, both being mechanically actuated. The

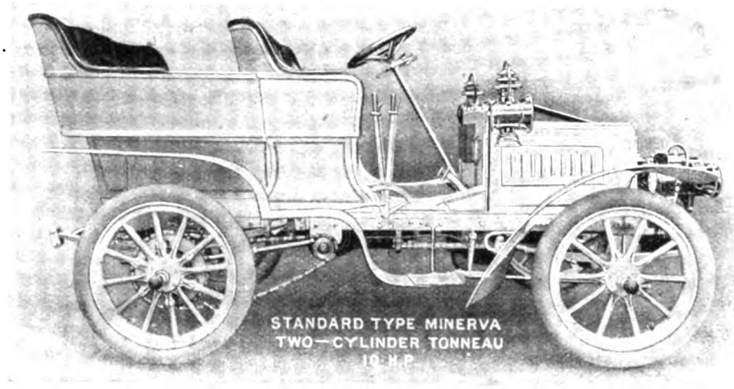


Fig. 51.—The Minerva 10-h.p. Car.

cylinders are 94 mm. bore by 114 mm. stroke, the normal speed being 1,200 revolutions per minute. The governor is adapted to act on the inlet, enabling the engine to be slowed down to 200 revolutions per minute. Three speeds and reverse on one lever are provided, with a direct drive on the top speed. The frame is of armoured hickory wood, reinforced at the corners, the engine and gear-box being carried on a steel underframe. The brake and clutch pedals are of the push-forward type. There are three brakes, one actuated by pedal to the countershaft, and the others by side lever to drums connected with the back wheels. Attached to the drum of the differential brake a ratchet ring is fastened, on to which a pawl is dropped to prevent the car running backwards down hill. Any type of body can, of course, be fitted to the *chassis*, Fig. 51 depicting a 10-h.p. standard tonneau. Without presenting any radical departure from modern practice, the Minerva cars merit the attention of those seeking reliable vehicles at moderate prices.

Three cars formed the exhibit of the CANTERBURY MOTOR COMPANY. The first of these was a neat little four-seated vehicle. This follows standard lines, being fitted with a 9-h.p. De Dion engine in front, and having three speeds forward and one reverse; the power is transmitted by bevel gear to the rear live axle. The 10-h.p. car (Fig. 52) while following the generally accepted lines, contains a few special features. The frame is built of wood and steel; the motor is a 10-h.p. double-cylinder Tony Huber with water circulation maintained by pump and framed ribbed-pipe radiator. Three speeds forward and one reverse are controlled by one lever. From the gear box the power is conveyed by a cardan shaft to the rear live axle. The clutch is of the internal cone type, and between it and the gear-box is a special coupling to enable the clutch to be taken out easily when necessary. The 20-h.p. Canterbury car has a stamped steel frame and four-cylinder engine, the latter having mechanically-operated inlet valves. The mixture is furnished by an automatic carburettor provided with a jacket, through which hot water may be circulated. The arms of the flywheel are made to act as a fan to draw a current of air through the radiator. Three speeds and a reverse with direct drive on the third are afforded by a gear box of the usual type, and which is connected with the rear axle by a cardan shaft. A feature of this car is found in the brakes, both the foot and hand brakes acting at the rear axle. Close to the hubs of each of the back wheels are two drums, inside which are expanding brakes, one operated by a pedal and the other by a hand lever, a compensating arrangement being provided in conjunction with each of the brakes.

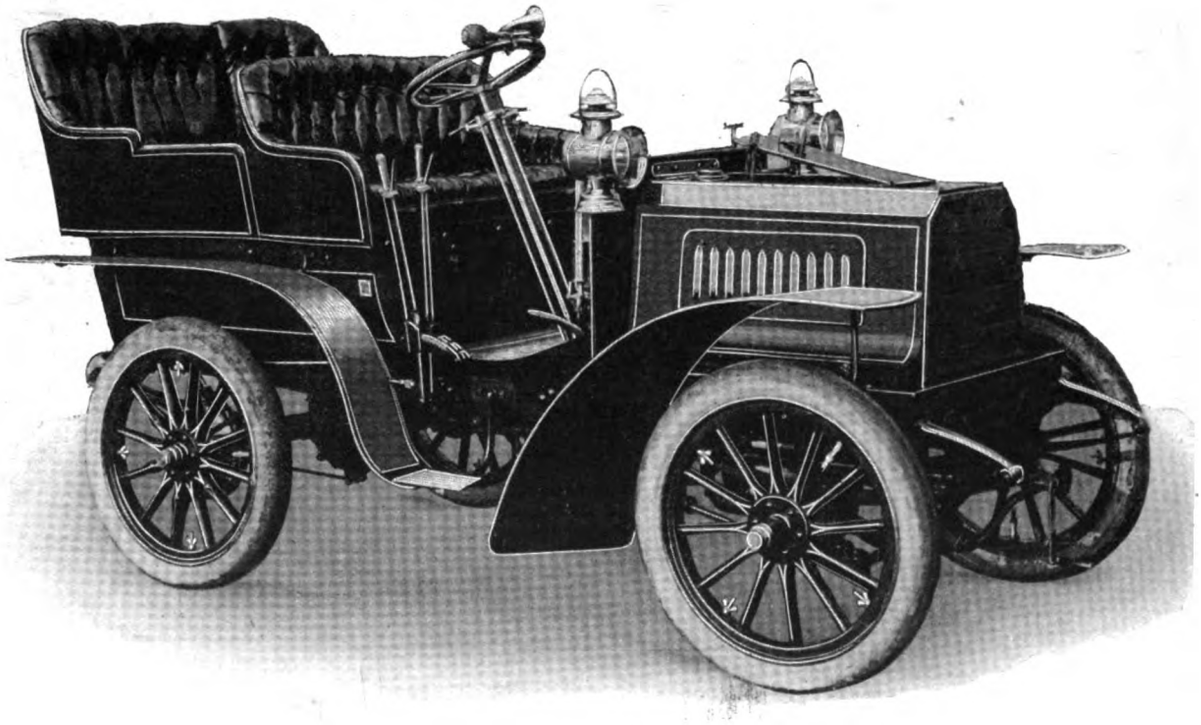


Fig. 52.—The Canterbury 10-h.p. Two-Cylinder Car.

MESSRS. HALL AND CO., of Tonbridge, had an extensive display of Darracq and Talbot cars. Of the Darracq vehicles examples of 8-h.p. single-cylinder, 12-h.p. double-cylinder, and 15-h.p. and 24-h.p. four-cylinder

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vehicles could be inspected. Messrs. Hall and Co. also showed an 8-h.p. double-purpose car. This is provided with a detachable tonneau and a van body to carry 5 cwt. It is well adapted for tradesmen's purposes, as either body can be readily substituted for the other. Of the Talbot cars those on view range from 8 to 20-h.p., all being fitted with tonneau bodies.

A newcomer to the Show was the CORONET MOTOR COMPANY, LIMITED, whose exhibit was of a most interesting character. Two cars were exhibited, —a 16-h.p. four-cylinder vehicle, similar to that illustrated and described in the *Journal* of the 19th ult., and an 8-h.p. car with tonneau body. The latter has a frame of pressed steel, in the fore part of which is set a single-cylinder "Coronet" motor having a bore of 4⅜ in. and a stroke of 5½ in. A view of the engine is given in Fig. 53. The fly-wheels are inside the crank case, and are of good weight and properly proportioned. The valves are mechanically-operated by one cam shaft, which can be removed without splitting the cases. The cam shaft with its wheels and governor runs continuously in oil in a dust-proof case. The normal speed of the motor is 1,200 revolutions per minute, at which it develops 10-b.h.p. The ignition plug is screwed into the induction valve cover. Special attention has been devoted to the water-cooling of the cylinder, the water circulating round each valve seat, keeping the exhaust extremely cool. The weight of the motor complete, with carburettor, etc., is 175 lb. The power is transmitted through a leather-faced cone clutch to a gear box giving three speeds forward and a reverse. On the top speed the drive is direct. Although of the Panhard type, the sliding is done on round shafts, there being no square shafts or wheels sliding on feathers or keys—a depar-

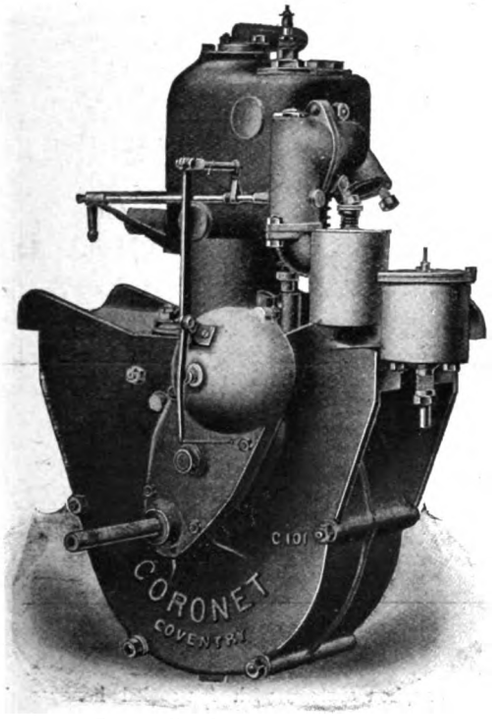


Fig. 53.—The Coronet 8-h.p. Motor.

ture which the makers claim enables all parts to be accurately ground after hardening and ensures silent working on all speeds. A cardan shaft and bevel gear transmit the power to the rear live axle. The steering is the Coronet patent irreversible adjustable type, which provides against back lash after lengthy use. The car has a long wheel base, and the body, which is nicely upholstered in leather, provides ample seating accommodation for four persons. At this stand were also to be seen specimens of the "Coronet" 16-h.p. four-cylinder, 8-h.p. single-cylinder, and 3½-h.p. water-cooled and 3¼-h.p. air-cooled engines, the last two being designed for use on motor-cycles. These have mechanically-operated inlet valves, and we noticed that the gear wheels operating the cam shaft were marked, so that if taken apart they could be reset without difficulty. The Coronet Company have also introduced a new carburettor for engines up to 6-h.p., to which we shall probably refer in a later issue.

On the stand of M. H. Cintrat the GENERAL MOTOR-CAR COMPANY, LIMITED, exhibited one of their 6½-h.p. doctor's cars, fitted with hood and front glass screen. The motive power is supplied by a 6½-h.p. Aster engine, driving through a gear-box and cardan shaft on to a live axle. Three speeds and a reverse are available, while ample space is provided at the rear for carrying instruments, etc.

The novelty on the stand of MESSRS. R. REYNOLD JACKSON AND CO. was a 7-h.p. car (Fig. 54), which at its low price should soon become a popular type, especially in view of the fact that it seats four persons. The engine is set in the fore part of a tubular frame and drives through a clutch and cardan shaft to a gear box located close up to the rear axle, with which it is connected by bevel gearing. The constructional features of the gear box, which gives two speeds forward and a reverse, were illustrated and described in our issue of November 14th last, as was also the combined friction clutch and brake. The body, which is of the dog-cart pattern in natural wood, is particularly worthy of inspection, special attention having been devoted to the question of accessibility of the various parts of the mechanism. To this end the body is so fitted that it can be entirely removed in a space of about one minute, exposing the gear, back axle, driving shaft and engine; it can also as quickly be converted into a two-seated car, with spare

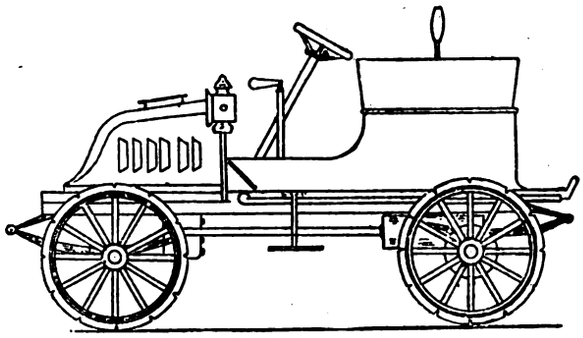
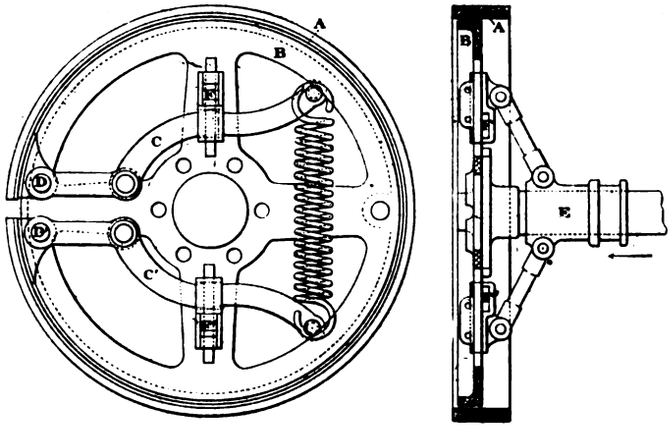


Fig. 54.—The Jackson Dog-Cart.

luggage room. The 3½-h.p. "Jackson" runabout was also on view, as also several examples of the "Jackson Tourist" cars, which have been improved in several details for the 1904 season. The engine is of the horizontal single-cylinder type of 8-h.p. and fitted with a heavy flywheel. The motor is coupled direct by means of a flange to the transmission gear, which gives two speeds forward and one reverse.

The BROUHOT MOTOR COMPANY OF GREAT BRITAIN, LIMITED, exhibited a *chassis*, a complete tonneau, and a 15-18-h.p. side-entrance double phaeton of the Brouhot type of vehicle, which are made in sizes ranging from 12 to 40-h.p. Dealing with the 15-18-h.p. car exhibited, the frame is being made sufficiently large to accommodate a body having side entrances. This is fitted with an engine, the four cylinders of which are cast in two pairs, the normal speed being 1,000 revolutions per minute. All the valves, both inlet and exhaust, are mechanically actuated off one cam shaft. The carburettor is Messrs. Brouhot's own design, and provides for the automatic regulation of the air in order to give the correct mixture at any or all speeds. The jet is also so arranged that it can instantly be taken out for cleaning purposes. Pump circulation is adopted in conjunction with a framed ribbed pipe cooler and tank, through which a current of air is drawn by a belt-driven fan. The crank chamber is divided into compartments, thus avoiding the fault that when climbing long hills the back cylinders get all the oil, whilst the front cylinders obtain but little, if any. The governor is adapted to act on a throttle valve, which when entirely closed opens a second valve to allow the engine to draw in cold air. An ingenious form of friction clutch is employed to connect the engine with the gear-box. It consists of a steel band, the outer surface of which is lined with camel-hair belting. The band itself is so arranged that it can be readily detached; it is expanded within the fly-wheel by means of two toggle levers. The countershaft brake is water-cooled, while those in drums on the rear wheels are practically identical in form and action with



Figs. 55 and 56.—Front and Sectional View of Brouhot Clutch.

the clutch. The transmission is by gears to a countershaft, and thence by side chains to the rear road wheels, with direct drive to countershaft on the top speed. The whole transmission is protected from dust and mud by an undercasing. The frame is of pressed steel or armoured wood. A feature of the Brouhot cars is the provision of a shock or vibration damper, so designed that whilst allowing the springs of the car to exert their full elasticity in ordinary work, it takes up and deadens any sudden shocks, such as are produced when the car is moving quickly over a bad

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oad. The control is by a single sector in the middle of the steering wheel, and the flexibility of the motor is claimed to be such that it can be run at from 100 to 1,000 revolutions per minute.

A varied exhibition of petrol cars was made by the INTERNATIONAL MOTOR-CAR COMPANY, LIMITED, including a 12-h.p. two-cylinder Portland, a 12-h.p. Corre car with Aster motor, and a 10-h.p. Corre landaulette with double-cylinder De Dion engine. Chief interest at this stand was, however, centred on the *chassis* of the new "Diamant" cars the International Company are introducing into this country. They are of French construction, and are made in two sizes—12-h.p. and 24-h.p. Except that one car has a double cylinder engine and the other a four-cylinder, the following particulars may be taken as applying to both vehicles:—Commencing with the frame, this is of pressed nickel steel, narrowed at the front to allow the steering wheels to take a larger "lock" than usual. The motor and gear box are supported on a secondary frame. The 24-h.p. engine (Fig. 57) comprises four separate cylinders, 90 mm. bore by 130 mm. stroke. All the valves are mechanically operated off one cam shaft, the inlets being located in the cylinder heads and actuated by tappets. The water circulation is maintained by a gear-driven pump and a Loyal radiator. A governor is provided which controls the supply of mixture to the engine, the carburettor, which is on the lines of the Krebs, automatically regulating the quality of the gas in accordance with the speed of the motor. The ignition is by means of a gear-driven Simms-Bosch magneto. The base chamber of the motor is provided with detachable hand-hole covers, which enable the big ends of the piston rods to be inspected. The clutch is of the internal leather-faced cone type, and it is so connected up with the throttle valve that when withdrawn the speed of the engine is cut down. A joint is provided on the shaft between the clutch and gear box, enabling either to be readily dismounted without disturbing the other. Three forward speeds and a reverse are provided, the drive on the top being direct. The change-gear is operated by a simple rack and sector gear. The cardan shaft which connects the gear box with the rear axle is provided with special universal joints. A feature of the car is the provision made for preventing any undue strain on the back axle. All the brakes are of the metal-to-metal type, those connected with the rear wheels being of the internal expanding type.

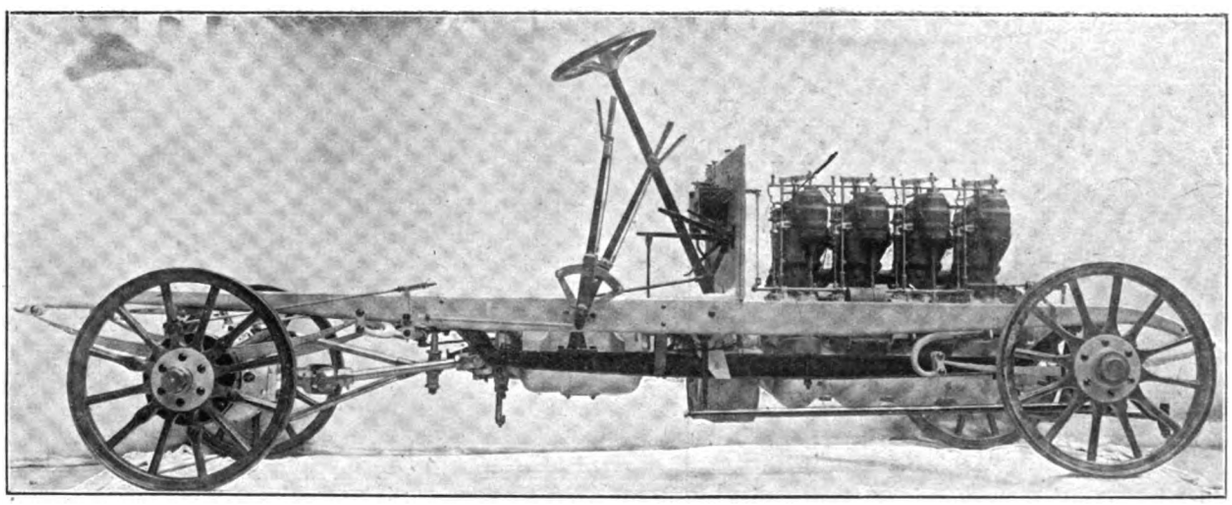


Fig. 57.—Chassis of 24-h p. "Diamant" Car.

The NORMAL POWDER AND AMMUNITION COMPANY, LIMITED, who have acquired the agency for the "Prunel" cars in this country, showed a number of these vehicles, all of which follow the standard lines of chain-driven cars. The 12-h.p. vehicle has a two-cylinder motor, three speeds and reverse, and a well-finished tonneau body. The 24-h.p. car on view was a more elaborate vehicle, having a long wheel base suitable for a side-entrance body. The motive power is supplied by a four-cylinder Mutel engine having mechanically-operated inlet valves and Xenia automatic carburettor. Four speeds forward and a reverse are provided. Considerable interest was shown in a 9-h.p. landaulette with De Dion engine and body work by Messrs. Holmes, of Derby, specially designed for doctors' use, one of the special fittings consisting of a folding wash-hand basin with both hot and cold water supply.

The stand of MESSRS. J. R. RICHARDSON AND CO., LIMITED, Lincoln, came in for a large amount of attention, due principally to the presence of the new Richardson 6½-h.p. two-seated car which has been introduced to meet the demand for a reliable vehicle at a moderate price. The motive power is supplied by a 6½-h.p. Aster engine, set in the fore part of a tubular frame. The power is transmitted through a clutch to the gear box, which gives three speeds forward, viz., 6, 18 and 28 miles per hour, and a reverse. Thence a cardan shaft transmits the power to the differential on the rear live axle. Three metal-to-metal brakes are fitted, one at the rear of the gear box, and two of the expanding type in drums connected to the rear wheels. The car has ample accommodation for two persons and for a large quantity of luggage. The "Richardson" 12-14-h.p. two-cylinder car exhibited has already been described in the *Journal*, so we pass on to the *chassis* of Messrs. Richardson's latest production, a 24-h.p. car with pressed steel frame. The four-cylinders are cast in two pairs, the inlet and exhaust valves being all actuated mechanically off one cam shaft. The inlet valves are provided with a variable lift device actuated automatically by the governor. The water circulation is maintained by a chain-driven pump and a ribbed radiator of the latest type, neatly set in a frame which fills up the front opening in the bonnet. The power is transmitted through a specially-arranged self-contained clutch to a gear-box, giving four speeds forward and one reverse. The change-gear pinions are all bolted to flanges so that they can easily be renewed if necessary. From the gear box a cardan shaft conveys the power, through bevel gearing, to the rear live axle. Special attention has been paid to the brakes, one being fitted on the forward end of the bevel gear shaft near the cardan joint. On the shaft is mounted a special disc, in which is an expanding brake, actuated by a cam controlled by a lever. Altogether the Richardson cars appear to be of high-class construction, both as regards the *chassis* and the carriage work, large provision having been made in the way of lockers and pockets for the convenience of the passengers. At this stand was also to be seen the Wallis motor map, a mechanical arrangement in a case by which 400 square miles, ½ inch scale, of any part of England and Wales can be rolled into position with the greatest ease.

The "Arbee" is the name of a new two-seated car which MESSRS. RODGERS BROTHERS are bringing out to meet the demand for a popular-priced vehicle. The motive power is supplied by a 6-h.p. vertical engine set in the forepart of a tubular frame. The motor has a cylinder 4-inch bore by 5-inch stroke, and runs normally at from 800 to 1,000 revolutions per minute. The valves are all mechanically actuated, while the water-cooling is on the thermo-syphon system, with fan-cooled honeycomb radiator. Two speeds forward and a reverse are provided, the engine driving through a clutch and bevel gear on to the first shaft of the gear box, which is set across the frame. The various change-speed pinions are always in mesh, the requisite pair being brought into action by means of "dog" clutches at the side of the pinions. From the gear box a single centrally-located chain transmits the power to the gear live axle.

MESSRS. E. MENDELSSOHN AND CO., of Levallois-Perret, France, exhibited a number of petrol cars of their construction ranging from 6-h.p. to 15-h.p. These follow the usual lines of chainless cars, the largest type having a four-cylinder Mutel engine with mechanically-operated inlet valves and Xenia carburettor. A feature of this vehicle is the special provision made for the lubrication of the differential and bearings on the rear axle, a continuous circulation being ensured by utilising the hollow radius rods as oil pipes.

The Dechamps cars were once more to be seen at the stand of the DECHAMPS MOTOR COMPANY. The general arrangement closely follows what may be termed Panhard lines, the power being conveyed through a clutch, gear-box, and two side chains, three speeds and a reverse, all controlled by one lever, being available. The engine is fitted with automatic governor acting on the inlet. A special feature of the Dechamps cars is to be seen in the band brakes connected with the rear wheels, the band being put in and taken out of contact with the drum by a double-threaded screw actuated by a hand lever. A complete 18-h.p. car was shown, the body work of which was well worthy of inspection; it takes the form of a side entrance double phaeton. Side by side with this was a 10-h.p. double-cylinder car and a 22-h.p. four-cylinder vehicle. The engine has separate cylinders, water-cooled by means of friction-driven pump and honeycomb radiator. A feature of the latter is that the belt driving the fan connected with the cooler is at the front of the radiator.

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ELECTRICAL CARS.

A newcomer in the electrical vehicle field is the ANTI-VIBRATOR, LIMITED, which had on view a well-finished landaulet (Fig. 58) and a victoria. No frame, in the usual sense of the term, is used, the body being supported on the axles in a special way; the axles themselves are tied together by tubular radius rods in such a manner that each may adjust itself to any inequalities in the road. Two 3-h.p. motors are provided; they are of the enclosed type, with the armatures running on ball bearings; each motor drives one of the rear wheels through spur gearing. The necessary

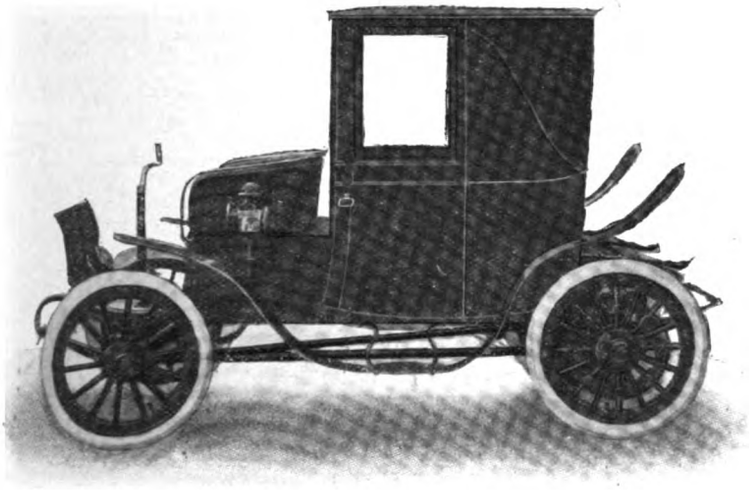


Fig. 58.—The Imperial Electric Landaulet.

energy is furnished by a battery of forty-four cells, arranged in two groups —one under driver's seat and one behind the rear seats. The capacity is equal to a run of about forty miles over good roads on one charge. The speed controller measures only 15 in. by 4 in., and is fitted under the driver's seat. It provides three speeds forward, one reverse, and one neutral or off position. By a special contrivance it is rendered impossible for the driver to start off with a rush or to change the speeds abruptly from first to third, a frequent source of damage to the motor and gear wheels. Four brakes are provided—two on the driving wheels and two on the motor shafts. Each is double-acting and will hold the carriage from running backwards or forwards. Near the driver's left hand is a safety device, by which, on withdrawing a plug, all electrical connections are cut off, so that the car may be left without danger.

A number of light electrical vehicles were shown by the LONDON ELECTRO-MOBILE SYNDICATE, LIMITED, these including a two-seated stanhope, a tonneau, and a light van to carry loads up to 4 cwt. The vehicles are propelled by an electric series-wound motor located at the rear, and driving on to the back axle through centrally-located enclosed spur gearing. The power is furnished by a battery of forty-two accumulators of the Hart type carried in the rear portion of the body, one charge being sufficient for a run of from thirty-five to forty miles on good roads. The controller is of the series-parallel type, adapted to give five forward speeds, two reverse motions, and two electric brakes. A pedal actuates a band brake on the rear axle. Steering is by means of a tiller or wheel. Solid or pneumatic tyres can be fitted to the road wheels, which are of the artillery type. The "Lems" cars, as they are termed, appear to be especially adapted for doctors' use, and have already been adopted by several members of the medical profession. The van (Fig. 65) is well adapted for use by tradesmen; it takes a charging current of about 10 amperes, and at the usual price of current for power purposes cost about 10d. for a run of thirty miles, for current at 100 volts. With batteries complete its weight is but 14 cwt., which is very moderate for a car which is strongly built and intended for every-day service.

The LANCASTER MOTOR GARAGE had on view a Mildè landaulet, one of the most successful types of electric carriages in France. A compound-wound Mildè motor of the differential type, carried at the centre of the hind axle, drives both rear wheels through internal diagonal spur gearing. The battery is carried partly under the driver's seat in front and partly beneath the passengers' seat behind, and is made up of 44 Heinz cells of 155 ampere-hour capacity at 80 volts. It furnishes sufficient energy to drive the car about 40 miles on a single charge. The steering is effected by a hand-wheel fixed to a vertical pillar to which the controller is also attached. The latter gives seven forward speeds, two electric brakes, and two speeds backwards.

The BURLINGTON CARRIAGE COMPANY, Limited, which has established a garage and charging station at 41, Grosvenor Mews, New Bond Street, W., had on view a Scheele electrical landaulet. The vehicle is provided with a battery of forty cells of a capacity sufficient to run it a distance of from 30 to 50 miles on one charge. Two electrical motors are fitted, these driving the rear wheels through spur gearing. The controller is adapted to give five forward speeds, two reverse, and two braking positions.

A new firm in the motor trade is MESSRS. BATH AND SON, of King's Lynn, who have opened a repair shop, garage, and charging station at 36, Lorne Gardens, Park Road, Regent's Park, N.W. Their exhibit included an electrical brougham and a landaulet, fitted with Lundell motor driving the rear axle through enclosed spur gearing. The battery consists of forty-four cells, having a capacity equal to a run of about forty miles on one charge. The controller is adapted to give five speeds forward, one reverse, and an electrical braking position. At this stand was also to be seen a 20-h.p. M.M.C. car fitted with a special Limousine body of Messrs. Bath's construction. This is a branch of work to which special attention is devoted by Messrs. Bath, that of the Limousine, as well as of the electrical vehicles, being of a high order.

MESSRS. MORGAN AND CO. exhibited an electrical victoria and a dog-cart. These cars are fitted with double-rotating "Still" motors driving the rear wheels through side chains. The motive power is supplied by a battery of forty Sola accumulators, the capacity of that in the victoria being sufficient for a run of 25 to 30 miles at speeds up to 15 miles per hour. The controller is adapted to give three forward speeds, one reverse, and a neutral "off" position.

STEAM VEHICLES.

Among the exhibitors of heavy steam wagons who made their first appearance at the London Show was the HERCULES MOTOR WAGON COMPANY, of Levenshulme, Manchester, whose five-ton vehicle is illustrated in Fig. 59. The boiler is of the vertical fire-tube type with straight solid-drawn steel tubes, suitable for either coke or coal fuel. The outside shell can be removed for cleaning; the boiler, which is constructed for a working pressure of 200 lb. per square inch, is dropped between the main frame, to which a patent carrier plate is firmly bolted, and is placed in rear of the front axle; the foot plate is below the main frame and the boiler is fired from the front. It is fitted with double safety valves and Klinger water gauge. The water is supplied through a water heater by means of a pump driven by an eccentric upon the compensating shaft; there are also two injectors as an auxiliary supply. The engine is of the compound link motion reversing pattern, fitted with piston valves; the cylinders are 4 in. and 7 in. diameter by 6 in. stroke. It can be converted at will, from the driver's seat, into a double high-pressure engine with separate exhausts, thereby giving increased power in cases of emergency. With this arrangement there is claimed to be no back pressure upon the high-pressure piston. The engine and gearing are contained in dust-proof casings and run in an oil bath. The wagon is fitted with two speeds, differential gear, and patent locking appliance. The change speed is effected by means of a special device, doing away with internal fork clutches. The power is transmitted by two strong roller chains from steel pinions upon the compensating shaft to chain wheels bolted to the special rear road wheels. The front axle is of special construction, it being built in accordance with Perkins' patent, the steering being on a modified Ackermann principle, operated by worm and wheel, giving a large angle of lock without reducing the stability of the wagon. The axle is so arranged that it can oscillate, allowing either of the front wheels to mount any obstacles up to 8 in. without causing any distortion of the frame. The main frame of the wagon, which is carried upon four laminated plate springs attached to the axle by means of strap bolts, is of channel steel, braced and constructed so as to carry the whole of the machinery, boiler, and tank. The back axle is of forged steel, and is held in position by means of two strong pivoted radius rods, thereby allowing for the deflection of springs. As already mentioned, the rear road wheels



Fig. 59.—The "Hercules" Steam Wagon.

are of special construction, the hub, spokes, rim, and sprocket flange being in one casting. Between the rim and steel tyre a wood felloe is introduced, which is claimed to give to the composite wheel the same resiliency as a wood wheel without any of the drawbacks of the latter. Altogether the "Hercules" is an interesting addition to the types of heavy steam vehicles on the market. We may add that Messrs. Shippey Brothers, Limited, have recently been appointed agents for these wagons in the London district.

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MESSRS. BAILEY AND LAMBERT had on view a *chassis* of the Turner-Miesse 10-h.p. steam cars, built by TURNER'S MOTOR MANUFACTURING COMPANY, LIMITED, and which, ere the Exhibition closed, bore a card to the effect that it had been sold to a gentleman in Ceylon. The car (Fig. 60) is driven by a horizontal three-cylinder engine, steam for which is provided by a flash-type generator. The latter is made of solid-drawn weldless steel tubing of about 200 ft. in length, which is made up into sixteen layers of snake coils. The burner is of the Bunsen type, and consumes ordinary American paraffin oil as fuel. The oil is fed from tank to burner by air pressure, automatically maintained by a small pump mounted on the engine crank-shaft. The engine is of the single-acting trunk type, and has inlet and exhaust valves of the mushroom pattern, a construction which obviates the necessity of any glands or packing. The valves are operated by two cam rods, actuated by the steam lever on the steering post. Among the detail improvements in the 1904 model is a pilot light which keeps up the necessary temperature of the generator, enabling the car to be left standing for hours without attention, and yet be ready at a moment's notice to start. Steam is now cut off as desired by a throttle valve, operated by a pedal, which also applies the brake; while the water regulator has been improved to enable the driver to see at a glance how much water is passing to the generator. Sufficient water for a run of eighty miles can be carried; while the capacity of the fuel tank is equal to 100 miles' running. We may add that the car is built entirely at the Turner Company's works in Wolverhampton, and that the consumption of fuel is about one gallon per hour.

GENERAL EXHIBITS.

Among the miscellaneous exhibits of utilitarian interest to motorists was the display of the PAGE MANUFACTURING COMPANY. This consisted of a selection of their specialities in oils, polishes, enamels, paints, and similar necessary articles. Their "Aluma" paint is of aluminium hue, and admirably prepared to give an effective appearance to metals covered therewith. The "Lumo" silver enamel is another special line with the Page Company, who have also brought out the Radium burning and lubricating oils in conveniently shaped flasks. Calcium carbide, transparent enamels, and the well-known "Tab" polish were also to be seen on the stand of the Page Manufacturing Company.

Ignition accumulators of every description and capacity were shown by MESSRS. SANDERS, REHDERS AND CO., of the Pfluger Accumulator Works. The Pfluger batteries are supplied either for acid or with the makers' special paste. Some excellent batteries for motor-cycles and light cars up to 8-h.p. were on view. One good type is that known as No. 102. Two of these batteries will fit the tank of any ordinary motor-cycle, one being in use and the other kept in reserve. Then, should accident occur, the spare cell can be brought into requisition. For heavy motor-vehicles four-volt batteries are made, with an approximate running mileage of 2,500 miles. The Pfluger protected batteries were also exhibited, these being intended for heavy wear. They will stand the vibration of the motor on the worst roads without damage, and are said to be capable of sustaining a fall without injury, consisting, as they do, of celluloid cells fitted into wooden cases.

MESSRS. SMITH, PARFREY AND CO., LIMITED, who possess an electric welding plant at their works at Hammersmith, had a good show of motor-car wheels fitted with rims for any description of tyre. Wheels for heavy steam lorries, as well as for the lighter type of petrol car, were also on view. Not only on their own stand, but also among the car exhibits elsewhere in the show, were to be found specimens of Messrs. Smith, Parfrey and Co.'s productions. Bent timber is another speciality of the firm, this being supplied to any special patterns or drawings. Car backs, wings, rails, and other articles were shown in bent timber. Other exhibits of the firm included wrought-iron treads of varied design, and with ample foot space, stamped forgings for motor work, motor axle forgings, motor springs, steering axles, and a 12-h.p. bevel-driven axle.

Waterproof goods of every description were shown by the UNION WATERPROOFING COMPANY, who had a fine display of van and car covers in green, black, or white material, being made of flax canvas fitted with ropes, and of such a character as is likely to win favour with private owners of automobiles. Other exhibits included driving aprons, waterproof trousers, jackets, overcoats, leggings, etc. In indiarubber waterproof coats, some good and useful patterns were on the stand, both in single and double texture. Miscellaneous exhibits of the Union Waterproofing Company comprised the Crown chain lubricant, a white rubber renovator, and a dressing for leather clothing which renders it waterproof, soft, and pliable.

Among coach builders, MESSRS. BROWN AND HUGHES had a distinctive show of motor-car bodies, including a landaulet to seat four persons inside. The front is a removable one, and the whole design is noteworthy in view of the comparatively short *chassis* for which it was intended. The firm have lately laid down electrical power to drive their wood-working machinery, and their facilities are ample for the making of motor-car bodies, whether in wood and iron or in aluminium.

MESSRS. SALSBURY AND SON, LIMITED, showed a large and varied assortment of Salsbury-Flare and Salsbury-Dietz lamps. The former are too well known to need any comment, with the exception that they have been improved in many ways for the coming season, a new reflector being now fitted. The Salsbury-Ovalite and Salsbury-Searchlight were also shown. These are rapidly coming into favour with the motoring public on account of their great lighting powers. The Salsbury-Dietz Orient lamp is in four finishes, and the Salsbury-Dietz Masterpiece in two finishes. The firm are well to the fore with the new regulation tail lamps and devices for carrying the number-plate on motor-cycle head lamps. Spark plugs, accumulators, wire, coils, and every accessory motorists require were to be found on this stand, one of the most useful of these being the Salsbury-Barratt motor jack, which, although only introduced a year ago, has rapidly come to the front. The "Strictor" belting was also exhibited by Messrs. Salsbury and Son, Limited; and among new lines for 1904 were the "Dazlit" metal polish and "Gre-Solvent" automobile baskets, "Tydee" waste-trays and "Tydee" oiler-trays.

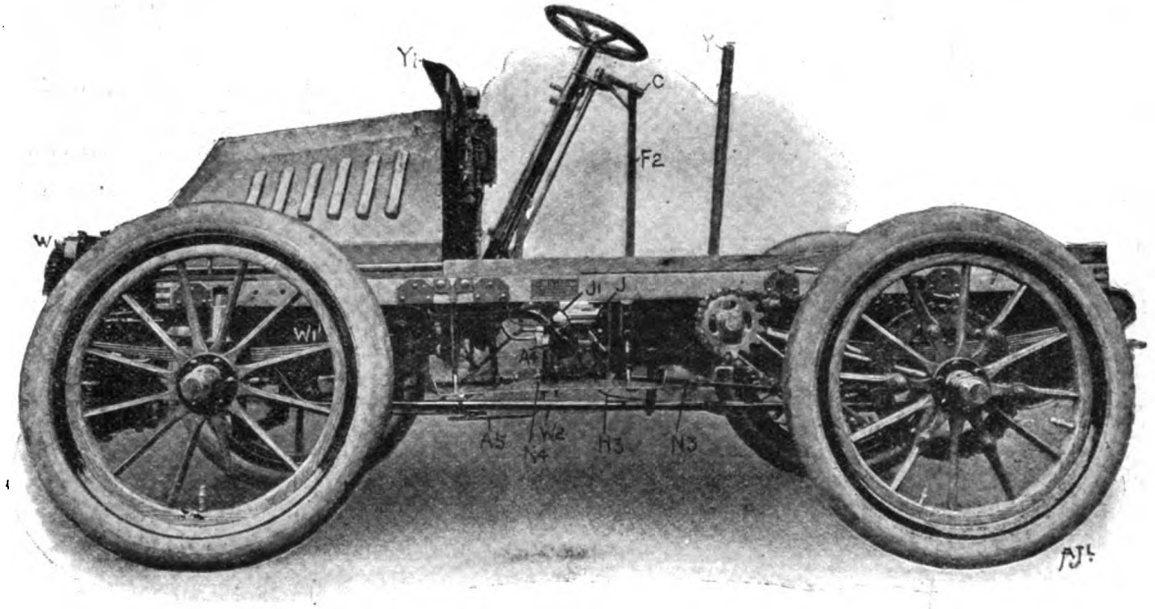


Fig. 60.—Chassis of 10-h.p. Turner-Miesse Steam Car.

The WILLIAMS TYRE COMPANY showed their solid rubber tyres for motor-cars, these being secured to the wheels by means of patent bands and fastenings, as described in our issue of February 20th last. The firm hold which the hook and steel screw—a special feature of the construction—secure on the band prevents the possibility of this working loose, and so does away with the chance of creeping.

Among tyres that of the PETER UNION TYRE COMPANY was one in which the public took a lively interest by reason of the fact that it has been supplied to the Prince of Wales, and has also been used on the G.W.R. motor-'buses. The company has brought out a rubber protector which permits the use of covers long after they would otherwise be discarded. They form a resistance to the bursting tendency of inner tubes in the event of a large cut in the cover. The protector is in the form of a circular rubber tapering towards each end and thickened in the centre. This is laid loosely inside the cover, the tube lying closely inside it. Injury to the tube is thus prevented, the idea being one deserving the careful consideration of motorists.

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A Coventry firm which is devoting considerable attention to the construction of petrol motors is the FORMAN MOTOR COMPANY, LIMITED, who had an interesting display in the gallery of engines ranging from 3½ to 20-h.p. The motor-cycle engine is of the air-cooled type, made with either automatic or mechanically-actuated inlet valve. The motor has ample bearing surfaces throughout; the flywheels are fitted inside the crank case in the usual manner, and the whole of the gear is enclosed in oil-tight cases. The cylinder dimensions are 80 mm. bore by 80 mm. stroke, the full power being developed at a speed of 1,500 revolutions per minute. The Forman 4½-h.p. water-cooled motor for use on two-seated motor-cycles, light cars, and motor-boats has already been described in the *Journal*. It has a cylinder 90 mm. by 90 mm., the inlet valve being mechanically actuated. The 10-h.p. and 20-h.p. engines are of the same pattern, one having two and the other four cylinders cast in two pairs. The cylinders are 105 mm. bore by 110 mm. stroke. The engines are fitted with the ordinary atmospheric valves, and are governed on the throttle. The base chamber is in aluminium and the two halves provided with substantial arms for supporting purposes. Another type of engine—one of the Forman Company's latest productions—is shown in Fig. 61. This is a 14-16-h.p. motor, designed with a view to supplying the demand for a miniature four-cylinder perfectly balanced elastic engine. It consists of four separate cylinders, 80 mm. bore by 90 mm. stroke, mounted upon a base chamber, with carrying brackets of such a nature that no difficulty need be experienced in fitting it to any type of frame, either by attachment to the false *chassis* or the main frame. The engine is fitted with a solid four-throw crank with ample bearing surfaces. The whole of the cam gearing is enclosed in oil-tight cases. The cam shaft and two to one gear, together with the governor, are enclosed in oil-tight cases, which

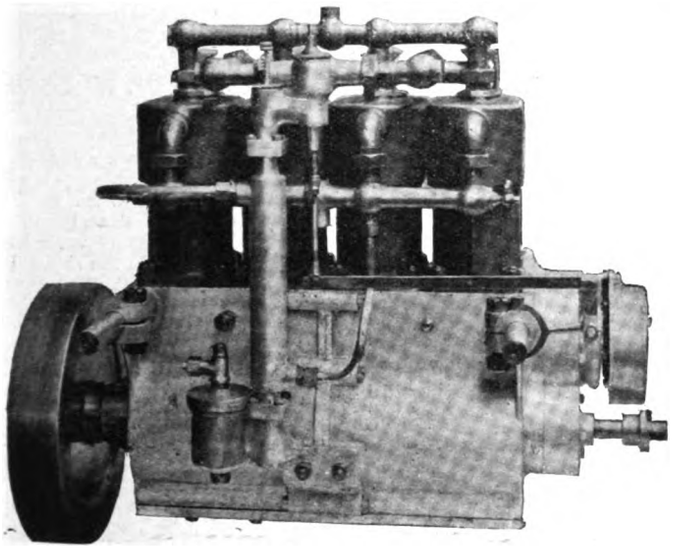


Fig. 61.—The "Forman" 14-16-b.h.p. Motor with Automatic Carburettor.

are readily opened out for inspection. The cam shaft is so arranged that it can be removed complete with a minimum amount of work. The engine is fitted with a centrifugal governor acting on the inlet; it can be set to run at any desired speed, while the engine is so elastic that it is capable of running at from 200 revolutions to 2,500 revolutions per minute. This is obtained by a special automatic carburettor which provides for a mixture according to the speed of the motor, and which is referred to below. The total weight of the engine, inclusive of flywheel, is 230 lbs. We understand that the Forman Company have met with quite a large demand for this engine on account of its suitability for converting one and two-cylinder cars to the more modern four-cylinder type. Fig. 62 gives a sectional view of the Forman automatic carburettor, to which reference has already been made, and which is seen fitted to the engine illustrated above. A is the petrol supply to the float chamber through the cut-off needle B, which can be regulated by a screw and lock nut. C is the float cutting off the petrol supply and maintaining it at a constant level in the jet nipple E. D is the float chamber, which is made very deep and below the level required for the feeding of the jet, the object being to allow sediment which may collect to fall in the sump-pit shown at the bottom of the float chamber. An ordinary pet cock is provided for draining purposes. The carburettor takes in air through the perforated in-take F, to the regulating flap G, which assures direct starting of the motor when cold. The air, in passing through the vaporising chamber, sucks a certain proportion of petrol from the jet nipple E, passing up through the vaporising pipe H, which, it will be noticed, is jacketed throughout. This ensures the carburettor working under constant conditions and prevents freezing. Either hot water or exhaust gases may be circulated through the jacket. The valve K supplies additional air to the mixture when the engine is running exceptionally fast. It is provided with a screw for adjusting the lift, and, in addition the maximum intake can be controlled by the regulator L. M is an ordinary cut-off valve controlled by the governor, which is of the centrifugal type, and fitted on the cam shaft of the engine. The mixture, after passing through the valve M, is distributed in the feed pipe to the various cylinders. T is a snifting valve; when the valve M cuts off the mixture entirely the vacuum is reduced, and a certain proportion of fresh air is permitted to flow into the cylinders through the valve T, thus cooling the cylinder walls. At this stand was also to be seen an example of the radiators made by the COVENTRY PLATING AND PRESSWORK COMPANY, LIMITED, the aluminium tubes being claimed to be 40 per cent.

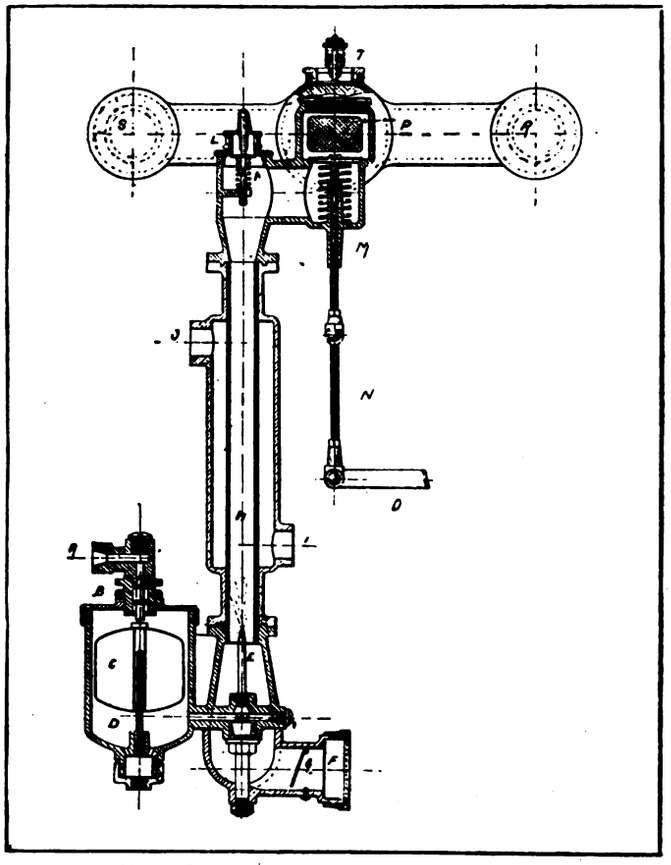


Fig. 62.—Section of "Forman" Automatic Carburettor.

lighter than the usual type. The increased efficiency is obtained by the use of aluminium radiating fins. These are in actual metallic contact with the tube by a patented method of fixing, no solder being used.

The ASCOT MOTOR COMPANY introduced a new motor-bicycle with a 2¾-h.p. engine set vertically in the frame just forward of the bottom brackets. The cylinder diameter is 80 mm. bore by 80 mm. stroke. Both valves are mechanically actuated, this being performed in a simple and ingenious way, only one cam being used for the two valves. A diagram of the

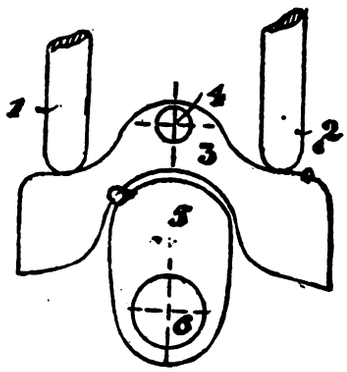


Fig. 63.—The "Ascot" Valve Gear.

device is given in Fig. 63. It will be seen that between the two valve lift rods is pivotted a rocker 3. As the cam 5 is rotated it lifts each valve rod in turn, and at the desired interval. In this way no additional cam or gear wheels are required to actuate the mechanical inlet valve, which has a quick closing action, owing to the special shape of the rocker. The machine is of the belt-driven type, the levers controlling the carburettor and throttle valve being ingeniously arranged. A two-seated motor-cycle with 3½-h.p. engine on similar lines was also displayed.

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The stand of MR. W. H. NEWMAN, A.M.I.M.E., proved a very interesting one to engineering visitors to the show, the exhibit comprising a new adjustable universal joint or coupling and a change-speed indicator. In almost every motor-car universal joints or couplings are used, many live axle cars having as many as three. These joints are made in a variety of forms, but in few of them is any provision made to take up wear, with the result that when they become slack they can only be tightened

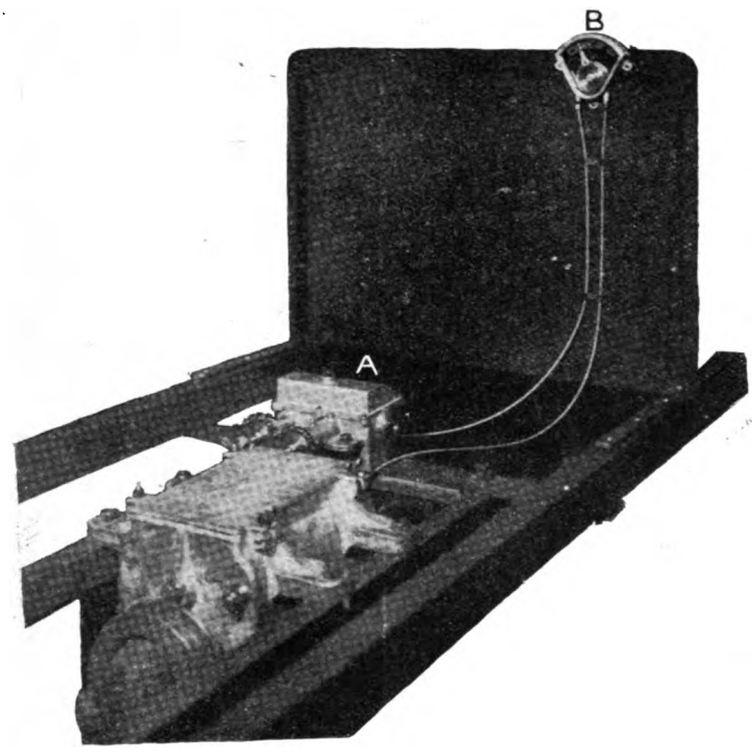


Fig. 64.—The Newman Change Speed Indicator.

up by renewing the parts. The Newman adjustable universal joint consists of a simple arrangement by which the working parts of the joint are made adjustable, so that the effects of wear can be neutralised and the joint always kept adjusted to a nicety. The ends of the shafts are forked, four segmental blocks being fitted to the sides of the forks. These segmental blocks have a conical screw thread cut on their outer surface, on which a ring is screwed which binds the whole joint together. It will be seen that if the ring is screwed up the cone all the blocks are forced in evenly towards the centre and the joint is tightened up. If it is screwed the other way the joint is slackened. Simple means are provided for locking the ring after it has been adjusted. The Newman change-speed indicator (Fig. 64) is another exceedingly interesting device. The difficulty of changing speed with the ordinary change gear, in which the wheels are arranged to slide in and out of mesh, is well known. By dint of practice a driver can, of course, become very proficient, but even the most skilled motorist may occasionally make a mistake when changing speed, and a novice may damage the gear teeth very seriously by attempting to force them into mesh. This difficulty is, of course, due to the fact that it is not possible to tell when the wheels are running at the correct relative speeds which would enable the teeth to engage without shock or jar. The Newman change speed indicator is claimed to entirely remove this difficulty; it indicates at all times the exact relative speeds of the shafts in the gear box, and thus enables the driver to slide the wheels into mesh at the right moment without shock or jar. The apparatus consists of a small aluminium box A, containing simple gearing driven by chains from the shafts in the gear box. The box A is connected by two Bowden flexible wires to an indicator B fixed on the dashboard in sight of the driver. The indicator has a pointer and two to four figures, according to the number of speeds fitted on the car. When the car is running on any given speed, *e.g.*, the second, the pointer will remain stationary at the figure 2. If now it is desired to change on to the third speed, the speed lever is moved so as to put the second speed gear wheels out of mesh. The pointer will then commence to move towards the figure 3, and at the moment when it reaches that figure the speed lever is moved into the third notch, the wheels going into mesh without any trouble. If the speed were being changed down to the first, the pointer would commence to move towards the figure 1 as soon as the speed lever was moved out of the second position, and as soon as the pointer reached the figure 1 the first speed could be put in without the least difficulty. It will be seen from the above that by the use of the Newman indicator changing speed is made easy, as it is only necessary to watch the dial and move the speed lever when the pointer reaches the figure.

A seamless yoke coat of good design was a leading exhibit of MESSRS. HAXTON BROTHERS, who have entered into the business of automobilists' tailors with some excellent garments. This particular pattern has a capital appearance, and should prove a warm comfortable article of raiment. It is most effective as a protection against windy and wet weather, and should give the makers a good introduction to the motoring world.

Motor lubricants were a feature of the exhibit made by PRICE'S PATENT CANDLE COMPANY, LIMITED, who have every facility for the production of high-grade goods of this class. Their "Motorine" is prepared for air-cooled and water-cooled cylinders, "Rangraphine" for motor chains; "Belmoline" for axles and bearings; and their gas engine oils are suitable also for water-cooled cylinders. Many are the specialities of the company for motorists, and space forbids anything more than the briefest enumeration. For change-speed gear boxes of the Daimler or Panhard type, there are two grades of "Price's Battersea Gear Oil" for winter or summer use respectively. An effective medium for the protection of the plated parts of cars from the corrosive action of a damp atmosphere was also shown. Special attention has been given to the subject of lubrication, and Mr. J. Veitch Wilson's pamphlet issued by the company should be read by all interested in automobiles.

Among the ignition batteries at the Exhibition that of the A.B.P. ACCUMULATOR COMPANY, LIMITED, attracted some notice. These are well known to owners of cars. They are supplied incelluloidcases, and the company's list giving particulars of the various sizes in which they are made will be found a useful pamphlet for reference.

The Prested battery was shown by the PRESTED MINERS' LAMP COMPANY, LIMITED, whose improved accumulators are fitted with a new device to prevent the creeping of acids and leads. The Prested cells are well constructed, and special tests recently made have demonstrated their constancy and reliability. Celluloid cases are used, the grids and electrolyte being of the familiar kind. A special kind of paste is used, and altogether this form of battery is one that motorists would do well to consider.

Motor fittings and accessories were shown by MESSRS. THOMAS NOAKES AND SONS, whose first appearance at these exhibitions proved a singularly successful one. This firm is making a speciality of accessories and fittings for both heavy steam vehicles and petrol cars of lighter build, and their exhibits included expansion and swivel joints, petrol taps, valves of all kinds, gauges, lubricators, pumps, etc. One type of patent automatic oil pump in which we were interested was that fitted with a ball friction drive. This is guaranteed to work on the highest speed engine, and to feed any gravity or thickness of oil. It only lubricates when the engine is working, and the supply of available oil can be seen at a glance. The James and Browne oil distributor is another special line with Messrs. Noakes and Sons. The construction of this type enables the sight glasses to be easily removed and replaced from the top without disturbing the connections of the distribution pipes. The distributing box is fixed independently of the oil reservoir, with which it is connected by a suitably-arranged pipe.

MESSRS. SUTHERLAND AND MARCUSON exhibited their "Umpire" batteries and accessories for ignition purposes on motor-cars, motor-cycles, etc., and also their batteries for car lighting. The novelty which they

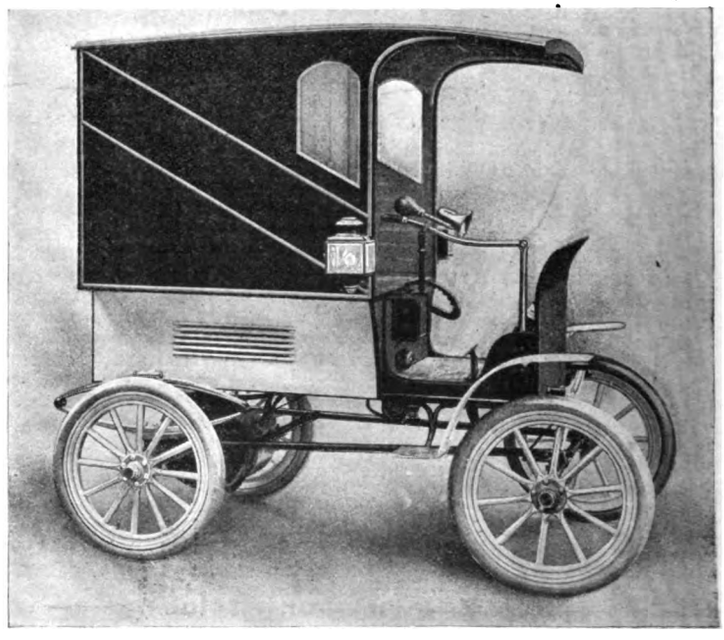


Fig. 65.—The "Lems" Electrical Delivery Van. (*See page* 107.)

showed was a new accessible skeleton type battery, which, while it can be made thoroughly liquid-tight, can at the same time be opened up and reclosed in a few minutes. The elements are provided with non-corroding terminals and are of the usual "Umpire" type, in which ribbed porous separators entirely occupy the space between the plates. The latter are held together by means of acid-resisting elastic bands, keeping the active

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material constantly under pressure and preventing it from falling away or losing contact with the grid. These are placed in a box of a special vulcanite material, and then clamped in a skeleton wood box with a strap, which facilitates transport. They are unbreakable, and when batteries have frequently to be carried, seem to provide just what is wanted.

A new radiator was shown by the LUNE VALLEY MOTOR CARRIAGE COMPANY, the feature being that the usual radiating fins are replaced by a triangular helically-formed coil of phosphor bronze wire. The result is not only a cooler of high radiating power, but one of great strength combined with lightness. The radiator is made in a variety of styles, and bids fair to meet with a large adoption by motor-car builders.

A reversing gear for motor-launches, etc., was shown in sizes for motors of from 2 to 20-h.p. by MR. K. BARKHAM. This is designed to secure a free engine ahead and astern, wth only one lever, and the simplicity of construction is a considerable point in favour of the device. The main working parts are of a special alloy of phosphor bronze, and all are covered in. The gear can be bolted direct on to the flywheel, fitted on to the crank shaft of the engine, or worked on a separate bedplate.

Aluminium castings of all descriptions were the first exhibit to catch the eyes of visitors as they entered the Hall, these being evidence of the enterprise of Mr. R. W. COAN, who has entered into the business with a keen regard to the requirements of motor-car makers. Hence the varied character of his display.

In addition to a Baby Peugeot car, the BADMINTON MANUFACTURING COMPANY displayed a new non-skidding and non-puncturable band for the pneumatic tyres of motor-cars and cycles, which they have named the "Badminton." The band is made of a special quality of chrome leather, the tread having steel studs fixed in it, and it is attached to the outer cover of the tyre in such a way that the band and tyre are claimed to become a solid surface, which cannot be separated. The resiliency of the tyre is said to be in no way affected, nor has it any retarding effect on the speed.

The well-known LONGUEMARE carburettors were displayed by Madame Lockert. These are made in sizes suitable not only for motor-cycles, but for the largest cars. The patterns exhibited included those recently introduced with auxiliary air inlet. Messrs. Longuemare have just issued a new catalogue, which contains a large amount of valuable information to users of this carburettor.

MESSRS. JOS. BAKER AND SONS, LIMITED, confined their exhibit to one of their motor change-speed gears, shown in operation. The gear, which is exceedingly compact, is of the epicyclic type, and gives three forward speeds and a reverse, all controlled by one lever. As we hope to describe the gear in detail in a later issue, we defer further reference to it at this time. We may, however, mention that Messrs. Baker have fitted it to a 8-h.p. De Dion car, and that over 5,000 miles have been run without trouble of any kind.

An interesting display of petrol motors was made by MESSRS. JOHNSON, HURLEY, AND MARTIN, who are devoting considerable attention to this growing branch of engineering work. The motors on view ranged from 3½-b.h.p. up to 16-b.h.p. The 3½-h.p. and 5-h.p. types have suction inlet valves, but the larger sizes are provided with mechanically-actuated valves. The 8-h.p. and 16-h.p. engines are of the same pattern, one having two cylinders and the other four cylinders, 90 mm. bore by 100 mm. stroke, the normal speed being 1,000 revolutions per minute. The four cylinders are cast in two pairs, and are provided with ample water-jackets. The crankshaft is made in one piece, and is provided with a large diameter boss, to which the fly-wheel is bolted. The crank chamber is of aluminium, and is provided with suitable brackets for attachment to the frame. The inlet valves are placed over the exhaust valves, and are interchangeable therewith. They are actuated by means of lifting rods and tappets operated from a second camshaft, which also actuates the exhaust valves. Special provision has been made for the lubrication of the cylinders and the various bearings, while the base chamber is provided with inspection holes both at the back and at the bottom. At this stand was also to be seen an "Alpha"—the name by which this firm's engines are known—12-h.p. double-cylinder engine, the dimensions being 4⅝ in. bore by 4¾ in. stroke. This is a relatively slow engine, running normally at 800 revolutions per minute, and having the inlet valves actuated by rods and tappets.

The improved seat for motor-cycles described in our issue of the 19th ult. was shown by MR. R. COOKE.

The "Omne Tempus" motor coats formed an attractive exhibit of MESSRS. SAMUEL BROS., LIMITED, who are entering the ranks of motorists' tailors with considerable spirit and enterprise. Fur-lined overcoats were another special line in which some good designs were on view, the exhibit being completed by an extensive selection of caps, gloves, and the score and one similar goods comprehended within the scope of the tailor who looks after the clothing wants of motorists.

An ingenious motor-cycle brake, already made familiar to readers of the *Journal*, was shown by MESSRS. WASS AND COCKS, LIMITED, of Ealing. This is the "Gripwell." It consists of a lever working in a clip attached to the compression stay of the machine. One end of the lever is fitted with a shoe having a dove-tail groove. The brake block is fitted into the latter, and can be supplied in V section or flat, according to the section of the belt pulley. At the other end of the lever is a pawl upon which the crank presses, when back-pedalling, and in this way the brake is applied. When not required the pawl can be instantly thrown out of action. Simple and effective, the brake has the further advantages of being reliable and inexpensive.

A good show of lamps was made by MESSRS. H. MILLER AND CO., LIMITED, whose acetylene head lamp is a good example of the improvement made in lamp construction during recent years. New tail lamps to meet the regulations now enforced were on view, as well as motor-cycle lamps with number plates. Motor oils were also to be met with on Messrs. Miller and Co.'s stand.

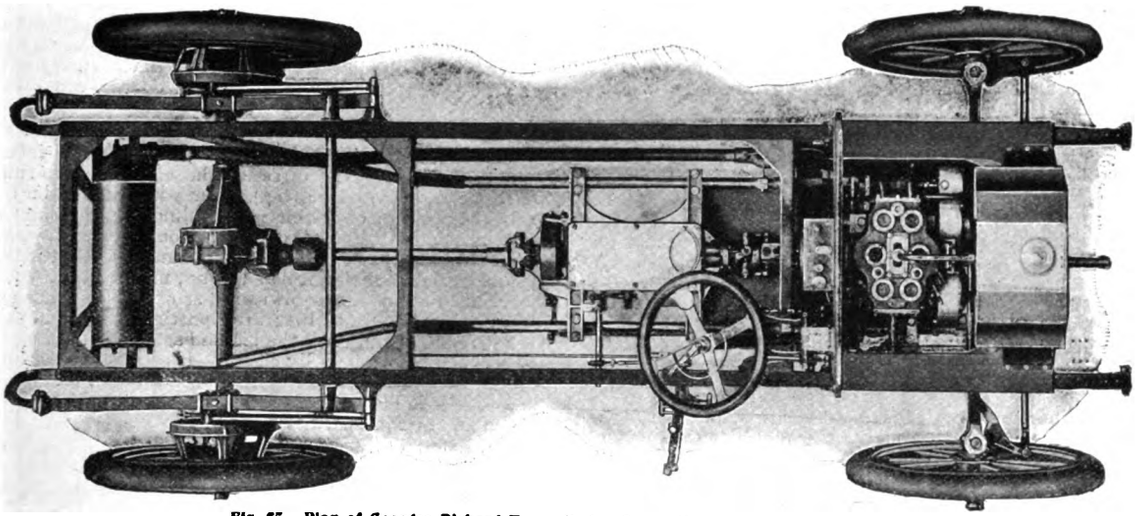


Fig. 65.—Plan of Georges Richard Two-cylinder Car. (*See page 77 last issue.*)

Motor clothing for ladies and gentlemen was shown by MR. C. R. BASE, whose removal to the West End has lately taken place. So recently have we referred to this gentleman's productions that detailed reference would appear superfluous on the present occasion; but mention must be made of the good selection of accessories now stocked by him.

Their oil cans and improved "Economiser" for storing paraffin and other oils were shown by MESSRS. JOSEPH KAYE AND SONS, LIMITED. A varied selection of engineers' small tools and gauges was shown by MESSRS. LUDW LOEWE AND CO., LIMITED, whose internal limit gauges are attaining considerable distinction. A display of D.W.M. ball bearings was a notable exhibit of this firm. The THOMAS SMITH'S STAMPING WORKS, LIMITED, made a fine show of drop forgings of every kind for the motor-car industry. Strength and accuracy are apparently combined with good workmanship in these manufactures. MR. A. G. TAYLOR had his "Quick Grip" spanner in the Berner's Hall. Motor chains were displayed by the COVENTRY CHAIN COMPANY, LIMITED, whose belt hooks and chain belts also found a place on this stand.

A collection of goggles, field-glasses, etc., was shown by MESSRS. AITCHISON AND CO., special attention being directed to one pattern, consisting of collapsible silk eye-cups, extended by a spring and fitting closely to the face, preventing dust or wind passing to the eyes.

Several ingenious improvements in the details of design of motor garments were to be found on the stand of MESSRS. J. W. LOVEGROVE AND CO., whose costumes for lady and gentlemen motorists have frequently been mentioned in these columns. Caps, veils, cloaks, rugs, muffs, etc., find a place in a representative collection, which also includes horns, lamps, bells and other accessories in great variety.

To be continued.

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CORRESPONDENCE.

WHY CHAUFFEUR?

To the Editor of *The Motor-Car Journal*.

Sir,—Can you, or any contributor of the *Journal*, tell me why our English motor-car drivers should be called "chauffeurs?" I myself am one and cannot, and possibly other readers also cannot understand why a French word should be used in this or in any other case.

Surely some reader who is interested (like myself) in the British motor trades could suggest an English word, and therefore shun the word "chauffeur" from our gaze. I say, and most probably others will agree, when in England, be English. I feel quite certain that if you publish this query amongst the large circulation of motor-men, it would be quite an interesting subject, and we should soon get rid of that horrid term.—Yours truly,

E. S. Carter.

COST OF REPAIRS.

To the Editor of *The Motor-Car Journal*.

Sir,—The following may be of service to owners of 7½-h.p. Wolseleys, or, for that matter, any other type of car of like cylinder construction.

November 17.—Slight loss of compression in one cylinder, and new rings fitted by mechanic from well-known London firm. Cost £2.

February 12.—This cylinder still poor, and car sent to garage of same firm, with instructions to draw liner. Happening to call the following day I was told that both cylinders had been dismantled "while they were about it," although compression of other cylinder was exceptionally good. The liner of faulty cylinder was found, and also seen by me, to be very slightly oval. This one was therefore scraped and new rings fitted. The second cylinder, although perfect, had also new rings fitted "while they were about it." Beyond remaking usual "jacket" joints nothing was done to the car, and I was told to fetch her. Here is the bill:—

	£	s.	d.
Mechanic's time taking down engine and drawing liners and re-grinding and re-packing same, and making water-tight (liners found to be slightly oval), these were scraped and new piston rings fitted, and engine re-assembled ...	8	4	0
2 lbs. waste	0	0	6
6 piston rings	0	15	0
2 rubber rings	0	1	0
3 dozen split pins	0	0	9
1 exhaust joint	0	1	3
1 bolt and nut	0	0	3
	£9	2	9

When first shown liner to be oval, I suggested a new one, but was told it was not needed. A new liner would, per the Wolseley Company's charge, cost 25s. only, but a little "scraping" on the part of this firm pays so very much better. Advice. Where possible, always make a point of returning car to makers for repairs.—Yours truly,

Horseless Age (d).

To the Editor of *The Motor-Car Journal*.

Sir,—As a practical artisan mechanic I should like to express a few words in this matter. I greatly sympathize with "Chirurgeon" and others who are similarly placed. Having gained experience at mechanical and cycle engineering, some five or six years ago I turned myself to cycle and motor repairing. I have worked in several shops in different parts of the country. Perhaps it would surprise you to know the class of men who run many so-called repair shops. They are mostly motor and cycle agents, and carry on their trade by calling themselves motor manufacturers, cycle engineers, mechanical consulting engineers or experts, their past careers being, I found out, clerks, publicans, watch makers, barbers, racing men, etc. Of six firms I have worked for only two have been practical engineers. These adventurers do at times get good men who do not stop long. The general routine in these shops is that the mechanic has not a free hand. On many occasions an employer will muddle a repair for three or four hours, and when he has done enough damage he will put you to it, then you observe the nuts are rounded, the threads are stripped, or a few hammer trade marks and other things which you cannot counteract, and after spending some amount of time you are told that you have taken too much time on it, and we shall not get our money back. These experts often lounge about the workshop seeking for information, asking this sort of question? how do you do screw cutting? will you throw this in the lathe, and I will have a go at it, and what tool shall I use? On one occasion the employer said, it it was a cylinder of a watch I could manage it, I used to be a watchmaker once. These so-styled manufacturers are as deficient of machinery as they are of brains. I was once discussing this matter and was told that young men and others could, with a few tools and books, accomplish more in two years than an apprentice-engineer could in five years' apprenticeship, but I was not told at whose expense.—Yours truly,

P. M.



La[illegible] . Levegh—Sketched by Himself. [*Le Chauffeur*.

MOTOR RACING ON ENGLISH SHORES.

To the Editor of *The Motor-Car Journal*.

Sir,—With reference to "Yorkshireman's" suggestion that the hard sandy beach of Filey Bay might be found suitable for motor racing, a motoring friend informs me that Filey is a most inaccessible place for motor-cars. Perhaps "Yorkshireman," who states that he has cycled there, would be able to throw some light on the point.—Yours truly,

Lancastrian.

ADJUSTING VALVE GEARS.

To the Editor of *The Motor-Car Journal*.

Sir,—In reassembling a motor which has been taken apart how should one proceed to adjust the valve cam gearing so that the exhaust valve will be lifted at the correct point in the stroke of the piston? Any information you or any readers of the *Journal* can give me on the point will be esteemed by—Yours truly,

Puzzled Novice.

[Replying to "Puzzled Novice," in the first instance it is necessary to determine the direction the engine has to run (as this depends entirely on the valve setting), after which it will be necessary to ascertain the position of piston in the cylinder. This can usually be done by putting a small rod through the compression tap, or still better by removing the same. Now to set exhaust valve: turn the engine slowly round in the direction it has to run, until the piston is about an inch from the bottom of the downward stroke, the exhaust valve should then be set to commence to lift; after putting the cam in this position slowly turn engine round until the piston has completed its upward stroke, the valve should then be fully closed. If this is not so, but it still remains open, the cam should be shifted back a tooth and again tried. If this is carefully followed, "Puzzled Novice" will have no difficulty in getting his engine to run satisfactorily.]

STEAM V. PETROL.

To the Editor of *The Motor-Car Journal*.

Sir,—In a recent issue "Vapeur" writes saying that he has fitted an automatic air arrangement to cool the seating of his steamer (name not given); if he will kindly state particulars of same, it will be a boon to many steam motorists, also make of paraffin burner, and if suitable for "Locomobile." I may add that my water tank gets very hot without any return water system mentioned by "Steamer." I don't know if this is unavoidable.—Yours truly,

Another Steamer.

To the Editor of *The Motor-Car Journal*.

Sir,—I have read with pleasure a letter in the *Journal* from "Vapeur." I quite agree, a steam car, properly fitted, burning paraffin oil, is preferable to any petrol car selling at the price. I myself have a Stanley, burning paraffin, and the way the car behaves on the road is a treat. I have made many a petrol car costing at least twice the amount look small on a hill. Unfortunately there is at the moment a distinct prejudice against the steam car, yet I don't know that one can be surprised when one sees to-day the rubbish that has been dumped on the market in the past. But with such cars as the White and Stanley (true I have had no experience with the former, but I hear it well spoken of) before the public I fully expect the steam car to gain favour again.—Yours truly,

Paraffin.

RESPONSIBILITY IN REGARD TO DRIVERS.

To the Editor of *The Motor-Car Journal*.

Sir,—I have just read the report in the last issue of the *Journal* of the action brought by a doctor against Friswell, Limited, for loss alleged to have been suffered owing to the negligent driving of one of the latter's servants. The magistrates' decision as to the responsibility of firms supplying drivers, notwithstanding the notification on the firm's notepaper that no responsibility was undertaken, seems to me a most important one to traders throughout the country, and I venture to

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suggest that this is a question which might with advantage be taken up by the Automobile Mutual Protection Association and the Society of Motor Manufacturers.—Yours truly,

AN OXONIAN TRADER.

DRIVERS.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—I have been interested in the correspondence *re* drivers, and would like to give my view as an ex-coachman. I notice the majority of correspondents are motor mechanics. They seem very eager to enter private service. Is it because they are not efficient for the workshop? I know one or two mechanics, but I do not think their cars are always ready for the road any more than those of the ex-servants, and I am sure they do not turn out so smartly. "A Won" speaks against the valet and coachman chauffeur. As a rule ex-coachmen and valet drivers know how to keep their places as servants, and treat their masters with respect. They do not expect to be looked upon as friends and become confidential. I may say I have a good place and nothing to do but look after my car and drive; I have a good master, who pays me for my work, and trusts me; therefore I study his interests. I do all my own repairs unless it is a job for the lathe. I make it a rule never to leave my car at night until it is ready for the road next morning. I have often been working on it till 12 p.m. getting ready for next day. Would many mechanics do it? they would want to know if they were, going to get overtime pay. A well-trained servant turns out smart, clean shaved, with upright clean collar; the so-called driver mechanic is noticeable by his heavy moustache and low turned-down collar. I think a good servant with common sense, who takes an interest in his car, would be preferable to the mechanic.—Yours truly,

ONE WITH THE TIMES.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—*Re* the correspondence concerning drivers, I should like to say a few words about them. As far as I can see, there are two classes of drivers The first, a driver-mechanic in the true sense of the word, one who from a mechanical experience gained from a trade such as turners, fitters, and smiths, fully qualifies himself to look after and repair a car as soon as it gets out of order, and who thoroughly understands when, and how, to get the best out of his car, without putting undue strain on the machinery—in fact, one who would look after it as if it were a child. The second driver is one, according to my idea, who learns the way to handle a car in a few weeks, at some driving school, and whereas before he learnt to drive he may have been anything but a fitter, etc., after, he is a fully-fledged mechanic and driver, who applies and gets a berth on a car, perhaps a new car, where there is nothing much to do for a few months, but after that if there are big ends to be taken up, or brasses to tighten, it has to go to the repairers, when a proper man would do the job in half the time and without the expense. I have been in a public garage, as mechanic, and during that time I have seen drivers who, I admit, knew the way to drive, but, beyond that, knew hardly anything about their ignition troubles, loss of compression, etc. And this class of mechanic are delighted if they can get a berth on a private car at 30s. per week, because they never had much more than £1 or 22s. until they became motor drivers. Like others of your correspondents, I have answered advertisements, but never received any successful replies. I am inclined to believe that the sort of men required were those who would cut the lawn, and do a bit of gardening, etc. In fact, a motor-coachman-gardener sort of chap. Now, Sir, if a gentleman gets a proper driver-mechanic, even if he is a bit more independent than the coachman, he will find he will be far more intelligent in motor matters, and will conduct himself quite satisfactorily, and always have the car ready when required. I must apologise for taking up such valuable space in your paper, and thanking you in anticipation for your insertion of this letter—I am, yours truly,

PUBLIC SERVICE DRIVER.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—Having read with very considerable interest the correspondence which has appeared in your paper with regard to this subject, I have been much struck with the varied views of both owners and drivers on the main questions at issue.

Having recently had occasion to advertise in your paper for a driver, I refrained from naming any salary, and the replies, considerably over 150 in number, proved most clearly that the exorbitant and fanciful terms demanded a year or so ago do not find acceptance to-day. The wages asked in the replies referred to varied from 15s. per week minimum to £2 10s. maximum. A large percentage of them named 30s. to 35s., and the references and experiences which many of the writers were able to give satisfied me that there are a large number of deserving and capable men seeking employment. From my own experience I am quite sure many people are refraining from starting a motor-car on account of the cost of running it, and are imbued with the idea that it is necessary to pay £3 or £4 a week for a competent driver; and I think that your readers and the trade will be served a good turn by having this idea dissipated. Speaking from personal experience, I would strongly advise a beginner to do everything for his car himself for at least a month. It will add to his interest in it and enjoyment of it hereafter, and enable him to judge more fairly of the capabilities of his driver, besides saving many pounds a year in running repairs. If it is impossible, owing to professional or business duties, to give this personal time and attention at the outset, I would strongly advise him, if he is without experience and knowledge, to frankly admit it to his driver rather than attempt to hide his ignorance, which he will not succeed in doing for many hours. If he deals thus candidly with his driver he will gain both confidence and respect, and when difficulties in the running of the car arise he should make a point of knowing the why and wherefore, and to watch his driver put matters right. However ignorant the owner may be at the outset, he will very soon learn and be able to judge for himself whether his driver is competent or not from the manner in which he goes about his work, and the results attending it.

With regard to the vexed question of remuneration, from £2 to £3 a week is not, in my opinion, an excessive remuneration, if a skilled mechanic is required, who can be trusted with an expensive, high-powered, and possibly complicated, car, which will require not only careful driving, but most watchful attention if breakdowns, and possibly serious accidents, are to be avoided. But the great future for drivers as a body will be on cars of lower power, varying from the single cylinder engine of 6-h.p. to the two or four cylinder car of 12-h.p. or 15-h.p.

I am convinced that a driver, if single handed, should not be expected to make himself *generally useful*. Any off days that he may have will give him the opportunity for many necessary details of adjustment, overhauling, etc., as well as keeping his motor house in a fit and proper state; and, personally, I am glad in my own case for my driver to have (especially after wet weather) one or two off days, to enable him to go more thoroughly over his car than would otherwise be possible. There are many people who would gladly start a small one or two-cylinder car if they could be sure of getting a conscientious driver to keep it running for a wage of 25s. or 30s. a week, and I believe that this pay will now secure thoroughly competent and conscientious drivers for a car of this type. If, however, the owner wishes to have his car out early and late, Sundays included, as many owners do, this pay would not be adequate. There is moderation in all things to be observed if results are to be satisfactory, and this applies to motor-cars and their drivers. The employment of drivers is now becoming so much more general that the terms and conditions of employment will soon be as well understood and recognised as in any other branch of employment. Many of those who responded to my advertisement are undoubtedly most worthy and reliable men, and I felt quite sorry for some of them, as, reading between the lines, they are evidently only too anxious to get employment, and prepared to serve their employers faithfully and well. I can assure those of your readers who are hesitating as to starting a motor on account of the question of driver's salary that it is now a matter of selecting a suitable man for the work to be done. The services of a highly skilled mechanic-driver, capable of managing most costly and intricate cars, would be thrown away if engaged to look after a little single 6-h.p. car, and on the other hand the man capable of doing this, and doing it well, for a moderate salary, would doubtless be unequal to the other class of work. The sooner this can be generally understood by the public at large the better for them and the motor trade generally.—Yours truly,

MODERATION.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—I have read with interest your correspondence under the heading of drivers. May I express my opinion? Owners should beware of the certified driver who leaves the car broken down on the road and cannot rectify it unless a man is sent down from the works to put things right, etc. Owners, when engaging a driver-mechanic, should go into the previous career of the man they engage. I know of a man who has been a groom all his life, and is now advertising for a driver-mechanic's berth.—Yours truly,

MISS FIRE.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—I have followed the interesting correspondence about drivers, and I notice several letters from capable and competent men who are seeking berths, but are unsuccessful, as they cannot get "decent" wages. Nobody has, however, mentioned what wages would be considered "decent," by such a driver-mechanic. As one who is contemplating purchasing a car, and who would like to employ a really competent driver, I write this letter to ask what wages these men expect, as I am sure most of your readers will be interested in the replies.—Yours truly,

A. L. R.

MERCEDES CAR.—Mr. D. M. Weigel writes:—"I noticed that at the Automobile Show held at the Agricultural Hall 18-h.p. Mercedes cars were being termed 18-28-h.p. It is the first time to my knowledge that I have heard of a nominal 18-h.p. giving off 10-h.p. more than it was originally designed for. The fact of the matter is, these 18-h.p. cars are 18-24-h.p., and there is a new car that is 24-28-h.p. The cylinders of the latter have far bigger dimensions than the 18-24-h.p. The cars that are being put on the market this year by the Cannstatt Works are as follows:—24-28-h.p., 32-34-h.p., 40-45-h.p., 60-h.p.

"DICTIONARY OF MOTORING."—Replying to S. H. Waite and other enquirers, this is published by Messrs. Mecredy, Percy and Co., Limited, 34, Lower Abbey Street, Dublin.

INSPECTION PITS.—K. H. H. writes:—"Being about to construct an inspection pit in my motor house, I should be glad of any information as to suitable dimensions. Perhaps some of the readers of the *Journal* who have had such pits built will be kind enough to give others the benefit of their experience through your columns."

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ALCOHOL AS A MOTIVE POWER.*

By W. R. Ormandy, D.Sc.

Most of you must be aware that the chemical industries in this country are large consumers of alcohol, and many of you will also probably know that they would be so in a far larger degree if conditions were made more favourable. Messrs. Jos. Crosfield and Sons, Limited, of Warrington, themselves large users of alcohol, have naturally taken considerable interest in this movement, and, with the view of obtaining information for the express purpose of assisting it, they have sent members of their staff to the various continental countries where alcohol is used in quantity for chemical and technical purposes. In considering the information which has been collected during these investigations, it has been borne in upon Dr. Markel, the managing director of this firm, that although the quantity of alcohol used by the chemical industries is not an inconsiderable amount, still by far the largest consumers of alcohol on the Continent are undoubtedly those industries connected with the development of power, light and heat. So much has he been impressed with this fact that, although when first the matter was gone into it was not intended to devote any considerable time or energy thereto, yet, from a comparatively superficial study of the statistics collected, the national importance of this subject acquired such prominence, that he advised, and the firm decided to go much further in their investigations, and to strive for the co-operation of all those societies or firms who are, or might be, directly or indirectly interested in the production, use, or distribution of technical alcohol. To prove that the technical use and the chemical use of alcohol are not by any means synonymous, it is only necessary to refer to the case of Germany, where, although admittedly the country where chemical industries requiring alcohol are most highly developed, the amount of alcohol consumed for technical purposes is one-third, while that used in the chemical industries amounts to but one-fifteenth of the total production. I myself collected for the firm a considerable portion of the information which we now have at our disposal, and I was very much impressed by the ever-increasing quantities of alcohol which are being used in Germany for motive purposes, and as a source of light and heat.

During the course of a conversation with Dr. Boverton Redwood, the possibility of presenting this information to the members of the Automobile Club was raised, and Messrs. Crosfield were only too pleased to have such an opportunity of enlisting the sympathies of so powerful a body.

Owing to the relatively high price of the unsuitable methylated spirit sold in this country few attempts have been made to utilise it as a fuel in internal combustion motors. We have, therefore, to go to the Continent for our information with regard to the subject, and although the use of alcohol in motor-cars has perhaps made more progress in France, yet the quantity of alcohol used as a fuel for motors in Germany is undoubtedly far larger than in France, owing to the fact that in Germany alcohol is looked upon more as a fuel for slow running motors of 2 to 30-h.p., which though smaller in number are larger consumers. The first experiments in the efficiency of alcohol-driven motors were carried out in the year 1895 by Professor Hartmann. A motor made by Grob and Co., of Leipzig, for investigation by the German Agricultural Society, was tested as to its behaviour with both petroleum and spirits. The consumptions worked out at 426 and 839 grammes per b.h.p. hour respectively. These correspond to efficiencies of 13·6 and 12·2—the former a fair result for a much more up-to-date petroleum engine. Later in the same year a Körting motor, with a special carburettor tested by Professor Slaby, of Berlin, only consumed 550 grammes per b.h.p. hour—a great advance. From 1897 to 1901 a number of makers constructed motors for use with alcohol which ran on a consumption of 390 to 440 grammes per b.h.p. hour.

If the question be asked why alcohol was so long neglected as a source of power for internal combustion engines when efforts were being made in every direction to find an outlet for the over-production which was taking place, the answer is to be found in a consideration of the relative heats of combustion of this substance compared with those against which it had to compete. It is near enough for our purpose to take the heat of combustion of alcohol as 5,500 and of petrol and paraffin at about 10,250. At first sight it would appear hopeless to compare two such substances as a source of power unless the price of the one possessing lower calorific effect was approximately one-half that of the other. If the value of a fuel were indeed measured by its heat of combustion, this would be the case; but fortunately it is not so. We depend rather on the number of calories which can be converted into work. In this respect it is interesting to follow the gradual development of German alcohol gas-engine production. The solitary specimen above referred to showed at a brake test such a consumption that the efficiency was approximately 12½ per cent.—that is to say, 12½ per cent. only of the heat units conveyed into the machine were given out again in the form of work. If we compare with this the results of the comparative tests of the alcohol-driven gas engines entered in 1902, in the competition for the prize offered in that year by the German Agricultural Society, we learn what astounding progress has been made. Out of the ten machines entered in this competition no less than three gave efficiencies of from 32·7 to 30·9 per cent. when working on full load. This is an astonishing result, and it places the alcohol motor very high in the list as an economical machine for the conversion of heat into work. I think it would be worth while to look a little more closely into the results of the examination of the motors entered in this competition. These were carried out by Professor Dr. Meyer, of Charlottenberg, and are published in volume 78 of the "Arbeiten der Deutschen Landwirtschafts-Gesellschaft." It must certainly be of interest to learn as far as may be to what these extraordinary results are attributable. In the first place, it is worthy of note that the degree of compression which was used, though very variable, was on the whole very much higher than that which it is customary to use for petrol-driven motors. In some cases a compression up to 10½ atmospheres was used, and the greatest explosion pressure attained was in a number of cases as high as 33 atmospheres.

In order, so far as possible, to make the comparison between the various motors a fair one, Professor Meyer reduces the consumption of alcohol per b.h.p. hour to a basis of compression of 8; that is to say, the clearance space in the motor was one-eighth of the total volume in the cylinder and clearance space together at the end of the suction stroke. This calculation is carried out by making use of certain assumptions with regard to the specific heat of the mixture, which, though not strictly accurate, are sufficiently near for the purpose in view. As showing that the numbers thus calculated are approximately correct, the following case is cited—that a Deutz motor, working on a compression of 5·91, showed a consumption of 436 grammes per brake h.p. hour. If this be converted to a basis of 8·9 compression (which was that actually used in the motor tested in 1902), the consumption, according to the calculation, should be 377 grammes, whereas the actual amount used was 364. The agreement is at least sufficiently near for the purpose in view. From this it would seem that the higher efficiency of the alcohol motor in due almost entirely to the high compression which can be used. We may ask ourselves, then, how comes it that this compression can be used in the case of alcohol and not in the case of petrol? During the compression of a mixture of any fuel as vapour and air, heat is given out, and at a certain point the temperature attained by the mixture is such that explosion takes place. This point of automatic explosion fixes the absolute limit of compression which can be used. If the compression be carried beyond this point we get what is known as pre-ignition, that is, an explosion before the piston has reached the end of the compression stroke. Now the temperature which a mixture of gases attains upon compression depends largely upon the specific heat of the substance in the mixture. In the case of petrol this is very low; in the case of alcohol it is very much higher, and we have also to bear in mind that the spirit used in these experiments contained 10 per cent. of its volume of water. That the influence of water is to allow of a very much higher compression is shown in the case of the Banki motor, where by injecting water along with paraffin, compressions of over ten atmospheres were attained with safety, whereas without the water from four to five atmospheres is the permissible safe limit. A still more striking testimony as to the influence of water vapour in reducing the ignition point of explosive mixture of gases is shown in the case of the new Voigt motor, where, using coal gas and air in the presence of steam, it was found necessary to produce compression pressures of twenty-five atmospheres before self-ignition took place.

A study of Professor Meyer's work certainly leads to the conclusion that the increased efficiency of the alcohol motor is entirely due to the increased compression employed, and the possibility of employing this compression is due, in the first place, to the low inflammability of alcohol air mixtures, but, in the second place, and in a higher degree, to the water contained in the alcohol. The question might be raised: Why not use more water and a higher compression? This has been tried, and Mr. Exner, of Vienna, has been able to prove that by so doing there is an increased efficiency. Professor Meyer has shown that the addition of further water without a corresponding increase in compression has a disadvantageous effect. The maximum pressure of explosion is reduced, and the combustion is diminished in velocity; indeed, with a certain excess, the diagram points to comparatively slow burning rather than to an explosion. This latter result, obtained by Professor Meyer, goes far to prove that the increased effect is in no wise due to the presence of water after the explosion has taken place, and this is, moreover, what one would expect on theoretical grounds.

The statement of Mr. Griffin with regard to the 50-h.p. hydro-oil marine engine built by the Griffin Engineering Company, of Bath, and referred to by Captain Longridge in *The Engineer* of August 7th, 1903, that "during combustion the water vapour is decomposed and burnt in combination with the oil vapour, the added heat of the burning water-gas serving to effect the complete combustion of the whole of the heavy hydrocarbons of the oil," is not borne out by Professor Meyer's results, and when we consider that the amount of heat necessary to split up the water is exactly equal to the amount which can be given out on the re-combination of its elements, it is not astonishing that this should be the case. It is true that by increasing the compression we may use alcohol containing an increased percentage of water, and at the same time obtain better useful effect from the fuel, but the percentage gain, which is attained by compressions beyond 10 or 12 atmospheres, is so small that the greater uncertainty of ignition which accompanies it, and the added expense of constructing motors to withstand the accompanying high maximum explosion pressure, more than counterbalance it.

If the above conclusions are correct, the generally received idea that a petrol motor can be converted into an efficient alcohol motor simply by altering the carburettor is proved to be fallacious. It is true that the conversion of alcohol into a state fit for explosion requires other means than in the case of petrol. This is obvious, when we consider that the heat required for the evaporation of alcohol is about two and a-half times as great as that for petrol, and we have further to bear in mind that there is 10 per

* From a Paper read at the Automobile Club on Thursday, March 24th, 1904.

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cent. of water present, requiring five and a-half times the amount of heat to evaporate it, compared with an equal weight of petrol. At first sight it would seem that this would be a serious difficulty in the utilisation of alcohol, but if we calculate the actual amount of heat which is necessary to evaporate a certain quantity of alcohol containing 10 per cent. of water, we find that it amounts to only 5½ per cent. of the total heat of combustion of that same amount of alcohol (in calculating the heat of combustions, in all cases it must be understood that the heat which would be given out by the water vapour in the products of combustion condensing from the form of steam is not taken into consideration). This 5½ per cent. of heat necessary to convert the alcohol into vapour can readily be abstracted either from the exhaust gases of the motor or from the water taking away heat from the cylinder walls. We have here some resemblance to the chain of operations taking place in a modern blast furnace, where the exit and once waste gases from the furnace are now used to heat up the air fed to the bottom of the same, or in the case of a Siemens regenerative furnace, where high temperatures and great economy are attained by a similar means.

By making use of the saturation equivalents of alcohol and water for air at various temperatures, it is possible to find out to what temperature the in-going air into the carburettor must be heated in order that the mixture of air, alcohol, and water passing into the cylinder may be such that there is no necessity for any of the constituents to be in a state of suspension as liquids. We find that it is only necessary that a temperature of 190 deg. Cent. should be attained. This comparatively high temperature is only required when the mixture entering the cylinder is to contain the maximum amount of alcohol which the oxygen present is able to fully consume, and this, I need scarcely point out, is a state of affairs which it is not desirable to have. It is in all cases preferable to work with an excess of air, in order to make sure that combustion shall be as complete as possible. Of the ten motors entered for the competition before referred to, Professor Meyer found that the one which worked on the poorest mixture with the most economical results would require the in-going air to the carburettor to be heated to a temperature of 125 deg. in order to carry the alcohol and water in the form of vapour.

The above calculations are carried out on the supposition that the air which is used to start with is saturated with water vapour at a temperature of 15 deg. Cent., a state of affairs not often attained even in this climate. It is also easy to prove, in those cases where the air is not warmed prior to entering the carburettor, that it is only necessary to heat the mixture of air and alcohol spray to a final temperature of 30 deg., in order to attain complete evaporation of the liquid; that is to say, contact of the sprayed mixture with a sufficiently large surface at or over 35 deg. Cent. to evaporate the liquid, and to give the mixed vapours a final temperature of 30 deg. Cent. is all that is necessary. This, I am sure you will admit, is something which is quite easily within the bounds of possibility.

We may take it that the most economical results will be attained by a carburettor which delivers the mixed air and alcohol vapour at a temperature as little as possible above that necessary to retain the alcohol in the form of vapour, because by so doing we shall be enabled to work with safety at the highest possible degree of compression.

I am here not taking into account the possibility of some form of Diesel engine being used for motor-car propulsion. In this form of engine the air employed for combustion is very strongly compressed alone in the cylinder, whereby it obtains a very high temperature, and the fuel is forced in the liquid form into the hot compressed air by an auxiliary pump. By this means efficiency about on a par with that of a good alcohol engine is obtained. On half-load, however, the Diesel engine is more efficient than an alcohol engine. There are grave mechanical difficulties to be faced before this type of engine can be used to replace the light high-speed petrol engine. It is a possibility to be reckoned with, but I am not inclined to think the problem will be solved in the near future.

A necessary consequence of this is that the inlet valves and induction tubes should be made as wide as possible, in order that the diminution in pressure which is bound to take place on the suction stroke shall be as small as possible, otherwise the expansion produced will lower the temperature, cause the fuel to separate in the liquid state, and reduce the uniformity of the mixture. This also points to the probable superiority of the M.O.V. as compared with the A.O.V.

In building motors to work with these high compressions where the explosive mixtures are heated up almost to their self-ignition point, it is especially necessary to design the cylinder in such a way that equal cooling of the walls takes place. One hot projection, or extra hot surface, however small, would determine the compression which could be safely used, and so regulate the thermal efficiency. Similarly the admixture of spirit and air should be as intimate and as cool as possible, because, other things being equal, the pressure and temperature of self-ignition is lower, the hotter and richer the original mixture.

Another circumstance which plays a considerable role in the efficiency of spirit-driven engines has been proved by Mr. Fehrmann to lie in the temperature of the water employed in the cooling jacket. It will be readily understood from what has gone before that the sudden introduction of the air saturated with alcohol and water into a cylinder with very cold walls will have the effect of condensing the fuel and leaving a poor mixture, and such is indeed the case. It has proved impossible to run some alcohol motors with their water jackets supplied at a temperature of 0 deg. C. The great importance of this point, however, was not understood until Fehrmann showed that the amount of alcohol required in some cases to drive a motor on half load was 100 per cent. more when the water in the cooling jacket was kept at about 15 deg. C. than when the jacket was kept at 100 deg. C. This is a subject of very great importance, and all tests of fuel consumption in alcohol motors which do not take this into account will be of little or no scientific value.

A further interesting point brought out during the trials of the ten motors was the influence of varying strength of mixture on the consumption. Thus a motor nearly at full load, working on fairly weak mixture, and giving only 2·3 per cent. misses on the hit-and-miss governor would have a certain consumption, whereas with the same load on richer mixture with a larger percentage of misses the consumption in some cases was as much as 16 per cent. higher, and this behaviour is not characteristic of spirit motors only, for Professor Meyer has observed the same thing in paraffin engines, where in one case the increase in consumption on the same load reached 24 per cent.

With regard to the general comparison of the properties of alcohol as a power-producing substance for motors, compared with petrol, we may point out that the combustion of alcohol in the motor under full load is practically complete, and that the products of combustion are odourless, or nearly so. It has been stated that during the explosion of mixtures of alcohol and air, acid substances might be formed which would have a deleterious effect upon the substances of the cylinder and the valves. The Experimental Fermentation Institute, at Berlin, have alcohol motors which have been running for years, and in no case have any signs of such action been observed. Only in the case of a small motor, which is frequently running on very light or no load, it was found that the exhaust pipe was slightly sooted, owing most probably to the low temperature which obtained, and the consequent incomplete combustion.

In concluding this part of our subject we may say that, in so far as alcohol is less volatile, and has a higher ignition temperature, it is much less likely to be a source of accidental fires. Its storage need not be subject to the same stringent regulations, and in its carriage it is not subject to the same severe restrictions. It is more pleasant to handle than either petrol or paraffin; it is homogeneous, which is more than can be said for the present supply of petrol. The composition of the later supplies of petrol is becoming



The Winton "Bullet" Racer at Ormonde, Florida.

more and more heterogeneous, and there is an ever-growing percentage of high boiling point constituents, which will do their part, no doubt, towards adding to the unpleasant smell of the effluent gases and in diminishing the already poor efficiency of the petrol engine. An ideal liquid for a carburettor should have a fixed boiling point, then the instrument can be properly arranged for the work it has to do.

If care be taken that the carburettor passes the increased quantity of air necessary for the oxidation of benzol compared with alcohol, and that the temperature of the fluid in the cylinder jacket is kept constant, it would seem that, *at any given compression*, equal efficiencies are obtainable, but the allowable compression is less the greater the addition of benzol.

That alcohol is not only a suitable motor fuel, but that in most respects it is the most suitable, is shown in the foregoing, and if further proof were needed as to its practical possibilities it can be gathered from the records of those French automobile trials in which alcohol was used, and of which I would recall the consumption trial through Amiens, Arras, Abbeville and back to Paris, wherein nineteen heavy cars, sixteen light cars, six voiturettes, and six cycles competed. The distance of 453 miles was covered in about twenty-three hours on a consumption of 20·85 gallons by one car, and in 26½ hours on 18¼ gallons by another. Again, Mr. Farman, on a 35-h.p. Panhard, covered 254½ miles at a rate of 52·2 m.p.h., using alcohol as a fuel.

It is true that the results we have been considering were obtained with engines of only 200–300 revolutions per minute, but there is no reason to believe that an increase of revolutions would materially alter the conclusions we have drawn—especially if motor constructors would bear in mind the advisability of trying a somewhat greater ratio of stroke to bore than obtains in petrol motor construction in general. (This average ratio in the motors tested by Professor Meyer was 156 : 100, and the motors giving the best results were constructed to approximately these dimensions.)

The average user of a motor does not ask what proportion of the heat value of a certain fuel is obtained as work, but rather what does it cost in

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fuel to obtain a certain amount of work, and this question we must now consider.

From what has gone before we know that petrol and alcohol stand in the ratio of 2 : 1 as regards their heat of combustion, but that in the case of alcohol 30 per cent. of this heat is obtainable in the form of work, while in the case of petrol only 20 per cent. can be so obtained.

We require, then, four parts of alcohol or three parts of petrol by weight to yield the same amount of heat in the form of work. Taking petrol at 1s. 3d. per gallon—price quoted the writer in Hamburg for quantities of 30 gallons—and allowing for the different specific gravities, we should have to buy alcohol at 1s. 2d. per gallon to place them on an equal footing as yielders of power.

The comparison between paraffin oil and alcohol, taking their relative efficiencies at 15 per cent. and 30 per cent., shows us that these two would have to be sold at the same price to give equal economic results. From now up to the end of 1908, motor alcohol containing 10 vol. per cent. of water is to be had in Germany, delivered at the nearest railway station, at 9d. per gallon, in lots of not less than 1,500 gallons, and at 10d. per gallon in lots of 40 gallons, cask free, but returnable. To buy in quantities such as a pint, at retail dealers, it costs at the rate of 1s. 3d. per gallon, at which price it is still cheaper than petrol at 1s. 6d.—by no means an unusual price in England.

The problem of supplying motor fuel at a price which will not only render it cheaper than petrol, but which will enable it to compete with paraffin oil, has been solved in Germany.

What are the conditions in England? Buying methylated spirit in quantity, we can obtain it at 1s. 11d. per gallon, and when obtained it is not so suitable as a fuel either for motors or lamps as is the cheaper German spirit.

Consider that alcohol as a motor fuel is free for the most part from the objections urged against petrol; that it is, of all extensively-used liquid fuels, the most nearly ideal; that it is sold by the million gallons on the Continent for technical purposes as a source of light, heat, and power; then ask, why cannot we obtain it in this country at a similar price?

The answer is, that our present laws and our system of taxation render it impossible.

In consequence of the disadvantages legally imposed on the British distiller, there is a tax on imported alcohol equal to about 9d. per gallon of 90 per cent. strength—a so-called "differential duty." Put into plain language it means that we pay 70 per cent. to 100 per cent. more for our spirit than we should do if this tax, which has well been called "a bargain for hindrances to free working imposed by law," were not imposed.

It must be fully understood that our complaint as to the influence of this tax relates only to spirit to be denatured and used for industrial purposes. Potable alcohol must be regarded from an entirely different standpoint.

Time is too limited for me to go at length into the question of German as compared with English law in regard to alcohol, either as to production, distribution, or use. This in itself is more than subject for a lecture, but I may inform you that although the German Government showed forethought for the chemical industries, they had taken little action as regards legislation concerning alcohol for other technical purposes—heat, light, or power—up to the year 1887. At that time commercial alcohol generally cost, retail, at the rate of 3s. 6d. to 4s. per gallon. Since then note the change! There is scarcely a village in the whole land where alcohol of guaranteed strength 90-95 per cent. cannot be obtained retail at 1s. 3d. to 1s. 4½d. per gallon. At this price it can be bought in stoppered bottles just as we are accustomed to buy mineral waters.

Although I cannot deal at length with those phases of the German law which have called forth such a notable change, I can, by means of a few statistics, make evident the enormous importance and size the traffic in technical alcohol has attained, and in some ways compare our own position therewith. In the year 1900–1 Germany produced 406 million litres (about 4½ litres = 1 gallon). Of this 112 million litres were used for technical purposes. In the same year England's consumption of technical alcohol was 13 million litres. Please note that this total quantity of 13 million litres is a little over half the amount used by the German chemical industries, and about two-thirds of the quantity used in the manufacture of vinegar per annum.

The consumption of spirit for technical purposes has grown from 71 to 112 million litres in six years; our consumption in the same period grew from 9 to 13 millions. If we progress at the same rate, and Germany stands still, we shall be equally large consumers in the year 2064.

In Germany they have incandescent lamps of from 20 to over 1,000 candle power, cheaper by half to keep up than paraffin lamps, even with spirit at 1s. 1½d. per gallon. Professor Dr. Wittelshöfer, of the Central Society for the Distribution of Alcohol, in his annual address to the members of the Society of Alcohol Manufacturers in 1903, told them that in the first four months of 1902 they sold 270,000 litres of motor alcohol; in the corresponding period of 1903 they disposed of 800,000 litres.

In the first three months of 1902 and 1903 the number of lamps sold by this one society grew from 7,200 to 17,000.

Not until the Germans have driven paraffin oil out of their market will they be satisfied. As it is, post, army, railway use alcohol for power and light wherever possible. Doubtless the thought that every litre of alcohol so used makes the nation more self-contained has its weight with the Government.

In conclusion, I say that the case for a reduction in the price of alcohol for technical purposes is well established. Cheap spirit would place the rapidly-growing motor industry on a secure basis, because the production of alcohol can be extended almost without limit; it would give our chemical manufacturers a chance of gaining some share of the enormous trade now in other hands. Its production might be made, by suitable legislation, to encourage agriculture, to take back to the land some of the 900,000 workers who have left it since 1851, and give us back that physique in our young men, the loss of which is so bemoaned by the members of the National Service League and so worrying to the War Office.

CLUBS AND ASSOCIATIONS.

EAST SURREY.

THE first annual general meeting of this club was held at the White Hart Hotel, Reigate, on Saturday, the President (Major Kingsley O. Foster, J.P.) presiding. The annual report said it was proposed to have a number of runs during the coming season, and that arrangements had been made with local tradesmen for the supply of petrol, lubricants, etc., at reduced rates. The report was adopted on the proposition of Mr. Bowden, seconded by Mr. Makovski. Major Foster having been re-elected president, the following were elected as vice-presidents:—Sir George Livesey, Sir A. Rendle, Col. Robinson, Capt. Rawson, Mr. H. N. Corsellis, and Mr. J. Underhill. Mr. Barry was unanimously re-appointed hon. sec. and treasurer, and the committee was elected as under:—Dr. Wakefield (Horley), Messrs. J. B. Purchase and F. Ellwood (Redhill), C. H. Whittington (Betchworth), A. Gunning-Keen, H. Hughes, G. H. Bowden, and A. Macaire (Reigate), N. Colman (Epsom), J. Underhill (Warlingham), and G. W. Whitingham (Earlswood). Major Foster and Mr. Purchase were nominated as representatives on the General Council of the A.C.G.B.I., and Mr. Barry and Dr. Wakefield as representatives to the General Committee of the Motor Union. Mr. Makovski was re-elected hon. auditor, and Mr. C. Grey was appointed official repairer to the club. Rule 18 was amended so as to allow ladies to become members. The first lady elected was Lady Beatrice Rawson. It was agreed, on the motion of Mr. Bowden, that a small honorarium be given to Mr. Barry (hon. sec.) for the hard work which he has done for the club during the past year. The meeting then terminated.

HUDDERSFIELD.

AN enjoyable smoking concert was held at the Imperial Hotel, Huddersfield, under the auspices of the local branch of the Yorkshire Automobile Club. The chair was occupied by Mr. Alec Mallinson. Mr. E. Gordon Learoyd, the secretary, explained that the object of the gathering was partly of a social nature and partly to explain exactly what the club had done up to the present and what was the intentions of the committee for the season. Mr. Joseph Crowther had accepted the office of president. There were advantages to be gained from joining the club, for they became affiliated not only with the Yorkshire Club, but with the Motor Union in London. The Yorkshire Club gave facilities in this way—when they visited other places where there was a branch they could use the club rooms, and could also have their machines stored. The Huddersfield Club would have to give similar advantages. The main thing they had done up to the present was with reference to the speed limit. The Huddersfield Corporation wanted to restrict the limit to seven miles per hour within one mile from the centre of the town, and ten miles per hour within two miles from the centre of the town. They did not think that seven miles was warranted in Huddersfield at all; in fact, they did not think that ten miles was necessary. Huddersfield, unfortunately, was a somewhat deserted town so far as traffic was concerned. The committee of the club had sent up their objections and they hoped they would have good effect. In one of their objections they stated that they were anxious to refrain from driving at an excessive speed, and would in the future, as in the past, have great regard for the safety of persons using the thoroughfares. He hoped all members of the club would carry out as far as possible that intention. It was no use objecting to the speed limit if members interfered with the traffic and with foot passengers. They were particularly anxious to show that they were willing to assist the police in looking after the traffic, and if they did that there would be no reason for the proposed limit to be fixed. They had very good hopes that the application by the Corporation would be withdrawn when their objections were seen, but it would not be withdrawn if there was any furious driving in the streets, or if any serious accidents occurred in the meantime.

CASE DISMISSED.

THE charge brought against Mr. Paddon for driving to the danger of passengers on the highway, and which has been before the West London Police Court several times, has now been dealt with. It appears that Mr. Paddon was driving a motor-car along the High Street, Kensington, when it knocked down a lady, who was crossing the road, and ran over both her legs. Fortunately, she was not seriously injured, but the police proceeded against Mr. Paddon on the above charge. After hearing a large number of witnesses and arguments deduced by Mr. Staplee Firth, the case was dismissed.

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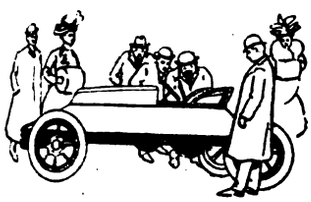
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COMMENTS.



EVIDENTLY the people of the Isle of Man are taking the forthcoming eliminating test in good earnest, and already there have been some claims put forth by the lesser towns, that they should be made the headquarters for the event instead of Douglas. It is not likely, however, that any other but the principal town of the island will be regarded as the pivot of organisation, as the time draws near for the event to take place. A guarantee fund has been commenced to meet the local expenses, and it is probable that an attempt will be made to organise some sort of a programme, the great race forming, of course, the central feature. Hill climbing competitions in the neighbourhood of Ramsey, and speed contests, probably at Douglas, are already contemplated, and it is evident that motorists who go to Mona in May will have no likelihood of scanty fare.

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Colonial Advance.

ELSEWHERE we record the opening meeting of the Automobile Club of Victoria, and, in accordance with custom, when chronicling the inaugural run of a Colonial club, we give the report all the glory of large type. The development of automobilism in the Colonies has been very rapid, and already the names of British-made machines are beginning to appear in the records of meets both in South Africa and in Australia. This is very gratifying to those anxious to see our motor-car makers in the forefront of the international trade.

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Alcohol as a Motor Fuel.

FOLLOWING on the paper by Dr. Ormandy in last week's *Journal*, Lieut.-Col. Holden, the chairman of the A.C.G.B.I., gives the following statement as regards the motor-car user's ideas of his requirements in the case of an alcohol fuel. It should be such:—(1) That the substance used for denaturing should preferably not be inert, but should add to the energy latent in the fuel. (2) That in any case the denaturing substance should pass away with the products of combustion, and not be liable to leave any objectionable residue in the cylinders, valve chambers, or on the valves or seatings, passages, &c. (3) That the mixture should be explosive over as large a range as possible of proportion of gas to air, and should not be inferior to "petrol" in this respect. (4) That ignition should be readily effected under the condition of variable compression consequent upon the present system of governing by the throttling of a mixture of constant proportions.

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Motor Ambulances.

AT the recent exhibition at the Agricultural Hall, London, some members of the Metropolitan Asylums Board attended to ascertain the likelihood of motor ambulances being successful in ousting the old-fashioned horse vehicle. Of course in the great cities where hospitals and infirmaries are centrally located the question is not so pressing as in cases where hospitals are far away from the populous places. There are scores of small towns in the country that have hospital arrangements where a motor-ambulance would prove of great utility in saving suffering and adding to the chances of recovery of those meeting with accidents. We understand that attention is being given the subject by several authorities, and probably the co-operation of motoring experts with medical men might result in a practical form of motor-ambulance for this country.

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Motor Wagon Essentials.

MR. DOUGLAS MACKENZIE, who has had much practical knowledge of the heavy motor traffic question, has given some useful suggestions to the Departmental Committee on Motor Cars as to what he regards as the requirements of the users of motor wagons. A greater weight unladen than six tons is not necessary, in his opinion, and it would be more satisfactory if two tons were allowed for the trailer tare. He would like to see the limit fixed, not on the basis of the tare weight, but on the total load carried by any one axle. If this were limited to ten tons—the weight on the hind axle of the larger wagons when fully loaded—there would be a definite load which all road and bridge authorities would know they must provide for. Regulations with regard to the size of wheels and the width of tyres should be framed to encourage the use of wheels of increased diameter, which not only did less hurt to the road surfaces, but also reduced the tractive effort required. As to speed, Mr. Mackenzie believes that not less than five miles per hour should be imposed. He would abolish the speed limit altogether, leaving it to the user of the vehicle to see that it was driven at such a rate as not to inconvenience anyone, or to run at such a pace as would result in excessive wear and tear. On this latter point the business instincts of the user would be sufficient check.

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Reunion of Provincial Clubs.

FOLLOWING upon their successful combined meet of last year, some of the provincial clubs will again assemble at Buxton in June for what is apparently becoming an annual function. So far the Manchester, Liverpool, Nottingham and Sheffield Clubs have signified their intention of taking part in the event, for which only fine weather has yet to be arranged to ensure a repetition of last year's success. This idea of combined meets of the provincial clubs is one to which every encouragement should be given. It widens the experiences of motorists who might otherwise have a tendency to become somewhat local in their knowledge of automobilism and narrow in their views of the points and performances of cars. The interchange of opinions which results from these combined meets is a valuable feature to be remembered in estimating their utility.

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The Glasgow to London Reliability Trial.

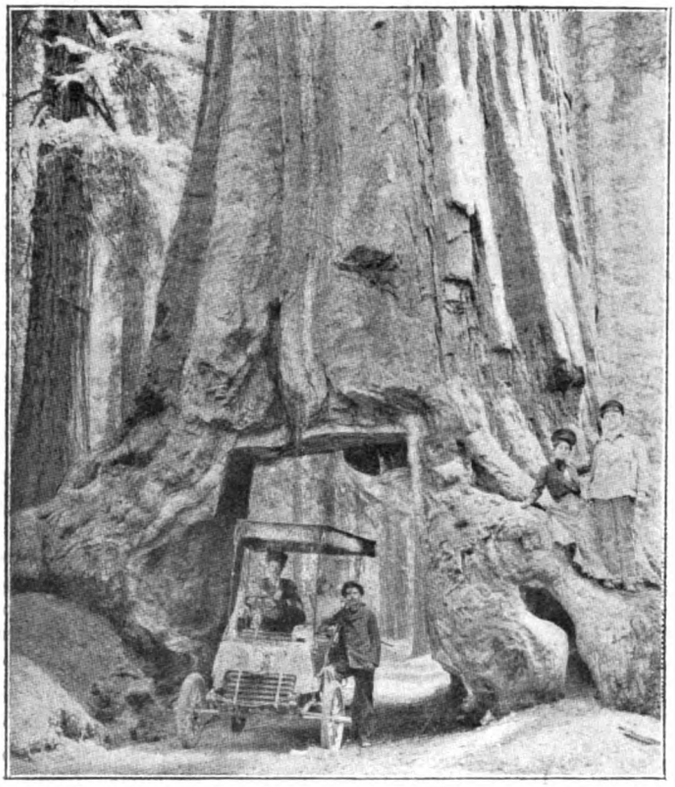
WE would remind intending entrants and manufacturers generally that the last day for receiving entries for this Trial, which is being organised by the Western Section of the Scottish Automobile Club, without increase of fees, is Wednesday, the 18th inst. We understand that the entries to date are most satisfactory. The corresponding Trial of last year

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was, it will be remembered, a most successful event, and attracted throughout both England and Scotland a large amount of public attention. Entries should be lodged with Mr. R. J. Smith, 59, St. Vincent Street, Glasgow, the Honorary Secretary, from whom the necessary forms and copies of the conditions may be obtained.

Motoring in California.

THE famous big tree groves of California, all of which are rather inconveniently situated in regard to transportation facilities, are among the many natural wonders which it is now easy to visit with the motor-vehicle. There are good roads to nearly all of these groves, but the distances are considerable, and the uncertainties of coach service, as well as the slow time made by the horse-drawn vehicle, deter many from taking a trip to these wonderful points of interest. The grove most difficult to reach is that between Wawona and the Yosemite Valley, fifty miles distant from Raymond, the nearest point by rail. The precipitous mountain grades *en route* have been the undoing of several pioneer motor enthusiasts, but



[*Motor, New York.*

latterly, as more modern machines essay the climbs, the grades succumb with monotonous regularity. The latest successful trip to the Yosemite by automobile was accomplished by Major Fulmer, of Los Angeles, Cal. The illustration shows Mr. Fulmer and his wife standing at the base of one of the most famous trees in the valley. The tree, which is a typical *Sequoia gigantea*, is reported to be about 2,000 years old, is 35 feet in diameter and nearly 400 feet in height. The opening through it was cut a number of years ago to provide a startling feature of the then new coach route.

A Motor Pocket Book.

A SECOND edition of the Motor Pocket Book brought out by Messrs. A. Constable and Company, Limited, will enable the editor, Mr. Mervyn O'Gorman, to supply some omissions which are conspicuously apparent in the first issue. The plan of the work is alphabetical, short descriptions of the parts of motors being given to the extent of nearly four hundred pages, together with much information of a practical character. French and German terms are also included, and, on the whole, the volume will prove useful to motorists who do not read the automobile press with persistent regularity.

Mr. Staplee Firth.

TWO more wins are to be credited to Mr. Staplee Firth, whose police-court trophies are becoming as numerous as the scalps that decorate the banqueting halls of the most redoubtable Redskins. The effect of recent defences he has made will be to make the police chary of summoning motorists, for fear that the plucky little fighter of the Motor Union may face them in the police-court. Mr. Firth's dictatorial methods when before magistrates attempting to browbeat, and his pitiless cross-examination have not always been understood by the lay reader. But they have been justified in the results, which have been uniformly satisfactory to the motoring defendants. Of course, Mr. Firth has had the advantage of practical acquaintance with automobilism in preparing his cases, and the knowledge gained on the car has often proved useful in the court. Magistrates are learning to appreciate his reading of the law, and to recognise that in his citing of cases and of the Acts concerning motoring he speaks with authority. Altogether motorists are fortunate in having such a legal adviser.

Police Evidence.

THE possibility of the police making mistakes is a fact which is steadily forcing itself upon the minds of magistrates, and although they are naturally loth to accede to applications for summonses against constables, their changed attitude is significant and should be a warning to police officers generally. This has lately been clearly indicated in cases heard at the South and also the West London Courts, where evidence has been given by the police which has excited the indignation of the defending counsel to such a degree that suggestions for summonses have been made. The fact that applications of that character are rarely necessary should be enough to secure something like care on the part of the particular officers when next they stand in the witness-box. At Guildford, too, the redoubtable Sergeant Jarrett has lost another case, and the way in which he gave evidence shows conclusively that even such an experienced officer cannot always be sufficiently definite as to what he sees.

The Scottish Attitude.

AT the monthly meeting of the Western District Committee of the County Council of Stirlingshire a letter has been read from the Secretary for Scotland in reference to the restrictions and prohibitions on motor-car traffic the committee proposed to impose. The general view of the Secretary, as set forth in the letter, was that it might be better not to proceed with the restrictions and prohibitions to any extent till it was seen whether other provisions of the Act rendered such a resort necessary. The mere possibility of danger was not enough in itself to justify the restrictions proposed, unless from actual experience it was found that there was danger, despite the caution of an efficient driver. Where there was danger a warning signboard would in the majority of cases prove sufficient. He trusted the County Council would not consider it unreasonable if he asked them to reconsider the whole matter. Meanwhile he thought it was against the general public interest to give his approval to the restrictions proposed. The Chairman said the position taken up by the Secretary for Scotland was that they had first to prove that the precautions laid down in the Act were insufficient before imposing restrictions. That was to say, that before a road could be considered dangerous somebody would have to be killed or injured. They were so situated in relation to Glasgow that their roads were greatly taken advantage of by makers for testing their machines, and in that fact lay considerable danger. However, in making this application they had relieved themselves of the responsibility, although it did not seem that the Secretary for Scotland was willing to assume

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it, as all he had done was to ask them to reconsider the matter. Several members referred to the care with which the subject had already been gone into, and it was agreed to intimate that the committee could see no ground for altering their proposals, and that they would not consider themselves responsible in the case of accident.

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Central v. Local Authorities.

THE reply of the Local Government Board to the Holland (Lincolnshire) County Council's application to prohibit motor-car traffic along three of its roads at night time shows that local prejudices are not to be allowed to over-ride national interests. The Board points out that specific evidence of the unsuitability of the roads must be given, and states that it is only in exceptional cases that it will sanction the entire closing of a road against motor-car traffic. We are glad that the central authorities are recognising the importance of the subject and that they are paying little heed to unnecessary applications.

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Motor-car Mishaps.

THE motoring season which began with the Easter holiday has been ushered in with a series of mishaps which serve as a text whereon to hang another homily to motorists to drive with caution and tour with care. So far as we can learn the accidents have not been caused by any disregard of the law; they have been associated with cars carefully driven and would probably have occurred in some instances had horse-drawn vehicles instead of automobiles been engaged. But every mishap of the kind is exaggerated in the public imagination; hence regard for the progress of automobilism should lead every motorist to be extremely careful lest he should do anything to retard the advance of the motor-car.

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When should a Motor Driver Stop?

SHERIFF ARMOUR at Cupar has given judgment bearing on the responsibilities of motor-car drivers. The case arose out of a slight accident that occurred near St. Andrews recently, where, owing to a motorist neglecting to stop when a ploughman held up his hand, one of the horses he was driving came down, and a quantity of potatoes from the carts were strewn on the road. Mr. George Cheetham, of Henley Green House, near St. Andrews, was accused of having driven a motor-car to the danger of the lieges on the highway. Mr. W. R. Doull conducted the defence, which was that the accused had exercised proper and sufficient care. He slowed down, and was of opinion that by passing there would be less danger than if he stopped. The Sheriff said he understood that that was a test case, and that the main object was to get a decision upon the question of whether the driver of a motor-car was bound in every case where the driver of a horse held up his hand to stop. As at present advised, he was inclined to hold that the driver of a motor-car was bound if he saw a man hold up his hand on the road to consider that the man was driving a restive horse and wanted him to stop. His Lordship imposed a nominal penalty of half-a-crown.

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Scottish Caution.

THE County Council of Forfar is still considering the important question as to whether prohibition or restriction shall be their rule with regard to the motor-car traffic in that county. A special committee was appointed by the Council to consider the matter. They met at Arbroath the other day, when it was resolved to recommend to the body that appointed them to prohibit motor-cars on two roads in the Brechin district. It was pointed out at the meeting that this would prove no real hardship to motorists, for places reached by them were easily accessible by other roads in the vicinity. Should the Secretary for Scotland sanction this prohibition, it is to be hoped that the County Council will take care that proper notices are posted sufficiently near these alternative roads to prevent motorists wasting time and temper by having to retrace their tracks for a few miles unnecessarily. A speed limit of ten miles per hour is also desired on passing through villages or in the neighbourhood of schools. Fortunately in the Dundee district no roads are mentioned as being in the restricted area.

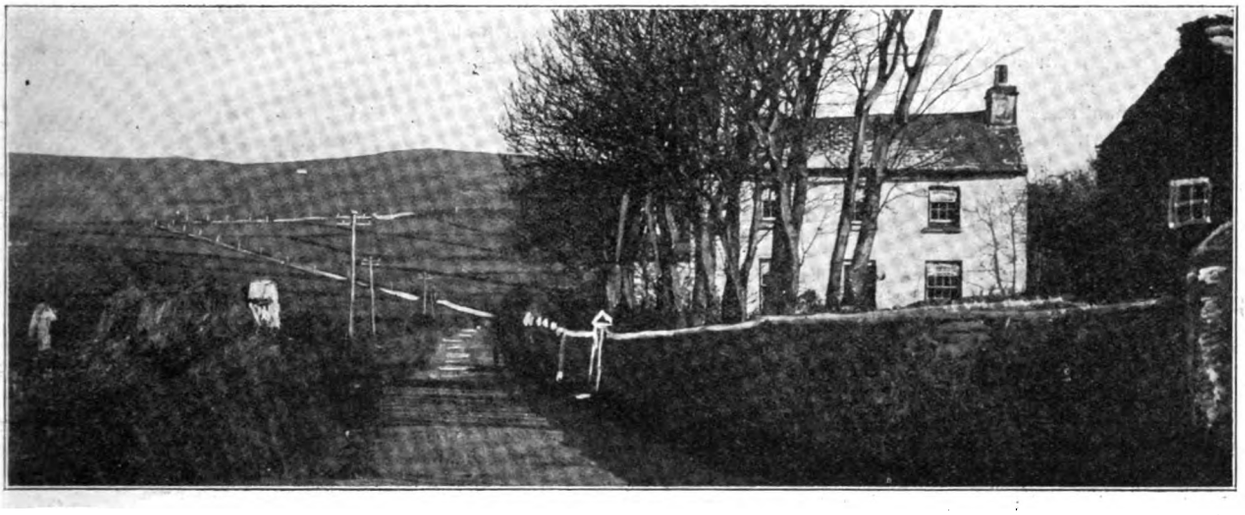


Photo by] **The British Gordon Bennett Eliminating Race in the Isle of Man—a View of the Course at Cronk-na-Mona, two miles from Douglas.** *[D. Collister, Douglas.*

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The Delivery Van Trials.

THE Bradford Chamber of Commerce has decided to appoint an official Observer to attend the forthcoming trials of delivery vans to be held under the auspices of the Automobile Club. The technical secretary is apparently asking some of the leading chambers of commerce and other important commercial organisations in the country to send Observers who will not only be able to render good service to the Club, but whose presence will be useful in securing local reports to their respective chambers which will go far to popularise motor traffic among the principal industrial leaders of the kingdom. The reception accorded to the proposal by the Bradford Chamber was very gratifying, and every speaker was in favour of that body giving official countenance to the trials in the way proposed. The general opinion was that the Bradford trade would ultimately benefit to a very considerable degree from the introduction of automobile traffic—a fact which the tests should enforce with much authority.

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Side Slip Trials.

FOR the side slip trials of the A.C.G.B.I., to be held at the end of April, several interesting entries have been made, including the following:—Mr. Bentley Tollemache: Leather band with steel studs, inside of which are strips of aluminium and corresponding strips of asbestos, etc.; Mr. W. Maitland Edwards: Toughened chrome leather cover, vulcanised to tread, with bifurcated rivets at suitable intervals; Mr. W. Hayes: The Empire B.P. support, fitted to chain and top stays of frame by clips; The Parsons Non-skid Company: The Parsons chain encircling tyres; The Wilkinson Tyre and Tread Company: A tread perforated with wires, to be vulcanised or solutioned on the tyres; Messrs. W. and A. Bates: A non-slipping tread made of rubber, to be attached to tyres by solution, or vulcanised thereto.

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An Official Tour in Lakeland.

ACTING in accordance with the provisions of the Motor Car Act, a representation from the Main Roads Committee of the Westmorland County Council, consisting of Mr. J. W. Weston (chairman of the committee), Mr. T. A. Argles, Mr. D. J. Pennington, Mr. J. C. Webster, Mr. Bintley (County Surveyor) and Mr. Rogers (Main Roads Superintendent), made a tour of roads with a view to the placing of danger signals. They were conveyed by Mr. Herbert Croft, on his 16-h.p. motor-car, and Mr. G. Atkinson (Messrs. Atkinson and Griffin, Lancaster), in a second automobile, meeting at Levens Bridge and proceeding thence to Duke Hill, Crosthwaite, Bowland Bridge, Cowmire Hall, Pool Bank, Witherslack, Bridge Inn, Levens Bridge, and Milnthorpe. After an interval the party went on to Arnside, thence to Beetham by Leighton Beck, to Burton, Crooklands, Woodhouse, and thence to Kendal. The route, roughly speaking, covered about a hundred miles.

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The Exhibition.

PRESS reports of the recent Motor Car Exhibition at the Agricultural Hall, London, continue to reach us, and from "Black and White" of last week we cull the following:—"Credit is due to all concerned for the laudable attempt to make the Exhibition an artistic as well as a commercial success. In surveying the crowded hall from many points of view, one could not but glean the impression that the Show approached more nearly the Continental manner of doing these things than any that has so far been held in this country; indeed, several of the stands were in every respect as fine as the best to be seen abroad. Moreover, the arrangement of the flags and kindred flaunting decorations was such as to harmonise the various colour schemes embodied in the stands. During the daytime the exhibits were seen to better advantage than they were at the Crystal Palace Show, while the lighting arrangements at nightfall left nothing to be desired."

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The Thomas Hardy and Scott Montagu Country.

AN Easter at Bournemouth is something to be remembered, with the beautiful rides through the lovely stretches of road in the New Forest—now resplendent with Lenten lilies, wood nymphs, and the pale primrose—with its charming bye lanes, overhung with branches of budding bushes. And then again there are the mating birds sending forth their songs heavenwards, hoping, however, their rewards to be less ethereal, but all making the forest glades ring with gladness even as the verdure makes the senses pleased with Nature as the season of spring is felt to be upon us. The Dorsetshire villages and lanes, the former with their cobwalls and thatch, and the latter with their golden gorse-lined hedges; hills and commons purple, soft and sweet in their melancholy, and wild and rugged in their sternness—roads always good. Such an Easter prospect is to be commended, especially should the weather be all that one could desire. There are rides for the motorist here, there, and everywhere, and, should he have such a good time on his car as the present writer, has he will be as enthusiastic in praise of the counties of the gentlemen referred to in the title of this note.

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Non-Stop Runs.

IN view of the many attempts that have recently been made to break non-stop automobile records, it may be of interest to make clear to manufacturers generally the conditions under which the Automobile Club recognises long distance non-stop runs on the road. The first consideration is that the run shall be an absolute non-stop run of the motor and the car, no stops of any nature whatever being admitted except for traffic purposes, when the motor may be stopped if the driver is called upon to do so, so that any stop, whether for tyres or other purposes, will be considered as the end of the run. Every run must start from the Automobile Club or from the club-house of an affiliated club; and indication of the intended length of the run and the route to be covered is to be given to Mr. Basil Joy, the technical secretary of the Automobile Club at least a week before the date of the run. Accumulators or other parts may be changed and fresh petrol may be picked up and put in the tanks so long as neither the car nor the motor is stopped for the purpose. A fee of one guinea for every 100 miles of the declared run will be charged, with a minimum of five guineas for the purpose of the payment of the Observer, with an additional three guineas as a club fee for 500 miles or under, with five guineas for a 500 to 1,000 miles, and eight guineas for over 1,000 miles.

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The Coming Budget.

THE prospects of the Budget are being eagerly discussed in City circles, and the rumour as to the likely imposition of a tax on petroleum has caused some talk. In fact, it was even suggested that oils generally would receive the attention of the Chancellor of the Exchequer. We do not anticipate that Mr. Austen Chamberlain is likely to propose anything so unpopular as such taxation would be. For not only would the industries of the country be affected, but it would be a real hardship to working people to have their cost of household illumination increased to any extent. Certainly any tax on petroleum would be resented by a formidable force of public opinion.

PRINCE HENRY OF PRUSSIA has just acquired a 24-h.p. Benz Parsifal car.

THE Lincolnshire Automobile Club and the Southern Motor Club have joined the Motor Union.

THE Burnley Club recently held a "Hot Pot" at the Bull Hotel, Burnley, with a view to interest unattached motorists in its doings.

THE boroughs of Longton and Stoke-upon-Trent have withdrawn their applications for the imposition of the ten mile limit on motor-cars.

ON Wednesday Mr. C. B. Fry, captain of the Sussex Cricket Club, was presented with a 12-16 h.p. Darracq car in recognition of his services to county cricket.

IT is reported that the Benz Company have withdrawn their entry for the Gordon Bennett race and that consequently no eliminating race for the German team will be held. Two Mercedes and an Opel will now represent the Fatherland in the Cup race.

THERE were two 60-h.p. Mercedes sold at Cordingley's recent Exhibition at the Agricultural Hall, and, curiously enough, both stopped at the Crown Hotel, Lyndhurst, within two hours of each other the same day. It has been said there is a difficulty in starting these cars, but this is a mistake, for, when properly adjusted, they start as easily as any other car.

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RECORD BREAKING AT NICE.

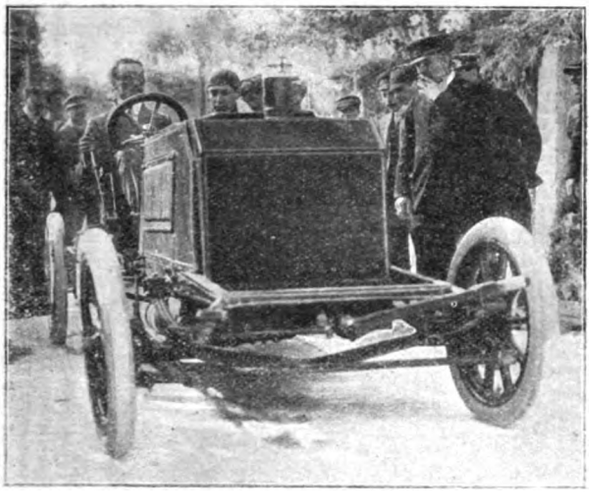
AFTER being postponed on account of rain from the previous Monday, the mile and kilometre races on the Promenade des Anglais at Nice came off on Thursday last week in splendid weather. Chief interest was centred in the heavy car class, in which some marvellous speeds were attained, the honours falling to Rigolly and Duray, both driving Gobron-Brillié cars with engines of about 100-h.p. In the mile trials with standing start these two made a dead-heat, their time being 53 3-5 sec., a new record for the mile, the previous best, by Rigolly, being 58 4-5 secs. Jenatzy, the winner of the 1903 Gordon Bennett race, was fourth, Mr. Mark Mayhew on his Napier racer being seventh. The times for the flying kilometre were also taken, in conjunction with the mile trials. No new times were set up in the light car, voiturette and motor-cycle classes. It is, however, noteworthy that an Italian machine took first place in the last named category. The appended table shows the results.—

CARS FROM 600 TO 1,000 KILOS.

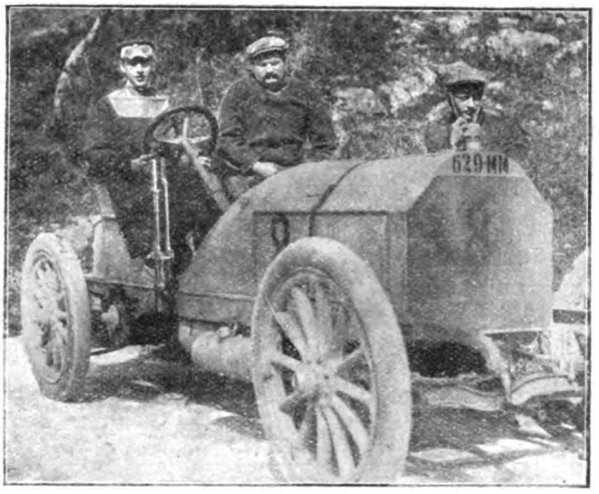
Driver.		Time for Mile. Min.	sec.	Time for Flying kilometre. Sec.	Average speed in kilometres per hour.
1. Rigolly ...	Gobron-Brillié		53⅗	25⅗	140·6
1. Duray ...	,,		53⅘	26⅘	135·3
3. Werner ...	Mercedes		57⅘	30⅘	117·6
4. Jenatzy ...	,,		59⅕	30⅕	119·2
5. Fletcher ...	,,	1	1⅕	30⅘	118·4
6. Braun	,,	1	1⅘	30⅘	117·6
7. Mark Meyhew	Napier	1	3	32	112·5
8. Warden ...	Mercedes	1	3⅘	30⅘	117·6

VOITURETTES.

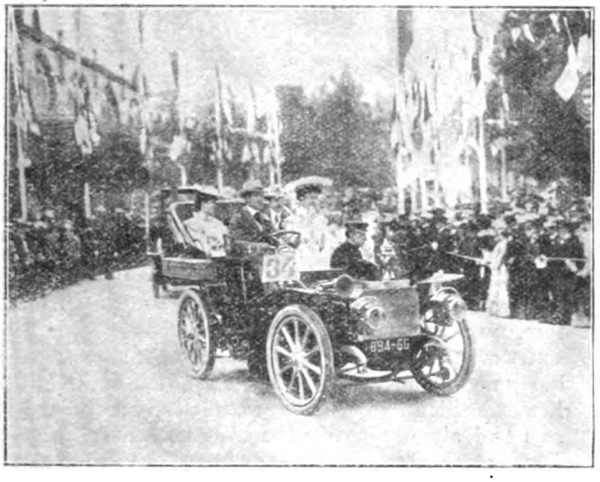
1. Deletang ...	Passy-Thellier	1	42	55⅗	—



Mr. Mark Mayhew on his Napier Racer.



Mr. Andrew Fletcher on his 80-h.p. Merce .



The Concours d'Elegance



The Prince of Monaco (at the Bow of the Boat) opening the Motor Boat exhibition.

THE NICE WEEK.

LIGHT CARS.

Driver.		Time for Mile. Min.	sec.	Time for Flying kilometre. Sec.	Average speed in kilometres per hour.
1. Durand ...	Mors	1	21⅗	44⅘	80·717
2. Neitham ...	Decauville	1	33⅕	48⅘	74·376

MOTOR-BICYCLES.

1. Tamagni ...	Marchand	1	7⅘	38	94·736
2. Lamberjack ...	Griffon	1	9	39⅘	91·370
3. Seguy	,,	1	18⅘	50⅘	—
4. De Francia ...	,,	1	27	50	—
5. Ingilbert ...	Peugeot	1	31⅘	54⅘	—
6. Ancel	,,	1	39⅘	52⅘	—
7. Yourassoff ...	,,	1	42⅘	41⅘	—

After the mile trials came the kilometre contest with 600 metres flying start, for the Henri de Rothschild No. 2 Cup. This was held by Hieronymus, who last year covered the flying kilometre in 31 3-5 sec., or equal to 113·3 kilometres per hour, and is reserved for cars weighing from 650 to 1,000 kilog. and carrying two passengers. There were seven competitors, two

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Gobron-Brillies, four 80-h.p. Mercedes and Mr. Mayhew's Napier. The event was another success for Rigolly and Duray. Appended are the times :—

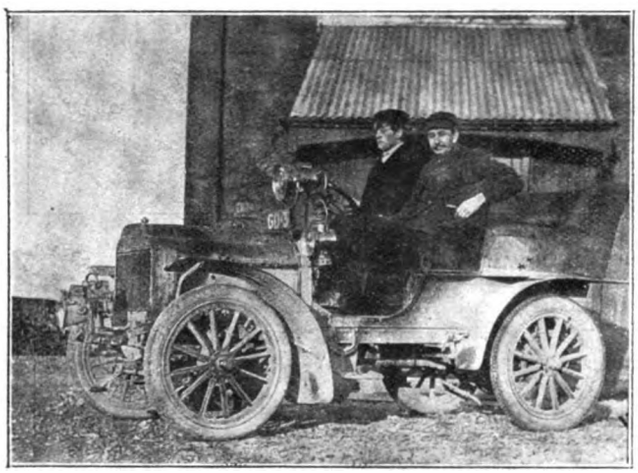
HENRI DE ROTHSCHILD No. 2 CUP.

Name.	Car.	Time for Flying Kilometre. Sec.	Average speed in kilos. per hour.
1. Rigolly ...	Gobron-Brillie	24	150·
2. Duray ...	,,	26⅘	135·3
3. Mark Mayhew ...	Napier	28⅘	125·8
4. Warden ...	Mercedes	29⅘	122·4
4. Braun ...	,,	—	122·4
4. Werner...	,,	—	122·4
7. Fletcher ...	,,	29⅘	120·8

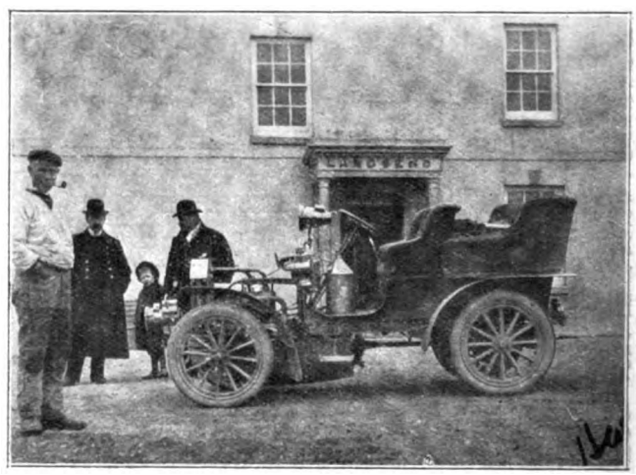
Finally came a similar series of trials for the Henri de Rothschild No. 3 Cup, in which the fastest times of the day were recorded, Rigolly passing the post in the new world record time of 23 3-5 sec., equal to 152½ kilometres or over 95 miles per hour. Duray, as usual, was close up behind, followed by Mr. Mayhew, who is to be congratulated on the excellent showing he made with his Napier, beating as he did the Mercedes driven by such experts as Jenatzy, Braun, and Werner. The times of the various competitors are shown below :—

HENRI DE ROTHSCHILD No. 3 CUP.

1. Rigolly	Gobron-Brillie	23⅖	152·5
2. Duray ...	,,	25⅕	142·9



At John o' Groat's.



At Land's End.

3. Mark Mayhew ...	Napier	27⅕	132·3
4. Braun ...	Mercedes	29	124·1
5. Werner ...	,,	29⅕	123·2
6. Jenatzy ...	,,	29⅘	121·6
7. Fletcher ...	,,	29⅘	120·8
8. Warden ...	,,	30⅘	118·4

The third hill-climbing contest with standing start for the Baron de Caters Cup was held on Good Friday, on a 500-metre course on the Turbie road, commencing at the foot of the hill known as La Montée du Pin. The first contest for the cup was held on the same road, but over a kilometre course, in 1902, and was won by L. Serpollet in 59⅕ sec. Last year is was held on the Laffrey Hill (Isere), Rigolly being the victor in 50⅕ secs. This year the Gobron-Brillie cars repeated their success of the previous day, Duray securing the first position, and Rigolly the second. The times of the different competitors are as follows:—

1. Duray ...	Gobron-Brillie ...	26	secs
2. Rigolly ...	,, ...	27	,,
3. Werner ...	80-h.p. Mercedes ...	28	,,
4. Braun ...	,, ...	28⅘	,,
5. Mark Mayhew ...	Napier ...	30	,,
6. Andrew Fletcher	... 80-h.p. Mercedes ...	30⅕	,,
7. Jenatzy ...	,, ...	,,	,,
8. Warden ...	,, ...	32⅖	,,
9. De Cesti ...	... 60-h.p. Mercedes ...	36⅘	,,

It is reported that as a result of the trials certain changes are to be made in the Mercedes racers, particularly as regards the carburettors.

JOHN O' GROAT'S TO LAND'S END ON A 10-h.p. ARGYLL CAR.

LEAVING Glasgow on Tuesday, the 22nd ult., at twelve o'clock, I started to run up to John o' Groat's to try and make a non-stop run from there to Land's End and beat Mr. Stocks' record of 62 hrs. 32 mins. I arrived at John o' Groat's on Wednesday night and left the following morning at 8.15. The roads were very good, but plenty of newly-laid stones were found, which considerably delayed us. and the hills, though steep at Burrydale and The Ord, gave no trouble. All went well until 150 miles had been traversed, when a large collie dog jumping over a wall right in front of the car gave me no time to pull up and so avoid a collision. This accident so damaged the steering gear and the radiator that it rendered my companion practically unable to relieve me with the driving, thus making a non-stop run impossible.

The next stop was made soon after Blair Athol, owing to the railway gates being closed. Two other stoppages of the same description occurred, and two more for flocks of sheep, and a further stop before Glasgow owing to a blockage in the petrol pipe. The next stop was made on Shap Fells, as, owing to the radiator having been damaged by the dog, we were obliged to fill up with water. I thought it advisable to stop at Warrington and make the necessary repairs to the radiator, and we were again forced to stop at Bristol, as, in spite of our delays, we were two and a half hours ahead of our scheduled time, and, therefore, no petrol or supplies were ready. From Bristol we had a series of stoppages on account of my not knowing the road, and, it being night time, there was no one about to direct us. At Bodmin it was decided to stop the car and sleep for three and a half hours, as I had already driven for over thirty-six hours continuously. I also stopped for food, as, owing to the previous stoppages, my only object was then to break the end-to-end record.

Land's End was reached at 12.30 on Saturday, the 26th ult., the total distance of 927½ miles being covered in 52 hrs. 39 mins. as against Mr. Stocks' record of 888 miles in 62 hrs. 30. mins. The only mishaps during the run were the killing of one dog and five rabbits, and also running into a graveyard in the dark. The net running time was 44 hrs. 27 mins.

The amount of petrol consumed on the entire journey was 34⅓ gallons. The car was an ordinary 10-h.p. touring Argyll, which I had been driving for three weeks in Glasgow and through Surrey and Sussex before I had any intention of attempting this journey. The vehicle, with the exception of the steering gear, one of the front spring brackets, and the radiator, which were damaged by the dog, was in quite as good condition at the completion of my journey as the first day I drove it.

DOUGLAS H. WHITEHEAD.

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THE LONDONDERRY STEAM WAGON.

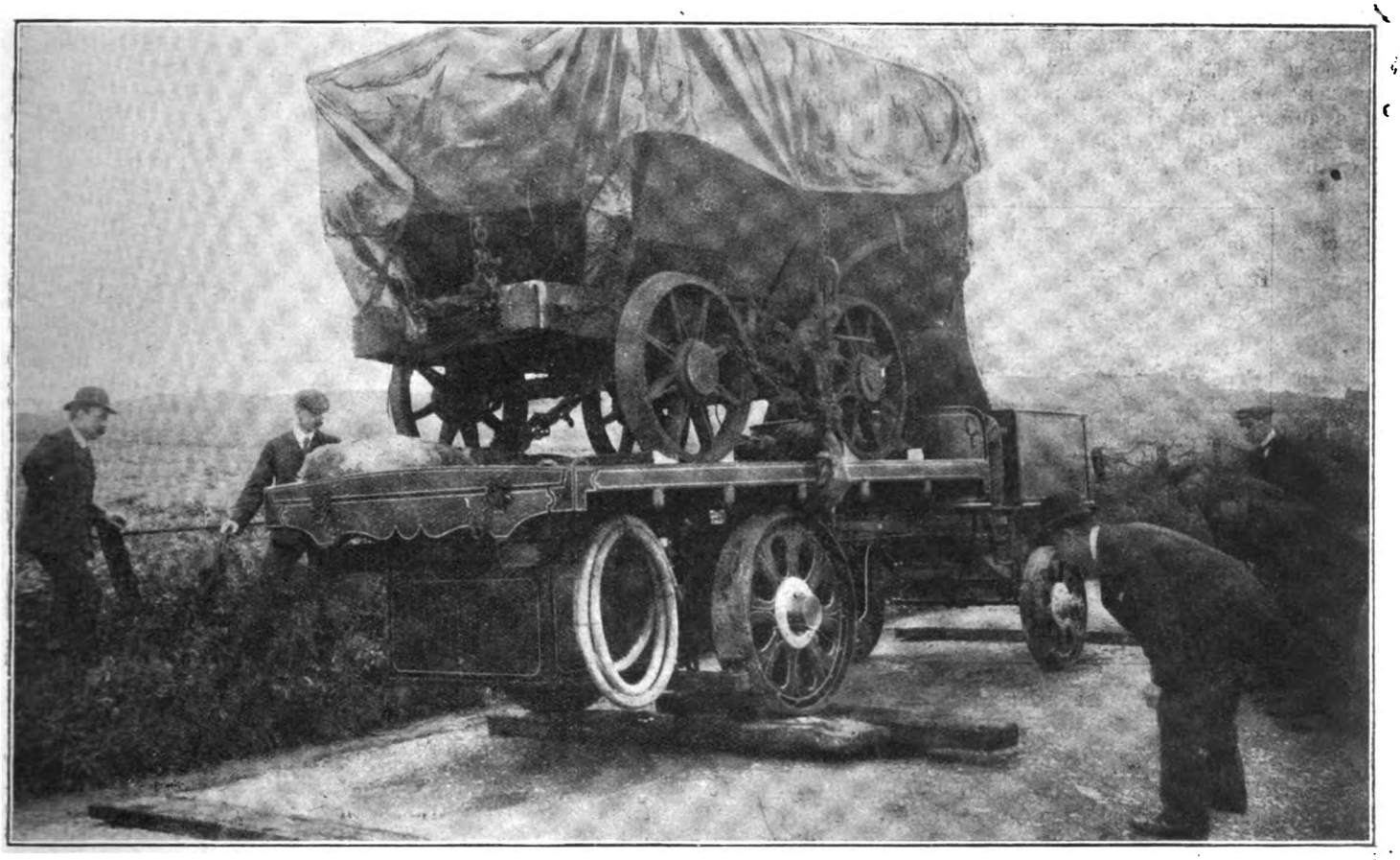
THE steam motor-wagon for conveying merchandise is enjoying increased favour in the North of England, and before long promises to become a stronger rival to the horse in the hilly north country than the traction engine has been. One of the latest forms of self-propelled heavy vehicles is the Londonderry steam-wagon built at Lord Londonderry's Seaham Harbour Engine Works, County Durham.

Originally the wagon was a by-product of Lord Londonderry's works to keep the men engaged in the intervals of constructing colliery wagons, locomotives, and repairing, the latter necessitating a large staff for emergencies. Why not make motor-wagons was a suggestion that seemed to meet the case, and the four-wheeled steam vehicle is the result.

The accompanying illustration shows one of the trials through which some of the earlier vehicles were put in order to thoroughly test their adaptability for rough and heavy work. Having satisfied a company of experts that the wagons were constructed to withstand the severest usage, hill-climbing and economy in running, as well as convenience in manipulation tests were held in Newcastle-on-Tyne and Gateshead. One of the heavy vehicles was loaded up with nitrates at the establishment of Messrs. Walter Morrison and Co., St. Peter's, Newcastle, and, after traversing some of the busiest thoroughfares in the metropolis of the North, the vehicle proceeded to climb the well-known inclines of Bottle Bank, Gateshead, and Dean Street, Newcastle. Previous to this attempt these inclines had not, we understand, been successfully negotiated by any fully loaded steam-wagon. The trials were successful in every respect, as was proved by the Londonderry Company receiving three orders from as many firms immediately after the test.

Special attention is drawn to the very substantial construction of the vehicle, no attempt being made to build vehicles for heavy work to come under the 3-ton limit, and the result is a vehicle specially suitable for general work in rough and hilly districts. Whilst the vehicle is primarily a road machine, there is an idea ultimately of fitting it so that a farmer might use it for driving corn-threshing and grinding machinery.

The engine is extremely simple in construction, and the bearings throughout are adjustable. The drive is by means of cog gearing, and the arrangement of the side frame and axle boxes is such that should a main carrying spring break, the vehicle would not be incapacitated, but could continue its journey independent of the spring. The boiler is one of the special features of the vehicle; it is of the water-tube type and built to the requirements of and passed by the Scottish Boiler Insurance Company. It is fitted with straight weldless steel tubes inclined to the horizontal, and no welded, riveted, or jointed surface is exposed to flames. Suitable doors in the end plates of the shell allow free access to the whole of the water spaces, thus rendering the boiler, on account of its convenience for cleaning, particularly suitable for districts where good water is not obtainable. All the boiler mountings are designed so that they can be overhauled when the boiler is under steam, and the driver, being able to raise or lower the ashpan with the firebars by a very simple arrangement, is able to clean out and relight the fire in a few minutes.



Testing a Londonderry Steam Wagon.

MR. JAMES BOWEN, of Didsbury and Heaton Moor, near Manchester, is erecting a garage for the accommodation of about thirty motor-vehicles. Petrol will also be stored and facilities provided for the charging of accumulators.

THE town councils of Maidstone and Bury are now to be added to the list of those anxious to obtain from the Local Government Board permission to impose the ten-mile limit upon motorists passing through their respective areas.

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CONTINENTAL NOTES.

The Opel Gordon Bennett Racer.

Some further details are now available regarding the engines of the cars which are being built for the Gordon Bennett race by Messrs. Opel, of Russelsheim, Germany. As stated in the last issue of the *Journal*, the four cylinders will be cast separately. Both inlet and exhaust valves are mechanically-actuated, the inlets being located in the cylinder heads, and operated by rods and tappets. Magneto ignition is being adopted, while a carburettor of the Longuemare type will supply the mixture. The engines will each develop between 80-h.p. and 100-h.p. As for the cars, they will have [section steel frames and be built very low, the bottom edge of the flywheel being only about five inches from the ground.

Petrol Supplies during the Gordon Bennett Week.

Some anxiety is being shown as to the question of sufficient supplies of petrol in the Homburg district during the Gordon Bennett week, and there are rumours that high prices will be demanded. It is to be hoped, however, that vendors of *essence* will not follow the example of some of the hotel proprietors in charging exorbitant prices and so frighten intending visitors away. The Vereinigte Benzinfabriken Gesellschaft (Abtheilung, Benzinstationen) of Bremen has issued a list of depots around the course where supplies can be obtained. Those motorists who intend visiting Germany this summer would do well to write for a copy of the list, which can be obtained gratis.

Proposed New Automobile Regulations in France.

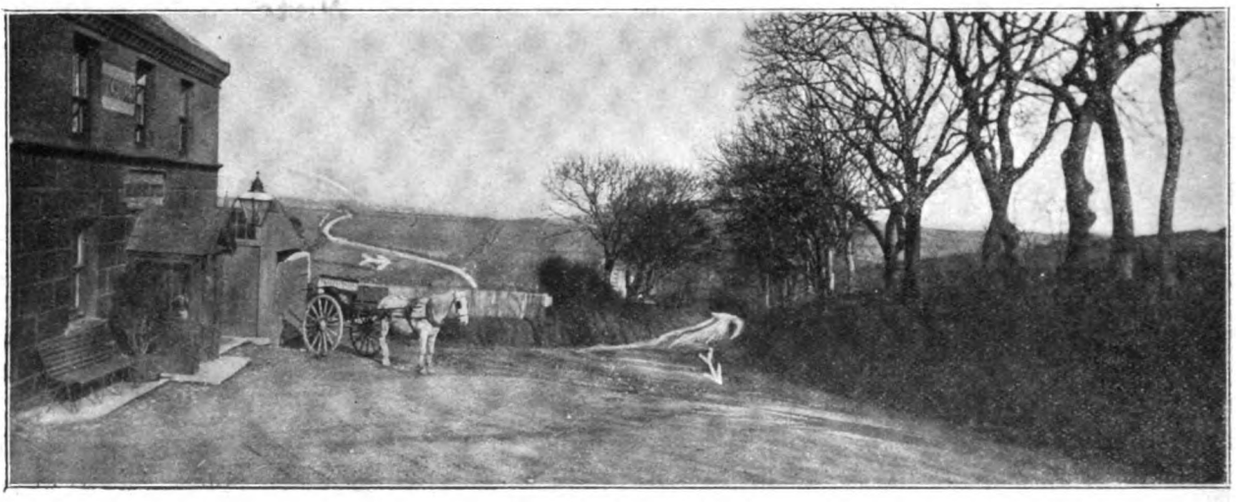
THE French Extra Parliamentary Commission which is enquiring into the question of the speed and regulation of automobiles in France have resumed their sittings, and are now carefully considering the reports which have been submitted for their consideration. The main points so far agreed upon are that for controlling automobiles there shall be three classes, viz.:—(1) Cars attaining a speed up to 25 miles per hour will not have to carry any number whatever, or be subject to any official declaration. (2) In the case of cars with a speed from 25 to 37½ miles per hour the existing regulations, requiring certificates of competency to drive, will be more strictly enforced than ever, and probably elaborated. (3) Vehicles capable of a speed greater than 37½ miles per hour will not be permitted to be sold or travel anywhere except under special authorisation and in very rare cases. A special plate, issued by the Service des Mines, will be attached to each *chassis* of this class, giving the gear ratio between the motor and the wheels. Any alteration in gear ratio must be immediately notified to the authorities, and a new plate obtained. With reference to the question of issuing general certificates for driving competence, it is proposed to hand this over to a private body such as the Association Générale Automobile, whose certificates would only require the endorsement of the Service des Mines

The A.C.F. Carburetto Competition.

THE rules have just been published with regard to the carburettor competition which the French Automobile Club will hold at its laboratory at Levallois-Perret, commencing on the 16th May next. The competing carburettors will all be tried on a Gillet-Forest horizontal single cylinder engine having a bore of 140 mm. by 160 mm. stroke and running normally at 850 revos. per min. The tests will have regard to (1) the power developed at different speeds and (2) the consumption in litres per kilowatt hour at different speeds. There will be three classes—(1) carburettors designed for a particular engine (2) carburettors intended for a particular fuel and (3) carburettors designed for use on any engine and to use any fuel. Entries must be sent, together with a fee of £6 per carburettor, to the A.C.F. before the 14th May.

Cups for Motor-Boat Races in Belgium.

AT a meeting of the Automobile Club of Belgium, it was decided to offer a number of cups for international motor-boat races. One will be known as "la Coupe de l'Escaut," and is for an annual race on the Scheldt from Antwerp to Flushing and back, a distance of about 140 kilometres. La Coupe Littoral is for a race on the sea, starting and finishing at Ostend. There will also be La Coupe du Mille and La Coupe du Kilometre, the details of which have yet to be settled.



[*Photo by* The British Gordon Bennett Eliminating Race in the Isle of Man. View of the Course at Richmond Hill. [*D. Collister, Douglas.*

Exhibition at Nice.

AN exhibition of motor-cars was opened on Sunday in a large temporary show-ground behind the Casino at Nice. Among the cars on view are Mercedes, Peugeot, Panhard-Levassor, De Dion, Gardner-Serpollet, Renault, Fiat, Berliet, and Aries. A notable feature of the exhibition is a huge aeroplane flying machine driven by a 6-h.p. motor.

Austrian News.

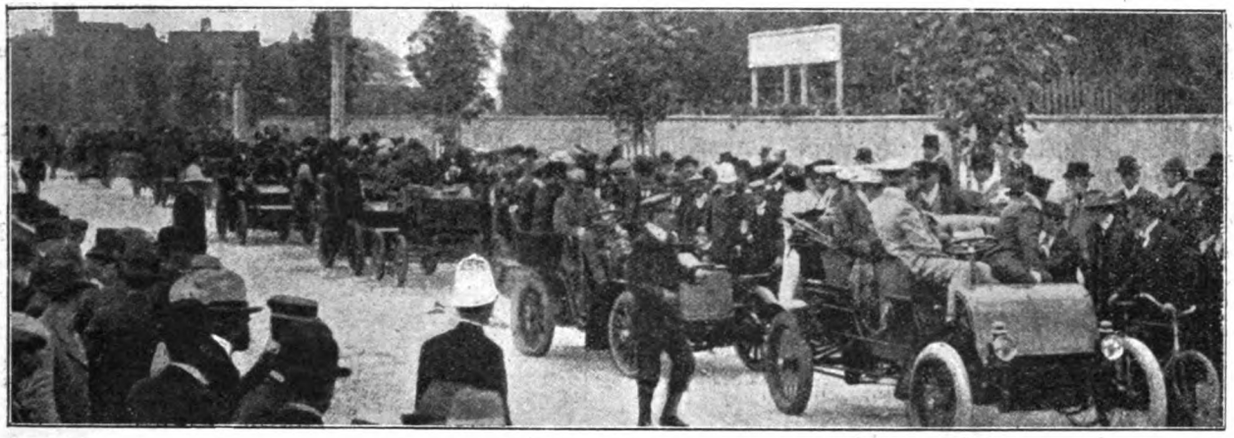
PREPARATIONS are well in hand for the Austrian Automobile Club Show, which is to be held in Vienna from the 16th inst. to the 31st May. On the 5th May there is to be a trial of passenger cars the motors of which use alcohol or petrol as fuel, while on the 10th May there will be a heavy-vehicle competition.

Motor-Boats at Monte Carlo.

A MOTOR-BOAT exhibition was opened on Wednesday last week at Monte Carlo by the Prince of Monaco. It is a novel and interesting show, there being over sixty exhibits, including the Napier Minor," shown by Messrs. S. F. Edge and Company.

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The First Run of an Australian Club.



The Start of the Run.

CONSIDERABLE interest was taken by the Melbourne public in the inaugural run of the Automobile Club of Victoria, news of which reached us by the last mail. Prince's Bridge, Melbourne, was the point of assembly, the destination being Aspendale Park, eighteen miles away. The weather, although threatening in the morning, cleared up about noon, the afternoon being in every way favourable for motoring. Large crowds watched the start, while numbers of spectators lined the route through St. Kilda, East Brighton, Cheltenham, and Mordialloc. A considerable number of the local residents visited the park to watch the evolutions of the cars and motor-cycles.

At a quarter-past two the motor-cycle detachment, twenty strong, under the direction of Messrs. H. C. Bagot and E. C. Joshua, made a start, proceeding in a body to the St. Kilda Town-hall, after which they rode in detachments, arriving at the park about half-past 3 o'clock. As the motor-cars arrived at the starting-point they were ranged along the left-hand avenue of St. Kilda Road, and made an imposing array as they were marshalled in a line about a quarter of a mile long, the club's vice-president (Dr. A. P. Merrill) having the position of honour. Almost every conceivable type of motor-car was represented in the 30 odd vehicles present, ranging from a 16-h.p. 4-cylinder tonneau down to a little American Buckboard runabout, whilst numerous steam cars were also in evidence. The value of the cars at the meet was estimated at over £9,000.

Aboard the cars were to be seen Sir Samuel Gillott, Alderman J. Moloney, Councillors C. Pleasance and C. E. Jeffries, the city surveyor (Mr. A. C. Mountain), the mayor of St. Kilda (Councillor J. H. Pittard), and several councillors of the town of Brighton. At half-past two the cars got under way, Dr. Merrill, with Sir Samuel Gillott aboard, being in the van. A ten-mile-an-hour pace was set along St. Kilda Road and around the Esplanade, thence to the St. Kilda Town-hall, where a short stop was made to pick up several passengers. From here the cars proceeded in more open order, to escape the dust. Maintaining a nice easy pace, Aspendale Park was reached about 3.45 p.m.

After refreshments at the chalet, an adjournment was made to the race track, which was placed at the club's disposal by Mr. J. R. Crooke, who is himself a motorist. Several motor-cars and motor-cycles had a run around the racecourse, but the going was too heavy to enable any speed work, so the remainder of the afternoon was devoted to driving visitors around the grass track. During the afternoon the opportunity was taken by the vice-president (Dr. A. P. Merrill) to thank the visitors for their attendance, particularly those who had journeyed down in the cars. He trusted that the experience gained by them, showing the facility and ease with which automobiles can be handled at all speeds, and the perfect manner in which they can be controlled would be of some assistance to the various municipalities when framing the new by-laws regulating motor traffic.

An early return citywards was made by most of the motorists, the afternoon's outing being a most enjoyable one, and in every way worthy of the newly-formed club, which promises to have a great future. The arrangements of the run were placed in the hands of Messrs. H. J. J. Maddox, H. C. Bagot, S. H. Day, W. Rose, and H. B. James (hon. secretary). Amongst those noted at the meet were Dr. A. P. Merrill (Winton, 8-h.p.), Messrs. S. Stott (Decauville, 16-h.p.), J. R. Crooke (Locomobile, 4-h.p.), W. S. Ross (Argyll, 10-h.p.), H. Tarrant (Argyll, 10-h.p.), J. Moffat (De Dion, 8-h.p.), H. H. Witt (Locomobile, 4-h.p.), C. B Kellow (De Dion, 8 h.p.), S. Darby (Toledo, 8-h.p.), R Moffat (De Dion, 6-h.p.), Dr. Grimwade (Humberette, 5-h.p.), H. R. Grimwade (Humberette, 5-h.p.), N. Grimwade(De Dion, 6-h.p.), Dr. Officer (Oldsmobile, 4-h.p.), W. Hurst (Eclaire, 5-h.p.), J. Beswicke (Locomobile, 4-h.p.), J. Prince (Winton, 8-h.p.), E. C. Winn (Oldsmobile, 4-h.p.), F. Stuart (Decauville, 10-h.p.), C. Waddington (Oldsmobile), 4-h.p.Otto Schumaker (De Dion, 3½-h.p.), W. J. Warden (Oldsmobile, 4-h.p.), C. Hall (Oldsmobile, 4-h.p.), H. Thomson (Thomson, 8-h.p.), Boehmke (Oldsmobile, 4-h.p.), A. Renard (Rochet, 5-h.p.), H. L. Stevens (Knowles-Aster 5-h.p), J. Neave (Oldsmobile, 4-h.p.), F. Bennett (Toledo, 6-h.p.), F. M'Ganis (Oldsmobile, 4-h.p.), W. Guild (De Dion, 6-h.p.), Stott, jun. (Covert, 5-h.p.), H. J. J. Maddox (Knowles-Aster, 5-h.p.), C. A. Proctor (Orient Buckboard, 3½-h.p.), D. Mackenzie (Oldsmobile, 4-h.p.), A. Kennedy (Oldsmobile, 4-h.p.).

AT a meeting of the Civil and Mechanical Engineers Society on Thursday, Mr. Holroyd Smith read a paper on "Friction Clutches and their Application to Motor Cars."

WE regret to learn of the sudden death, at Ramsgate, on the 3rd inst., of Mr. E. M. Bowden, the inventor of the Bowden patent wire mechanism and the Bowden brake. In the early winter Mr. Bowden contracted a severe cold followed by influenza, and he was unable to shake off the effects of that indisposition. Latterly his trouble took a more serious turn, pneumonic symptoms developing.

STANLEY SHEPSTONE, a motor-car driver employed by a motor car company in Peland Street, W., was going along Maida Vale, the other afternoon, when a van in front of the car suddenly turned half round. In trying to avoid a collision the car was turned completely over, and Shepstone was pinned underneath, where he remained for several minutes before he could be released. He was conveyed to St. Mary's Hospital.

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MOTOR-CYCLING NEWS.

THE 1904 motor-cycle racing season opened on Good Friday by a five-mile handicap on the track at Canning Town, E. The conditions under which the event was run included a provision that the engine dimensions were not to exceed 76 mm. bore by 76 mm. stroke or their equivalent. In the first heat J. F. Crundall (Humber), H. V. Collier (Matchless), H. J. Butler (Koh-i-Nor), and C. S. Prentice (Prentice) ran, the first-named winning in 7 min. 32 3-5 sec. Heat two brought out B. Yates (Humber), C. R. Collier (Matchless), C. Bennet (Kerry), and W. W. Genn (Eland). The heat was won by Collier in 7 min. 53 3 5 secs. In heat 3 the competitors were H. A. Collier (Matchless), J. Perkins (Crownfield), H. J. Trow (Trow), and F. E. Barker (Dart), Collier winning in 8 mins. 14 1-5 secs. The first two in each heat competed in the final, which was won by Crundall in 7 mins. 32 4-5 secs., C. R. Collier being second, and H. A. Collier third.

A SIMILAR handicap was run off on the same track on Monday last, Crundall repeating his victory of the previous Friday in 6 mins. 56 1-5 secs.

MOTOR-CYCLE belts in raw hide or chrome leather are made by Messrs. Fleming, Birkby, and Goodall, Limited, in standard, medium, and heavy sections. "Teon" motor-cycle belts also find illustration in their new catalogue.



Motor-Cycles for Military Purposes. A Signalling Corps at Work in the German Manœuvres.

[Automobil Welt.

AN Algerian motor-cyclist named Constant has just made a new record between Algiers and Setif. The distance is about 210 miles, and this he covered on a 2½-h.p. Griffon machine in 8¾ hours, a very good performance on Algerian roads.

ON Good Friday the motor-cycle section of the Sheffield Automobile Club had a run to Bakewell, and on Monday went to Retford via Worksop. Their programme for April includes runs every Thursday and Saturday, and the places visited will be Baslow, Worksop, Askern, Bambury, and Castleton.

AMONG the new motor-cycles to be put on the market during the coming season is the "Fuller." The motor is located in a vertical position in a loop frame with duplex front forks and will be of 2, 2¾, or 3½-h.p. Longuemare carburettor, Bowden valve lifter, Fuller trembler coil and dry battery or accumulator, belt drive, and Bowden rim brake are other features of this machine, which is being introduced by the firm so long associated with battery work.

To mitigate the evil of straggling on club runs the Chicago Motor-cycle Club has hit on the idea of establishing stations or "controls" at the cycle depots in and around Chicago, at which stops will be enforced until the laggards catch up. These places of rendezvous, it is thought, will make it possible for the club to complete its runs in a body.

AUTOMATIC CARBURETTORS.

IN the early history of the motor-car a carburettor was deemed sufficiently perfect if it was capable of furnishing a mixture of fairly reliable inflammability through the range of gas consumption demanded in usual practice. Very little pains were taken to insure absolute uniformity of the mixture at different speeds and rates of throttle openings, the main consideration being to secure a mixture which ranged in its composition between the limits of inflammability, and thus would not fail to ignite. Carburettors were originally of most diverse forms, including those of the surface type and vaporisers employing needle valves actuated by the inlet valve movement. These and other forms have virtually passed away, leaving the carburettor of the float feed spraying type pre-eminent, if not practically standard in the industry. The float feed carburettor has been universally adopted on account of its small size and compact form and its virtual independence of atmospheric conditions. Its output of gas in respect to its size and weight is quite remarkable.

The ability of the float feed carburettor to deliver a combustible mixture to the motor, through a very wide range of gas demand, has satisfied everyone as to its thorough practicability; but now that all parts of motor-cars are being subjected to criticism more intense than ever before it is being realised that the float feed spraying principle, unless carried out with the utmost refinement, does not result in the production of a uniform quality of gas under all conditions of demand. Since there is very little variation allowable in the gas quality without a decided loss in output and efficiency, improvements in carburettor construction are, remarks the "Horseless Age," highly desirable, and it is very noticeable that manufacturers are adding auxiliary devices to their carburettors for the purpose of automatically maintaining the proportions of air and petrol under all conditions. A valve actuated by the inflow of air and arranged to govern the degree of contraction to which the entering air is subjected may be utilised as an auxiliary mechanism, or an auxiliary air passage may be opened or closed by means of a diaphragm. Whatever method may becomd the final one, it is evident that this subject of uniformity oe mixture is attracting serious attention at the hands of autof mobile designers.

THE Ladies' Automobile Club is about to remove to its new headquarters at Claridge's Hotel, W.

MR. RICHARD PAULSON, of Hove, is bringing out a new speed indicator for ascertaining the speed of motor-cars.

DON'T quarrel with your motor-car. If it doesn't act to please you, remember that it is a mere machine and that you are a man and its master. But to command it you must first know its peculiarities.

PROVIDENCE, Rhode Island, U.S.A., is to have an automobile school, the Young Men's Christian Association of that city having decided to organise a course of lectures treating of the operation, care and construction of motor-vehicles.

WE learn that the Locomobile Company of Great Britain, Limited, of which Mr. C. Jarrott and Mr. W. M. Letts are now directors, has secured the sole and exclusive agency for Great Britain and Ireland (except Yorkshire) for the "Spyker" cars, which have recently been described in these columns. Certain modifications are being made in the design of the cars which will not only improve their appearance, but also enhance their efficiency. The chief of these is the shape of the front spring hangers, which has now been altered in such a way that there is no straight cross pin at the front end of the springs as formerly, the springs being placed solidly under the front end of the spring hangers. The cars, which are of Dutch manufacture, are made in three sizes, namely, 14-h.p., 20-h.p., and 25-h.p. The Elsworth Automobile Company, of Bradford, will continue to act as the Yorkshire agents for "Spyker" cars.

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HERE AND THERE.

LORD FARQUHAR has, we learn, just placed an order for a six-cylinder "Napier" car.

MESSRS. THOMPSON AND COMPANY have lately extended their motor-car works at Frome.

SIR ALFRED HICKMAN, BART., M.P., has, we understand, placed an order for a 28-36-h.p. car.

SOME of the residents of Eastbourne are endeavouring to raise a petition to the local Council in favour of more encouragement being given to tramways as opposed to motor-cars in the future.

THE Gas Lighting Improvement Company, Limited, have recently started their new refinery at Pacific Wharf, Crows' Road, West Ham, where they deal specially with the preparation of motor spirit.

THE Public Health Committee of the Wandsworth Borough Council has been authorized to procure a motor-van, at an estimated cost of £360, for the removal of infected articles to the disinfecting station.

THE Automobile Company of Cardiff, Limited, has been registered with a capital of £2,000. The first directors are Messrs. G. L. Watson and A. S. Little, and the registered office is at 20, Charles-street, Cardiff.

THE new booklet on the Werner motor-cycle which has just been issued will well repay perusal. It not only deals with the particular merits of the Werner machines but is full of illustrated matter of interest to motor-cyclists generally.

DETROIT has joined the list of American cities which have established "automobile schools," or courses of instruction in motor vehicle construction and management. The local Young Men's Christian Association is the moving spirit in the scheme.

THE Putney Motor Company, Limited, has been registered with a capital of £5,000 to acquire the business now carried on at 17, Grand Parade, Putney, S.W., as the Putney Motor Company. The first directors are Messrs. A. E. S. Craig, G. L. M. Dorwald and E. A. D. Kisch.

SIR GEORGE NEWNES, M.P., in presiding at the meeting of the Lynton and Barnstaple Railway, complained that the unnecessary restrictions of the local authorities had put a stop to a valuable motor-car service in connection with the railway between Ilfracombe and the surrounding district.

THE Putney Motor Company are building a specially powerful four-cylinder car for the Earl of Norbury. Owing to the great flexibility of the motor only one low gear will be fitted for use in starting and on steep hills; at other times the transmission will be direct by worm drive to live axle. The front road wheels will be 36 inches in diameter; the rear pair, which will be fitted with solid tyres of very large section, will be 48 in. diameter.

FROM the Homeland Association comes another of their excellent series of handbooks to pleasant places in the southern counties. This is number 30 of the series, and is concerned with Littlehampton, Arundel, and Amberley. While not pretending to be a complete guide to the antiquities and modern developments of the places named, it has the merit of giving in a concise form all that the tourist needs to know concerning those interesting localities.

THE Noble Motor Company has lately brought out a combined dynamo and motor for charging accumulators or for lighting small country houses. The set is comprised of dynamo and engine, which can be run with either petrol, paraffin, or gas, and an extra heavy fly-wheel to ensure steady running. These are mounted on a cast iron base forming the water tank; a centrifugal pump is also attached to circulate the water through the engine water jacket. The engine is governed, to prevent racing when the load is taken off the dynamo, by a special electrical contrivance.

A SECTION of the Swiss Automobile Club has just been formed at Zurich.

A NEW service of motor-'buses at Falmouth was announced to start running on Easter Monday.

THE Maudslay Motor Company are, we hear, bringing out a new car fitted with a two-cylinder engine.

A LECTURE entitled "Popular Motor-cars" will be given before the Society of Arts on Wednesday, the 20th inst., by Mr. Mervyn O'Gorman.

MESSRS. LAKE AND ELLIOTT, of Braintree, have sent us a copy of their new catalogue, which contains illustrations and particulars of a variety of apparatus and tools which will be found useful by motor-cycle and car repairers.

WE hear that there is an enquiry in the market for a motor vehicle or wagons for military purposes to carry a load of 25 tons a distance of about 60 miles without a stop. The wagon is to be propelled by other than steam power.

TWO additional classes were added at the last moment to the contest of commercial automobiles which is being held this week by the Automobile Club of America. The new classes are for heavy trucks, carrying respectively 6,000 to 8,000 pounds and upward.

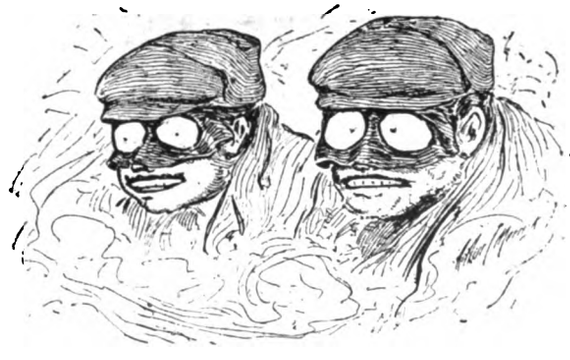
THE British Motor Power Co., of Preston, have just issued in pamphlet form the paper read by Mr. O. Sumner, M.I.M.E., before the Institute of Marine Engineers recently on "Marine Petrol Engines and Motor Launches." Particulars are also given of the "British Marine" paraffin and petrol engines and launches.

A TECHNOLOGICAL and Scientific Dictionary is the latest enterprise of Messrs. George Newnes, Limited. This is being issued in fifteen monthly parts, and when complete will define about 16,000 terms, 6,000 of which are in various branches of engineering. The first part, just issued, is well printed and the illustrations are practical and useful.

WE are informed that the Continental Caoutchouc and Guttapercha Company have taken new premises in Clerkenwell Road, E.C., which will be occupied in a few months' time. The offices and warehouse are much larger than those at present occupied by the concern at Holborn Viaduct, and will enable the concern to put down plant for the repair of tyres.

MESSRS. DOCKER BROS. are specialising on paints for motor-cars, these being prepared to withstand heat as well as to give a high polish to the work. Regal red is one of their excellent lines, and at the recent Show at the Agricultural Hall a display of panels gave an opportunity for visitors to judge of the excellent results that can be obtained from the use of their paints and varnishes.

AT the Denbigh Police Court, Colonel T. A. Wynne Edwards, a county and borough magistrate, was fined 1s. and costs for not having a licence for the driver of his motor wagon. The defendant, whose excuse was his forgetfulness, said that this conviction would mean a loss to the county of Denbigh. He would take out a licence in the county of Flint, which would answer the same purpose, and he would never take out another in Denbighshire.



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The Motor-Car Exhibition at the Agricultural Hall.

[THIRD NOTICE.]



[*Photo by* The Heavy Motor Vehicle Section in the Minor Hall. *Argent Archer*,

CONTINUING our review of the stands at the Motor Car Exhibition, we would emphasise one point of the display to which several of our contemporaries have already borne witness, viz., the excellence of the staging of exhibits and the way in which firms endeavoured to give an artistic touch to the whole display. The scheme of decoration arranged by the promoter of the Show harmonised well with the displays made by exhibiting firms, and something of the gracefulness which characterised the Paris Salon was apparent at the Agricultural Hall.

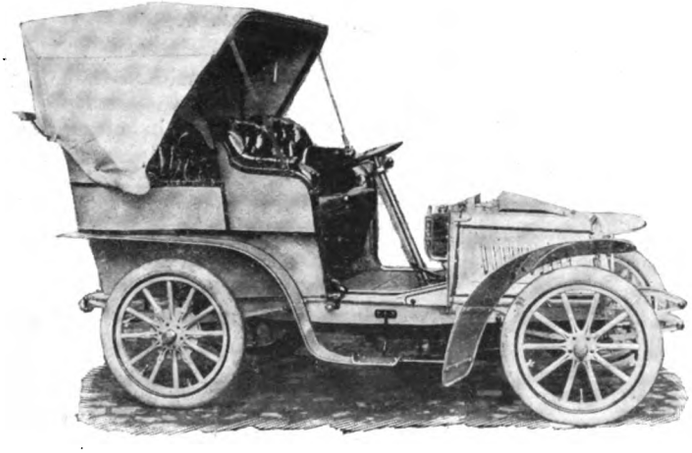


Fig. 67.—The Darracq 12-h.p. Car.

PETROL CARS.

An excellent display of Darracq cars was made by MESSRS. A. DARRACQ AND CO., ranging from 8-h.p. to 28–32-h.p. The 15-h.p. car is the most recent introduction; it has a pressed steel frame of new design, slightly narrowed at the fore part to allow the car to turn in a much smaller circle than previously. The four-cylinder engine has mechanically-actuated inlet valves, accumulator ignition, governor acting on the inlet, honeycomb radiator and fan, and all other modern fitments. The cardan shaft and bevel gear system of transmission is still retained, while the gear box is adapted to give three speeds ahead and one reverse, with direct drive on the top speed. The lubrication is effected by pressure from the exhaust, while, in order that there shall be no failure in the supply of petrol to the carburettor when travelling over hilly roads, an auxiliary petrol tank is fitted under the bonnet. The brakes on the car are of the internal expanding type, and, of course, act equally well whether the car be running in a forward or backward direction. Fig. 67 depicts the Darracq 12-h.p. two-cylinder car with hood. The Darracq Company are devoting much attention to the demand for cars, the rear seats of which can be reached from the pavement, and are building vehicles of this type in the 12-h.p., 15-h.p., and 24-h.p. models.

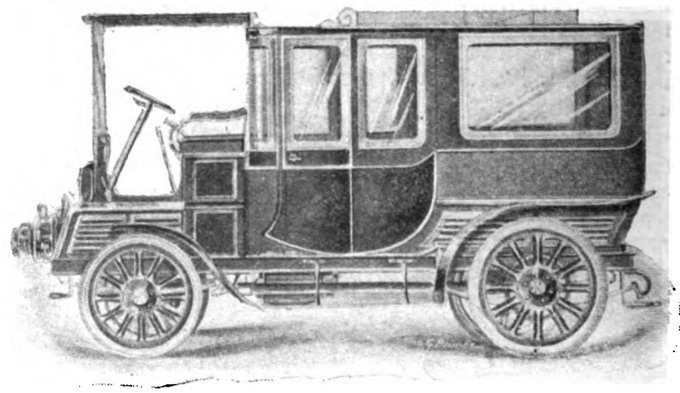


Fig. 68.—The Brillie 20-h.p. Coupe-Omnibus.

Two examples of an interesting new type of vehicle were seen for the first time in England on the stand of the MOTOR CAR EMPORIUM, LIMITED, they being built to the designs of M. Eugene Brillié by Messrs. Schneider

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and Co., the great French gun-building concern. Fig. 68 shows the 20-h.p. coupé omnibus, the body, which is divided into two compartments, having accommodation for ten inside passengers. The channel steel frame is carried on very long semi-elliptic side-springs, those at the back having shackles at the rear end, and curiously-shaped flexible connections at their front ends. The engine, which is located under the front seat, comprises four cylinders, with mechanically-operated inlet valves above the exhaust valves. The cylinders are cast in two pairs; special provision has been made for lubrication of the various parts, while the bottom half of the crank case can be removed without disturbing the bearings, so giving access to the crank shaft and connecting rods. The governor is adapted to act on the admission; an automatic carburettor, having a spring-loaded auxiliary air valve, is used; this is provided with a jacket through which the exhaust gases may be circulated, rendering it suitable, it is claimed, for utilising paraffin as fuel as well as petrol. From the engine the power is transmitted through an internal cone clutch to a gear box, giving three speeds forward and a reverse, with direct drive on top speed. From the gear box a propeller shaft conveys the power to a differential shaft above the back axle. The ends of the differential shaft carry spur wheels, which mesh with internal gear rings, bolted to the rear road wheels. Eccentric bearings are provided to the differential shaft to permit different-sized spur wheels being fitted to it, and thus to permit the vehicle being geared higher or lower according to requirements. The brakes, which act upon the drums fixed to the back wheels, are constructed of steel cable, while the foot brake, at the rear of the gear box, is of the metal-to-metal type. Fig. 69 shows the Brillié petrol lorry designed to carry a load of 2½ tons at speeds up to eight miles per hour. This is a very substantially-designed vehicle; except that the motive power is supplied by a two-cylinder engine developing 10 to 12 h.p., the general arrangement of the mechanism is similar to that of the coupé-omnibus described above. The Motor Car Emporium, Limited, also exhibited a Durkopp 15–16-h.p. three-cylinder tonneau and a two-seated car of similar power. This is a chain-driven vehicle, which has already been described in the *Journal*. Considerable interest was shown in the "Nonex" device for rendering petrol tanks and cans explosion proof. It is claimed that by means of the "Nonex" arrangement a light can be placed close to the mouth of the tank without any danger of fire or explosion.

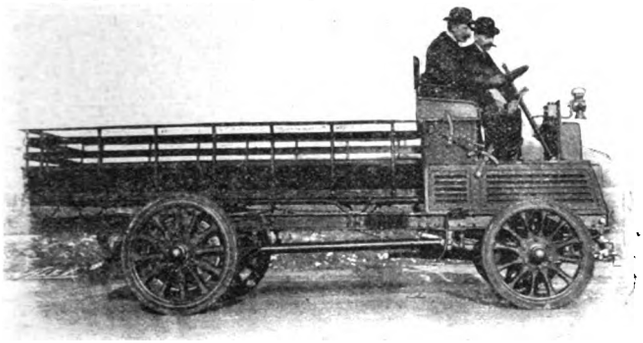


Fig. 69.—The Brillie 2½-h.p. Petrol Lorry.

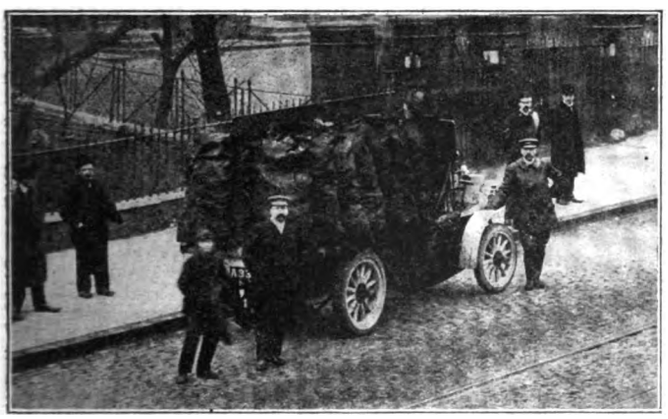
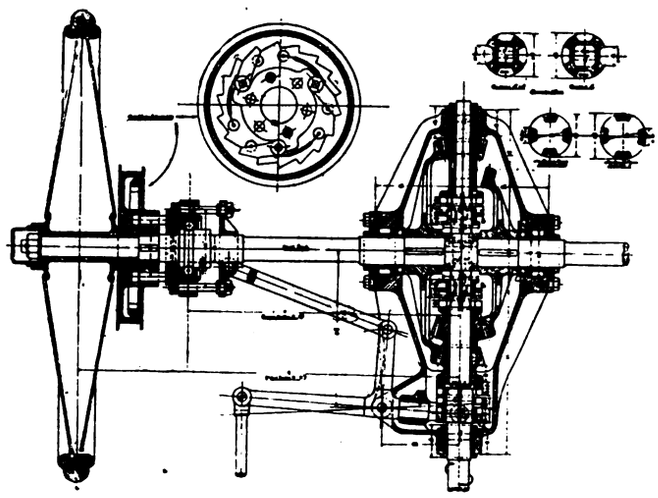


Fig. 70.—The Orion Petrol Lorry with a Load of 3 ton of Coal.

A petrol lorry for commercial purposes, new to this country, was exhibited by the "Orion" Motor Lorries and Omnibuses. It is of Swiss construction, and attracted much attention by reason of the fact that it was driven into the Show with a full load of coal in sacks. The vehicle is made in a variety of sizes, the particular one under notice being of three-ton capacity. The motive power is supplied by a 12-h.p. single-cylinder horizontal engine, located in the fore part of a channel steel frame and running at a normal speed of from 650 to 700 revolutions per minute. Ignition is by means of magneto, and the water circulation by pump and fan-cooled radiator. Four speeds forward and reverse are provided, the power of the engine being transmitted by a Renold silent chain to the gear box, and thence by side chains to the rear road wheels, which are shod with 6 in. solid rubber tyres. During the fortnight prior to the Exhibition, the vehicle had been employed in carrying coal for Messrs. Cameron, at Shepherd's Bush, Kensington, Woolwich, Tulse Hill, Brockley, and St. Pancras. In ten days 104 tons of coal were carried in 2 to 2½-ton loads on a consumption of forty-seven gallons of petrol, Messrs. Cameron reporting that the lorry had successfully accomplished all the tests they could submit it to in sending it up the steepest hills round about their various depots in London. Fig. 70 depicts the lorry in Pentonville Road, King's Cross, on its way to the Show.

Considerable interest was shown in the new 6-h.p. "Horbick Minor" car, seen in London for the first time on the stand of Messrs. Horsfall and Bickham, and of which an illustrated description was given in the *Journal* of the 30th January last. The motive power is supplied by a 6-h.p. vertical motor, set in the fore part of a tubular steel frame. The cylinder is 94 mm. diameter by 94 mm. diameter, the valves being interchangeable with those of the 6-h.p. De Dion. The usual high-tension system of ignition, with wipe contact maker, is fitted. The water circulation for the cooling of the engine is maintained by means of pump and radiator. One of the special features of the car is the combination with the engine of a reducing gear, which transmits power through a secondary shaft at 700 revolutions per minute, or thereabouts, according to the sizes of the wheels used. From the motor clutch to the rear axle the power is transmitted by means of a rigid shaft with a flexible coupling at the clutch end only. The change speed gear is combined with the transmission to the rear axle, two speeds and reverse being provided. The gear, shown in section in Fig. 71, is always in mesh, and is on the skew bevel principle. It is claimed to be more silent than the ordinary bevel gear, and obviates the necessity for breaking the shaft and rear axle where they cross each other, and where the strength is required. The engine is controlled by the throttle and ignition levers; and by means of these, together with the change gear, any speed from four to twenty-five miles per hour can be obtained. The wheel base of the vehicle is 5 ft. 4 in. and the overall width 4 ft. 2 in.; the approximate weight of the car is 7 cwt. Steering is controlled by an inclined wheel, while the foot and hand brakes are of the double-acting metal to metal type. Ball bearings are fitted to both the front and rear axles; the road wheels are 28 in. in diameter, shod with 2½-in. pneumatics. The car is neatly upholstered and painted, and has ample room for the fitting of a third seat or a touring or a travellers' basket



71.—Change Speed and Transmission Gear of "Horbick Minor" 6-h.p. Car.

The exhibit also comprised a *chassis* and complete 10–12-h.p. Horbick car. The main frame is of tubular construction, an under-frame of planed channel steel being provided to support the motor and gear box. In the fore part of this is carried a two-cylinder motor, the dimensions of the cylinders being 4 3-16 in. diameter by 4¾ in. stroke, the normal speed being 800 revolutions per minute. The inlet valves, which are mechanically operated, are located on the top of the cylinders. An automatic governor acting upon the throttle valve is fitted, while the normal speed of the engine can be varied by a lever on the steering pillar. Three forward speeds and a reverse are provided, the power being transmitted direct on the top speed by a cardan shaft and bevel gearing to the rear live axle. The change speed gear is of the sliding type, the side shaft being noticeable in that it, together with its spur wheels, is machined out of a solid bar. A spring drive is interposed between the engine and gear box. The rearward end of the clutch shaft is provided with a flange upon which are mounted by their centres two springs which embrace between their two free ends a flat driver on the primary gear shaft. The drive is thus conveyed to the gear through the ends of these springs, which, it is claimed, allow sufficient give to save the gear from all injurious shock. A telescopic coupling is introduced in the cardan shaft conveying the power from the gear-box to

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the rear axle. The foot and hand brakes are of the metal-to-metal expanding type. A new Horbick car for the 1904 season is one of 14 h.p.; in general arrangement it follows the lines of the 10–12-h.p. cars; it is, however, fitted with a four-cylinder engine, 90 mm. bore by 100 mm. stroke, all the valves being mechanically-operated off one cam shaft.

One of the most interesting petrol vehicles in the Minor Hall was the 3-ton petrol lorry exhibited by the EMPIRE HAGEN MOTOR WAGON COMPANY, of Sheffield. The feature of the vehicle is found in the transmission gear, any desired speed between zero and maximum being obtained by means of eccentric driving and clutch mechanism. Since the vehicle was illustrated and described in the *Journal* of October 17th last a number of improvements have been effected. The 16–20-h.p. four-cylinder vertical motor has mechanically-operated inlet valves, and is placed in front of the wagon under a bonnet. The engine, which normally runs at 900 revolutions per minute, can be varied by means of a throttle from 250 to 1,200 revolutions. Passing to the variable transmission, this comprises a crank, the stroke of which is changeable automatically through the motor, by moving a small lever on the steering pillar. The crank pin is connected by a connecting rod with a rocking arm. The latter is connected by two rods with the levers of the clutch mechanism, and, the stroke of the crank being changeable, any desired speed is obtained without the slightest jerk. The gear has recently been improved, in that the double adjustable crank is connected directly with the oscillating levers of the clutch mechanism, without having the rocking arm and the intermediate axle. The clutch mechanism fitted on the hind axle consists chiefly of a hardened steel disc, which has one circular slot on each side. In each slot are seven projecting members of specially-formed cramps. The pointed ends of the latter fit in two oscillating levers in such a manner that if the levers are in motion through the stroke of the adjustable crank with which they are connected by rods, only the "noses" of the pulled lever catch the cramps and cause them to immediately grip the disc in the slot, pulling the disc round in one direction, and thus obtaining a constant motion forward. The whole mechanism runs in oil and is covered by a dust-proof case. The wagon is furnished with two powerful brakes—one operated by the foot and a double block brake applied by hand.

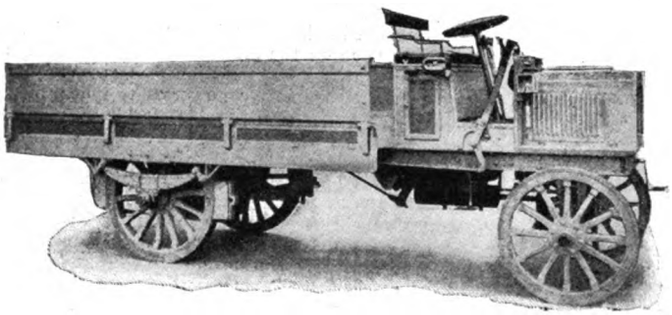


Fig. 72.—The Empire Hagen Petrol Wagon.

So much has been spoken at various times of a little car which shall not cost more than a hundred pounds, that it was not unnatural that the "Bijou," which has been introduced to meet this want, should come in for a large amount of attention. The vehicle, of which an illustration is given in Fig. 73, is made by the PROTECTOR LAMP AND LIGHTING COMPANY, which exhibited a number of them, varying only as regards the body work. In the fore part of a steel frame is set a 5-h.p. horizontal engine, having a cylinder 3¼ in. diameter by 4 in. stroke, the speed being variable between 200 and 1,400 revolutions per minute. The usual high-tension ignition is fitted, while the water circulation is on the thermo-syphon system, no pump being employed. The water is carried in a specially-shaped brass tank, in which are inserted a number of tubes forming air passages, which serve to keep the water cool; the tank itself is placed above the engine, of which it practically forms the bonnet. The hot water on its return to the tank passes around the carburettor, to which it imparts some of its heat. The crank shaft is connected to the countershaft by two chain drives of different ratios, the sprocket wheels each having metal-to-metal clutches in conjunction with them, so that the power may be transmitted through either of the chains, two speeds forward being thus provided. No reverse motion is fitted, the car complete weighing under 5 cwt. From the countershaft the power is conveyed to the rear axle by a single central chain to the rear live axle. No differential is fitted, the rear wheels being provided with free wheels, and are thus able to over-run each other in turning corners. Provision is made for adjusting the chains, and the engine can be started from the seat by means of a spring arrangement. Steering is controlled by a small handle or wheel as desired; two brakes are provided, while the road wheels are of the cycle type, shod with 2¼ in. pneumatics. Fig. 73 shows the standard car; it can also be supplied with hood and foot glass screen, rendering it suitable for doctors' use, or with a van body. Any speed up to twenty miles per hour can be attained.

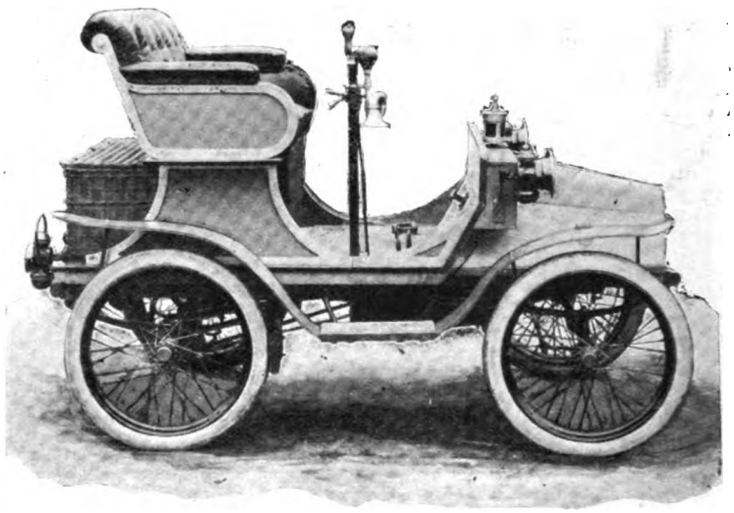


Fig. 73.—The 5-h.p. "Bijou" Car.

The stand of MESSRS. J. W. BROOKE AND CO., LIMITED, attracted considerable attention, not only on account of its novel design, but chiefly because of the new 15-20-h.p. Brooke car, which made its first public appear-



Fig. 74.—The "Brooke" 12-14-h.p. Three-Cylinder Car.

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ance at the Show. As we propose to deal with the new vehicle at length in an early issue, we will content ourselves on the present occasion by stating that it comprises a number of special features, particularly in the transmission, which created an excellent impression. Messrs. Brooke also exhibited one of their three-cylinder light cars (Fig. 74) fitted with tonneau body painted all red with green leather upholstery. The engine comprises three cylinders giving 12–14-h.p., with mechanical valves, both inlets and

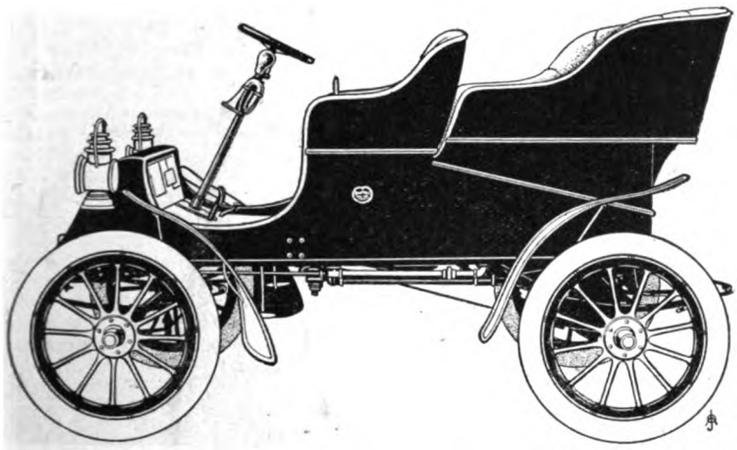


Fig. 75.—The "Ford" 8-h.p Tonnear.

exhausts being actuated from one cam shaft. High tension ignition is fitted and a Panhard type of gear change with through drive on top speed. The cooling is by honeycomb radiator and fan and the frame is of pressed steel. A 12–14-h.p. standard Brooke car was also shown, this being fitted with tonneau body painted blue with red upholstery. In this car the regular "Brooke" practice has been followed, in which the engine is placed transversely on the frame, the drive being by means of Renold silent chain to the gear box, three speeds forward and one reverse controlled by one lever being provided.

The novelty on the stand of the AMERICAN MOTOR-CAR AGENCY was a 8-h.p. Ford car (Fig. 75), a vehicle of American construction, which has hitherto not been seen in England. The motor is of 8-h.p., and is of the double-cylinder horizontal opposed type and centrally placed in the frame in order to distribute the weight equally upon the two axles. The cylinders are 4 in. diameter by 4 in. stroke. The cylinder and water-jacket are cast in one piece. The exhaust and inlet valves are of a uniform size and are mechanically operated by a single set of cams and two to one gear wheels, which are encased in the main crank case, where they are efficiently lubricated. The cylinders are cooled by a water circulation maintained by a centrifugal pump and radiator. The drive is direct by a single chain to the live axle; two speeds and a reverse are obtainable by means of a concentric gear on the engine shaft. The gearing is simple and is enclosed in an oil-tight and dust-proof case. The reverse is operated by a pedal.

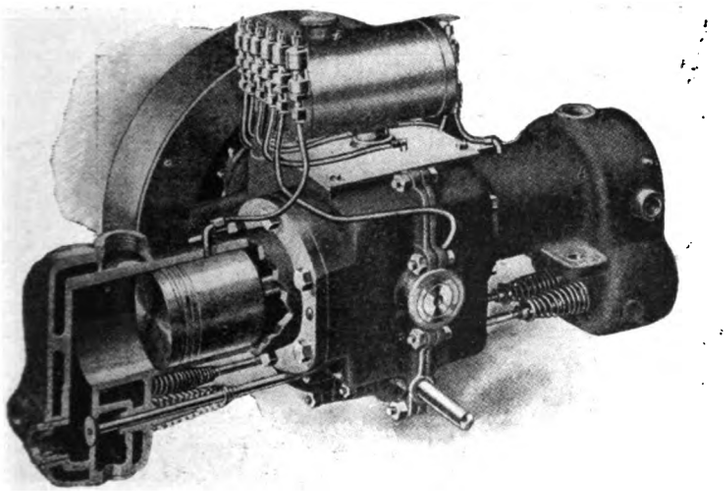
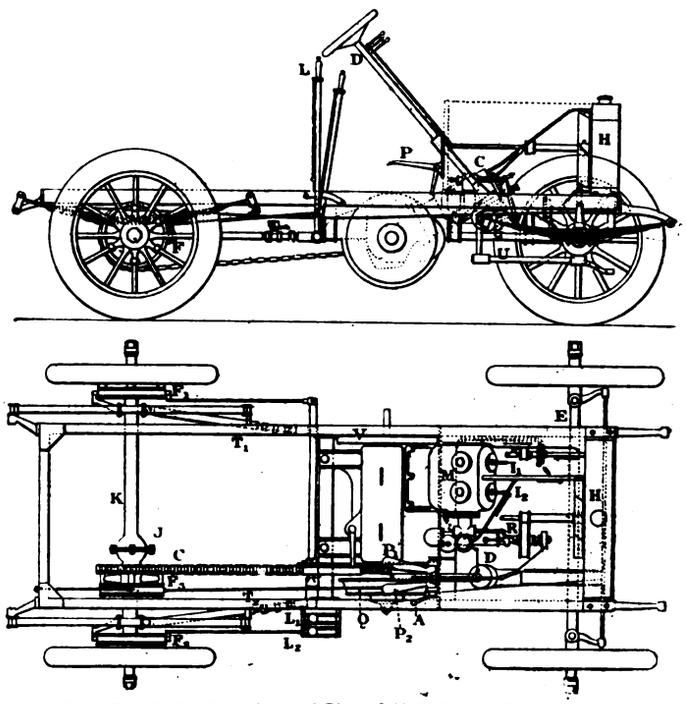


Fig. 76.—Part Sectional View of Motor of "Ford" Car.

When the controlling lever of the gear is thrown forward the transmission becomes locked with the fly-wheel, allowing everything to revolve at the speed of the engine, no gears being in motion. More or less speed is then obtained by a pedal-controlled throttle valve. The body is supported on four elliptic springs, and is entirely independent of the mechanism. It is made either as a two or four-seated car, the tonneau in the latter case being detachable. Artillery wheels, having 3 in. pneumatic tyres, are fitted, and the wheel base is 6 ft. and the tread 4 ft. 7½ in. The four-seated car complete weighs about 10 cwt. The vehicle has already earned an excellent reputation in America, and should soon become popular in this country, as among the many advantages claimed for it are its easy-running qualities and absence of noise and vibration.

MESSRS. A. W. GAMAGE, LIMITED, attracted attention to their motor-cars and motor-cycles, in which several useful improvements have been introduced with a view to increasing their popularity with the public. The "Gamage" voiturette with a 6-h.p. De Dion engine was on the stand. This is fitted with three speeds and a reverse, the drive being direct on the high speed, bringing all intermediate gears to rest. Transmission is by straight cardan shaft to the bevel wheel on the rear of the live axle. E.I.C. ignition is provided with trembler coil, and in order to facilitate attention to the engine the radiator, which is of the fan-cooled type, is carried in front and underneath the bonnet. A double-acting brake is fitted on the gear shaft, coupled to the clutch and controlled by pedal. Two double-acting brakes, acting on drums attached to the rear road wheels, are also provided. Attention has been paid to several minor fitments to bring the car thoroughly into consonance with British ideas, and, with its bucket seats and roomy tonneau, the new Gamage voiturette is one likely to be popular on the road during the coming season. As instances of the care with which the design has been studied, we noticed the good wide treads and the way in which the seating accommodation has been shaped to add to the comfort of the passengers. The Gamage motor-bicycle of 2¾-h.p. has long been favourably known to motor-cyclists, who will be interested in the firm's new machine, fitted with a 3-h.p. Fafnir engine.



Figs. 77 and 78.—Elevation and Plan of 10–12-h.p. "Motobloc" Car.

D Steering Wheel.
E Front Axle.
F_1, F_2 Brake Drums.
H Radiator.
I_1, I_2 Sparking Plugs.
J Differential Gear.
L Change Speed Gear.
L_2 Brake Lever.
M Motor.
P_1 Clutch Pedal.
P_2 Brake Pedal.
Q Clutch.
R Governor.

The "Motobloc" cars, which have already been described in the *Journal*, made their first public appearance in England, and, though differing in many respects from the usual lines of cars, have, we learn, made a very favourable impression on the motoring public. MESSRS. MONTAGUE HAWNT AND CO., who are the British agents, displayed not only a *chassis* and an example of the motor, but a well-finished 10-12-h.p. *coupe*, and a two-seated racer which took part in the Paris-Madrid race last year. The general arrangement of the car, which for the present year is being confined to one size—10-12-h.p.—is shown diagrammatically in Figs. 77 and 78. It will be noticed that the motor is set at an angle to the ground, the explosion chamber being foremost, the cranks being at an angle of 180 deg. to each other. The cylinders are 110 mm. diameter by 120 stroke, the normal speed being 1,000 revolutions per minute. The water circulation is maintained by a pump and fan-cooled honeycomb radiator; the arrangement, however, is such that, should the pump fail, the circulation will continue on the thermo-syphon system. The change-speed gear, which gives three speeds and reverse, is enclosed in what is practically an extension of the crank case. The sliding pinions are mounted on an extension of the half-speed shaft of the engine, and the countershaft, on which the friction clutch is mounted, and which is in line with the crank-shaft, is connected with the rear live axle by a single side chain. The frame is of

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pressed steel, and is adapted to receive any type of body, Fig. 79 depicting the tonneau de luxe.

Undoubtedly the largest and most imposing stand in the Exhibition was that of the BRITISH AUTOMOBILE COMMERCIAL SYNDICATE, LIMITED, which comprised an extensive display of Mercedes, Talbot, and Panhard cars. Fig. 80 illustrates the *chassis* of the 60-h.p. Mercedes 1904 car, which attracted considerable attention. The modifications, as compared with the 1903 type, have already been dealt with in the *Journal*, but it may briefly be mentioned that the main alteration is the abolition of the variable lift to the inlet valves. Passing to the Talbot cars, the 1904 models—8-h.p. and 11-h.p. two-cylinder and 20-h.p. four-cylinder—have already been described in these columns so far as concerns the mechanism. Fig. 82 shows the 20-h.p. engine, which, except for the number of cylinders, is identical with the 11-h.p. Differing from the 1903 motor, the valves are on opposite sides of the motor and are mechanically-actuated by different cam shafts. The inlet and exhaust valves are that previously customary, inasmuch as it is placed on the cylinder level instead of below the crank case, thereby facilitating examination. The carburettor, which is automatic in its action, is provided with a small air-inlet valve; as the speed of the engine is increased or decreased, the valve is opened or shut to permit a smaller or greater quantity of gaseous mixture to pass into the cylinders. The governor, which is, of course,

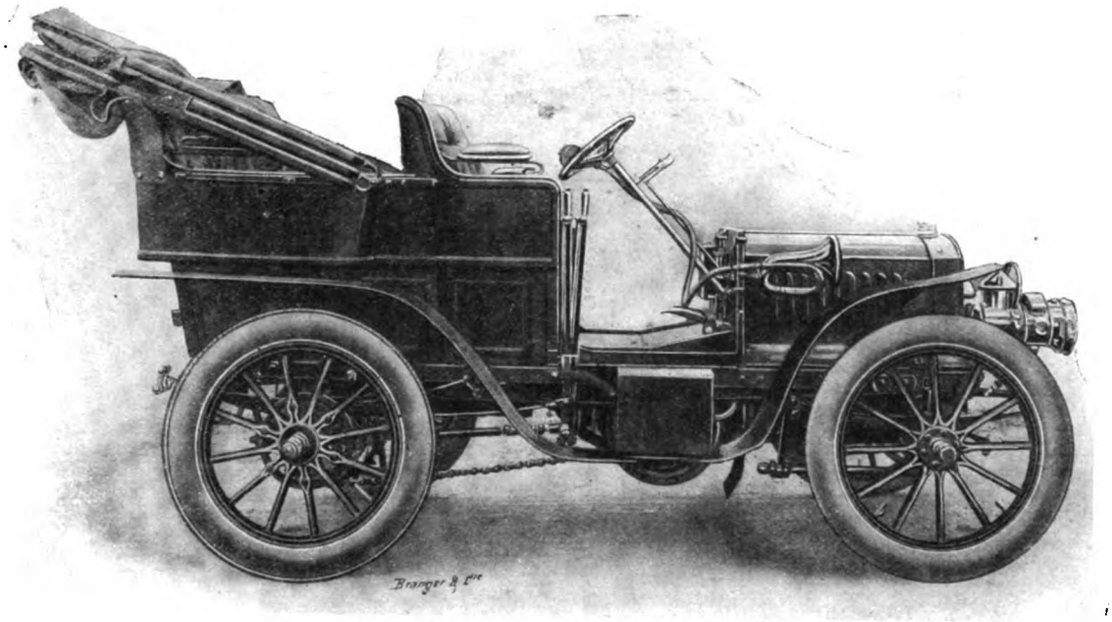


Fig 79.—The 10-12 h.p. "Motobloc" Tonneau de Luxe.

interchangeable. The bore and stroke of both sizes are exactly similar, and, therefore, whether in the 11-h.p. or the 20-h.p., the pistons, piston rings, cylinders, valves, connecting rods, bearings, half-time gear, pump gear, nuts, springs, bolts, etc., are identical in size. The ignition is by means of a rotary magneto designed to permit of advancing and retarding the sparking. The pump is gear driven, and its position is varied from adapted to act on the inlet, is arranged to come into action at a speed of 1,200 revolutions per minute. The water circulation has been so arranged that there is barely two feet of tubing. In the case of the 8 and 11-h.p. engines an ordinary radiator is used, whilst in the four-cylinder car a honeycomb cooler is employed, a fan being also provided to induce a current of air through it. Three speeds forward and a reverse are provided; and on top speed the power is conveyed directly to the rear axle without the interposition of any reducing gear. The transmission is through bevel-gearing and a cardan-jointed shaft, which is carried for the whole of its length in a phosphor-bronze bearing. The various designs of bodies fitted

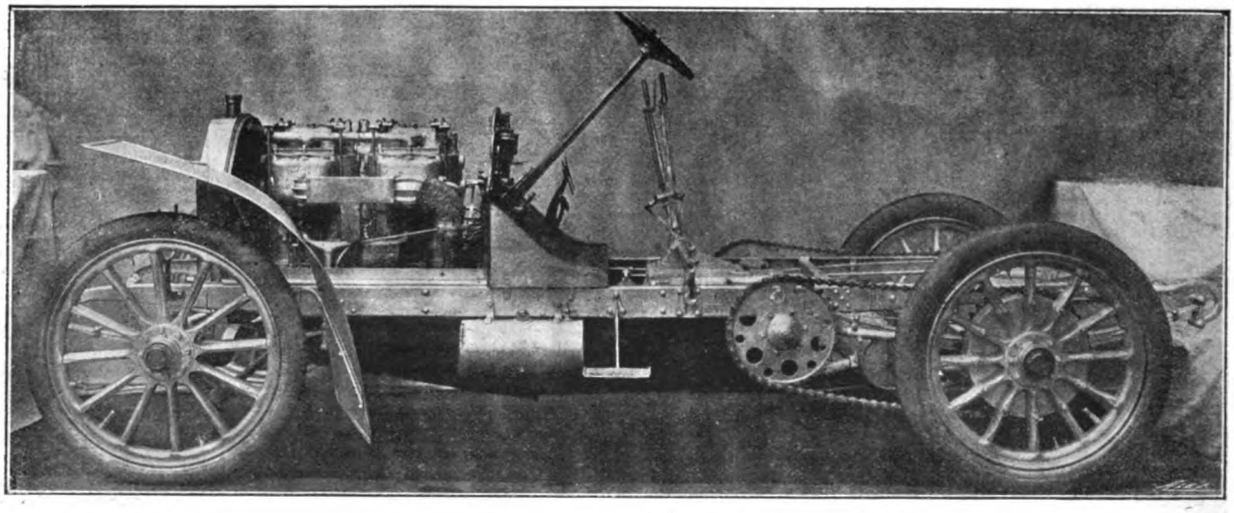


Fig. 80.—Chassis of 60-h.p. Mercedes, exhibited by the British Automobile Commercial Syndicate.

to the Talbot *chassis* are particularly noteworthy. Fig. 81 shows the 20-h.p. car with the standard tonneau body, the feature of which is the extra amount of knee room afforded to the rear passengers by the forward part of the tonneau curving outwardly instead of inwardly. We next examined a 20-h.p. Talbot with a Rothschild Roi des Belges double phaeton with side entrances, canopy, and front glass screen. The rear

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part of the body extends up to the canopy by a curved detachable panel in which a window is formed to allow of an uninterrupted view to the rear. A continuous rubber-covered step is provided to the entrances to both the front and rear seats. Reference may also be made to a Talbot car with Rothschild single *coupe* body, and a 15-h.p. Panhard with a Shrewsbury side-entrance phaeton. Altogether the body work to be seen on this stand was of a very high order, while as to the mechanism of the *chassis* the names they bear are sufficient testimony of their excellence.

STIRLING'S MOTOR CONSTRUCTION (1903), LIMITED, were among the exhibitors of public service and heavy commercial vehicles, they having on view one of their 12-h.p. single-deck omnibuses to seat sixteen passengers, and a 12-h.p. two-ton wagon similar to those recently supplied to the War Office. As both of these have recently been illustrated in the *Journal* no lengthy reference is necessary on the present occasion. A large portion of Messrs. Stirling's stand was devoted to a display of motor-boats, a branch of business to which they are devoting great attention, having recently established a boathouse on the Thames at Strawberry Vale, Twickenham. Prominent among the boat exhibits were a 20 ft. Strickland canoe, fitted with a ¾-h.p. motor, and two beautifully-fitted launches of 18 ft. and 17 ft. respectively, with Stirling motors of 2-h.p. A feature of the latter is the large amount of internal space and seating accommodation. The motors, too, are interesting. A special device for timing the ignition is provided, the whole of the mechanism of which is enclosed in a little hinged casting, quite impervious to spray. A special patented silencer and exhaust condenser is also fitted. This consists of a square galvanised iron box, with a series of vertical tubes, situated centrally between an upper and lower chamber. Into the upper one of the latter the exhaust pipe from the motor curves upward from the forward side of the condenser, thus leading the gases up into this chamber first, whence they are led downwards and condensed in the vertical tubes, into the lower chamber, whence again they are led out into the escape pipe. There are no baffle-plates in the device, the result being an entire absence of back-pressure. The engine and magneto are completely enclosed in a spray-proof but well-ventilated wooden casing.

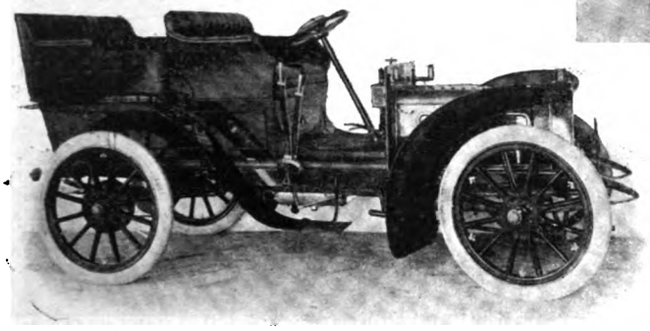


Fig. 81.—The Talbot 20-h.p. Car, with Standard Tonneau Body.

MR. A. W. MACLEOD, the London agent for the Cottereau cars, exhibited a *chassis* and a complete Cottereau car of the 1904 12-16-h.p. three-cylinder type. The frame of the vehicle is of stamped steel. The engine is an excellent specimen of workmanship, the three cylinders being mounted separately on a large crank case. The inlet valves are, of course, mechanically actuated, in accordance with modern practice, but, in addition to the throttle on the admission, the speed of the engine can also be regulated by means of a variable lift device fitted to the inlet valves. The cylinders are 95 mm. diameter by 120 mm.; the motor is exceedingly quiet in operation, as well as very elastic, any speed—from 200 to 1,200 revolutions per minute—being readily obtainable. All the bearings on the car are of the ball type. The gear is arranged to give three speeds ahead and one reverse, the top speed being a direct drive. The weight of the *chassis* complete is 15 cwt. A Cottereau "Populaire" car was also displayed. This is fitted with a single cylinder engine developing 7½-b.h.p., fitted with variable lift induction valve control as in the three-cylinder motor. Three speeds forward and one reverse are provided, the power being transmitted from the gear box by a central chain.

A light delivery van was exhibited by MESSRS. HAYES AND SONS, of Stamford, the motive power in which is supplied by a 6½-h.p. engine, the cylinders of which are arranged in the form of a V. The valves, which are all mechanically actuated, are of easy access, while the special form of carburettor permits of ready examination and adjustment. Another feature of the car is found in the transmission mechanism and the change speed gear. The latter is mounted around the differential on the rear axle, the power being transmitted to it by a cardan shaft and bevel pinion. The new gear, which is difficult to explain without a drawing, is very compact, and gives two forward speeds and a reverse.

The LIGHT CAR AND ENGINEERING COMPANY displayed a light car they have recently introduced to meet the demand for a popular price

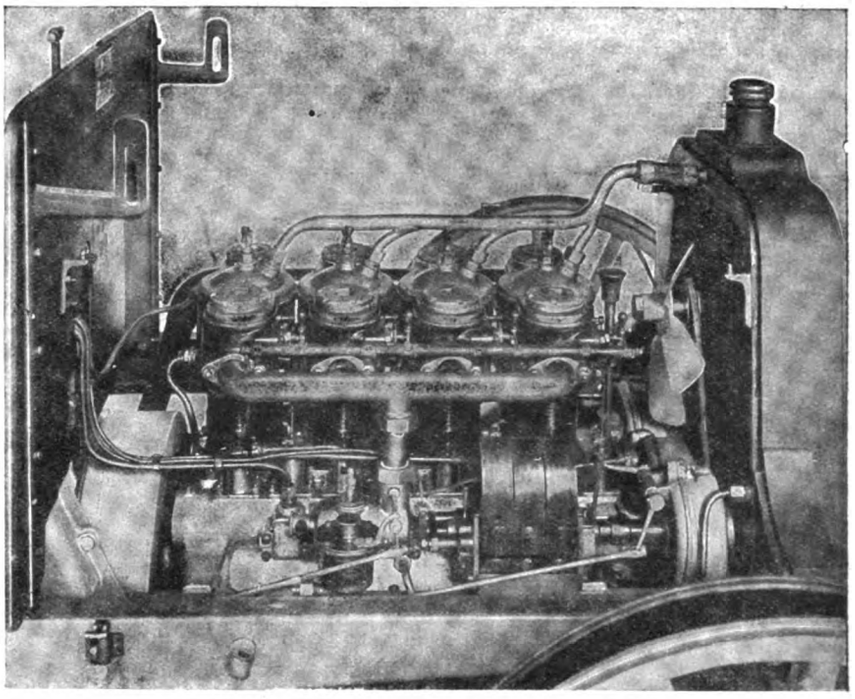


Fig. 82.—The Talbot 20-h.p. 4-cylinder Motor.

vehicle. The engine, which is set in the fore part of a wood and steel frame, can be either a 6-h.p. two-cylinder V-shaped air-cooled engine or a water-cooled vertical one of 4½-h.p., the circulation being, in the latter case, on the thermo-syphon system. The power is transmitted through a leather faced clutch and universal joint to a gear box giving two forward speeds and a reverse. The gears are, we noticed, of very large dimensions for a low-powered car. From the gear box a single chain transmits the power to the rear live axle. The various details appear to have been carefully thought out, with the view of rendering the parts accessible. The vehicle has a long wheel base, and, with inclined wheel steering and continuous mudguards, has a neat and attractive appearance. Specimens of the Sthenos carburettor and a new atomising carburettor of the firm's own design were also shown, as well as the Goodson igniter and sparking plug. This is of American origin, and comprises a magneto and a special plug, the latter consisting of an ordinary electro-magnet in conjunction with a pair of electrodes inserted in a cast-iron body screwed directly into the ignition chamber. The device is claimed to give a spark of constant strength at any and all speeds.

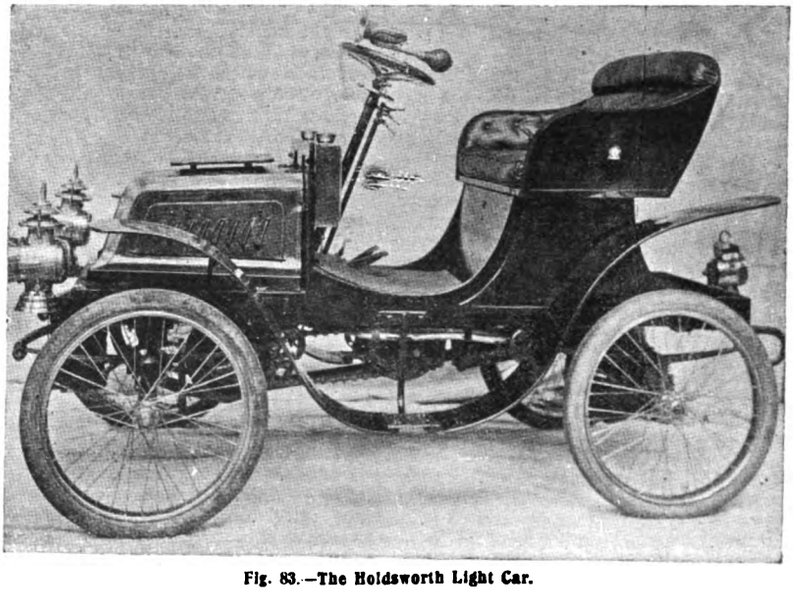


Fig. 83.—The Holdsworth Light Car.

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STEAM VEHICLES.

The LANCASHIRE STEAM MOTOR COMPANY, LIMITED, exhibited two heavy steam wagons—one of 4-ton and one of 6-ton carrying capacity. The former is of the standard type, and is intended for Messrs. Mann, Crossman, and Paulin, it being a third repeat order from this well-known brewery firm. The boiler is of the fire-tube central-feed type, having 85 square ft. of heating surface, and 3·2 square ft. of grate area, built for a working pressure of 200 lbs. per square inch. The distinguishing feature of the boiler is the ease with which it can be taken to pieces for cleaning purposes. It consists of an upper and lower shell, bolted about midway;



Fig. 84.—The Lancashire Six-Ton Tip Wagon.

the lower shell contains the fire-box, the crown of which is supported by a central tube, which is also used for feeding the boiler with fuel. Attached to the central tube is the top tube plate, the fire tubes being expanded in the furnace crown and the upper tube plate. The upper shell can be readily disconnected, which exposes the whole length of the tubes, which are of tough seamless steel. Attached to the top tube plate is a steam drier; washout plugs are arranged on the top plate and also at the bottom of the lower shell. A door is fitted in front of the boiler which admits of clinkering and lighting up. Under ordinary working conditions, i.e., when the gauge glass is half full, there is 14 in. of water above the furnace crown. For cleaning the tubes all that is necessary is to disconnect the chimney, which is attached to the smoke box top, the whole length of the tubes being then exposed for cleaning purposes. The engine is of the compound link reversing gear pattern, of 25-i.h.p., and is arranged so that both cylinders can be worked with high pressure steam, having independent exhaust. The cylinders are 3½ and 6½ in. diameter, by 6 in. stroke. Two speeds are provided, viz., 2½ and 5 miles per hour, with the engine running at normal speed. The change of speed is effected by the driver without dismounting. A simple arrangement is provided so that both wheels can be locked in case of necessity. From the differential shaft the power is conveyed to the rear road wheels by Renold roller chains. A special cushion drive is fitted in the chain pinion, by means of which the engine is allowed to make almost a revolution before giving motion to the road wheels. The driving wheels are of an improved composite pattern which dispenses with loose felloes and hubs. Briefly, it consists of a steel centre, on the periphery of which is fitted felloes and a weldless steel tyre. The rear wheels are 3 ft. diameter, the width of tyre being 8 in. The steering wheels are 2 ft. 10 in. diameter by 5 in. wide, of the gun-carriage pattern, fifted with steel hubs and phosphor bronze bushes. Among the recent improvements is the fitting of internal expanding brakes inside the chain rings on the rear wheels, they being thus protected from dirt. Fig. 84 shows the new 6-ton tip wagon exhibited. The boiler is similar in design to that in the 4-ton vehicle, but has 110 sq. ft. of heating surface and 4·9 sq. ft. of grate area. The engine is of the compound type, with Joy valve gear, which gives absolutely the same travel in either backward or forward direction. The steam valves are of an improved balanced flat pattern, without springs or other perishable material. The engine is of 45-i.h.p., the cylinders being 4½ and 7½ in. diameter by 7 in. stroke. A distinguishing feature of the engine is that the whole of the bearings are non-adjustable, the bearing surfaces being of such unusual dimensions as not to require adjustment for years, in which case renewable bushes can be inserted. It is claimed that by using non-adjustable bearings, not only are a considerable number of loose parts dispensed with, but the possibility of tampering with bearings by non-mechanical men is removed. Two speeds are provided, the transmission being by side chains. The driving wheels are 3 ft. 9 in. diameter by 10 in. face; the steering wheels being 3 ft. diameter by 6 in.

With the ever-extending use of motor-wagons for use in carrying heavy traffic along ordinary roads, and for delivery vans for lighter traffic, has arisen the necessity for an efficient and reliable steam generator or boiler for use in connection with such work. The difficulties in the way of designing a really efficient wagon are very great, in consequence of the various conditions which have to be met. These are:—Limit of weight, confined space at the engineer's disposal, high load efficiency to make the work profitable, and the indifferent quality of the roads over which a heavy load must often be carried. The ultimate result of many experiments and working trials of various types of boilers is, that most wagons are fitted with a vertical multitubular boiler, the tubes being fire tubes. This type will give a sufficient quantity of steam at 180 to 200 lbs. per square inch without "priming," and so dry that it is practically invisible when the exhaust is carried into the funnel. This boiler also comes within practical limits of weight, size, and cost. One of this type was displayed by MESSRS. T. BALMFORTH AND CO. It is shown in section in Fig. 85, from which it will be seen that provision is made against trouble through unequal expansion and contraction in various parts of the boiler, which is constructed for a working pressure of 200 lbs. per square inch. The heating surface is 90 sq. ft. and the grate area 3½ sq. ft. Every facility is afforded for cleaning out, while there are no resting places for sediment on the crown of the firebox. A large area of efficient heating surface is afforded, all practically below the water line. Referring to Fig. 85, it will be observed that instead of having perfectly flat tube plates, they are set at an angle of about 30 degrees, really forming the sides of two cones, the top one being inverted. The tubes connecting the tube plates are segments of circles curved to enter the plates exactly at a right angle. The result is that when expansion takes place the force does not, it is claimed, tend to compress the tube and thus spring the end joints, since compression is impossible. It tends instead to bend the tubes slightly, which easily takes place without in any way distressing the joints. As a matter of fact, it introduces an elasticity into the construction which is beneficial in more ways than the one just named, as it also stops any accumulation of hard sediment on the tubes themselves. The efficiency of the system is shown by the makers' statement that boilers comprising thousands of these bent tubes are now at work, and that no case of leakage has occurred, and not a single tube has needed "re-

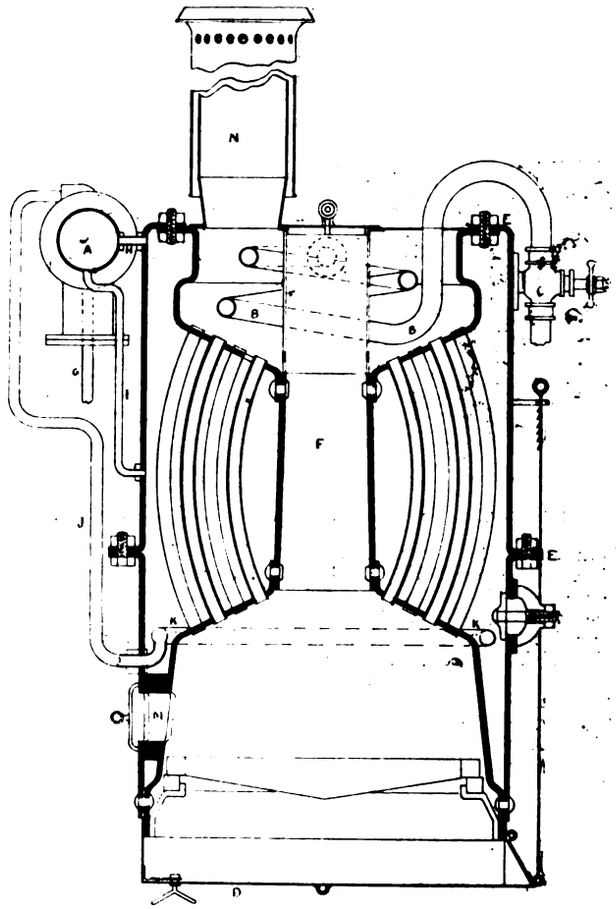


Fig. 85.—Section of the Balmforth Boiler.

A. Feed water heater and filter.
B. Steam Dryer.
C. Stop Valve.
D. Hinged ash pit door.
E. Bolted joints for removing outer shell.
F. Central Feeder.
G. Cold water from pump.
H. Live steam to feed water heater.
J. Hot feed water pipe.
K. Perforated feed pipe spraying the water into boiler.
M. Clinker door.
N. Chimney with outer casing and air-space.

expanding. By having the tube plates set at an angle it not only dispenses with a flat resting place for sediment, but induces a set or direction in the water circulation which constantly tends to wash or scour the tube plates. In addition, the tubes are spaced further apart, and three large cleaning doors are provided at equal distances round the shell in addition to the usual detachable casing. Infinitely better, however, than all possible provisions for cleaning is to prevent sediment going into the boiler at all, and to achieve this Messrs. Balmforth fit a patent live steam feed water heater and filter. This is a compact arrangement for passing all the feed

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water through a heater, where it is raised to a temperature approximately that of the steam in the boiler. Long before it reaches this temperature the bulk, if not all the sediment is set free, and is deposited in a chamber provided for the purpose, and from which it can readily be removed. Between the depositing chamber and the boiler a filter is provided which stops the passage of sediment or dirt into the boiler. The water on leaving the heater is passed through the filter to the check valve, and is sprayed into the boiler through small holes in the circular feed pipe. During its passage through this pipe it is further heated and forced into the boiler in such a way that it washes the fire box crown, and sets up a rapid circulation, and being already heated considerably above boiling point, it is ready at once to ascend in the shape of steam globules. The effect is, that all the internal surfaces are kept clean, and the rapidity of circulation and consequently the steam capacity is greatly increased.

The AMERICAN MOTOR-CAR AGENCY, in addition to the petrol cars referred to elsewhere, exhibited two Toledo steam cars, one being a 6-h.p. standard runabout and the other a 7½-h.p. doctor's car fitted with hood and 3 in. Diamond single tube tyres.

The Gardner-Serpollet steam cars were represented by a 10-h.p. delivery van to carry a ton, and a side-entrance double-phaeton of the new 9-h.p. "Simplex" type, shown by the SPEEDWELL MOTOR AND ENGINEERING COMPANY. The latter is a new type for the 1904 season, and has a water capacity sufficient for a run of about 150 miles. The frame is of channel steel, the boiler at the rear being placed lower than usual. The engine is a four-cylinder one. Automatic pumps have been discarded, the water pump being actuated by an eccentric and rod from the rear axle. One lever controls a combined water and fuel distributor. The weight of the 9-h.p. *chassis* is between 12 and 13 cwt. All the mechanism, including the motor, is placed in the centre of the *chassis*. The car can attain a speed on the level of thirty-eight miles per hour.

The CREMORNE MOTOR MANUFACTURING COMPANY exhibited a new steam car which contained a number of interesting features. As we are preparing drawings to enable us to fully describe the car in an early issue, we postpone further reference to it on the present occasion. On the stand were also shown samples of the Cremorne Company's paraffin burners and regulators, four-cylinder horizontal and vertical steam engines, feed-heaters, seamless steel tank and fire-tube boilers. The Cremorne carburettor for petrol motors is dealt with elsewhere in the present issue.

GENERAL EXHIBITS.

THE HOFFMANN MANUFACTURING COMPANY, LIMITED, had a very fine display of steel balls made by their own patented process and guaranteed to within one ten-thousandth of an inch in diameter and sphericity. A novelty was an octagonal show-case containing a million balls of different sizes. The case, which with its contents weighed two tons, was mounted

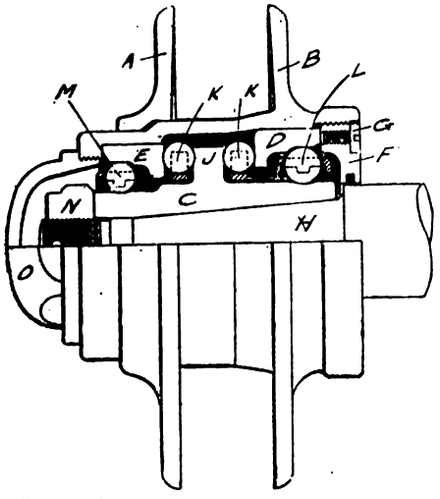


Fig. 86.—Section of Hoffmann Ball-Bearing Hub.

on one of the Hoffmann ball-bearings on a vertical axis, and visitors to the exhibit could enjoy the sensation of being rapidly spun round inside it. The exhibits included ball-bearings for every conceivable purpose, including quite a new type of motor-car wheel-bearing and step and thrust bearings of every description. Figs. 86 and 87 give part-sectional views of the ball-bearing hub for the wheels of motor-cars. As will be seen, there are four rows of balls, the outer rows L M taking the load, and the inner pair K the end thrust in both directions. In either case, the load is taken at right angles to the direction of rotation, so that a perfect rolling action is obtained without any spinning. The outer balls run between the hardened sleeve C and the two cups E and D. The sleeve is made to a standard taper and is fitted on the end of the axle and secured by the lock-nut N. The collar J, formed as an integral part of the sleeve, takes the side thrusts in each direction by the two rows of balls KK, running against the inside faces of the cups D and E, the adjustment being made by means of the screwed disc F locked up by the set-screw G. The design is such that each set of bearings keeps the other set true in their respective paths, so that any tendency to rub or jam against the side of the bearing is entirely obviated. The makers claim that this perfection of rolling action removes practically all wear from the hub, so that its life is to all intents and purposes limitless. The removal of the pin and nut N enables the wheel and bearing complete to be removed together. To facilitate this a service cap O is supplied in place of the usual brass cover cap, which, when screwed into the hub,

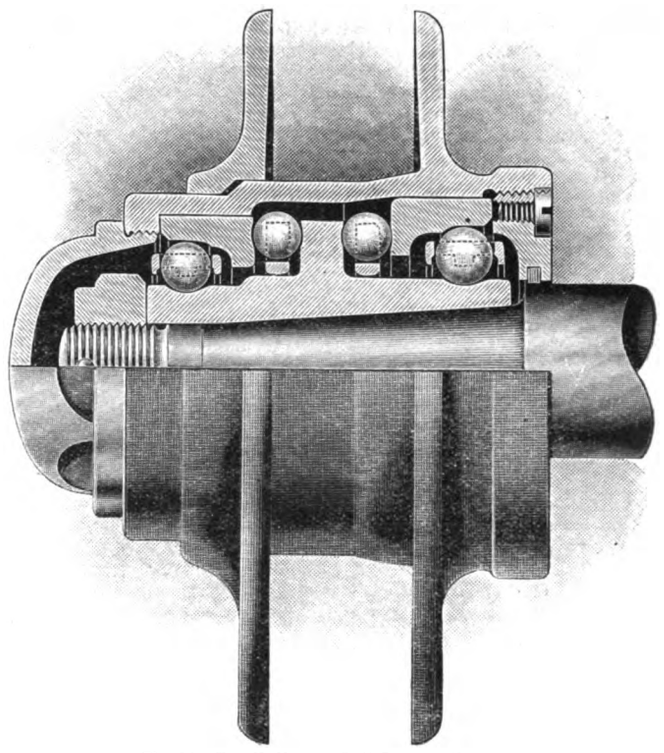


Fig. 87.—The Hoffmann Ball-Bearing Hub.

comes into contact with the end of the axle, and so draws off the cone All the balls are held in cages, so that if at any time the bearing has to be dismantled there is no danger of losing or misplacing them. The races E J are made of special steel, case-hardened by a patent process, leaving the face dead hard, but the interior of the metal only toughened. A set of these hubs were some time ago fitted to the wheels of a Panhard, and, after 5,000 miles' running, we are assured they show not the least sign of wear.

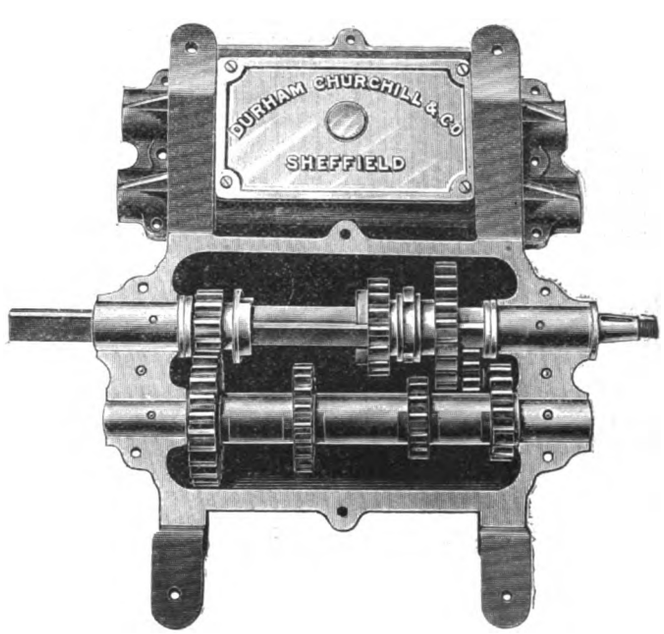


Fig. 88.—The Durham Churchill Change-Speed Gear.

MESSRS. DURHAM, CHURCHILL AND CO. had a large stand which appealed more particularly to trade visitors to the Show, they having recently completed arrangements for the manufacture of complete sets of component parts for motor-cars of 5–8, 10-16, and 20-30-h.p., examples of *chassis* of the first two types being shown. Pressure of space prevents us referring

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to all the articles exhibited, but we may mention a special metal-to-metal friction clutch designed for use in conjunction with engines, having no external fly wheel. Fig. 88 illustrates the Durham Churchill change-speed gear, which gives three speeds forward and a reverse. On the top speed the power is transmitted direct, the jaw clutches seen on the upper shaft being brought into engagement. Another interesting product is a metal-to-metal brake, intended to be fitted at the rear of the gear box. Live axles, bevel gears, spur differential gears, cardan shafts, front axles, steering wheels and gears are other articles made by Messrs. Durham, Churchill and Co. A live axle with special reducing gear, for use in connection with high-speed engines, is one of their latest productions. Suppose, for instance, that a 6-h.p. engine is fitted, the normal speed of which is 1,500-

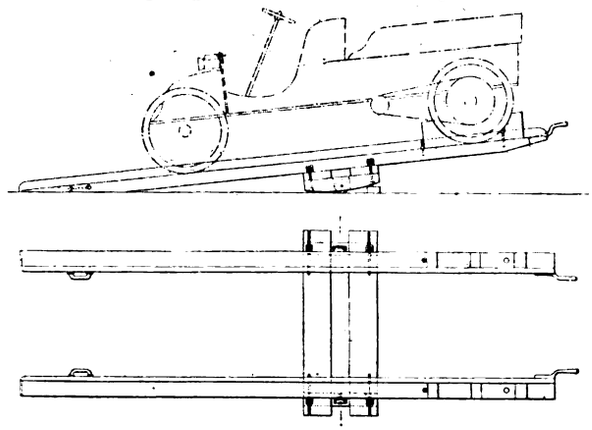
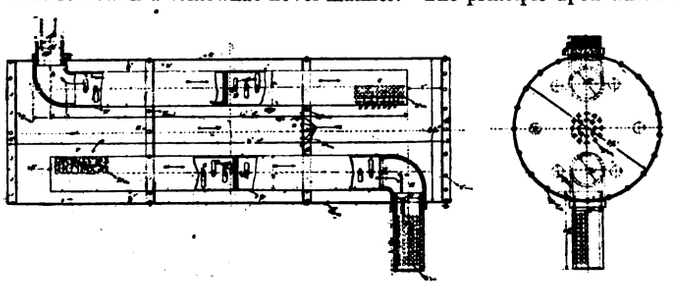


Fig. 89.—Elevation and Plan of Webb's Motor-Car Cradle.

r.p.m. If there is a reduction of 4 to 1 in the rear axle and a direct drive through the gear box, this gives, with 30 in. road wheels, a top speed of over thirty-three miles per hour, a rate at which it is unreasonable to expect a 6-h.p. engine to take a car and passengers of anything like average weight. To get over the difficulty they have designed an attachment which enables a change-speed gear having a direct drive on top speed to be used with such motors. The cardan shaft, instead of having a bevel-pinion at its rear end, has a spur-wheel meshing with a corresponding pinion on a short shaft on which the driving bevel is mounted. The reducing gear is entirely enclosed and suitably supported.

Considerable interest was shown in the motor-car cradle exhibited by Mr. W. R. Webb. This is a device to do away with the need of inspection pits. As will be seen from the diagrams shown in Fig. 89, it consists of two long special planks connected by cross pieces, the latter being mounted on rockers and also on castors. When it is necessary to examine or adjust any part of the car from below, it is run on to the path formed by the two planks. Then, by slowly rocking the car on the cradle, the latter can be jacked up to any desired height, the operation being quickly performed by a man and boy. Another advantage of the cradle is that, when the car is run on to it in the motor-house, the whole can be turned round by means of the castors, so as to be ready to run out when next required. The cradle will also be found useful by steamship companies having a number of cars to deal with, as, with a vehicle rigidly attached to a cradle, it can be hoisted into and wheeled to any desired part of the steamer.

In the Berner's Hall Mr. Stanley W. Andrews showed a new silencer for use of petrol cars. The apparatus, which is illustrated in Figs. 90 and 91, is constructed in a somewhat novel manner. The principle upon which it



Figs. 90 and 91.—Longitudinal Section and End View of Stanley Silencer.

is based is that of breaking up the exhaust gases, and retarding by allowing them to pass through pipes, across which a large number of pins are fixed diametrically, so as to form a kind of Archimedean screw inside it. In the silencer illustrated two of these pipes are fitted in a large expansion chamber, the gases from the engine passing into the box through the upper pipe, and ultimately finding their way out to the atmosphere through the lower one. Both pipes are studded with diagonal pins, which form two spiral passages through which the gases have to pass. The gases emerge from the upper pipe into the expansion chamber through holes at the extreme end, and are subsequently allowed to flow out through a perforated cap, after they have found their way through the entire length of the lower pipe. The silencer is claimed not only to give a quiet exhaust but also to cause no back pressure on the engine. It is made in sizes to suit engines of from 5 to 30-h.p.

Messrs. Lister and Sons exhibited their "Popular" 1½-h.p. marine motor, suitable for boats up to 14 ft. in length. Boats fitted with 2½-h.p. motors were also on view, presenting a very smart appearance. It is claimed for the "Popular" motor that it starts with the greatest ease, and runs with smoothness and regularity.

The See Motor Car Supply Company had on view the "See" non-skidding bands, which, being made of chrome leather with steel-studded treads, are claimed to be unpuncturable. The well-known "See" fluid and also the company's double-acting pump were on their stand.

Messrs. J. C. Fuller and Son, whose electrical batteries have long been familiar in all branches of electrical engineering, are now specialising on batteries for automobiles, and made a display which well illustrated their capacities in this connection. In the "Fuller" accumulators the grids are constructed to secure efficiency with lightness. Ordinary usage will not cause the paste or active material to rot, bulge, or become dislodged, and great care is taken with the general construction of the cases, the fine finish being a notable feature. The "Fuller" mercury bichromate charging battery has become well known among motor-cyclists and "men of moderate means." This is a very great convenience, and is proving as economical in use as it is serviceable. Ignition coils, test lamps, dry ignition batteries, accumulator covers, sparking plugs, volt meters and ampere meters were also shown, as well as a new spark coil with a patent high speed trembler.

In addition to their steam cars and steam-car accessories, the Cremorne Motor Manufacturing Company exhibited a new carburettor for motors using either petrol or paraffin as fuel, and of which a sectional view is given herewith. No float chamber is used; on the suction stroke of the engine the automatic valve EE¹ is pulled downwards from its seating, allowing air to gain access to the mixing chamber A, and at the same time uncovering the petrol inlet K¹ formed in the seating of the valve. Petrol is conveyed to this port by the pipe L, but the amount delivered through it upon the opening of the valve E is controlled by the adjustable needle K. The

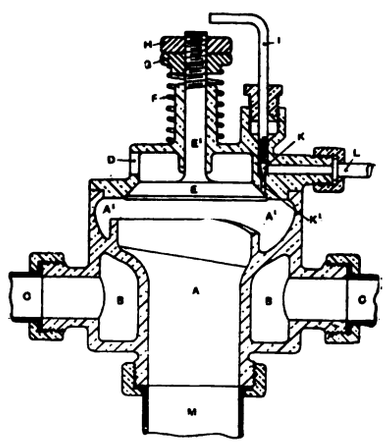


Fig. 92.—Section of Cremorne Carburettor

inner walls of the mixing chamber A are formed in the shape of a spiral whirl A¹. The air admitted in an outwardly sprayed form through the valve strikes into this whirl, courses round it, and picks up the petrol entering through the needle valve K¹, becoming thoroughly carburated in the mixing chamber A before passing on to the cylinder through the pipe M. The mixing chamber is surrounded by a jacket B, through which the exhaust gases can be made to pass. The faster the motor runs and the greater the suction the more the valve E opens, admitting a larger quantity of air, while the petrol feed remains constant, or nearly so, an automatic variation of the quality of the mixture being thus obtained.

Messrs. Cloud and Nichols had the "Buffalo" engine in a launch of their own construction. This has a float-feed carburettor containing a throttle for gauging the amount of vapour admitted to the cylinders. The sparking and throttling are easily regulated by a lever. These motors are made of 2, 5, or 7½-h.p. with two cylinders, or with four cylinders of 10, 15, 20, 25 or 40-h.p., and can be supplied with reversing gears or reversing propellers. A collection of sundry propellers and accessories for motor-yachts and launches completed an admirable display.

The Martin Pneumatic Tyre Company, Limited, had a good show of their motor-car tyres. The main features of this tyre are familiar to motorists, and the company is guarding its reputation by the maintainance of their good quality.

Pratt's motor spirit is too well known to need detailed description on the present occasion. Suffice it to say that the Anglo-American Oil Company drew attention to its merits in the Hall, and enabled motorists to judge of its merits in the yard at the Barford Street entrance. Oils for lighting and other purposes were also exhibited, as well as cans of an improved design for the conveyance of motor spirit in compliance with the regulations of the Local Government Board.

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In our issue of the 5th ult. we described the Reilloc tyre, brought out by MR. ARTHUR COLLIER. Hence some of the interest with which the new device was regarded at the recent Show. This has attracted much attention, and, being akin to both pneumatic and solid tyres, seems to provide some chance of settling a problem that has troubled motorists many a year. It is really a detachable solid tyre, having an outer cover secured to the wheel much in the same way that a pneumatic tyre is fixed. There is an inner

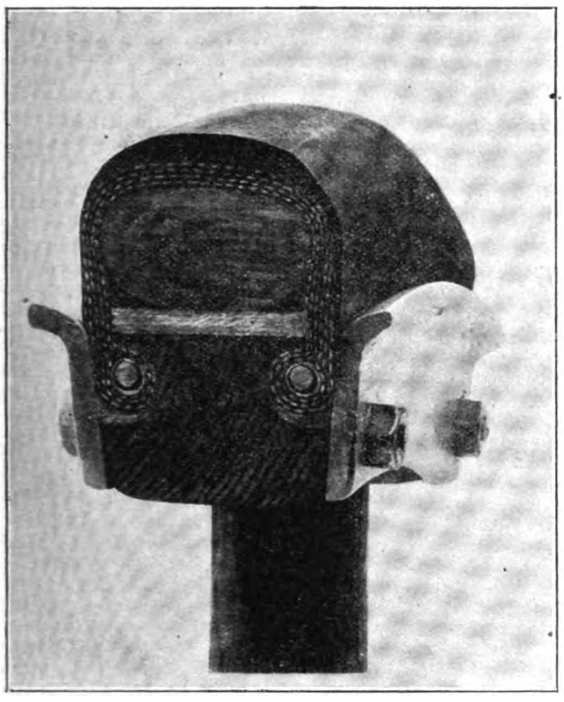


Fig. 93.—The Reilloc Padded Solid Tyre.

rubber pad, and as soon as the outer cover is worn down to this the latter can be renewed. The accompanying illustration, Fig. 93, gives a good idea of the form of the Reilloc tyre.

All kinds of electrical accessories for automobiles were shown by MESSRS. J. LACOSTE AND CO., some of whose specialities, notably the induction coil, have recently been fully described in the *Journal*. Here were to be seen dry batteries, charging boards, induction coils, coils with magnetic tremblers, ignition controllers, advance sparking apparatus, and contact-breakers of a good pattern, including detachable ones, which can be instantaneously removed. In these the blade and aluminium base slide on a groove, and can be lifted from their place for adjustment or the cleaning of the trembler. Spark intensifiers, switch handles, stop-watches of a more reliable character than those usually appearing in the police court, and sparking plugs were also included in a really excellent display.

At the stand of MR. C. LOHMANN, whose connection with the making of motor-cycle saddles, tool-bags, and the like is well known, was a good selection of lamps, bells, horns, accumulators, and similar goods identified in the trade by the name of "Perfecta." Among the many sundries which contributed to the representative nature of the exhibit was the "Bonworth" tyre gaiter, a neat and useful speciality in chrome leather, which must be added to the list of devices recently introduced in connection with the tyre problem. Headlights formed the staple interest of the display of the TWENTIETH CENTURY MANUFACTURING COMPANY, whose varied show of lamps deserved attention. They had a display of horns, and exhibited a new mica plug, the use of which will be watched with interest. The "Licorne" motor sidelight, a well-designed lamp, was among the assortment at the stand of MESSRS. STEINER AND CO., whose lamp stock is comprehensive in every branch. Horns were shown in great variety, with various fastenings, enabling the same to be fitted to any make of car. Patent clips for affixing horns and lamp brackets are among the minor details of a useful display, in which was also a large number of motor-cycle stands, lamps for motor-cycles, folding foot-pumps, etc.

A 12-h.p. *chassis* was one of the most important exhibits made by MESSRS. PHILIPP AND CO. It is proposed to have this made in England throughout and that on the stand was fitted with an engine by Messrs. Lloyd and Plaister, whose sole agency for this country has been obtained by Messrs. Philipp and Co. The frame is of pressed steel, and a Longuemare carburettor is also provided. The front axle is of the new hollow type, a cardan live axle and Panhard type of speed gear being among the other features of a *chassis* which should prove of service to firms anxious to go into the motor-car business. Among other exhibits was a cardan driving axle and hubs with double ball bearings, a brake drum and an internal expanding brake. The Lloyd and Plaister motor was also exhibited apart from the *chassis*. This is made with a double cylinder of 10-h.p. or four-cylinder of 20-h.p., with mechanical inlet valves. The inlet valve gear is arranged to give a variable lift. Motor axles, carburettors, axles of English make, radiators on the honeycomb system, condensers for steamcars, hand steering wheels, centrifugal water pumps, and severale xcellent types of lubricators completed a varied and useful display.

A non-slipping cover for automobile tyres was shown by MR. W. MAITLAND EDWARDS. This consists of a toughened chrome leather cover moulded so as to fit the tyre exactly. Along the thread are steel segments stamped so as to conform to the shape of the tyre. These are riveted with bifurcated rivets at intervals half an inch apart, the segments projecting above the tread of the tyre sufficiently to ensure a firm and continuous grip of the road surface. The segments are made of tool steel, and the idea is one that will be watched with interest by all anxious to solve the problem of skidding.

A very interesting display of petrol motors was made by Mr. F. C. BLAKE, ranging from 3 to 40-h.p. They are designed for use on motor-cars and launches, the latter being a branch to which Mr. Blake is devoting considerable attention. The 12–18-h.p. engine has the four cylinders cast in two pairs. Fig. 94 illustrates the 40-b.h.p. engine designed for use on auxiliary yachts and petrol locomotives, it being built rather more substantially than a motor required only for car work. It is fitted with mechanically operated inlet valves driven off a separate cam shaft. The cylinders are cast in pairs with water jackets in one piece. A governor acting on the throttle is provided. The engine is of the slow-running type, 40-b.h.p. being developed at a speed of 550 revolutions per minute. Separate adjustable bearings are placed between each throw of the crank shaft. All working parts are enclosed and automatically lubricated. Mr. Blake has recently introduced a new design of motor in which the inlet valves are located on the top of the cylinder heads, and actuated mechanically by rods and tappets. These are made in two sizes—25-h.p. and 18-h.p., the latter having four cylinders, cast in two pairs, 105 mm. diameter by 120 mm. stroke. The normal speed is 750 revolutions per minute; the valves are so arranged that they may be readily taken out when necessary, it only being necessary to remove one nut to withdraw two valves. Mr. Blake was one of the first to recognise the necessity for providing large inspection doors to the crank chambers, which are to be seen in all his motors, even in the small 3-h.p. single-cylinder type. Other exhibits included motor bonnets, petrol and water tanks, radiators, accumulators, commutators, and induction coils. Among the latter was a new one designed to work at a very high speed, and in which there is only half the usual weight of secondary winding. The condenser is of double capacity, while the diameter of the primary winding is also increased. The special novelty is found in the mounting of the trembler blade on a steel blade set in torsion between two vertical supports—one of the attachments of the

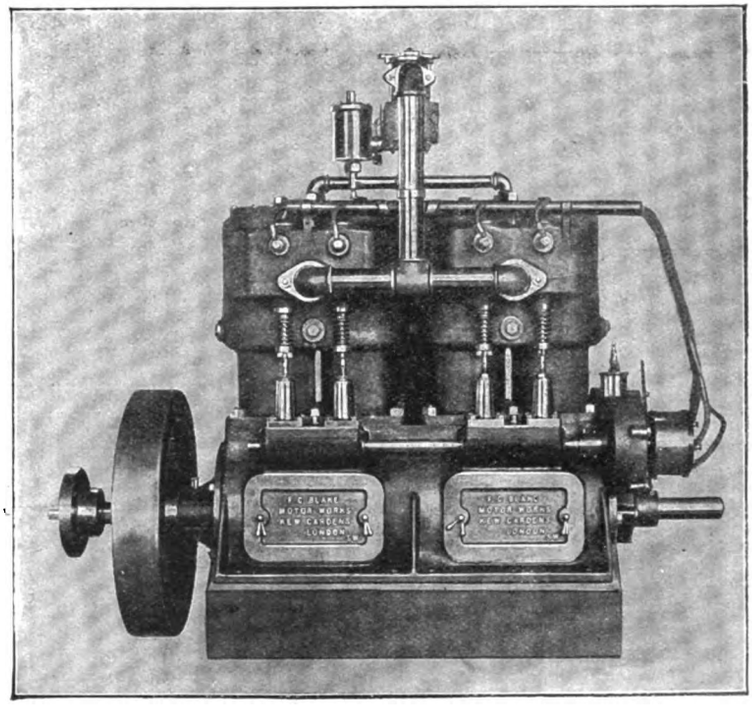


Fig. 94.—The Blake 40-h.p. Four-Cylinder Motor.

primary—the two blades thus forming a T, and the free end of the trembler being situated beneath the set screw with platinum points in the usual way. The effect of this special construction is that the amplitude of movement of the trembler is reduced to the minimum, and consequently its vibratory speed increased in inverse ratio. It is claimed that if an engine could be run at 6,000 r.p.m., this coil would still spark it without missing a stroke.

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Messrs. Purrott and Willard's appearance at the show has given another demonstration of the ability of Birmingham manufacturers to turn out lamps of ingenious design as well as of good workmanship. They have a high-speed self-contained headlight constructed for use on fast travelling cars, which has a column of air at the rear of the reflector serving the admirable purpose of keeping the lamp cool. This has some good features in the minor details which constitute real improvements in the result. Another good type is a paraffin tail lamp that will not blow out, as has been proved by actual experience on a car travelling at forty miles an hour. The Beam headlight is a self-contained lamp made by Messrs. Purrott and Willard in brass or nickel-plated metal, and, with a 6-inch face, can be depended on to give a good light for six hours. The firm are studying the

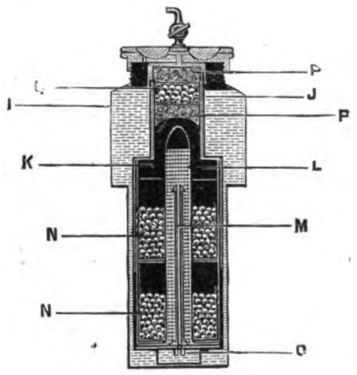


Fig. 95.—Section of Purrott and Willard's Acetylene Generator.

regulations of the Local Government Board with a view to bringing out a headlight in which the light can be reduced about 75 per cent. by means of a lever fitted to the dashboard. In connection with these lamps an acetylene generator has been brought out, which has the advantage of being entirely automatic in action and clean in use. As will be seen from the accompanying illustration, there is nothing to get out of order. I. is the outside of the water tank, J. the bell cover, K. the gas chamber, L. the perforated carbide carrier, M. the water feed pipe, which is fitted at the top with a spreader to secure a regular action of the water; O. the screwed end of the water feed, to take connection for cleaning; R. the wool wads in the main purifying chamber; and Q. the charge of carbide for purifying the gas; N. are cartridges charged with carbide. These latter are Messrs. Purrott and Willard's ingenious idea for supplying calcium carbide in sufficient quantities for burning two, three, or any other number of hours. The top and bottom of the cartridge has a lever lid which can be opened with a coin, the perforated carrier (L.) being projected up, as shown in the sectional view. Thus a generator of efficiency and cleanliness is provided which can be readily placed in the lamp, and forms a most compact device. The residue or sludge does not collect in the gas chamber or water tank, but is confined to the cartridges which are discarded when spent. In addition to their interesting collection of lamps, Messrs. Purrott and Willard also had a display of door furniture, coach beading, and brass and plated work of similar kinds for body builders.

A new comer to the exhibition was the R.L. Motor Engineering Company, Limited, who, as already mentioned in these columns, had a display of general interest to those on the look-out for motor-vehicles of a cheap price. That their exhibits were appreciated was apparent from the cards with which the cars were embellished as the week wore on. The Rulex car is fitted with a 3½-h.p. motor, with a direct drive by Renold roller chain to the countershaft. From this is a chain drive to the differential axle. For the two-speed gear a patent has been applied for. The combined hand brakes give unquestioned power in that respect. The car can be geared up to forty miles per hour. It has petrol capacity for more than two hundred miles, and with its wheel steering presents an up-to-date appearance. Not only is there ample seating accommodation for two passengers, but plenty of space is left for baggage, spares, etc. Another car brought out by the R.L. company is fitted with the 4½-h.p. Rulex water-cooled engine. This is finished in high-grade material, and well adapted for the growing demand for a light two-seated car. In addition to the cars, the company also showed one of their Rulex motor-cycles. These are made in various sizes, from 2½-h.p. upwards; the 2½-h.p. machine having a cylinder capacity of 70 mm. bore by 80 mm. stroke. The engine is mounted vertically in a weldless tubular frame; a Longuemare carburettor is fitted, as well as the R.L. company's aluminium wipe contact breaker, which is made dustproof and to run in oil. This cycle is fitted with the "Allways" free or swinging crank, which is a combined foot rest and pedal. It acts on a positive clutch, and is so simple that there is claimed to be no possibility of it getting out of order. This crank can be fitted to any ordinary bicycle or tricycle as well as motor-cycles. A patent speed gear with free engine was also shown, and the exhibit was, as we have said, of considerable merit and interest. The R.L. company have every equipment for the production of high-class work, and are evidently determined to reap much of the growing automobile trade.

Messrs. Henry Johnson and Sons, who have devoted time and trouble to the problems associated with the packing and transport of automobiles, took advantage of the Exhibition to make known this feature of their shipping and forwarding business. So, too, did Messrs. G. W. Sheldon and Co., insurance freight and passage brokers. They have had considerable experience in the shipping of motor-cars, wagons, lorries, and automobile accessories to all parts of the world.

The Clarendon Motor-Car and Bicycle Company, Limited, had on view a number of their 3-h.p. "Clarendon" motor-bicycles, the feature of which is found in the engine, the driving pulley having an adjustable outside bearing. The bore and stroke of the motor are 77 by 81 mm. respectively. A mechanical inlet valve is one of the improvements for this season, as also an effective silencer. One of the machines is fitted with a neat fore-carriage. The Clarendon Company also exhibited a 4½-h.p. water-cooled motor, with mechanically-operated inlet valve.

The Sola accumulator was shown by the company of that name, for whom Messrs. Horner and Sons are wholesale agents. The traction batteries are made in various sizes, and will run a car from twenty-five to sixty miles. A special high-charge battery for petrol cars, which can be recharged in three hours, was also on view. The company's Sola ignition batteries are made up in celluloid or vulcanite cases, and have attained considerable reputation for reliability.

The exhibit of the Roots Oil Motor and Motor Car, Limited, was interesting, inasmuch as the cars are fitted with internal-combustion engines using paraffin as fuel instead of the lighter and more costly petroleum spirit. The exhibit comprised a *chassis*, a two-seated car and a 5 cwt. delivery van, all of 5-b.h.p., and built for the Roots Company by Messrs. Armstrong, Whitworth and Co. The frame is hydraulically pressed to a channel section out of sheet steel. The motor, of 5-h.p., has a single cylinder of 4·9 in. bore and 5 in. stroke. It is placed in front of the car under a bonnet, the crankshaft being parallel with the axles. The motor uses ordinary kerosine or paraffin oil, and is adjusted to run at 760 revolutions per minute. The engine has a higher compression than hitherto; it is provided with electric ignition either by accumulator or by magneto. To maintain the heat of the vaporiser while running on electric ignition, it is fitted with a jacket, through which the exhaust gases are made to pass ere reaching the silencer. To start the engine the vaporiser is heated by a blow lamp for three or four minutes, as in the earlier type of engine, but immediately the engine is running it can be put out, so that there is no external flame, the motor continuing to run upon the electric ignition alone. The speed of the engine as also the advance sparking is controlled by a small lever on the steering standard. An aluminium alloy cover is provided for the motor-valve mechanism, also for the magneto gear, and a leather shield is fitted under the motor, to prevent dirt and mud collecting on it. The water circulation is maintained by a semi-rotary, positive-acting pump driven off the half-speed shaft, and radiator. The lubrication of the engine is by a pump, forcing oil at a considerable pressure to the main bearings of the crank, to the crank pin and to the piston rod bearings through holes bored in the crank and connecting rod. The motor drives by means of a leather-laced friction clutch and a Renold chain to the gear box, providing three speeds forward and a reverse. From the second shaft of the gear box

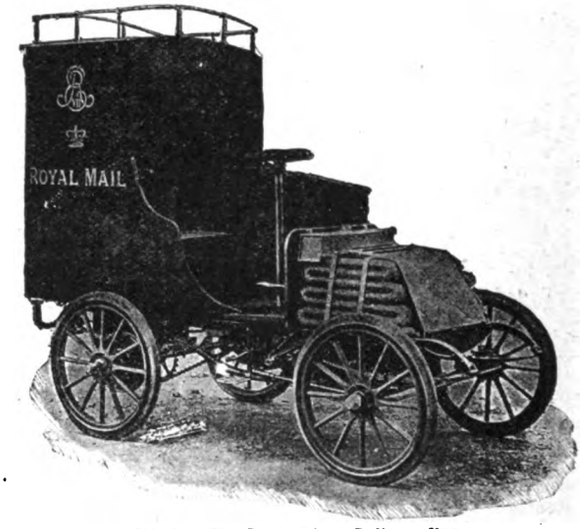


Fig. 96.—The Roots 5-h.p. Delivery Van.

a roller chain drives the rotating back axle, upon which the differential gear is fitted. Two pedals are provided—one for releasing the clutch, and the other for operating the band brake on the gear box. The second brake is fitted to the differential gear box on the back axle. Artillery wood wheels, having a diameter of 30 in., are fitted to both front and back axles, and shod with solid rubber tyres, or pneumatics, as required. The car has an overall length of 8 ft. 3 in., and weighs, complete with oil and water, about 10 cwt. Fig. 96 illustrates a Roots 5-h.p. delivery van, which has been carrying the mails every night between Newcastle and Sunderland *via* South Shields for some time past, and which is sometimes loaded up to 8½ cwt. This van has now done nearly 6,000 miles of regular nightly running, on solid rubber tyres, an excellent test of its reliability.

(*To be concluded.*)

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CORRESPONDENCE.

"JOBBING" A MOTOR.

To the Editor of *The Motor-Car Journal.*

Sir,—May I trespass on your valuable space for the purpose of drawing attention to the enormous prices asked for hiring a motor-car? I am extremely interested in motors, and I much prefer them to horses; indeed, I should be very glad to give up my carriages and horse in order to keep a motor for my work were it possible for me to be guaranteed that the cost would not be greater. This, however, seems to be impossible, as I can job a brougham Victoria, horse and coachman, etc., for £250 a year, whereas I am asked £1,000 a year for a motor-car!

For many reasons most members of my profession in London prefer to job their carriages and horses, and so long as there is this great difference in cost between carriages and motors I do not think that motors will become very general with us. On the other hand, I believe that if a quiet-running petrol landaulette could be hired by the year at about the same price as a horse and carriage, there would be a very great demand for it. There seems to be a lack of enterprise on the part of motor-car firms, and one is almost led to suspect a distrust of the behaviour of their cars, since they all seem adverse either to spreading the cost of the car over two or three years or to fixing a moderate rate for hiring.

I have some reason myself for hesitating to buy an expensive landaulette and run it myself, as I have owned a small motor-car for the last year, and it has proved an expensive and rather uncertain luxury.—Yours truly,

Surgeon.

MOTOR-RACING ON ENGLISH SHORES.

To the Editor of *The Motor-Car Journal.*

Sir,—Filey is within reasonable distance (about forty miles) of York, and seven miles south of Scarborough. The road to York is well known, and from York *via* Malton to Scarborough it is very good. On the south side of Filey is Bridlington. There is a good road on the coast from Scarborough to Filey, and, although Filey itself is a small place, there is excellent accommodation both at Scarborough and Bridlington for motorists. I have cycled and motored all over this district and cannot agree that Filey is inaccessible.—Yours truly,

Yorkshireman.

PROPOSED LAMP TEST.

To the Editor of *The Motor-Car Journal.*

Sir,—Referring to Mr. E. Baedeker's letter on the above subject, in your issue of 19th ult., we think his suggestion a capital one and well worthy of the serious consideration of the A.C.G.B.I. Writing as manufacturers who have devoted both time and money in the endeavour to produce lamps that would meet the requirements of the motoring public generally, we beg to say that we welcome the proposition, and will do all in our power to support it.—Yours truly,

Purrott and Willard.

THE GOVERNED ENGINE.

To the Editor of *The Motor-Car Journal.*

Sir,—It seems quite probable that governors on four-cylinder engines will soon disappear. At its very best the automatic governor was usually a nuisance, and always required looking after; and what purpose did it serve? The engine would run slowly under its action, and when changing speed it prevented the engine from racing. That is all the governor does, and it can easily be done in a far more simple manner. A graduating throttle valve is fitted on the induction pipe, controlled by a small pedal, and from the steering wheel as well, very often. The normal position of this pedal is up, in which position the throttle-valve is only just open wide enough to keep the engine running slowly, and by pressing the pedal down the throttle is opened; the moment the pedal is released the engine is throttled. One of the latest French cars is fitted with an arrangement of this description, the governors being done away with. It would be interesting to have the opinion of other readers as to the advisability of fitting governors.—Yours truly,

Annamoe.

STEAM *V.* PETROL.

To the Editor of *The Motor-Car Journal.*

Sir,—Will "Another Steamer" and "Paraffin" give a description of the burners they use on their Locomobile cars? I have such difficulty in storing petrol that my car is almost useless to me, and should be glad to alter to paraffin if reliable and free from clogging up of the vaporiser.—Yours truly,

Locomobile.

STEAM CARS.

To the Editor of *The Motor-Car Journal.*

Sir,—As I have had considerable experience with Stanley steam cars, I should like to tell "Northern Steamer" some points about these vehicles. They are a great improvement on the type of American light steam car usually known to the public. The boiler is almost the same as the Locomobile type, only the working pressure is 400 lbs. per square inch; superheated steam is used, and a direct gear drive on the differential from the engine. The gear wheels show little signs of wear after nine months' use. As one of your correspondents said, it is a treat to drive one of these cars. The only real trouble I have had is the back tyres bursting, which I consider too light for the speed of the car. I have averaged twenty miles per hour for 200 miles.—Yours truly,

H. W. T.

To the Editor of *The Motor-Car Journal.*

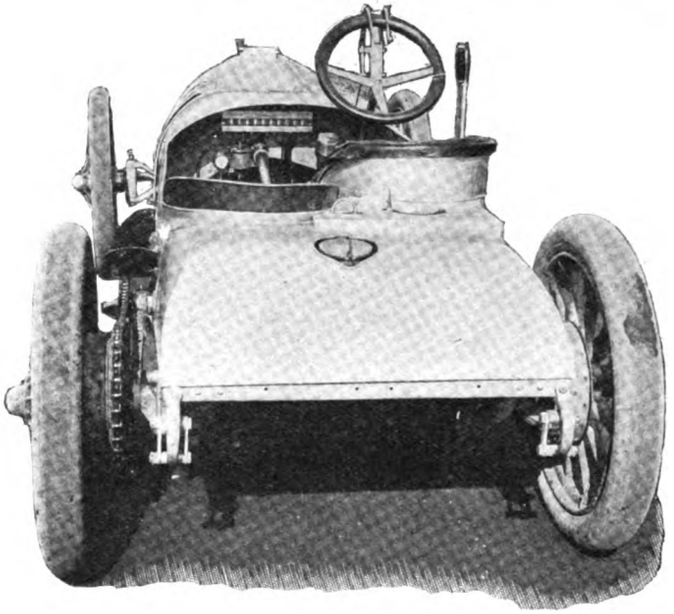
Sir,—I notice "Another Steamer" is inquiring for an automatic arrangement to cool the seat in warm weather. I find it beneficial to raise the cushion of seat by laying two strips of wood 1 in. by 2 in. across the seat and turning the apron back; it allows the air to blow through under the cushion. With regard to the water tank getting very hot without exhaust, I find it a saving to let the water get as hot as it will if only the pump will lift it. If it gets beyond feeding point I add one or two buckets full of cold water. If "Another Steamer" is using an injector he may find it very troublesome with hot water. I should like to know the best type of burner on the market, as my Clarkson's needs some repair, and if there is a better I might change.—Yours truly,

Steamer.

A MYSTERIOUS NOISE.

To the Editor of *The Motor-Car Journal.*

Sir,—I should be glad if you or any reader of the *Journal* could assist me in overcoming a difficulty experienced in my car. It is fitted with a 6½-h.p. Aster engine, and when I put the car on top speed it knocks or gives a sharp clink every time it fires, no matter how much I retard the sparking.



Rear View of the Wolseley 72-h.p. Gordon Bennett Racer (*See last issue*).

The moment I put it on the lower speeds the clinking stops. It is only on the top speed that this happens, even when the car is going full speed.—Yours truly,

Dermatine.

AN ELECTRICAL BATH CHAIR.

To the Editor of *The Motor-Car Journal.*

Sir,—We have an inquiry from one of our customers for an electric Bath chair, capable of travelling at a speed of about six miles per hour, and the batteries capable of holding sufficient charge to travel twelve miles. Do you know of anyone making such a vehicle? If you do, we should feel obliged if you will put us in communication with them. We saw one at one of the shows held at the Agricultural Hall some three or five years back, but unfortunately we cannot trace it.—Yours faithfully,

D. W. and Co.

[We remember the vehicle in question, but it is, we believe, not now on the market. If any firm makes a Bath chair of the type described we shall be glad to put them in touch with our correspondents.—Ed. *M.C.J.*]

THE RULE OF THE ROAD.

To the Editor of *The Motor-Car Journal.*

Sir,—Your correspondent, Colonel Magrath, in his letter in the *Journal* of the 26th ult., does not realise the pedestrian's point of view. The reason why vehicles should keep to the left and people on foot to the right is that the latter can see all vehicles coming the other way, on their own side, and, by keeping closer to the hedge, can pass in safety.

If there were footpaths everywhere it would not matter; but, at present, not one mile in every thousand of ordinary roads possesses a footpath.—Yours truly,

Ronaleyn.

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LOSS OF POWER ON OLDSMOBILES.

To the Editor of *The Motor-Car Journal.*

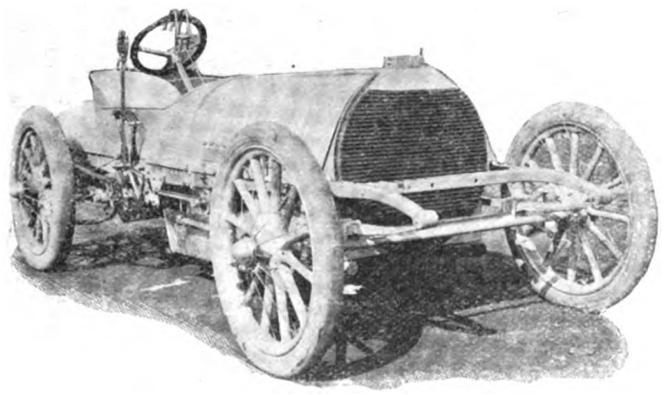
Sir,—A few weeks ago a letter appeared on this subject, which I noted, because I was in the same trouble with my Oldsmobile. At last I discovered the cause in a play of $\frac{1}{16}$-inch in the inlet valve gear, owing, I suppose, to wear. A bit of $\frac{1}{4}$ thick sheet brass put temporarily under the end of valve stem had a marvellously enlivening effect, and a larger pulley on one end of the valve lever made this permanent.—Yours truly,

J. Brown.

DRIVERS.

To the Editor of *The Motor-Car Journal.*

Sir,—I have been interested in the correspondence *re* driver-mechanics, and would like to reply to "One with the Times." He remarks that driver-mechanics seem eager to enter private service. I will say that he is perfectly right when he states it is because they are not efficient for the workshop. Some of the "so-called driver-mechanics" are no more efficient for the workshop than the ex-coachman. He also remarks that mechanics do not turn out cars so smartly as the ex-servants. Probably not to outside appearance; but, as regards the mechanism, I contend the ex-coachman, or valet is not half so smart as the mechanic, because the ex-coachman or valet has not had the practical experience, and the mechanic knows exactly what ought to be done as regards oiling round and general care of the engines, etc. He also states that he does all his own repairs, unless it is a job for the lathe. I very much question that statement, and would like to see him shape to make a drill or use a file. I expect the job would be a bit humpbacked when done with. I also would like to reply to "A. L. R." *re* the question of "decent wages." I might state that I can go into any engineering shop in London, providing men are wanted, and as a fitter or mechanic earn the standard rate of wages paid in such shops, 39s. or 40s.,



Front View of the Wolseley 72-h.p. Gordon Bennett Racer (*See last issue*).

as the case may be, for fifty-four hours per week, and not have any responsibility attached to my services, because there is always someone in charge to give orders, and there are scores of driver-mechanics who are also qualified to do likewise. And "decent wages" depend upon the hours to be worked. A competent driver-mechanic, able to do his own repairs, and who studies his employer, ought at least to receive 45s. per week, Sunday not included, as mechanics get double pay for Sunday work in engineering shops, and some railway employees receive double pay, others time and a half, for Sunday duty. If anyone doubts my statements I can prove it, as I have had eleven years' experience on different railways. And I consider that an employer who gets a good driver-mechanic such as I have stated will find it cheaper in the end than the cheap ex-coachman who has to send out repairs.—Yours truly,

Driver-Mechanic.

To the Editor of *The Motor-Car Journal.*

Sir,—I have noted for some little time the caustic remarks of "mechanics" against the valet or coachman-driver, and strongly uphold "One with the Times" in taking up the cudgels in defence. They seem to think they are the only intelligent persons about, and that no one has any right to undertake such a stupendous undertaking as the charge of a car except themselves. I contend that there are quite as many good servants as mechanics whom it would pay over and over again for masters to engage, as they would get honest service, in addition to being held in respect, and I think if a man likes the work he would take the utmost pride in his car. As regards "Public Service Driver," his delightful assurance that "this class of mechanic" are delighted to get a berth at 30s. a week, where they only got £1 before is absurd. I am getting at the present moment £60, all found, as butler, which is considerably beyond the £1 a week. I have put in some months in motor works last summer, and am prepared to take a situation at a moderate wage, and to do my best for any gentleman and his car when the opportunity occurs, simply because I like the work so much; and there are others, many of them, like myself, waiting an opportunity, so that "Public Service Driver's" remarks are most undeserved and out of place. More respect for the man who does not mind making himself useful in any way in spare time, and perhaps it is the fear of not being so independent as formerly that makes them so virulent.—Yours truly,

A Motor Butler-Valet.

To the Editor of *The Motor-Car Journal.*

Sir,—It has often been proposed that someone may suggest some scheme, which would give owners in want of a really good driver-mechanic the opportunity to find such a man, who, as some of your correspondents state, seems hard to find, where as week after week brings new letters from men who seem to have the best of credentials.

I suggest that there should be an organisation of thorough practical driver-mechanics to which only such men should be eligible as members who could prove their abilities by good references. The organisation should be represented by a good man to act as secretary, whose business it should be to

(a) take up say three references to show that the candidate has practical experience as a mechanic;

(b.) that he has held a driver's berth, and

(c.) that he has not been dismissed from any of his situations for gross misconduct or inability.

An entrance fee of a certain sum would have to be paid, as also a monthly or quarterly subscription.

Situations to be filled by members only, for which they would have to pay a certain sum, which need not be a large one. Out of this a certain percentage would have to be paid to the secretary besides a weekly wage

Owners could be invited to pay a certain sum yearly, for which they would be supplied with reliable drivers.

This is only a rough sketch on what lines a society of motor-car drivers could be conducted, and I should be pleased if any of your correspondents, as also owners, would give their opinion on the subject.—Yours truly,

A. C. M.

To the Editor of *The Motor-Car Journal.*

Sir,—Will you allow me space in your paper to answer the remarks hurled at the certificated driver? I am one of them, and have read with interest the letters of past weeks. I paid £15 15s. for a full course of lessons and made it my one study. I am confident that, given a fair trial, I could keep a car clean and in good running order, and do most of the repairs. I think it very unfair on the part of professionals to tread on the learner, but the reason is, no doubt, that they have cut the price down. I have been trying for months past to get a situation as driver, but have failed. If there is no chance of a certificated driver getting a start, why cannot something be done to stop firms from taking from the intended drivers their hard-earned savings?—Yours truly,

Certificated.

To the Editor of *The Motor-Car Journal.*

Sir,—Seeing recent letters *re* "scarcity of good driver mechanics," I thought I would offer my services to owners, so answered some of the advertisements. I got no reply from the majority, others replied in two or three weeks offering me the situation to take charge of car, help in the garden and house, at 25s. per week. Now, as I have had over seven years' practical experience with motors and am offered a situation in one of the biggest works in the country, at present holding the position of head mechanic to a firm of builders, I think the princely sum of 25s. per week to be a combined driver-mechanic, gardener and house assistant is to be ignored. I might add that I offered my services as driver mechanic in the interest generally of the motor manufacturers, as it appears to me that cars are getting a bad name owing to owners employing bad mechanics.—Yours truly,

B. D.

To the Editor of *The Motor-Car Journal.*

Sir,—There are many workmen as well as myself who would like a berth in private service; of course, these men would want first-class wages, and, like myself, would like a valuable car to look after. If motor-mechanics were put in the care of valuable horses, what would be the result? and it is the same with motors. I think if all owners of motors would only think what a motor-car is they would come to the point—every man to his trade. If owners want their cars always in readiness they must employ skilled labour, and by so doing they would be at a much less expense at the end of the season; their cars would be in a good condition instead of having to be sent to the works for a complete overhaul, which would cost almost as much as a new car.—Yours truly,

Piston.

The Motor Union.—B. G. B. (Oldham), who asks for the address of the Motor Union, is referred to 119, Piccadilly, W.

Expert's Fees.—F. R asks what is the fee of an expert for examining and reporting upon a motor-car?

Steam Cars.—Mr. F. Wilkinson writes:—"I notice in your issue of the 26th ult. a letter, signed 'Northern Steamer,' asking for information about the Stanley steam car. If the gentleman will send his address to me at Prince's Chambers, John Dalton Street, Manchester, I shall be pleased to give him my experience with the car."

The Eisemann Magneto High-tension Ignition.—"Philo" writes:—"Will any motorist who is using the Eisemann magneto ignition on his car send his experiences of the same?"

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CLUBS AND ASSOCIATIONS.

LEICESTERSHIRE.

A NEAT programme of fixtures and book of rules has been issued by the Leicestershire Automobile Club. Among the places to be visited by the club are Ashby-de-la-Zouch, Rugby, Oakham, Stratford-on-Avon, Matlock, Lichfield, and Derby. A garden party will be held at Ashbourne on July 9th.

AUSTRALIA.

OUR Melbourne correspondent writes:—"After several weeks of careful work by the provisional committee of gentlemen appointed to frame rules and bye-laws, prepare initiatory work, select officers, &c., the 'Automobile Club of Victoria' is now fairly started upon what seems to portend a successful career. The provisional committee consisted of Messrs. Harry Maddox (chairman), H. B. James (hon. secretary), Drs. Merrill and Officer, and Messrs. T. Rand, S. Stott, H. Sutton, H. Bagot, S. Joshua, and S. Day. The club held its inaugural run from Melbourne to Aspendale Park (18 miles) on February 20th. The officers appointed for the first year of the club's existence are:—President, Sir John Madden (Lieut.-Governor and Chief Justice); vice-presidents, Drs. A. P. Merrill, Messrs. W. Howard Smith, and Thos. Rand; hon. treasurer, Sydney Stott; hon. secretary (acting), H. B. James; and committee, Drs. Officer and Ryan, and Messrs. H. C. Bagot, Harry J. J. Maddox, H. Rose, Syd. Day, J. R. Crooke, J. Craven, and J. Moffat. Club premises in Collins Street, Melbourne, have already been secured, and will possibly be occupied in a few days. The membership is already about 120. Mr. W. Thompson, of Adelaide, South Australia, is an enthusiastic motorist, and was present at a meeting of the newly-formed A. C. of V. in Melbourne the other evening, receiving a warm greeting. At the previous meeting, Mr. Will Reid, of Sydney (member A. C. of A.) was present, and gave the members present a résumé of his club's works and progress."

NOTTINGHAMSHIRE.

IT is the intention of the Nottingham Automobile Club to hold their second hill-climb of the season on Saturday, May 14th. The climb will be in two classes: Firstly, for standard touring cars the property of club members, which must carry their full complement of passengers; secondly, for cars of any type or seating capacity either the property of club members or friends, such friends to be introduced by two members of the Club. The winner of the first event will be for the most meritorious performance, and of the second, the one doing the fastest time. The winners in each section to receive the Club medal (not badge). Further particulars may be had on application to the Club secretaries, Messrs. W. D. Wells and R. Harbidge, St. Peter's Hotel, Nottingham.

NORFOLK.

THE Norfolk Automobile and Launch Club held their opening meet of the season at Cromer on Monday, when about sixty members sat down to luncheon at the Grand Hotel. The chairman of the Club, Mr. G. M. Chamberlin, was unavoidably prevented from being present, and Baron de Barreto (vice-president) took the chair. The following toasts were given after lunch:—"The King." "Success to the N.A. and L.C." Mr. Clark, the vice-chairman of the Club, said that the N.A. and L.C. was in a very sound position. They numbered 114 members, and at the next committee they hoped to increase the numbers. Already the Motor Union (of London) had helped one member of their Club in a legal case, and they were always willing to support a good case for the help of affiliated members. The Chairman responded to the toast, and wished the Club every success. The following ladies and gentlemen were present:—Baron and Baroness de Barreto, Mr. Sidney Wolton, Mrs. de Maucha, Mr. and Mrs. H. L. Clark, Mr. H. Williams, Mr. H. W. Egerton, Mr. W. P. Cubitt, Mr. and Mrs. W. W. R. Spelman, Mr. and the Misses Boardman, Mr. and Mrs. Bradley, Mr. and Mrs. Wigg, Mr. King, Major and Miss White, Mr. and Mrs. Maudsley Brooke, Mr. and Mrs. Wickham, Mr. and Mrs. J. W. Brooke, Mr. J. M. R. Ray and Mr. J. N. C. Ray, Mr. and Mrs. C. H. A. Lock, Mr. P. Norgate, Mr. G. W. Base, Mr. and Mrs. C. de F. Clarke, Mr. and Mrs. H. Chamberlin, Mr. Estcourt, Mr. J. Griffin and Miss Griffin, Mr. A. E. Lark, and Mr. J. W. Howlett.

CASES DISMISSED.

THE adjourned summons against Captain David Morgan, J.P., member of Brecon County Council, of Bank House, Brecon, for driving a motor-car along Kensington Road, on February 14th, at a speed exceeding twenty miles an hour, came on for hearing before Mr. Lane, K.C., at the West London Police Court just before the holidays.

This was the case in which Mr. Staplee Firth, for the defence, disputed the accuracy of the police stop-watches, and at his suggestion a test of the watches was made in court, when only one second's difference was discovered between them, the magistrate observing that the test told greatly in favour of the police evidence.

At the conclusion of the last hearing Mr. Lane suggested that it would be advisable to secure the services of an expert to test the car, as the defendant averred that it was not capable of going at the speed complained of—viz., twenty-five miles an hour—on that particular day, as the speed gear was out of order, and his worship then added that if the defendant's evidence was correct, it amounted practically to an allegation of perjury against the police.

Evidence was given by the defendant's driver to the effect that on the day in question the lever, through a defect, could not reach the highest—the fourth—notch, but only the third.

Lieut.-Colonel Crompton, R.E., stated that on the 17th inst. he made a test of the defendant's car over a measured distance of 220 yards, and found that with the lever at the third notch the car could only go at the rate of 17·06 miles an hour.

The Magistrate: As regards stop-watches, have you found it requires a great deal of training to overcome tendencies to error in stop watches?

The Witness: Yes, and the difficulty increases with the inferior quality of watches.

Mr. Firth: I believe a man with a stop watch can retard the watch for 20 seconds or 80?—Yes.

The Magistrate: By accident or design?

The Witness: Easily by accident in the hands of an unskilled operator.

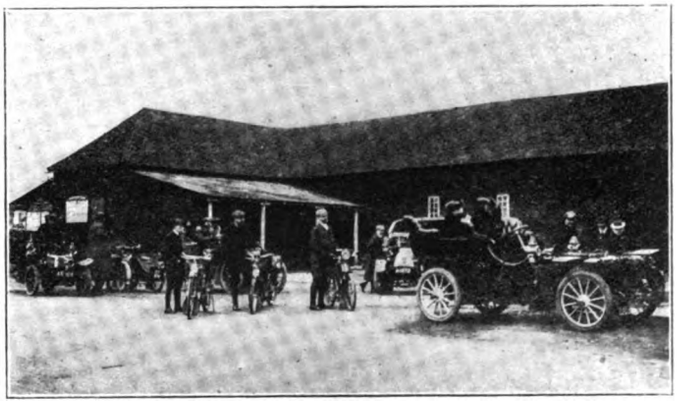
Lewis John Reeves stated that on February 16th (two days after the car was stopped) he was sent to repair the defendant's car, which was a Wolseley. He found that the lever was bent and could not reach the fourth notch.

The magistrate observed that after that evidence the whole point centred on the stop-watches. It was very necessary that the question of the reliability of stop-watches used by the police should be settled.

The magistrate inquired if the watches could be scientifically tested, and Colonel Crompton thereupon took them in his hand and tested them, with the result that they did not differ one-fifth of a second in 28 seconds.

Mr. Lane, in giving his decision, said it lay on the prosecution to prove their case beyond all reasonable doubt, and he was not satisfied that that had been done here. He therefore dismissed the summons, but he had no reason to doubt the good faith of everyone concerned in the case.

MR. BERNARD REDWOOD, of 81, Shaftesbury Avenue, W.C., was summoned at the South-West London Police Court for motoring along Portsmouth Road, Putney Heath, at a speed exceeding twenty miles an hour. Police-constable 62 V.R. deposed that on March 15th he was stationed in



The Inaugural Run of the Hertfordshire Automobile Club. Some of members at the Red Lion, Hatfield.

Portsmouth Road with a tape and a stop-watch, provided by the Police Commissioner to test the speed of motor-cars. At a distance of 220 yards stood Police-constable 341 V., and at a signal from him witness timed defendant's car, which covered the 220 yards in fifteen seconds, giving a speed of thirty miles an hour. Mr. Redwood, who was driving a Brooke car, Mr. T. W. Barber, and others gave evidence, and after Mr. Staplee Firth had been heard the magistrate dismissed the summons, but refused costs.

JOHN DEVON, of Romford Road, East Ham, was summoned at Guildford for driving a motor car recklessly, at Ripley, on March 13th. Mr. Chandler (barrister) appeared for the defence, and said that Devon was not on the car, but had lent his licence to a man named Hutchinson, who was in Court, and who was in charge of the car at the time. Sergeant Jarrett said defendant was not the man in charge of the car at the time. Devon was, however, in the car. The summons was amended, and Arthur Hutchinson was called upon to answer it jointly with Devon. Sergeant Jarrett said at 9.30 p.m. on the day in question he was on the Ripley road, and saw a car approaching from the direction of Guildford. Immediately it passed him it first ran on the off-side, and then on the near side of the road on to the footpath, a portion of which was torn up. He next heard two loud reports, and the car ran direct across the road to the other side. He saw the broadside of the car three times, and the man appeared to lose control after passing him. Hutchinson was the driver, and he said to him, "There is something the matter either with you or the car. You had better get out and see." He produced a licence with the name, "John Devon, 682." Witness refused to allow Arthur Hutchinson to drive the car home. Mr. Chandler: Will you swear Devon was in the car? To the best of my belief he was. Mr. Chandler requested Hutchinson's brother to stand up, and asked witness if he would swear he was not in the car at the time? Sergeant Jarrett: I won't swear to either of those men; but Arthur Hutchinson was there certainly. Mr. Chandler said Devon's defence was that he was not there, and, with respect to Hutchinson,

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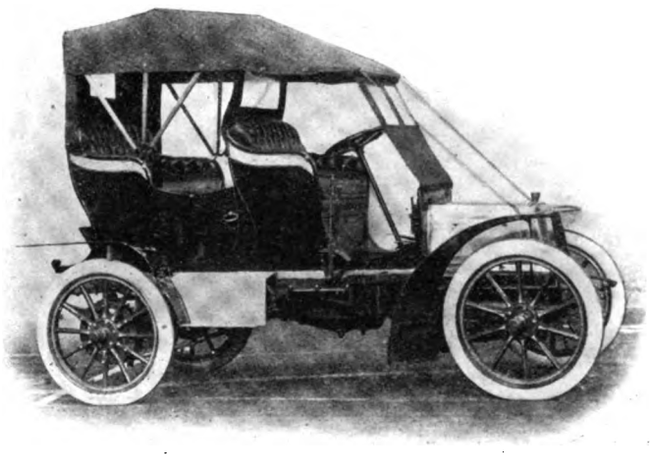
he placed him in the witness-box. He declared that on the journey from Guildford one tyre punctured, and this caused the tyre on the other back wheel to come off, and made the car sway. He stopped it as quickly as he could. William Hutchinson, 32, Great Peter Street, Westminster, brother of the last witness, said he was not in the car at the time, and Devon was not there. He corroborated the statements of the last witness, and said the reports the sergeant heard were from the exhaust box and not the tyres at all. Sergeant Jarrett: After hearing this man's voice I recognise him as being the other man in the car. The Chairman said the Bench would dismiss the summons on the ground that it might possibly have been an accident.

THE ACT OF 1878.

A CASE was heard at the Marylebone Police Court before Mr. Curtis Bennett, on the 31st ult., the Motor Transport Company having been summoned under the Act of 1878 for not consuming, as far as possible, their own smoke. The alleged offence took place on the 24th February last. The prosecution was conducted by the London County Council, and the case was defended by Mr. Staplee Firth on behalf of the Motor Van and Wagon Users' Association. Mr. Curtis Bennett ultimately found that the vehicle in question was a light locomotive under the Act of 1896 and was exempt, and that the Act of 1878 did not apply, and he therefore dismissed the summons.

IGNORING THE REGULATIONS.

AT North London, Stanley Redpath, of Norwood Road, Tulse Hill, was summoned for unlawfully acting as the driver of an unregistered motor-car at Seven Sisters Road at 11.20 a.m. on March 3rd. There was a second summons charging him with fraudulently using a mark for the identification of his car, which had not been authorised. The defendant admitted the offences, but said that he was under the impression that his



Messrs. C. S. Rolls & Co.'s 15-h.p. Panhard Side-entrance Double Phaeton with Cape Cart Hood and Storm Apron. (See page 78, issue of March 26.)

licence to drive a car covered everything. He had printed his licence number on a piece of white cardboard, and attached it to his car. Mr. d'Eyncourt pointed out that the regulations required that the registered number of the car should be in white letters on a black ground. The policeman who stopped the defendant said his attention was attracted by the high number and the fact that the plate was on cardboard. The defendant said he got his licence on the 25th, and after he had been stopped he applied to the County Council for the registration of the car. Constable 604 W said that on the 9th he stopped the defendant at Streatham in similar circumstances, and he was fined at the South-Western Police Court. Mr. d'Eyncourt imposed fines of 10s. and 2s. costs on each summons.

NO APPEAL AGAINST FACT.

AT Andover County Bench the magistrates refused leave to a motorist to appeal against their decision on the ground that the case was decided on a question of fact and not of law.

COMMITTED FOR TRIAL.

AT Westminster, Robert Forsyth has surrendered to his bail, before Mr. Horace Smith, to answer an adjourned summons at the instance of the police for driving a motor-van at King's Road, Chelsea, to the common danger of passengers. Mr. Stephen Lynch was counsel for the defence.

On the evening of the 22nd of December last the defendant was driving a covered motor-van for Harrod's Stores, Limited, when in a narrow bend of the road it was said that he lost control of the machine in avoiding an omnibus, and ran up on to the pavement. Mrs. Ryder was knocked down and so seriously injured that she had to remain in St. George's Hospital for about three months. The pace the defendant was driving at was given as seven miles an hour. Police-constable 53 BR. said the road was greasy, and he saw the car skid. Both wheels of the car went on the pavement and pinned the woman against a wall. Mr. Lynch, for the defendant, said there was no negligence on his part. His car skidded after he had negotiated the corner carefully. Mr. Horace Smith said it was essentially a case for a jury, and sent it for trial. There was no allegation of impropriety on the part of the driver, who was released on bail.

AUTOMOBILE ACCIDENTS.

TURNING out of the Old Steine at Brighton along the Front, a motor-car belonging to Mr. W. Woodhams, of Surbiton, encountered an automobile let on hire which was coming along. Fortunately no one was injured, although both vehicles were damaged.

ON Sunday a motor-car descending the Grove Hill at Harrow turned a somersault, hurling its occupants from their seats and inflicting severe injury upon Mr. Lambert Hall, the owner of the car, and his family, who were being driven by Alfred Bird. The driver was also hurt.

A MOTOR-CAR, driven by A. W. Clifford, dashed into a wagonette on the road between Rye and Hastings on Sunday. The party on the wagonette sustained great injuries in the collision.

CLAIM AND COUNTER-CLAIM.

IN the City of London Court, Mr. H. F. Joel sued Mr. Louis Sinclair, M.P., for £46 6s. 6d. for repairing a motor-car. The plaintiff said that the defendant's car, after being worked very heavily by him, was brought to be repaired. Numerous things were required to be done, and it was agreed that the expenses should not exceed £50. Mr. Sinclair, M.P., said that he had paid over £600 for the car in May last, and after having it for a few months he found a few repairs were necessary. The car was sent to the plaintiff's, who, however, returned it in such a condition that it was useless. While objecting to pay the plaintiff's claim, he counter-claimed for £120 for the plaintiff's defective work, and for damage which the plaintiff's men did to the car in an accident on the way to Hampstead. Judge Rentoul, K.C., found for the plaintiff for £39 1s. 6d. on the claim, and for the defendant on the counter-claim for £15.

MOTOR-CAR v. HORSE-DRAWN CART.

AT the Windsor County Court an action was brought by Mr. Charles Franklin Torrey, of Westminster, against Mr. Thomas Tilly, hay binder, of Colnbrook, to recover the sum of £18 8s. for damages done to plaintiff's motor-car through being run into by defendant's cart on the road between Iver and Langley station, on August 29th last. His Honour gave judgment for plaintiff for £16 10s. 1d. and costs and dismissed the counter-claim with costs.

A QUESTION OF WARRANTY.

IN the King's Bench Division the case of Ogilvie v. Dew has been heard, in which plaintiff claimed damages for breach of warranty of a Gardner-Serpollet motor-car which he bought from the defendants, who carry on business at Reading, in June, 1901, for £450. In the result the jury, after a lengthy retirement, found for the defendants on the plaintiff's claim for breach of warranty, and also for the defendants on the counter-claim for work done, etc., for £59 3s. 7d.

CONVICTIONS AGAINST MOTORISTS.

Hull	No number	10s., etc.
Highgate	No light on motor-cycle	1s., etc.
Lurgan	No lamp	40s., etc.*
Alfreton	Negligent driving	Warrant issued.
Croydon	No licence	5s. 6d.
,,	Employing unlicensed driver	5s. 6d.
Caledon	No lamp	40s.*
Portadown	No light	40s.
Sutton Coldfield	Furious driving	£5.
Westminster	No light	3s., etc.
Dorchester	Dangerous speed	5s., etc.
,,	Car not stopping	10s., etc.
York	No number plate	2s. 6d., etc.
Woolwich	Not producing licence	20s., etc.
Oxford	Allowing a car to stand 30 minutes on roadway	1s. 6d., etc.
Manchester	Driving dangerously	21s., etc.
Buckingham	Unattended car	10s., etc.
Newbury	Driving dangerously	20s., etc.
Woking	No light in rear	1s., etc.
Wolverhampton	Driving dangerously	20s., etc.
London	Allowing unlicensed person to drive	£5, etc.
,,	Driving without licence	1s., etc.
Eddisbury	Driving dangerously	25s., etc.
West London	Using an unregistered car	£3, etc.
Cambridge	Driving without licence	25s., etc.

* Licence endorsed in addition to fine imposed.

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THE

Motor-Car Journal.

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COMMENTS.



ENFIELD is a pleasant place in the northern district of the Metropolis, but it is apparently a centre of danger for motorists, three of whom have made an appearance in one day at the local police court. The police have a well-devised trap extending over a length of 352 yards, and the magistrate, who is also a member of the Middlesex County Council, said he felt a speed limit of much less than twenty miles per hour should have been imposed. Surely Enfield is not seeking to become as notorious as was Reigate in the old days. Our illustration, designed by Mr. Alfred Dunhill, represents the sort of thing to which motorists are being subjected in many places.

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A Conviction Defeated.

AGAINST the decision of the Beaconsfield magistrates Mr. I. A. Trueman has successfully appealed to the Buckinghamshire Quarter Sessions. He was fined £2 and costs for driving a motor-car to the common danger at Chalfont St. Peter on the 3rd ult., and the bench, having regard to some of the evidence, decided on conviction. On re-hearing the case at Quarter Sessions the majority of the magistrates were of opinion that this could not be sustained. Such a result should encourage others not to accept adverse verdicts with resignation.

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The Rule of the Road.

THE Lord Chief Justice Clerk of Scotland (the Right Hon. J. H. A. Macdonald), whose letter in our Correspondence in reply to Colonel Magrath raises an important question, has won distinction in many spheres, ranging from the law to volunteering. He is an enthusiastic motorist, and, in view of the opening of the touring season of 1904, we hope the points these two gentlemen have brought forward will be discussed both at meetings of the provincial clubs and in our columns. Nothing but good can result from such an expression of opinion.

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Motor Volunteer Corps.

THE corps had an exceptionally busy time during March. A staff ride was held under Lieut.-General Sir John French, commanding the 1st Army Corps, when some sixty officers were conveyed over the whole of the district of Chichester. At the conclusion of the tour General Sir John French expressed to the commanding officer his entire satisfaction with the arrangements which had been made. A most interesting Staff tour was carried out under Lieut.-General Lord Grenfell, commanding the 4th Army Corps, on the 24th and 25th ultimo, when about eighty officers of the Scottish Volunteer Brigade were conducted around the London defences. From the 17th to 22nd March Messrs. J. Whittaker and J. McKelvie were employed under General Sir Leslie Rundle, K.C.B., on a Staff ride at York. This was the first occasion on which the corps has been called upon for duty in the North of England, and it is gratifying to know that General Rundle has expressed his appreciation of the services rendered. From the 27th to 31st March Captain J. E. Hammond and Member F. Lanchester were also employed under General Rundle at York. During the Volunteer Cyclist manœuvres held in the neighbourhood of Chester during Eastertide, from 1st to 4th April, Captain J. F. Hammond and Mr. T. W. Kemp were on duty with the Umpire Staff.

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Motor-car Imports and Exports.

ALTOGETHER only 492 foreign motor-cars were imported into this country during last month, their value being returned at £169,166. "Parts" were responsible for £20,741, bringing up the total imports for March to £189,907, as against £206,995 in the preceding month, and £206,296 in March, 1903. So far this year, that is to say for the first three months, the imports stand at £517,674, or roundly £50,000 more than in the same period of last year. We are glad, however, to be able to record an upward move in the exports of British automobile productions. Thus last month fifty-five vehicles were shipped, these with the "parts" being valued at £29,285. For the three months ending with March the exports are returned at £86,116, £24,000 more than in the corresponding three months of 1903.

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Registered Cars.

ACCORDING to Mr. Lane, K.C., the magistrate at the West London police court, care must be taken by repairers of motor-cars to distinguish between the use of cars by "intending purchasers," and those sent "for repair." The words "intending purchaser" in the Act mean exactly what they say, and cannot be extended to cases of cars for repair—an example of accurate representation of meaning not always associated with legal diction. The instance which drew attention to this distinction is reported in our list of "cases dismissed."

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1,200 Signposts for Somerset.

AT the last meeting of the Somerset County Council Mr. McMurtrie brought forward the report of the Motor-Car Committee, which stated:—The various provisions of the Act, as to the granting of licences and registering motor-cars, the keeping of registers, and granting identification marks and numbers, have been satisfactorily carried into operation. The number of registrations entered and licences granted to the present date are:—Motor-cars, 169; motor-cycles, 207; drivers' licences, 453; manufacturers' identification marks, 5. The committee recommended the Council that in view of the opinions of the Local Government Board, and of the vagueness and indefiniteness of the recommendations of a large proportion of the District Councils, no application should at present be made for regulations restricting the use or speed of motor-cars under the provisions of Sections 8 and 9 of the Act, as they are strongly of opinion that it would be advisable that the provisions of Section 1 of the Act should have a fair trial before other re-

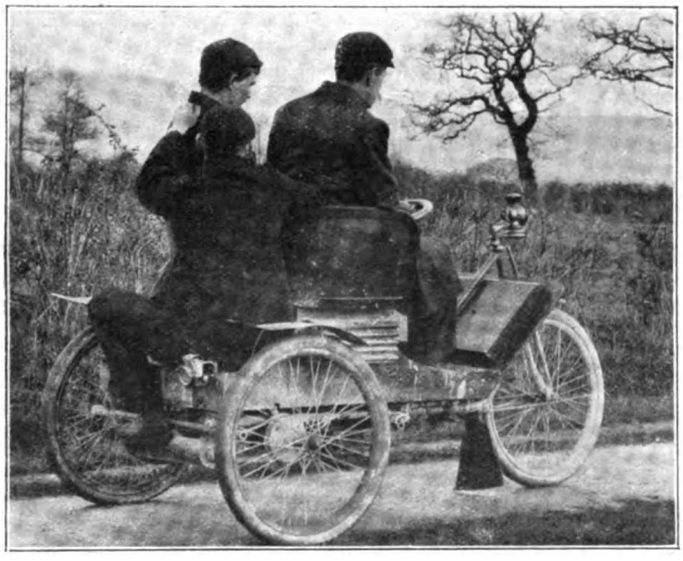
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strictions are made, either with regard to the use of motor-cars on certain roads or as to the speed at which motor-cars may be driven. On the whole the committee estimate that at least 1,200 danger notices will be required, which, at £2 each, will cost the county £2,400. They recommended the Council to authorise them to confer with the several District Councils on this part of the subject.

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Petrol for Patrols.

OFTEN have we pointed out that the motor-car, instead of being regarded by the police as something to obstruct whenever possible, should be looked upon by them as rather a friend. The accompanying illustration shows its use in this connection. A policeman in the West of England, having arrested a prisoner recently, was able to take advantage of an Avon Trimobile in marching his prisoner to the station. Now that the Chief Constable of East Sussex has a motor-car, and several demonstrations of its value in police work similar to that illustrated have been made known, it is not to be wondered at



that there are folks bold enough to advocate the substitution of the mounted patrol by the petrol-mounted policeman. Since writing the foregoing a member of the Metropolitan police force has found the motor-car equally serviceable in effecting the capture of an alleged coiner.

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Climbing a Mountain.

BEFORE the Manchester Automobile Club, Mr. G. Higginbotham has been giving some of his experiences with his 60-h.p. Mercedes. Included in these was the first really authentic account of how he climbed the Great Orme's Head. What led him to attempt this was, while staying at the Grand Hotel the porter informed him that a gentleman had recently got to the top with his car. Having seen this machine at the door several times, Mr. Higginbotham and his friends decided to inspect the route, without, however, the slightest intention of attempting it. Accordingly they got on board the tram and went up to the top. On the way up the conductor of the tram told us that the Panhard car had got stuck each time a little above the crossing called the Black Horse Gate, and had never really got to the first station, let alone the top, although he had been trying for four days, and, added the conductor, he did not believe that there was a motor-car made that could do it. So the motorist said that he would get to the top if any car could. After walking down from the top over the fields they eventually decided on a route, and started to have a trial trip up to the first station next day before lunch, intending to come back, and after lunch to tackle the job in earnest. They took two mechanics armed with spades, Mr. Higginbotham, Mr. Williamson and Mr. Ward, all on the car. Starting just below the tram she simply flew up the steep portion which the tram follows up to the crossing at the Black Horse Gate, and so fast did they go that the people in the houses, who came out to see them coming, did not see them at all till they came down. They reached the first station four minutes after leaving the bottom, the steepest gradient being 1 in 3. But they did not stop, going on over great pieces of broken rock, called a road, towards St. Tudno's Church, about half-way to which they took the grass, but it had commenced to rain and made the grass so slippery that after a time the wheels spun round and dug great ruts. So they got some rope and wound it round the back tyres. This helped, and eventually, after crossing the line, they got on some stony ground and reached the flagstaff, actually touching it. The return journey was a very simple matter, as the car had three good metal brakes, water-cooled, and with seven men and a dog they reached the bottom one hour after their start. This was probably the first attempt to climb a mountain in this country which was successfully accomplished.

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The Speed Limit at Dover.

ALTHOUGH Sir Woollaston Knocker, the Town Clerk of Dover, declared that the speed limit the local Corporation have sought to impose upon motorists will only mean a delay of nine minutes in passing through the borough, no real evidence in support of the application was tendered to Mr. G. P. Burd, who conducted the inquiry on behalf of the Local Government Board. On the other hand, Lieut.-Colonel Holden, the chairman of the A.C.G.B.I., expressed the view that the proposed ten mile limit would not give the safeguard the public demanded. After all, the speed must be limited by the traffic at the time, the condition of the road, and the common sense of the driver, rather than by any arbitrary enactment—a view which was supported by Mr. W. R. Jeffreys, who said that hansoms in London attained a speed of from twelve to fourteen miles an hour, and omnibuses twelve miles for a time. Then, on behalf of the Automobile Club, Mr. G. W. Ricketts gave the legal opinion, and contended that, as the ordinary law was very stringent, this section of the Motor Car Act ought not to be lightly put into force on the application of the local authorities.

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The Evolution of Speed.

IN our correspondence columns, Mr. E. Kennard, J.P., whose motoring enthusiasm continues to advance with every development of the motor-car, draws attention to the desire for increased power evinced by most motorists. He warns intending motorists not to begin their career on the car with vehicles of too low a power, and gives his own experience as a specimen of the way the wish for more and more power develops. While we agree with Mr. Kennard as to the whetting of the appetite in an Oliver Twist direction, it is to be hoped that his advice will not discourage prospective buyers whose resources will not allow them to go beyond the small car.

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Commerce and Pleasure.

NOT often do Chambers of Commerce enjoy the company of sportsmen at their annual assemblies, but such a pleasure was given the members at the Isle of Man Chamber of Commerce at their annual dinner last week. Mr. J. W. Corlett presided and proposed the toast of the King, making kindly reference to the governor of the island, Lord Raglan, who thanked those present for their appreciation. As the Legislature of Mona was one of the oldest in the world, it had shown it was like old wine, it improved with age. Their recent record passing of the Motor Bill might well cause other nations to look on with envy to see a Bill pass the three readings by both

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branches of the Legislature in one day. He was pleased to state that he had received the Royal Assent to the Bill. They might fairly flatter themselves at their execution, with such facility and dispatch, of so important a measure for the Island. Mr. J. W. Orde, secretary of the A.C.G.B.I., and Mr. Alfred Bird, who also represented the Automobile Club, were among the speakers, the former remarking that their visit last year to Ireland was worth £60,000 to that island, but he could not say how much it would bring to the Isle of Man. The two days at Southport took 30,000 people there the first day, and 50,000 the next day. They had fixed May 10th for the race as a convenient time, midway between the Easter and Whitsuntide holidays. There were no roads better suited to their purpose in England or Ireland than those in the Isle. He could not but take that opportunity to thank His Excellency, the Deemster, and Col. Freeth for the many excellent suggestions they had given him, which had advantageously altered the plans he originally had in mind.

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A Candidate on Motoring.

AWAY in Devonshire several Parliamentary candidates have been touring among the villages in motor-cars, and at the inaugural meeting of the South Lincolnshire Club, referred to on another page, Mr. E. M. Pollock, a prospective candidate for the Spalding division of Lincolnshire, has been advocating automobilism. He said that an old friend of many persons in Spalding and an old friend of many in the district was one of the first men to tear up the old red flag, and thereby, under the Act of 1894, allowed motor traffic upon the high road. He referred to the late Lord Winchilsea. At a gathering held in London, in order to demonstrate the utility of motor-cars, he tore up the last remnant of the red flag in order to show that henceforward there might be motor-traffic on the highway. They had all enjoyed their ride that afternoon, and such would no doubt give a great impetus to the improvement of motor-cars, because it proved how they could be used successfully by persons, not only in their business, but also for pleasure.

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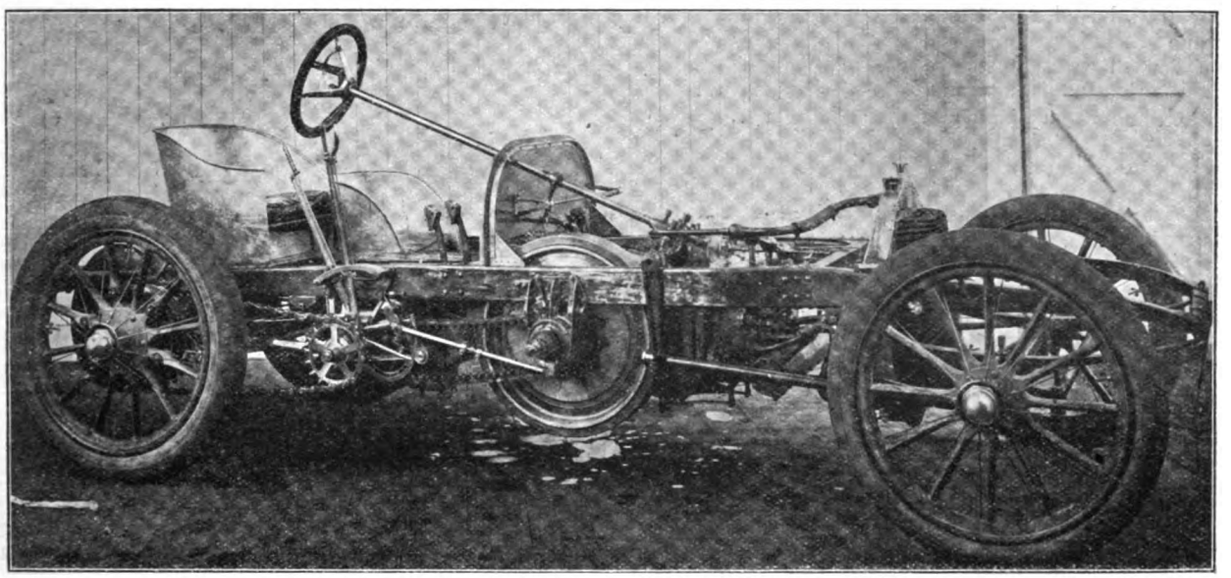
The Law's Inconsistency.

AN inconsistency in the Motor Car Act of last year has just been exposed by a police magistrate, and we trust the point will not be forgotten by automobilists who are watching the operation of the present law, in view of its temporary character. At the South West London Police Court, a motorist has been summoned for driving by night without carrying a proper light, illuminating his rear identification plate. Having been fined, he asked that the conviction might not be recorded on his licence. Mr. Francis, the magistrate, replied that while it was left to his discretion in a case of excessive speed he had no alternative to endorsing the license in this case. There can be no doubt that the latter instance was of less importance than furious driving and yet the sentence is practically heavier. That the magistrate has no discretionary power in such circumstances is one of the absurdities of the Act that was certain to be revealed sooner or later.

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The Wolseley 96-h.p. Gordon Bennett Racer.

WE are this week able to give two illustrations of the 96-h.p. racing car which has been built by the Wolseley Company for the British eliminating trials in connection with the Gordon Bennett contest. The main dimensions are:—Wheel base, 9 ft., track, 4 ft. 7 in.; rear wheels, 36 in. diameter and 5 in. tyres; front wheels 34 in. diameter and 3½ in. tyres. The motor has four cylinders of the horizontal type; it is suspended in the frame in such a position that the *mecanicien* may be able to make adjustments whilst travelling. It is fed by an equalising carburettor of special design, one jet supplying the four cylinders. The flywheel is of extra large diameter and the motor can be very rapidly accelerated up to 1,300 revolutions per minute. The pump is carried on the radiator and driven from the motor by a telescopic shaft with spring drive. The gear box is suspended from three points, the shafts running on ball bearings. Both front and back axles are of I section steel, and the wheels are of the artillery type reinforced with wire spokes to take the side strains. The petrol and oil supplies and pressure gauges are all placed so that the *mecanicien* has them constantly under observation, the commutator especially being placed so that it can be got at without trouble. Both foot and hand brakes act on the back wheels, the foot brakes being of the Wolseley special internal expansion type, the hand brake operating bands working on drums which are part of the chain wheel castings. The top speed of the car is equal to 75 miles an hour, with the engine running at normal speed; but, as previously mentioned, it can be accelerated up to 1,300 revolutions per minute. The sparking plugs have been specially made and are extra large; the coil is provided with two tremblers, only one of which works at a time, a cross-over switch being provided so that either may be used. A separate switch is fitted to each low tension lead to act as a detector to the different plugs.



The Wolseley 96-h.p. Gordon Bennett Racer—Right-hand Side.

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Joint Runs.

THE idea of combined meets of provincial clubs, to which we made reference last week in noticing the proposed gathering of northern clubs at Buxton, has caught on, and we are glad to record that such an event took place on Saturday last at Ashby-de-la-Zouch, a pleasant place with an uncomfortably long name. The Leicestershire, Nottingham, and Derbyshire automobile clubs gathered together, and, although the weather was cheerless, about fifty automobiles arrived at the Royal Hotel, which was made the joint headquarters for the day. Such runs are conducive to the best interests of motoring, and will have a good effect on hotel proprietors likewise.

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Rural Motor Services.

GENERAL interest has been expressed recently in Farnham and Haslemere as to a suggested motor-omnibus service between the two towns, and an advocate of the proposal who stood for the Farnham Urban Council has just been returned second highest on the poll among a long list of candidates. Some of the large rural landlords also favour the idea, as an improved communication with railway stations is a pressing need in the many villages of the locality, and a good passenger and parcels traffic is assured. The Great Western Railway Company has only recently inaugurated these motor-car services in various parts of Cornwall, but already the directors have found them of material value in feeding the line with traffic and have ordered the construction of additional cars, and many local residents are hoping that the time is not far distant when the directors will be able to announce a similar enterprise in Surrey.

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Letters of Identification.

A FEW months ago we gave the letters of identification for the various counties and boroughs of the United Kingdom. This week we republish a list of the marks relating to Scotland, and in later issues those for other parts of the United Kingdom will be given. There is a good deal of interest taken by the ordinary public in the marks of identification, and motorists are frequently asked by their friends as to where passing cars have come from. Hence the value of having the marks of identification readily available.

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Club Events.

POSTPONEMENTS are the order of the day. The date of the side-slip trials has been altered to May 7th, the thousand miles preliminary run beginning on Monday from the Locomobile Garage, South Kensington. The trials of light delivery vans which were to have taken place in October have been put off till February of next year, thus steering clear of the Reliability Trials in November. Another event in which great interest is likely to be taken is the parade of heavy motor-cars on the Thames Embankment on the 30th inst. The first vehicle will be located about fifty yards east of Charing Cross Bridge, and will move off along Victoria Street to Grosvenor Place, the procession dispersing at Hyde Park gate.

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A Horse with a "Peculiar Habit."

A GENTLEMAN who lives at Palace-knowe, in the unfamiliar town of Beattock, which is situated in Dumfries, has a horse which, to quote his letter just received, "has a peculiar habit of wheeling right in front of a motor-car when it comes almost opposite a motor." Our correspondent knows of several more equines in the district similarly unmannerly, and therefore asks us to invite motorists to slow down when seeing horses in that locality. It may happen that they may meet this particular animal with the "peculiar habit," in which case they would find an obstruction on the roadway which might prove a bit cantankerous. Whilst giving our correspondent every credit for good intentions, we would like to point out that the sooner he gets rid of a horse of such antiquated notions the better it will be for himself as well as for others. An animal that cannot behave itself properly when meeting a motor-car ought to be transported, say, to Antwerp.

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Motorists as Public Benefactors.

THE public has been so accustomed to see motorists as defendants in legal cases that it may be as well to point out, says the "Law Times," that during the last twelve months certain automobile organisations have been active as plaintiffs, with the result of illustrating the homely saying that "what is sauce for the goose is sauce for the gander." The ordinary user of the roads, whether on foot or on horseback, on cycle or in carriage, will have largely to thank the motorist for bringing about a more wholesome regard for the public safety in the matter of unlighted vehicles left in obstructing positions, projecting and invisible loads, and gross negligence on the part of local authorities. It is a somewhat absurd anomaly that the fastest vehicles on the road should be the only ones compelled to show a red rear light. A succession of cases has also revealed the fact that, whatever may or may not have been the speed at which a motor was being driven, the stop-watch appliances served out to the police were far from being accurate.

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The British Racers.

TO-DAY (Saturday) the weighing-in of the cars entered by British firms for the eliminating tests of the Gordon Bennett race will take place. The drivers of the Wolseley cars in the Isle of Man contest will be Messrs. Charles Jarrott, Campbell Muir, and Sidney Girling. Of the five Napiers entered the drivers will be Messrs. Mark Mayhew, John Hargreaves, J. W. Stocks, Clifford Earpe, and S. F. Edge.

THE Duke of Bedford has ordered a M.M.C. 25-h.p. shooting brake.

AT the Saracen's Head Hotel, Dunstable, Mr. F. R. Hatcher supplies the wants of motorists at all hours of the day and night.

THE Motor and General Tyre Company, Limited, has been registered with a capital of £1,000 to manufacture and deal in pneumatic and other tyres.

DR. BOVERTON REDWOOD has been elected vice-chairman of the Committee of the A.C.G.B.I., and Professor Vernon Boys has been invited to fill his place on the Committee.

THE Automobile Engineering Company, Limited, has been registered with a capital of £15,000 to adopt an agreement with Corders' Trust, Limited, and to carry on the business of manufacturers of and dealers in motor-cars, motors and their accessories, etc.

AT the annual conversazione at the West Ham Technical Institute, one of the attractions of the engineering section was a petrol motor made during the past session by the students, under the direction of Mr. J. Duncan. A display of motor-cycles made by firms resident in West Ham was also on view.

AT a recent meeting of the runs and tours committee of the Automobile Club of America the date and general plan for a spring tour for the Club were agreed upon. The tour will be of eight days' duration, with Gettysburg as the destination, and it will be held from the 26th May to June 3rd. It will include stops at Philadelphia and York, Pa., on the outward trip, and at Philadelphia, Atlantic City and Lakewood, N.J., on the return journey.

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THE HIGH-TENSION IGNITION SYSTEM FOR PETROL MOTOR-CARS.

By J. W. Frings.

THE high-tension system, as it is popularly called, is that most frequently used for ignition purposes on the motors of self-propelled petrol vehicles, and as a great amount of misconception exists, as well as actual ignorance on the subject, I propose in this article to deal in a non-technical manner with the construction of the various items of apparatus used for this purpose, and to give a brief exposition of the electrical principles involved and their adaptation to their specific uses.

It will be, perhaps, as well to assume an entire lack of electrical knowledge on the part of readers, in order to avoid the possibility of taking for granted that certain facts, necessary for the comprehension of the subject, are known when such might not be the case. I will therefore commence with a few simple electrical definitions.

Electricity.—An invisible agent known only by its effects. The principal electrical phenomena fall under four heads. (1) Statical charges, (2) currents, (3) electro-magnetism, and (4) electric waves. The three latter forms of phenomena are to be observed in the working of the high-tension system.

Currents.—The flow of electricity, which may for example be generated in a battery by chemical decomposition. When zinc is dissolved—in a simple voltaic cell—in dilute sulphuric acid in the presence of a copper plate, the zinc parts with its latent energy as its atoms combine with the acid. This energy is expended in forcing electricity through the acid to the copper plate and back again to the zinc, outside the cell, through the conducting medium—the wiring of the electric circuit. Current is also generated magnetically in a dynamo. As this method enters so little into the constitution of the high-tension system, it is hardly worth while dealing with its phenomena, which will fall more properly in line in a future article dealing with the magneto system of ignition.

Accumulator.—A type of battery in which an extremely active condition—chemically—of certain metals and metallic oxides is artificially created by forcing a current of electricity through them. This decomposes the original paste oxides—in the one case into the spongy metallic state and in the other (the anode) into a complex peroxide. The process might be simply described by supposing that the plates are respectively charged with hydrogen and oxygen. These two elements form water in recombining, which takes place immediately the difference in potential is allowed to force the current through the circuit by the latter being closed externally. In discharging, the active materials—in giving up their hydrogen and oxygen respectively—assume, by virtue of the chemical reactions, their original constitution, and are thus ready for further charging and discharging.

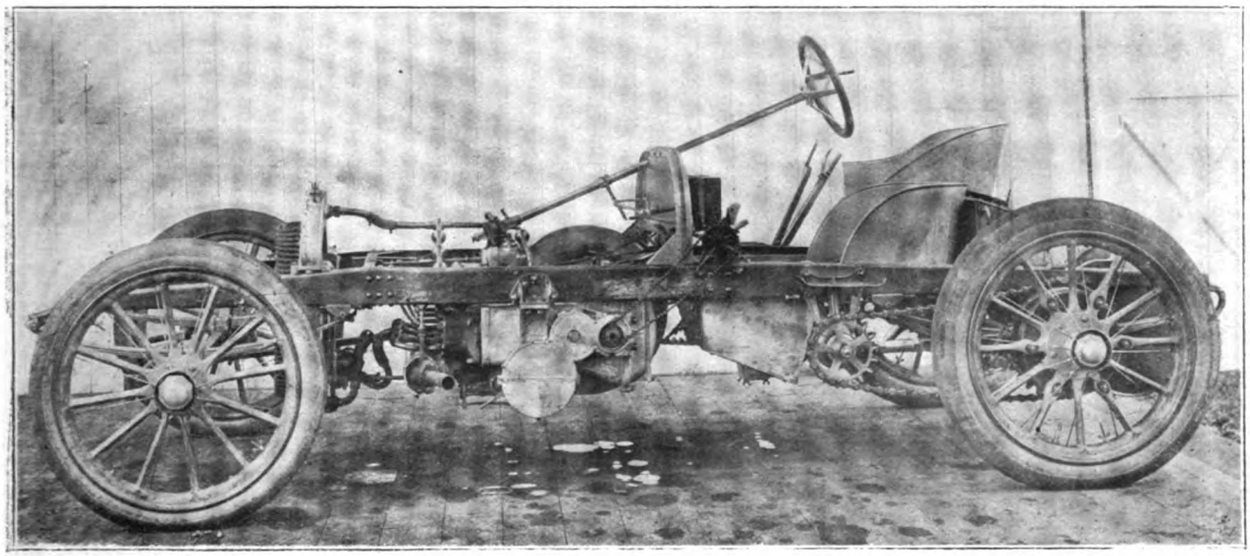
Conductors.—Bodies which readily allow electricity to flow through them. All metals are good conductors.

Non-conductors or Insulators.—Bodies that retard the flow of electricity wholly or very considerably. Glass, shellac, porcelain, mica, guttaperchs, indiarubber and its compounds, vulcanite, etc., are good insulators.

Induction.—The "creation" of a current or electric flow in a circuit, by the circulation of an originating current through an adjacent coil, with which, however, the circuit carrying the induced flow is not in contact. This phenomena is allied to the magnetic production of current.

Difference of Potential.—A difference of potential produces pressure in a circuit in somewhat the same way that a difference of level in water produces pressure, which is apparent when the supply is turned on. So when a circuit is closed, *i.e.*, when a path is made for the current to circulate, the difference of potential produces the pressure and occasions the flow.

Potential.—The power of doing electric work. A natural difference of potential is inherent between most substances capable of being affected chemically.



The Wolseley 96-h.p. Gordon Bennett Racer—Left-hand Side. [See page 145.

Series.—An accumulator is said to be coupled in series when the two cells of which it consists are connected—the positive of the first to the negative of the second—in such a manner that the pressure is equal to the sum of the pressures of the cells so connected, whilst the current given off is the same as that given off by a single cell.

Parallel.—When cells are connected in parallel (all the negatives together and all the positives together) the current given off is equal to the sum of the current of each of the cells, while the pressure remains that of a single cell.

Ampere.—The measure of current-rate or strength. The "rate" at which electricity passes a given point in a circuit is indicated in amperes, a simple illustration being that an ordinary incandescent electric lamp of sixteen candle power takes half an ampere to illuminate it. The "quantity" of electricity is computed in ampere-hours, the capacity of ordinary accumulators ranging from 20 to 60 ampere-hours; which means that they contain a charge equal to a supply of one ampere for 20 or 60 hours respectively, or of, say, five amperes for four and twelve hours respectively. There is a certain discharge rate for an accumulator which must not be exceeded, under the penalty of ruining the plates by buckling.

(To be continued.)

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CONTINENTAL NOTES.

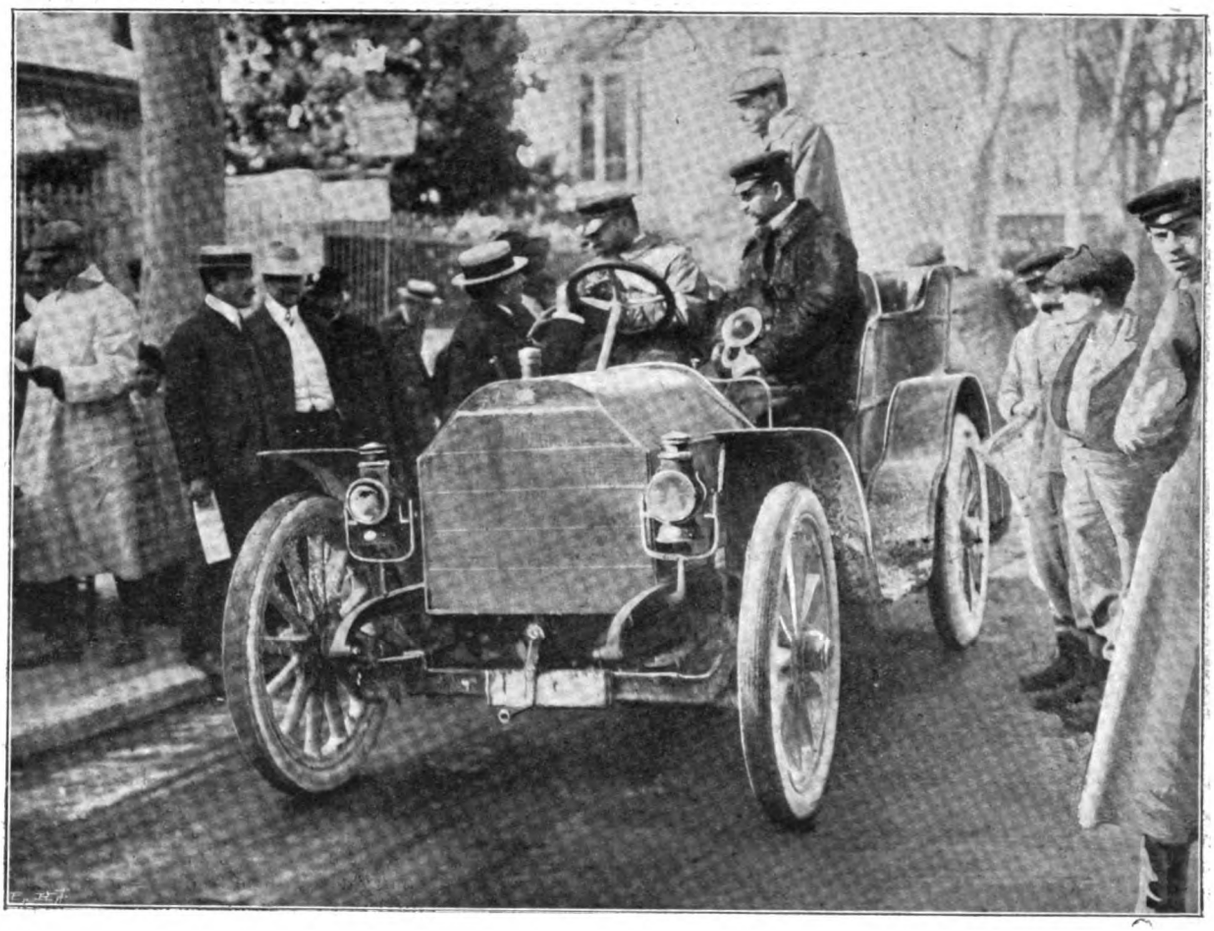
Motor-Boat Races at Monaco.

INTEREST in the South of France during the past week centred in the motor-boat races at Monaco. On the 5th inst. seven boats competed in the 8-metre racer class, which had to cover 150 kilometres. "La Rapee III.," with Panhard four-cylinder 35-h.p. motor, won in 4 hours 33 min. In a 60 kilometre race for 6½-metre cruisers, six competed, the winning boat being "La Marguerite," with Mutel four-cylinder engine (time, 3 hours 32 min.). The programme on the 6th inst. included a 200 kilometre race for "racers" from 8 to 12 metres in length, with motors of a maximum capacity of 15 litres, and an 85 kilometre contest for "cruisers" of a length less than 8 metres, and with single-cylinder motors of not more than 3·45 litres capacity. The first event was won by the "Trefle a Quatre," with Georges Richard-Brasier four-cylinder motor, in 5 hours 15 min. 51 sec. The "Napier Minor," which competed in this race, retired owing, it is reported, to pump troubles, and to a slight flare up, which, however, was quickly extinguished. The winner in the second event was "Peugeot III.," with Peugeot four-cylinder motor (time, 3 hours 55 min. 16 sec.). On the 8th inst. the "Vasy," with Delahaye four-cylinder engine, won a 100-kilometre "cruiser" race in 4 hours 25 min. 18 secs., and the "Lutece," with Panhard motor, the "racer" event over a distance of 175 kilometres, in 5 hours 6 min. 9 sec. The most serious accident of the meeting occurred in this race, the "Parisienne II." being destroyed by fire. The boat, which was fitted with three Mors engines of 60-h.p. each, was sailed by Mr. L. C. Currie, nephew of Sir Donald Currie. Before the vessel had gone far a leakage was discovered in the oil tanks, and shortly after the oil took fire. Before they could escape, the engineer and the two mechanics were burnt, and, as it was impossible to subdue the flames, all four men dived overboard. Fortunately they were picked up by another motor-boat and brought into harbour. On Saturday the "Mercedes I." won a 50-kilometre "racer" handicap in 1 hour 32 min. 20 sec., and "Le Nogentais," with Darracq engine, the "cruiser" handicap, this vessel covering the 67·6 kilometres in 2 hours 57 min. 38 sec.

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Diplomas for Mechanicians.

A PRACTICAL attempt towards solving the problem of thoroughly training men to look after and drive motor-cars is about to be made in France, the Association Générale Automobile having decided to create a special diploma for "mecaniciens-conducteurs." By this means motor-car owners will be able to obtain the names of drivers who could be thoroughly relied on as understanding every phase of their business, while the men who have the enterprise to qualify for the new diploma will be practically certain of finding employment with the utmost readiness. The certificate in question is only to be awarded after the successful completion of severe tests in driving and repairing. A theoretical knowledge of motor-cars will also be an important item in the examination. Every candidate must be able to take the principal parts of the mechanism of a car to pieces and put them together again. Moreover, an accurate and complete knowledge of police regulations, insurance liabilities, customs house formalities, and the necessary steps to be taken for despatching motor-cars by rail or steamship, will be essential. Finally, the physical fitness of the applicant for a diploma will be considered, every candidate being required to undergo an examination by a physician.



Prince Lubecki on his 60-h.p. Mercedes in the Touring Competition at Nice. [*Allgemeine Automobil Zeitung.*

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The A. C. de Touraine's Touring Competition.

THE Automobile Club de Touraine, of Tours, is organising a touring competition for motor-cars and cycles, to be held from the 12th to the 15th May. The weighing in and examination of

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vehicles by the jury will take place on the 12th; on the 13th there will be a run of 253 kilometres, followed by one of 251 kilometres on the 14th; on the last day the competing machines will be placed on exhibition and examined by the jury. Category 1 is for chassis costing less than £240; Class 2, ditto from £240 to £480; Class 3, ditto over £480; and Class 4, motor-cycles. The classification in the case of the cars will be by points on the following maximum basis: (a) regularity, 600; (b) fuel consumption, 300; (c) dead load per passenger's seat, 300; (d) average speed, 100; (e) capability of starting on hills, 200; (f) price of chassis, 100; (g) carriage work, 200; (h) ease of starting motor, 100. Entry forms can be obtained from the A. C. de Touraine, 27, Rue Victor Hugo, Tours.

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International Exhibition at Liege in 1905.

THE international exhibition which will be held at Liege next year (April to November) is certain to be of considerable interest from an automobilist's point of view. There are numerous motor-car works in the district, and, though their names are not so well known as some in France and Germany, yet a large number of cars are turned out. A commercial bureau is to be attached to the exhibition, which, besides giving information concerning it, and also the country, will facilitate the inspection of works in which visitors may be interested. Liege, though one of the largest manufacturing centres of the world, is an ideal centre for pleasure seekers, Spa, Namur, Dinant, Chaudfontaine and the Ardennes all being within easy distance, and the town itself, with its broad river and parks, and wonderful boulevard, well worth a visit. The success of the exhibition, which is in commemoration of the 75th anniversary of the Belgian national independence, may be said to be already assured.

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Automobile Regulations in Brussels.

THERE has, perhaps, been more trouble in Brussels concerning the regulation of motor-cars than in any other city. For months war was waged between M. de Mot, the burgomaster, and motorists on the speed question, and the courts were kept busy with cases of drivers who had infringed the law. Now litigation has arisen in respect of the lamp which all *chauffeurs* are expected to carry on their cars. A driver having been summoned for not carrying a lamp with opaline glass, he declared that the law required that motor-cars should have a numbered plaque in front and one behind illuminated by a lamp. The magistrate acquitted the motorist on the ground that the regulation of the authorities of Saint Gilles setting forth that every car should carry a lamp with opaline glass was illegal, since it added to the text of the law. Therefore, according to this finding, while the carrying of a lamp is compulsory, it is not necessary that it should be provided with opaline glass.

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Races at Arras.

IN connection with the exhibition which will be opened at Arras early in May, under the auspices of the Automobile Club du Nord, it has been decided to include in the programme a number of motor-car races and a tour. On May 25th the mile and kilometre trials will be held, while a five kilometre hill-climbing competition is fixed for the 26th. On the next day there will be a 294 kilometre tour to Boulogne and Touquet (Paris-Plage), and on the beach at the latter place, on May 28th, a series of mile trials will be held.

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A German Reliability Trial.

AN endurance test for motor-cars and cycles is in preparation under the auspices of the Berlin and Leipzig Automobile Clubs. The date of the test has been fixed as May 8th, the course to be Berlin, Potsdam, Wittenberg, Bitterfield, Leipzig, and back, a distance of about 200 miles. The light cars will only run from Berlin to Leipzig. The minimum permitted time is fixed at 9½ hours, and for the single course 4½ hours, the maximum times being 11½ and 7 hours respectively.

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A New Tyre-Repairing Compound.

MESSRS. MICHELIN have recently introduced a special rubber paste known as "Le Mastic Michelin" for filling up cuts in the outer covers of pneumatic tyres. In application, the hole in the cover is cleaned out thoroughly with naphtha, a coat o rubber solution applied, and the cut is then plugged with the paste.

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The French Eliminating Trials.

THE Sporting Committee of the A.C.F. has decided that the start of the eliminating contest in the Argonne for the Gordon Bennett Cup team shall be made at Mazagran, at the intersection of the Renthel-Vouzier and Chalons-Aligny roads.

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French Motor-Car Exports.

ACCORDING to a return just issued, the motor-cars exported from France last year attained a value of £2,035,680 as compared with £1,208,760 in 1902 and £631,280 in 1901.

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Automobile Regulations in Sweden.

THE Swedish Minister of the Interior is at present engaged in formulating regulations with regard to motor-car traffic, which will aim at favouring the extension of the automobile industry in Sweden.

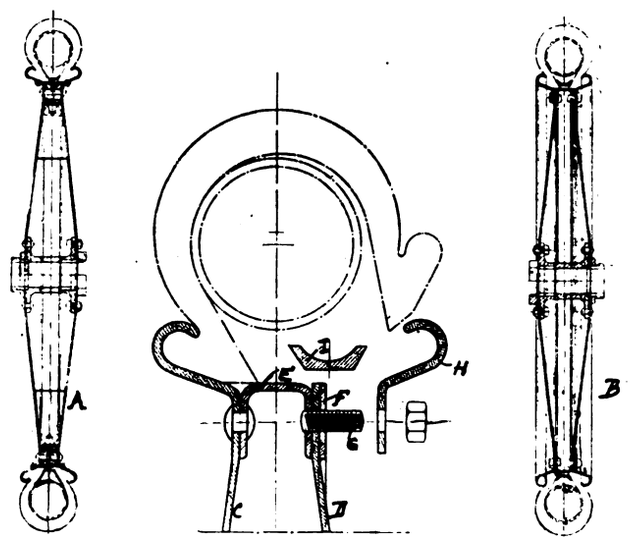
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Military Motor-Cars in Italy.

THE Italian Ministry of War has decided that in all important garrisons motor-cars are to be provided for the use of the chief officers, and that heavy motor-wagons shall be used in the commissariat department.

THE ARBEL STEEL WHEEL.

IN our report of the Paris Automobile Exhibition we mentioned that steel disc wheels for motor-cars were shown by two concerns. We have already illustrated the Stier arrangement, and now give an illustration of the Arbel steel wheel, which is made by Les Forges de Douai in either of the two forms shown sectionally to the left and right of the illustration. The one shown at A has its rim fixed rigidly to it, while that at B has a detachable type of rim, seen on a larger scale in the centre. This wheel is built up of



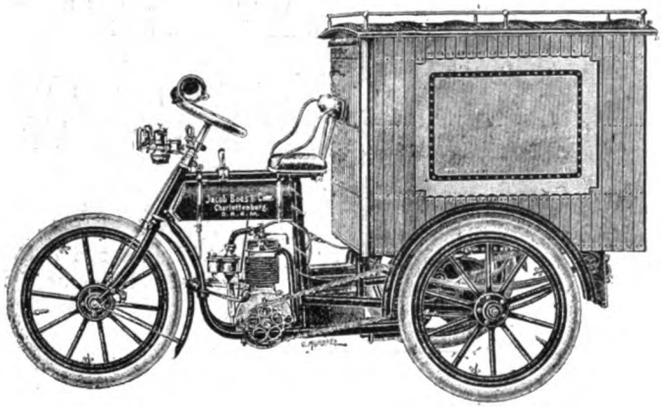
two pressed steel discs, C and D, which are riveted with flanged joints to the hub at the centre, and are united at their peripheries by the ∩ rim, E. In the detachable form, the disc, C, is continued up to form one side of the rim, and the disc, D, is reinforced by a ring, F. The detachable side, H, of the rim is held in place by nuts, which fit the studs, G, the thickened edges of the tyre cover being held in place by the curved-over sides of the rim. A saddle-shaped ring, I, is provided between the two thickened edges, and this rests on the rim, E, to form a curved surface for the inner tube to lie in. We may add that the Arbel wheel was used by M. Serpollet on his steam car in some of the races in France last year.

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MOTOR-CYCLING NEWS.

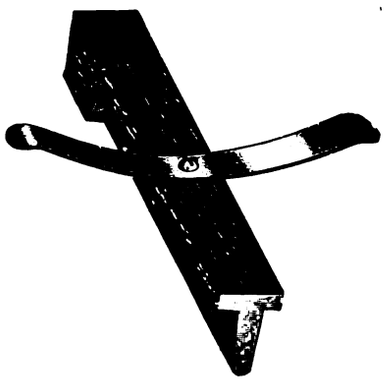
FROM the Ariel Cycle Company, Limited, comes a copy of the new catalogue of the Ariel motor-cycles. This is very complete, giving as it does detailed illustrations of the motor, carburettor, silencer, and other parts of these machines. Several pages are devoted to a number of useful hints to users of the Ariel motor-cycles.

A GERMAN firm, Messrs. Jacob Boes and Company, of Charlottenburg, has lately brought out the motor parcel delivery tricycle illustrated herewith. It is intended for tradesmen's



use, and is fitted with a 4-h.p. motor with two speeds—5 and 12 miles per hour—and free engine. The motor-cycle is capable of carrying a load of from 5 to 6 cwt.

THE Triumph Cycle Company, Limited, have lately issued a handbook dealing with the features of their 2½-h.p. and 3-h.p. motor-cycles. One of their most recent productions is a 3-h.p. forecar, with water-cooled engine, the circulation being maintained by pump and radiator. The booklet referred to above will be found useful by riders of the Triumph motor-cycles, as, in addition to descriptions of the various machines, a diagram of the electrical wiring connections and a number of riding hints are given. The various features are also clearly dealt with, among them being the small but important improvement illustrated herewith. It consists of a combined spring and wedging device to hold the accumulators securely in place with-



out undue pressure. The rag-and-firewood packing of the average accumulator case, at best an unreliable way of securing the battery except as a salve to the owner's conscience, is thus dispensed with.

THE Motor Cycling Club are fast completing their arrangements for the all-day run from London to Edinburgh, which will start on May 20th next. This will be an historic event, and one which will attract a great deal of public interest. The legal limit of speed will be strictly observed. This ride is open to members of the club only, and motor-cyclists wishing to join should write without delay to the hon. secretary, Mr. J. H. Reeves, 2, Penywern Road, Earl's Court, London, S.W., as the entries close at an early date.

IMPORTS OF AUTOMOBILES.

BELOW we publish our monthly official list of the imports of motor-cars, motor-cycles, and the parts thereof, into the United Kingdom during the month of January, 1904:—

BELGIUM.

Shipped from	To	Description.	No.	Value £
Antwerp	Grimsby	Motor car	1	150
,,	Harwich	,, ,,	1	300
,,	,,	,, ,, parts	—	2,017
,,	Liverpool	,, cycle	1	50
,,	London	,, cars	2	1 168
Brussels	,,	,, cycles	4	120
Ghent	,,	,, car parts	—	35
Ostend	Dover	,, cycle	1	20
,,	London	,, cars	10	5,186
,,	,,	,, parts	—	119
,,	,,	,, cycles	32	931
Total value of imports from Belgium in January, 1904 ...				£10,096

CANADA.

				£
Montreal	Liverpool	Motor car	1	120
Total value of import from Canada, February, 1904 ...				£120

FRANCE.

				£
Boulogne	Folkestone	Motor cars	12	4,240
,,	,,	,, car parts	—	4,057
,,	,,	,, cycles	2	113
,,	Goole	,, cars	13	5,400
,,	,,	,, ,, parts	—	285
,,	London	,, cars	57	18,759
,,	,,	,, ,, parts	—	937
,,	,,	,, cycles	6	140
Calais	Dover	,, car	1	485
,,	,,	,, ,, parts	—	68
,,	London	,, cars	2	295
Dieppe	Grimsby	,, ,,	3	750
,,	Newhaven	,, ,,	109	39,510
,,	,,	,, ,, parts	—	5,978
,,	,,	,, cycles	4	134
Dunkirk	Leith	,, car	1	600
,,	London	,, car parts	—	65
Havre	Southampton	,, cars	6	700
Paris	London	,, ,,	10	1,500
Rouen	Glasgow	,, car parts	—	91
Treport	Leith	,, ,, ,,	—	1,428
,,	London	,, cars	12	3,623
Total imports from France from January, 1904 ...				£89,158

GERMANY.

				£
Bremen	London	Motor-cars	14	4,515
,,	,,	,, ,, parts	—	26
,,	,,	,, cycle	1	30
Hamburg	,,	,, car	1	1,005
Total value of imports from Germany				£5,576

HOLLAND.

				£
Amsterdam	Goole	Motor-car parts	—	3
Flushing	London	,, ,,	—	29
Rotterdam	Harwich	,, ,,	—	277
,,	London	,, car	1	250
,,	,,	,, parts	—	93
Total value of imports from Holland				£652

ITALY.

				£
Genoa	Glasgow	Motor-car parts	—	1,200
,,	London	,, ,, ,,	—	15
Total value of imports from Italy, January, 1904 ...				£1,215

UNITED STATES.

				£
Boston	Manchester	Motor-car	1	150
New York	London	,, cars	38	4,310
,,	,,	,, car parts	—	1,599
,,	Southampton	,, ,, ,,	—	98
Philadelphia	London	,, ,, ,,	—	3
Total value of imports from United States in January, 1904..				£6.160

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SOME USEFUL NOTES.

AFTER an automobile has been run a few thousand miles the mechanism which operates the valves becomes more or less worn, and this affects the working of the valves to a greater or smaller extent. While with ordinarily good care the wear is very little, yet a slight wear on the several parts will in the aggregate amount to considerable. This may be illustrated by the wear on the old-fashioned surveyor's chain, which had 596 wearing surfaces; if each link and ring wore one-hundredth of an inch at each point of contact, the four-rod chain would be lengthened nearly six inches. This is, remarks Mr. F. N. Blake in the "Horseless Age," in effect what happens in the wearing of the valve gear of a petrol car, though, of course, in a different way and to a lesser extent. Power is applied to open the valves, and as action and reaction are equal and opposite in direction, it follows that the parts wear in such places that the lift of the valves is delayed and lessened.

THESE notes are particularly intended to be of interest and assistance to those owners of Oldsmobiles who have not studied the matter, or have not thought enough about it to provide some remedy for the wear whenever it has reached the point where it becomes worthy of attention. Notwithstanding its simplicity, there are in the motor mentioned sixteen wearing surfaces which contribute to affect the lift of the inlet valve, and it does not require much wear on each one to make a perceptible difference with the inlet.

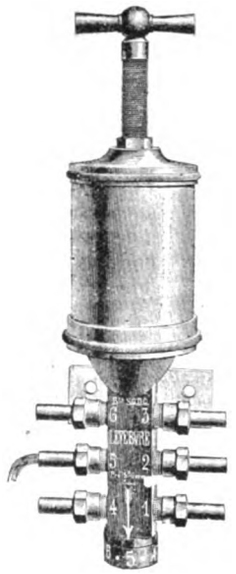
FORTUNATELY it is quite an easy matter to compensate for the wear in a fairly satisfactory manner. A rough and ready way is to enlarge the diameter of the roller under the valve by putting a band of thin sheet metal around it; the thickness needed can be determined by starting the engine and inserting a piece of the material between the roller and valve stem. If this makes the engine run faster, a thicker piece should be tried; if too thick to allow the valve to seat properly, make the piece thinner.

A MUCH better way is to replace the roller with a four sided piece of steel, each side to give a little different lift from the others; this will allow the valve lift to be easily regulated. If desired, one or two sides may be left to be used at some future time, when the wear shall have made another change desirable.

IT may at first be thought that a roller should be used in this place, but a little reflection will show that such is not the case. The lift of the valve is short, the lever lifting it is of fair length, and the arrangement is such that there would be but little friction even if the lever had a solid end. The writer has seen a case where, though the roller was free to revolve easily and had been kept well lubricated, still it had kept the same position so long that the upper side had worn flat an appreciable amount. It was remarkable that with all the thumping and jarring it had received the roller had not turned at least enough to prevent its wearing flat, and it demonstrated that a roller was unnecessary. If a block had been used instead of the roller it would have been as good in every way, and have had the advantage of presenting a larger face, and would thereby have reduced the wear both on itself and on the valve stem. The block should turn freely on its bearing. It cannot shift faces accidentally. If made somewhat after the shape of a Maltese cross it will still be as good and will have the advantage of being lighter. Instead of riveting the pin holding the block, it may be secured by a cotter pin, thus facilitating future adjustments.

THE exhaust valve mechanism is subject to the same wear as that of the inlet, having the same number of wearing surfaces and, in addition, a stiffer spring to work against, and so, having more work to perform, naturally may be expected to wear faster. When, because of this wear, it needs attention, it can be treated in the same way as the inlet. It may be stated that the method described does not restore the original valve action, but it comes so near to doing so that in practice it is not probable that the difference could ordinarily be detected. The difference lies in the fact that, owing to wear on the spiral gear, the action of the valves is delayed a very trifling amount; the other wear reduces the lift of the valves and is of greater importance.

THE accompanying illustration shows an ingenious grease lubricator which has recently been introduced by Messrs. A. Lefebvre Fils, of Prè-Saint-Gervais (Seine) France. Many of the lubricators on the market for lubricating five or six bearings have the fault of lubricating some of these more than others. The Lefebvre device has the advantage of lubricating all the bearings separately, or all together; it is composed of a copper cylinder, through the cover of which passes a screw, used to raise or lower the piston which compresses the grease. The lower part on which the cylinder is fixed is terminated by a distributor with two, four, or six numbered openings, according to the size. Besides the compressing piston, the screw controls a stem, on the lower end of which is fastened a revolving disc, and on which are numbers corresponding to the number of distributors. The stem of the disc is fixed in such a way that by unscrewing the screw which commands the piston (a fifth of a turn at most) it finds itself turned backwards, and turns with it the revolving disc attached to it, bringing the figure that has



been selected in line with the vertical arrow on the lower part of the distributor. Let us suppose a charge of grease has been sent along outlet No. 1, and that it is desired to lubricate No. 5, as is shown in the illustration. It will be necessary to turn the controlling screw to the left until the figure 5 coincides with the arrow. As soon as this happens there is nothing more to do than to turn the controlling screw to the right, as with an ordinary compressor, in order to make the grease pass to the bearing represented by this figure. The disc can only be moved by a backward movement of the screw, and therefore as much grease as may be necessary can be forced along the feeder simply by continuing the pressure. For lubricating all the bearings at the same time, the same rules must be observed, except that in place of selecting a number, one of the points which are to be found between each figure is brought into coincidence with the arrow.

MESSRS. H. H. P. DEASY AND COMPANY, LIMITED, has been registered with a capital of £40,000 to acquire the business carried on in London as Deasy and Company, to adopt an agreement with Capt. H. H. F. Deasy, and to carry on the business of automobile factors, agents, manufacturers, etc. There will be no initial public issue. The first directors (to number not less than two nor more than five) are Major E. de Beaumont, Mr. K. H. Buchanan, and Captain H. H. P. Deasy.

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The Motor-Car Exhibition at the Agricultural Hall.

[CONCLUDING NOTICE.]



From photo lent by] **The First Exhibition of Motor Cars in England—Tunbridge Wells, 1895.** *[Sir David Salomons, Bart.*

HEREWITH we complete our report of the Motor Car Exhibition at the Agricultural Hall—an exhibition that ranks first among such displays in this country, and that sets a standard which future shows at the same place may be confidently anticipated to maintain.

PETROL CARS.

LA SOCIETE DES AUTOMOBILES FRANCAISES confined their exhibits of automobiles to a "Papillon" 6-h.p. two-seated car. This follows the general lines of chainless cars, its notable feature being the relatively long wheel base. The motive power is supplied by a 6-h.p. De Dion motor. Three speeds forward and a reverse are provided by a gear-box containing the usual sliding gears. A large display of motor-car and cycle components and accessories was to be seen at this stand, including lamps, horns, accumulators, etc. Among the articles of interest to motor-cyclists is a new lever for fixing to the top bar. This is provided with a very simple device, by giving half a turn to which the lever is locked in position, so that the adjustment cannot be disturbed by vibration. La Société Francaise are also the agents for the well-known Buchet petrol motors, and displayed a 2¼-h.p. of this type for motor-bicycles, the cylinder having a bore of 70 mm. by 70 mm. stroke.

MESSRS. J. BARRE AND CO. exhibited, through M. H. Cintrat, a number of four-seated cars notable for their low price and large bonnets. All were fitted with tonneau bodies, and followed the general lines of cardan-shaft vehicles. We first noticed a 12-14-h.p car fitted with a two-cylinder

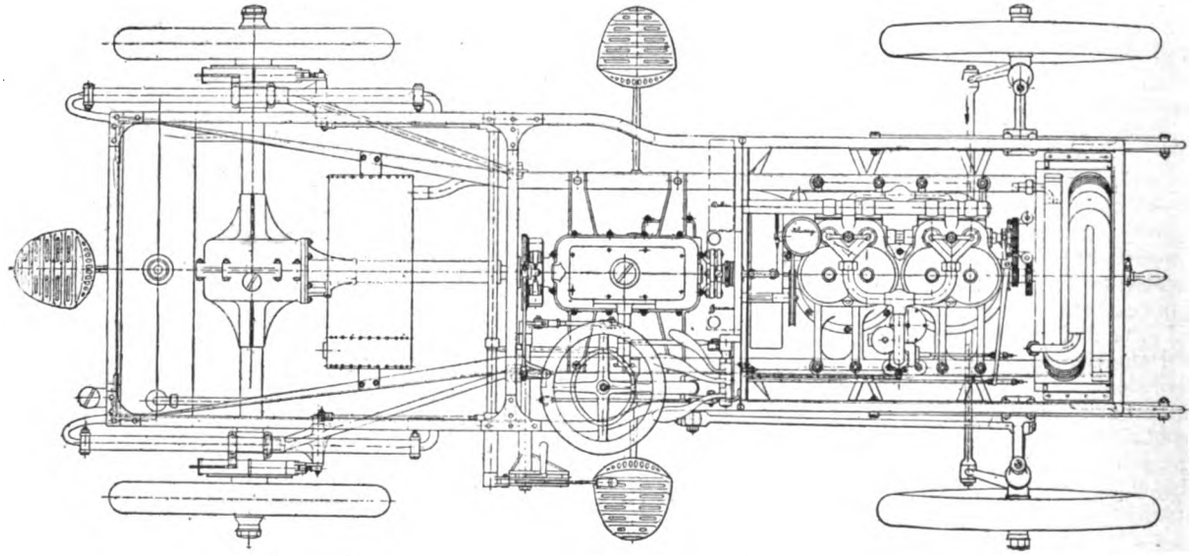
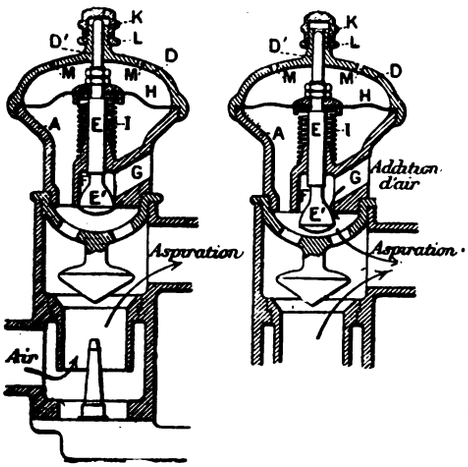


Fig. 97.—Plan of Chassis of 24-h.p. Wilkinson-De Cosmo Car. *(See page 153.)*

Aster motor. The water cooling is by means of a friction-driven pump and honeycomb radiator. Three speeds forward and a reverse are available, while the brakes are of the internal expanding type. A second car had a 9-h.p. De Dion engine, while a third had a similar engine of 6-h.p. At this stand was also to be seen the "Imperator" anti-skid band, which performed so well in the recent anti-skidding trials in France.

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The WILKINSON SWORD COMPANY, LIMITED, exhibited one of the "Wilkinson-De Cosmo" 24-h.p. cars built by M. J. de Cosmo, until recently the consulting engineer in the motor department of the Fabrique Nationale d'Armes, of Herstal, Belgium. The vehicle is an excellent specimen of modern motor-car construction. The frame is of channel steel, in the fore part of which is arranged a four-cylinder engine developing 24-h.p. The cylinders are cast in two pairs, and are 100 mm. bore by 130 mm.



Figs. 98 and 99.—Sectional Views of Wilkinson-De Cosmo Automatic Carburettor.

stroke, the normal speed being 900 revolutions per minute. The inlet valves are mechanically operated and are provided with a variable lift device. The gas is furnished by a special carburettor, in which the mixture is automatically varied according to the speed by means of a diaphragm. Two sectional views of the latter and its casing are given herewith, H being the diaphragm connected with a valve E. When the engine is running at normal speed, the valve E keeps the additional air inlet G closed, as shown in Fig. 98. On the other hand, when the speed of the engine increases the diaphragm is, under the action of the suction, drawn down, taking with it the valve E, so allowing additional air to be drawn in through G. The automatic governor is adapted to act on the inlet, and can be cut out by means of a pedal. The silencer is of new design, claimed to allow the engine to work quietly at all speeds, without any appreciable back pressure. A framed ribbed radiator is employed in connection with the water circulation, which is maintained by a gear-driven pump. Three speeds and reverse, controlled by one lever, are provided, the engine driving through a clutch, gear box, and cardan shaft on to a rotating shaft inside the rear hollow axle, which carries the wheels, the power being communicated to the latter at the ends. In addition to the usual brakes—of the metal-to-metal type—a ratchet sprag is fitted on the shaft which projects from the rear end of the gear box, to prevent the car running back on hills. The front and rear axles are connected to the frame by long springs, having shackles at both ends, and are fitted with radius rods. By the use of the latter in connection with the front axle the reaction on the steering is claimed to be reduced to a minimum.

Among the exhibitors of popular-priced two-seated cars was the CLYDE CYCLE AND MOTOR CAR COMPANY, LIMITED, whose 7-h.p. vehicle is illustrated in Fig. 100. The motive power is supplied by a 7-h.p. single-

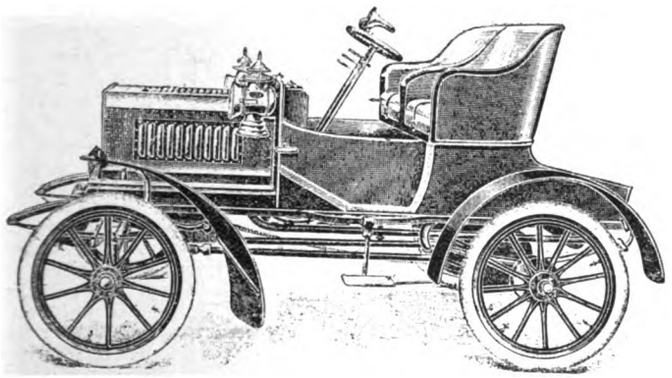


Fig. 100.—The "Clyde" 7-h.p. Car.

cylinder vertical engine, set in the fore part of a tubular frame. A governor acting on the inlet is provided, and this is so arranged that it can be put out of action when desired by means of an accelerator pedal. The water circulation is maintained by a chain-driven pump and radiator. It is in the system of transmitting the power to the rear road wheels that the special feature of the "Clyde" cars lies, all the shafts being parallel to the axles. The engine is connected through a metal-to-metal clutch and a Renold silent chain, with the gear-box at the rear. The latter is adapted to give two speeds forward and a reverse. The makers claim that by their system of transmission a larger proportion of the engine's power is transmitted to the road wheels than by any other method at present in use, and that the car will climb a gradient of 1 in 7 with standard gear and full load. The forward gears are always in mesh. Control is effected by two pedals, one of which actuates the friction clutch, and the other applies two phosphor bronze brake shoes to a large steel drum on the countershaft. Two internal expanding brakes, fitted inside two hollow drums fixed on to the back wheel hubs, and applied by a side lever, are also provided. The motor is started from the right-hand side of the car instead of at the front, as usual. Ball bearings are fitted to the axles and also to the countershaft. There are a number of other interesting details in connection with this car, which pressure on our space prevents us referring to, but we may mention that one vehicle was fitted with an ingeniously-arranged folding seat at the rear, thus enabling it to carry an extra adult passenger or two children. A Clyde 12-h.p. four-seated car was also exhibited. Except that this has a 12-h.p. double-cylinder governor Aster engine and three speeds forward in addition to the reverse, it is identical in arrangement with the 7-h.p. car above described. Finally, we may mention the $2\frac{3}{4}$-h.p. Clyde motor-bicycles with magneto ignition and belt drive, the engine of which is set vertically in a special loop frame.

MESSRS. ALFRED DOUGILL AND CO., LIMITED, had an exhibit of cars which presented some interest by reason of the fact that they are fitted with a friction drive. Many attempts have been made to adopt this simple system of transmission, but hitherto with but little success. Messrs. Dougill claim to have solved the question, and are now building several types of friction-driven cars. Fig. 102 gives a general view of the Frick

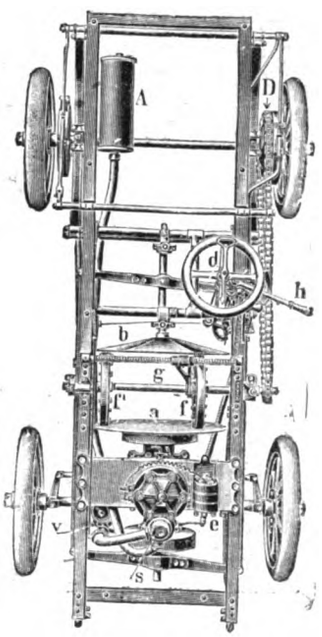


Fig. 101.—Plan of Chassis of Frick 7-h.p. Car.

7-h.p. light car, which we first examined, and Fig. 101 gives a view of the *chassis* showing the friction drive. The 7-h.p. motor is of the single-cylinder type, with balanced internal flywheels, and has a bore of $4\frac{1}{4}$ in. by $4\frac{3}{4}$ in. stroke. It is placed in the front part of a wood and steel frame under a bonnet in the usual manner. The ignition is either by accumulators or magneto, and the water circulation is maintained by a belt-driven pump and fan-cooled honeycomb radiator. The engine drives through enclosed reduction gear and a short shaft terminating in a leather-covered disc *a* (Fig. 101), forming part of the friction drive, which gives any desired speed, ranging from zero to maximum in either direction, and operated by a lever conveniently placed for the driver, and by a pedal. Reference to Fig. 101 will show two friction wheels *f* and f^1, of which wheel *f* is the actual working disc, and f^1 a dummy disc, serving to increase the surface of friction. The disc *f* can be moved on its shaft *g* in the direction of its axis, in order to attain different degrees of speed, whilst f^1 transmits the power from the disc *a* through counter disc *b* to the wheel *f*. By moving the hand lever *h*, the discs *a* and *b*, which slide in the direction of their axis, are brought into contact with *f* and f^1, by which the latter are set in motion. The drive from the countershaft *g* to the differential gear *d* on the continuous rear axle is by means of a single side chain. When the friction wheel *f* is near the centre of the flywheel the car is on its lowest speed. When this wheel is moved over the centre line of the disc, the direction of rotation of the shaft *g* is reversed. Among the claims made for the friction drive are: (1) Speeds can be gradually increased at will. (2) It has a direct transmission without gear wheels. (3) It is simply constructed, enabling worn-out parts to be easily replaced. (4) Great economy of motor power up hill and on the level with a minimum consumption of petrol. The car

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is provided with powerful brakes, one operated by the foot, acting on the countershaft, while another pair, controlled by a hand lever, act on two drums on the hind wheels. The body has seating accommodation for two persons. A spider seat for a third passenger can be attached at a small extra cost, while a detachable tonneau can, if necessary, take the place of the ordinary body. The wheel base is 6 ft. and the track 3 ft. 8 in. The wheels are of equal diameter (34 in.), shod with solid or pneumatic tyres. Messrs. Dougill also exhibited a little 5-h.p. two-seated car, as well as a 12-h.p. two-cylinder lorry to carry two tons, both having the friction drive referred to above. In addition, a 9-h.p. "Loidis" tonneau car was shown. This follows the general lines of bevel-gear driven cars, having a 9-h.p. Aster governed engine mounted in the fore part of a tubular frame, three speeds forward and a reverse being available.

The chief feature of interest at the stand of the BURLINGTON CARRIAGE COMPANY, LIMITED, was the *chassis* of a new car made from the designs of Herr Bugatti, at the German works of the De Dietrich Company, and which they are introducing into this country under the name of the "Burlington." The car, of which an illustration was given in a recent issue of the *Journal*, and which is made in two sizes, 24-28-h.p. and 30-36-h.p., differs materially from the French De Dietrich vehicles. In the first place the engine and gear box are mounted on a frame entirely separate from and attached to the main frame by four bolts. The motor is a four-cylinder one, and possesses mechanical inlet and exhaust valves, actuated by two symmetrical shafts arranged on both sides of the motor. The position of the valves on the top of the cylinders permits them to be easily inspected and detached. On the upper surface are situated also the sparking plugs and the four compression cocks. A novel feature of the engine is that the cylinders are cast in pairs, each pair being surrounded by a removable sheet copper covering. The removable water-jacket facilitates the formation of the cylinder body and permits hollow spaces to be provided everywhere, so that all the walls of the explosion chambers, valve seats, etc., can be plentifully surrounded with cooling water. A special form of carburettor is employed to furnish an automatically-regulated mixture in connection with the advancing of the ignition, so giving the motor great elasticity, and allowing of any desired speed from six miles per hour up to the maximum speed without changing gear. Four speeds and reverse are actuated by one lever, the transmission from the differential shaft being by means of side chains. On the stand of the Burlington Company were also to be seen a *chassis* of the French De Dietrich (Turcat-Mery) 16-h.p. four-cylinder car, the 1904 features of which have already been dealt with in the *Journal*. Special reference may be drawn to the carriage work of these vehicles, a 16-h.p. car with special Lonsdale body and a 12-h.p. with Burlington body being particularly noticeable.

The British-built Duryea cars of the DURYEA MOTOR COMPANY have so recently been dealt with in the *Journal* that no lengthy reference is necessary on the present occasion. A *chassis* and complete car with folding front phaeton body represented the 12-h.p. type, while of the 15-h.p. a *chassis* and side-entrance double phaeton were displayed. The engines and principal machine parts are made by the well-known firm of Messrs. Willans and Robinson, Ltd., of Rugby. The three-cylinder engine with all parts interchangeable, mechanically-operated valves, governed magneto ignition automatically advancing and retarding the spark according to the speed of the engine, the speed variation obtained by throttle worked from the steering handle, the unique system of springing and braced fore carriage, together with the novel system of radiation, are all features of interest to be found in these cars. The Duryea Company also exhibited the Cinderella jack, a handy little instrument which will support any car weighing up to a ton. The jack weighs under 3 lb., and folds up into a space small enough to allow it, if needed, to be put in the pocket.

The GORDON MOTOR COMPANY was among the exhibitors of popular-priced two-seated cars. The motive power is supplied by a 6-h.p. vertical engine, having water circulation by pump and honeycomb radiator. Three speeds and a reverse are provided, the engine being connected by a chain with the gear-box, a second chain conveying the power to the rear live axle. The engine has a large diameter flywheel, and the clutch is so mounted that it can quickly be taken out if required.

The KYMA CAR COMPANY, LIMITED, exhibited their novel two-seated cars. The body is constructed of wicker, and is hung on special springs, which make it very easy riding. It is made in two varieties, one with a 4-h.p. water-cooled motor, the other with a 2¾-h.p. air-cooled engine. In both patterns the transmission is by chains from the motor to a secondary shaft, and from thence to the driving wheels by flat belts. Two speeds, varying from six to twenty-five miles an hour, are provided, with free engine, and friction clutch operated by a pedal. Steering is by a wheel on an inclined shaft, to which all control levers are brought, within easy reach of the driver's hand. The engine is placed in a vertical position in front of the car. The two speeds are obtained by the aid of a feather, by means of which either one of the pair of enclosed chain drives from the engine to the countershaft can be made to transmit the power. No differential is used, the rear wheels being allowed to overrun each other in turning corners, by means of a free-wheel clutch in one of the small belt pulleys.

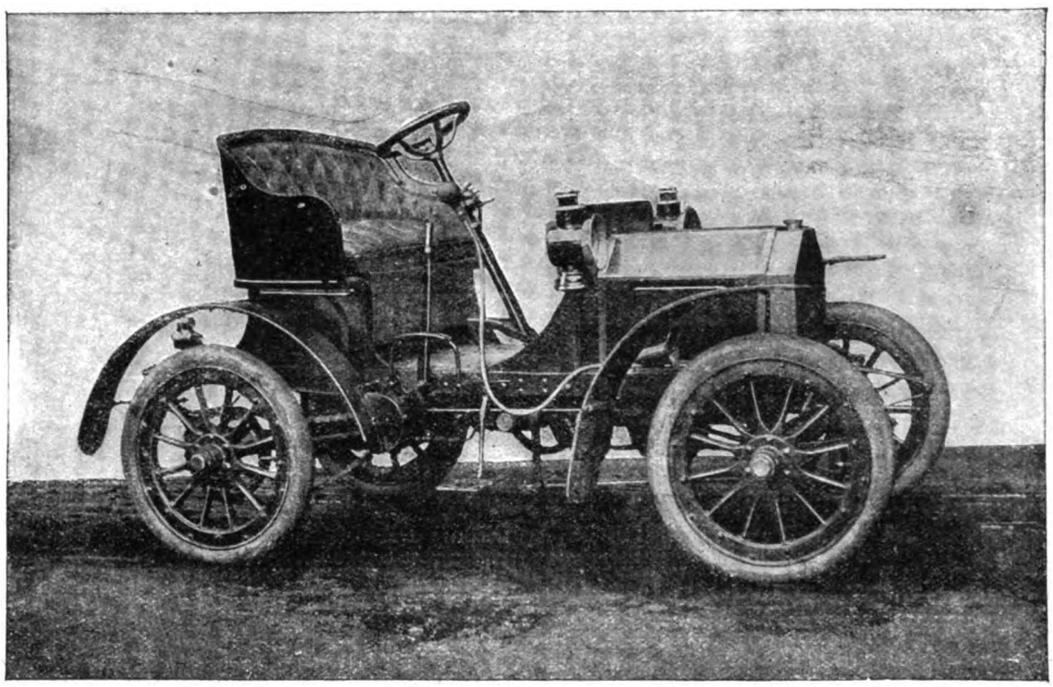


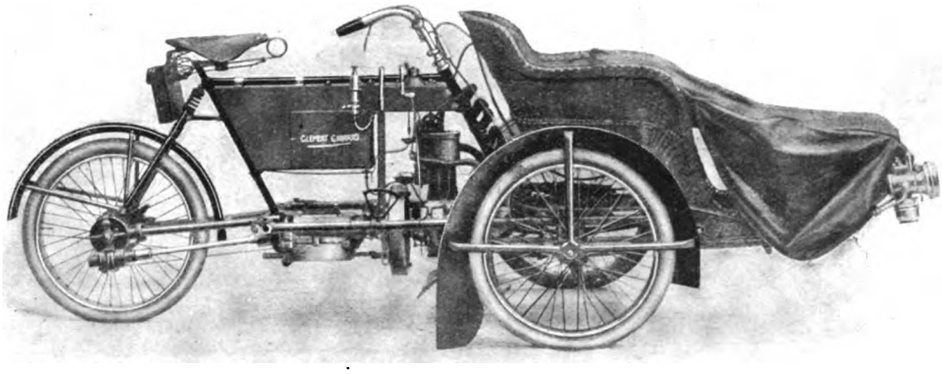
Fig. 102.—The Frick 7-h.p. Light Car.

GOODALL'S AUTOMOBILE AGENCY had on view one of the 8-h.p. Achilles cars made by Messrs. B. Thompson and Co., Limited. The frame is of tubular construction. The vertical engine, of Messrs. Thompson's own construction, has a cylinder 100 mm. bore by 110 mm. diameter, and runs at a speed of from 1,500 to 1,600 revolutions per minute, its speed being controlled by means of the ignition and a throttle valve from the steering column. The water circulation is maintained by a gear-driven pump. Three speeds forward and a reverse are controlled by one lever; on the top speed the drive is direct, none of the gear wheels on the side shaft rotating. From the gear box the power is transmitted by a cardan shaft, having two special universal joints and bevel gearing, on to a live axle. The differential gear is of the spur wheel type. The brakes are of the metal-to-metal variety. The car exhibited had a two-seated body and an extra long wheel base, and attracted considerable attention by reason of its moderate price.

On a prettily-decorated stand in a corner of the Large Hall the CONSOLIDATED AUTOMOBILE COMPANY, over the destinies of which Mr. Allan C. Instone presides, were shown specimens of the 18-28-h.p. 1904 and 18-24-h.p. 1903 Mercedes cars, both having tonneau bodies, and finished in the usual Cannstatt red. A coupie of 10-h.p. Panhard cars with tonneau bodies were also on view, these being fitted with the Krebs carburettor.

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One of the most interesting departures in the Show was the Suspended Tri-car shown by the Garrard Manufacturing Company, Limited, and of which an illustration is given in Fig. 103. In general appearance it resembles a motor-cycle with the fore-carriage, but closer inspection proved it to be quite a distinct type. The frame is built on cycle lines—that is, of steel tubing, with lugs brazed on where the engine and change-speed gear box are attached. The rear part of the frame is hinged, and the road shock is absorbed by a spring at the top of the triangle. The spring is used in conjunction with a link motion, which ensures all movement or displacement taking place in the correct direction. The fore part of the frame is carried on springs of great length (31½ in.), very wide and thin, to its previous position. This is done to prevent the engine racing, which would otherwise take place when the clutch is withdrawn. A pair of band-brakes, actuated by hand through a Bowden wire, are fitted to the front wheels, the pressure on each side being equalised. The clutch and back-brake levers are under the feet, as in a regular car. Provision is made for very readily detaching the back tyre completely, in case of need, without removing the wheel. Altogether the vehicle is an interesting production, and we are not surprised to learn that it has already met with a favourable reception at the hands of the motoring public. At this stand the Civil Service Motor and Cycle Agency, Limited, the London agents for the Garrard Company,



. 103.—The Garrard Suspended Tri-Car.

he front seat being also suspended on C springs. The engine is of 4½-h.p., water-cooled, with radiator and thermo-siphon circulation and outside flywheel. The cylinder is 85 mm. diameter by 100 mm. stroke. The usual high-tension ignition is provided, and the mixture is furnished by a float-feed spray carburettor. In the flywheel is fitted a friction clutch, worked by a pedal on the right foot-board. Ths clutch is leather faced and conical, but, instead of the male cone being withdrawn to disengage, it goes inwards. The change-speed gear box is firmly attached to cross tubes of the frame, and provides three speeds by means of sliding gear wheels of the Panhard type, which engage with one or other of three corresponding pinions on the main shaft. The countershaft is set slightly out of centre to bring it in line with the gear or the rear hub, which is of the skew type, and contained in an oil-tight case. The connection between the two is by means of a shaft with universal joints to allow for the rise and fall of the frame. The tank has three compartments—the forward for water; next to that, with air space between, is the oil; and the largest is for petrol. The coil and batteries are carried in a box at the side of the seat. The three wheels are equal 26 in. by 2½ in., with, of course, pneumatic tyres, and the weight of the complete vehicle is 3½ cwts. The Tri-Car is fitted with three brakes; the back one is a powerful band brake, controlled by a foot lever, which is also connected with the clutch and throttle. Normally, the throttle and ignition are actuated by hand, but when the brake is applied the throttle is closed to "dead slow." When the brake is released the throttle returns

displayed a new detachable non-skid and puncture preventer, known as the "Envelope."

In addition to one of their 9-h.p. single-cylinder cars, the Rex Motor Manufacturing Company, Limited, exhibited a couple of the 12-h.p. "Rex-Simplex" vehicles, one having a brougham body and the other a tonneau. The engine, which is mounted on the fore part of a steel frame, has two vertical cylinders, 4 in. diameter by 4½ in. stroke. A feature of the engine is that no outside fly-wheel is employed, each connecting rod being attached to a couple of discs acting as flywheels inside the crank case. The exhaust as well as the inlet valves are located in the top of the cylinder head, the exhaust valves being operated by a side rod and suitable levers very much in the way adopted in the Buchet engines. The gear box is adapted to give three forward speeds and a reverse, with a direct

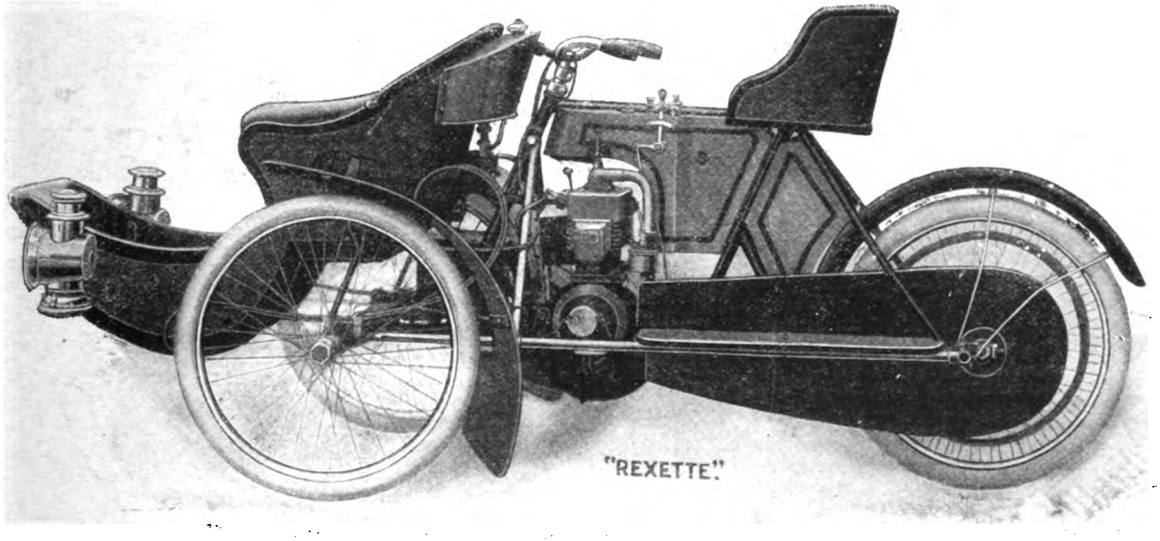


Fig. 104.—The 4-h.p. "Rexette."

drive on the third. Very wide pinions are employed in the gear box; the cardan shaft and bevel gear system of transmission on to a live axle is adopted, universal joints being introduced not only in the cardan shaft, but between the gear box and the clutch. The latter is of the cone type, 15 in. in diameter, and can be readily dismounted without disturbing the change speed gear. On the same stand were shown a number of the popular Rex motor-bicycles and tri-ottes. A description of the latter, with an illustration, was given in the *Journal* for the 19th ult. Fig. 104 illustrates the 4-h.p. "Rexette," a vehicle designed for two passengers, and appealing to moderately-incomed motorists by reason of its economy and simplicity. It possesses two coach-built bucket seats, one being attached in the form

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of a fore-car and the other at the back in the place of the usual saddle. A water-cooled engine of 4-h.p. drives the little car, and this is rigidly fixed to a registered design of cradle, which permits of its being easily removed when necessary. The vehicle is started by a fixed handle after the practice of ordinary cars. The engine power is transmitted by a chain, enclosed in the gear case, through a clutch to the rear wheel. An exhaust lifter with trigger action and controlled from the handle-bar is provided. The road wheels are 28 in. diameter shod with 2¼ in. tyres. The extreme

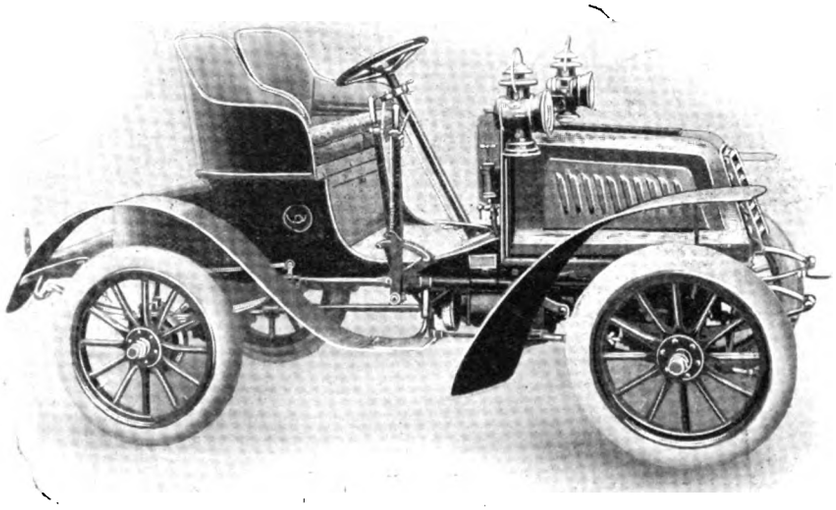


Fig. 105.—The Speedwell Standard 6-h.p. Light Car.

length of the vehicle is 9 ft., and the width 3 ft. 10 in. The framework is of strong tubular construction, and both hand and foot brakes are provided.

The SPEEDWELL MOTOR AND ENGINEERING COMPANY, LIMITED, devoted the major part of their stand to an interesting display of their Speedwell light cars, which, in view of their relatively low price, are meeting with considerable favour. The cheapest is the "Speedwell," which has carrying capacity for two persons and luggage, and is fitted with two speeds forward and reverse. The frame is of tubular construction, being 8 ft. over all, with 5 ft. wheelbase. The engine is a 6-h.p. De Dion. Pan-hard-shape bonnet and radiators, with pump circulation, are provided, as well as artillery wheels fitted with 700 by 65 mm. heavy Clincher pneumatic tyres. The "Speedwell De Luxe" car can be obtained with either a two or four-seated body; the motive power is supplied by a 6-h.p. De Dion engine fitted with a new throttle control on clutch pedal, by means of which, when the clutch is disengaged, the engine is automatically prevented from racing; the throttle is also independently operated by a lever on the steering column. Ease of starting the motor has also been increased by the adoption of a high-speed trembling coil, together with a positive make contact with roller bearing; half compression is also provided. The water-cooling is of the latest design, having a self-contained radiator and circulation by centrifugal pump driven off the flywheel. The gear box gives three speeds forward and reverse, with direct drive on top speed. Lubrication is efficiently provided for, an oil reservoir on the dashboard with a three-way pump attached enabling oil to be sent, at will, into either the back axle, gear box, or motor. A light clutch of the usual cone type is fitted, operated by the left-hand pedal, the right-hand pedal actuating a band brake on the driving shaft, as well as simultaneously re-easing the clutch. There are also two double-acting brakes on the rear wheels operated by side hand lever. The *chassis* is of the long type, with 6 ft. wheelbase, and the frame is constructed of wood and steel flitch plates. The petrol tank has a capacity of about four gallons. There is ample room beneath the front seat for tools, etc., and in the two-seated cars excellent accommodation for luggage is provided on the platform at the rear. The wheels are equal size, artillery pattern, and shod with 700 by 85 mm. heavy tyres. A new model is the special Speedwell, with a 9-h.p. single-cylinder De Dion engine. This type resembles in most of its details the 6-h.p. cars, but, besides a larger engine, it has much stronger gear and driving mechanism and stronger tyres. For those desiring a double-cylinder car at a moderate price the 10-h.p. Speedwell De Luxe has been introduced. The motor has mechanically-operated valves and honeycomb radiator. The wheelbase of the car is 7 ft., enabling a roomy four-seated body to be fitted.

One of the most interesting exhibits in the Gallery was that of the PUTNEY MOTOR COMPANY, which is devoting considerable attention to the manufacture of petrol motors, both for cars and launches. We first examined a four-cylinder motor intended for a special car this company is building for the Earl of Norbury. The four cylinders are cast in two pairs without water joints, the dimensions being 4¾ in. bore by 5 in. stroke. The inlet and exhaust valves are interchangeable and mechanically actuated off a single cam shaft. The latter can be taken out by removing the end plate, in which one of its bearings is seated, this removal rendering the whole of the crank case open for examination. Another excellent feature of the design is to be seen in the valve-rod guides, which can easily be removed, being yoked in pairs to the crank case. Still another point is the securing of the gudgeon pin in the piston, this being held in two lugs, bolted through the piston-head and held by two turret nuts. This not only allows the use of a short piston and connecting rods of maximum length, but prevents any scoring of the cylinder walls. Perhaps the most noticeable feature of the motor is that the crank-shaft is set slightly in advance of the cylinder axis, thus reducing, it is claimed, shock, and lessening vibration by giving a practically direct thrust on the driving stroke, and therefore more power, besides a mechanical advantage at the end of the compression stroke. The diameter of the crank shaft itself is graduated from 1½ in. at the forward to 2 in. at the rear clutch end. An automatic governor is provided, this acting on a piston throttle valve on the admission pipe near the carburettor. The engine runs normally at 950 revolutions, at which it develops 32-b.h.p.; its speed can, however, be varied from as low, it is claimed, as 65 revolutions per minute up to 1,600 revolutions. The Putney Company are making engines of this type with one, two, and four cylinders, of respectively 8, 16 and 32-b.h.p. The usual high-tension ignition is provided for; the commutator is, however, of special design, it being self-adjusting and self-cleaning. It has a roller wipe contact with a quick break, and is so arranged that a short circuit is rendered impossible, the insulating fibre being cut away between the four contacts. A bevel glass window is provided, so that the working parts can be inspected without opening the case. The Craig-Dörwald carburettor also merits attention. It consists of a gravity-fed float chamber supplying petrol to a visible jet. A large vaporising chamber surrounded by a jacket, through which the exhaust gases can be circulated, affords a perfect mixture at all speeds. Fig. 106 depicts the commercial traveller's brougham exhibited by this company, and which attracted considerable attention. The car was

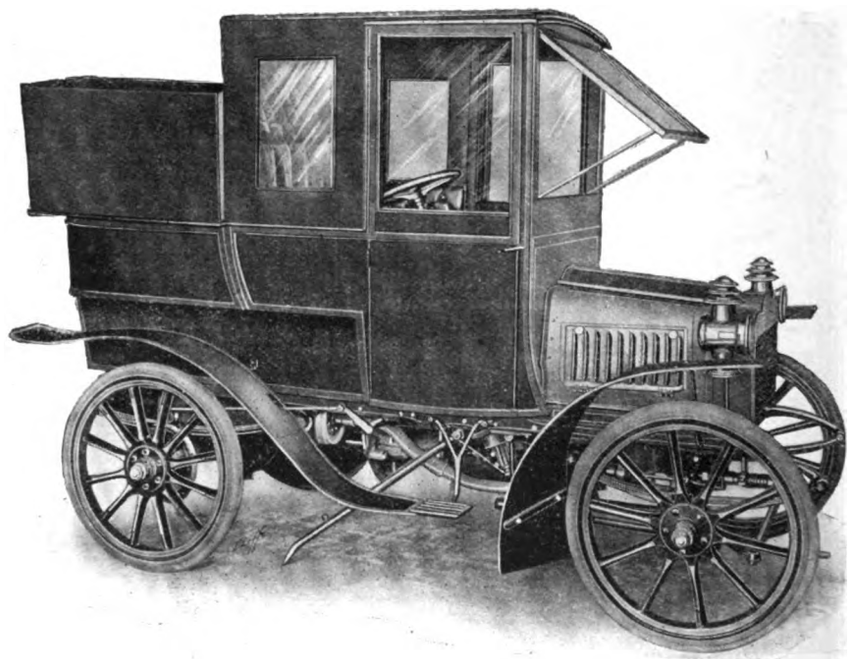


Fig. 106.—The Putney Motor Co.'s Commercial Traveller's Brougham.

specially designed to stand the everyday wear and tear to which such a vehicle is put. In the service of a Manchester firm the car shown has covered over 5,000 miles in the districts around London and in the Southern counties, carrying a load of ½ ton of samples. The interior of the brougham is comfortably upholstered and furnished with writing desk and electric light. The car is controlled entirely from within and accommodation is provided for two passengers, who are perfectly protected from the

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weather. The upper part of the rear can be removed at will, thus converting it into a tonneau with accommodation for four additional persons. The engine is a 16-h.p. Craig-Dörwald two-cylinder, developing 24-h.p. on the brake. The water circulation is on the thermo-syphon system, the large amount of water contained round the combustion head preventing, it is claimed, any liability to overheating, and doing away with the pump. The power is transmitted through a large leather-faced clutch, gear box and cardan shaft to the rear live axle, three speeds forward and a reverse, with direct drive on top speed, being available.

Messrs. Selbach, Limited, made a special feature of the Regal car, the points of which should appeal to the "man of moderate means" as well as to the more wealthy motorist. This has a 6-h.p. De Dion engine, with a carburettor of the same make, and is also made of 10–12 and 24-h.p. In the smaller size a centrifugal pump, driven by friction off the flywheel, circulates the water through the radiator in front of the bonnet. The water tank is placed above the motor, so that should the pump fail to work no damage would result, the water being circulated by gravity (thermo-syphon). The ignition is on the high tension system. A conical friction clutch, which can be connected to and disconnected from the flywheel by the left pedal on the footboard transmits the power to the change-speed gear. This clutch is of the internal type, all enclosed in the flywheel, so that oil and dirt cannot get to it. The change-speed gear provides two speeds forward and one reverse, operated by the same lever; the drive is direct on the top speed, so that the power is transmitted direct from the motor to differential on live axle. A universally jointed shaft connects the speed gear to the differential, which is of the spur-wheel type. The forward speeds are 7 and 20 miles an hour, and a reverse speed is also fitted. The right pedal actuates, by means of rod connections, a large band brake, the drum of which is on the shaft at the back of the gear box. The side brakes are actuated by a lever; the hubs of the driving wheels contain two segments, which, when expanded, can block the wheels if necessary. The two sets of brakes are metal to metal, and double acting. The car is fitted with a two-seated body.

The Paddington Motor Car Company, Limited, which has secured the British agency for the Tony Huber cars, displayed examples of the 8-h.p., 16-h.p. and 25-h.p. vehicles of this type, the main new features of which were dealt with in our report of the Paris Salon in December last. The 8-h.p. car has a wood and steel frame, in the fore part of which is set a vertical double-cylinder engine, 98 mm. bore by 105 mm. stroke. All the valves are mechanically actuated off one cam shaft, and the water circulation is maintained by pump and fan-cooled honeycomb radiator. Three speeds forward and a reverse with direct drive on top speed are provided. From the gear box the power can be transmitted either by cardan shaft and bevel gear, or through a differential shaft and side chains, as desired, examples of both systems being shown. The 16-h.p. Tony Huber car is an enlarged edition of the 8-h.p., having a four-cylinder engine cast in two pairs, and of the same bore and stroke as the two-cylinder engine. Both Eisemann magneto and the usual high-tension ignition are provided, while the gear box is adapted to give four speeds forward and a reverse. Like the 8-h.p. car, the transmission can either be by side chains or cardan shaft. Considerable interest was shown in the *chassis* of a 25-h.p. Tony Huber car, which is on modern lines throughout. The frame is of pressed steel, and the engine has four separate steel cylinders to which corrugated copper water-jackets are fitted. The valves are all mechanically actuated off one cam shaft.

A light two-seated car was shown by the Anglo-French Motor Syndicate. The motor is a 6-h.p. De Dion, the transmission being by means of a change-speed gear of the sliding type, affording three speeds and reverse on a single side lever. A De Dion-Bouton spray carburettor is fitted, the ignition being by trembler contact breaker and dry battery. The radiator is located in front underneath the frame, the water circulation being by centrifugal pump friction-driven off flywheel. Inclined wheel steering has been adopted, and the car is well calculated to meet the demand for a light car at a moderate price.

In the Gallery the Automobile Engineering Company attracted attention to their "Planet" cars, the light vehicle with a 6-h.p. De Dion engine being an automobile meeting with much favour. This is a two-seated car fitted with two speeds and reverse, the transmission being by cardan shaft to live axle, with a direct drive on top speed. A larger car, with a 12-h.p. two-cylinder Planet engine, and a 24-h.p. Prunel car were also on the stand. A minor exhibit of interest and importance was the "Peerless" sparking plug introduced by this company.

GENERAL EXHIBITS.

A useful exhibit was made by the Auto Machinery Company, Limited, who made a feature of the "Auto" patent roller bearings for main shafting and other shafts requiring a split bearing. As a rule, this type of roller bearing is made with the halves of the outer bush having a straight line abutment. Friction ultimately causes this to wear into a groove, into which the rollers have a tendency to work. In the "Auto" bearing, however, this straight line abutment is discarded, the two halves of the bearing surface being each formed with a deep serration, which interlocks, and gives practically a perfect cylinder when in position. The bush is a steel casting recessed at each end to receive the cage ends; provision is also made for lubrication, and the globular formation in the centre of the bush makes the bearing self-aligning. For light work the company have brought out a roller bearing having a mild steel cage with naturally hard cast-steel rollers. For light loads and low or intermittent speeds this type is recommended. At the stand of the Auto Machinery Company we also noticed the "M" type of ball bearings for motor-cars, etc., in which are some improvements that have been patented, and which contribute to the life and efficiency of the bearing in a marked degree. An air-cooled cycle-motor, and a selection of balls and other productions of the Company, completed a really notable display.

A good type of motor-cycle lamp was on the stand of Mr. G. Goldschmidt, sliding panels being the distinctive feature, so that the numbers are always illuminated. A good display of motor-lamps, horns of every kind, and motor goggles in great variety, was the feature of a meritorious exhibit.

The South British Trading Company made a feature of the Fisk tyre, illustrated and described in the *Journal* of December 12th last. They also showed laminated wood rims, the Lobee circulating pump, and some useful tools for manufacturers. On this stand we also noticed the "Vindec Special" motor-cycle. This has a 2¾-h.p. F.N. engine, with the points exposed to heat so placed as to receive the direct advantage of every air current. To the carburettor is fitted a patented air regulator to allow the admission of cool air to mix with the carburetted mixture from the spray nozzle. To ensure absolutely clean petrol, and to reduce the possibility of the nozzle becoming clogged to a minimum, the spirit, in addition to passing through a fine gauze before leaving the tank, is forced to pass through another fine gauze before entering the spray nozzle from the float chamber. Two band brakes, a V-shaped belt for transmission, and a good type of contact breaker are other excellent features of a motor-bicycle of which much should be heard during the coming season. A useful pamphlet of nearly sixty pages on the management of the machine has been issued by the South British Trading Company, Limited.

Messrs. S. Smith and Son's compensated speed indicator has become rapidly familiar in motoring circles, the high grade character of the watches and clocks made by the firm having given confidence to motorists in adopting the latest introduction of the firm. Although a description of the special instrument at their stand at the Exhibition has already appeared in the *Journal*, a few lines may be given to draw attention to its merits. The mechanism of the instrument is so constructed that the indicating hand is driven from the centre of the dial, which places a complete circle at disposal for the spacing of the various miles, giving a clear and distinct reading for all speeds from 5 to 60 miles per hour. The spacings for the higher speeds are nearly as uniform as in the lower half, and it is in this important improvement that a great distinction for this indicator is claimed. With the introduction of an auxiliary power which comes into action from 25 miles upward, the makers are enabled to give an absolutely correct reading and not an approximate one. An equally important feature is that the instrument can be thrown in or out of gear by means of a patent clutch. Naturally, the method of attachment is an important detail, and this has been scientifically considered by Messrs. S. Smith and Son, who have adopted a flexible shafting for the connection between the instrument and the wheel of the car. Those who have a preference for positive gearing can have their wishes carried out in the attachment. Practical motorists have recognised

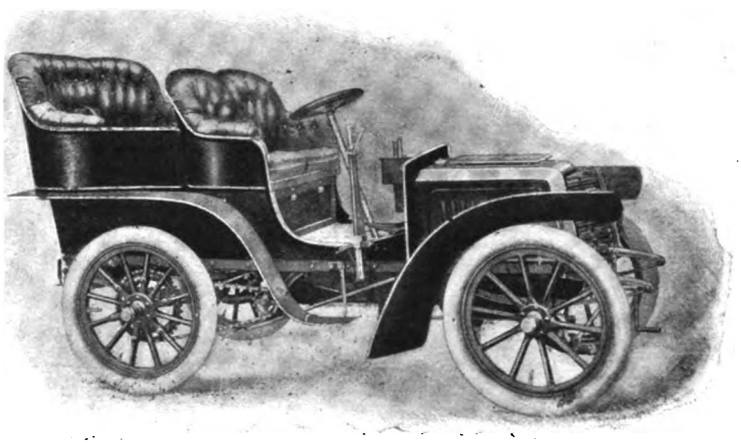


Fig. 107.—The 12-h.p. Chenard-Walcker Voiture Legere, with High-back Tonneau.

the merits of the invention, and have given conclusive tests as to its accuracy under all conditions.

Two stands—one in the Minor Hall and another in the Gallery—served to demonstrate the comprehensive character of the Bowden specialities. A Clement car was exhibited with the ignition, throttle, air and lamp controls actuated for the steering wheel by means of the Bowden wire mechanism brought out by the E. M. Bowden's Patents, Limited. The brakes and sprags are also operated by the same system. How thoroughly this can be adapted was shown by the screen fitted to the lamps, which can thus be utilised to minimise the bright glare as suggested by the Local Government Board. A quadricycle actuated equally comprehen-

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sively by the Bowden wire mechanism was also shown. In the Gallery the firm showed the Bowden motor-bicycles fitted with 2-h.p. and 3-h.p. F. N. engines placed in a vertical position. All the parts are of standard design and good workmanship, the special features being the handle-bar control, chain drive, and friction clutch in the hub giving a free engine. Several of their specialities were shown; and attention was drawn to the many ways of applying the Bowden wire mechanism.

The North British Rubber Company, Limited, made a creditable display of the Clincher and Clincher-motor tyres, the Clincher motor-cycle tyres, Clincher solid tyres, etc. The company is putting on the market a new tyre known as the "Ducasble," which is designed to meet the requirements of those who do not care for the trouble and expense of pneumatic tyres. It is claimed to absorb the vibration to a great extent. The accompanying illustration gives an idea of the form of the tyre, which is compressed by a special process while being manufactured. In this way the gaping open of cuts and abrasions is prevented, the life of the tyre being thus considerably lengthened. Among the advantages which the North British Rubber Company (Ltd.) claimed for the Ducasble tyre are its non-liability to puncture, and the great resiliency, owing to the hollow construction. The flat tread is intended to obviate any tendency to side slip. The tyre cannot be twisted or jerked out of the rim, owing to the presence of steel bands and security bolts. In addition to their full assortment of tyres the company also made a great show of motor clothing and requisites.

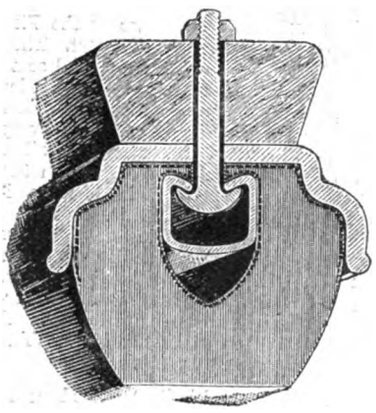


Fig 108.—The Ducasble Tyre.

"Garlio," a non-inflammable cloth for polishing metal, was shown by Messrs. M. and E. Marx, who have now acquired the agency for this useful help to motorists in keeping bright the metal parts of their cars. Messrs. W. B. Fordham and Sons, Limited, made a good show of the "Selvyt" polishing cloths in both single and duplex texture, and also of "Selyvt" gloves, aprons, lining, etc. The cleaning and polishing qualities of "Selvyt" are well known.

The Doherty Motor Accessories Company, Limited, made an effective display of the productions of their well-equipped works. In order to meet the wishes of manufacturers in making designs as distinctive as possible, the company cater rather for developing the ideas of makers than making standard designs. Their productions were therefore to be seen on many other stands as well as on their own. The special feature of their display was a new patent transverse tubular radiator. In this latest type of Doherty radiator the effective appearance of the honeycomb pattern has been remembered, but the form of construction has been designed with a view to strength and durability of the parts. The principle of the new tubular radiator, which should give most effective cooling, can be seen from the accompanying illustration Fig. 109. Radiators and bonnets for motor-lorries and cars were in plentiful profusion on the stand, the bonnets being of good outline and supplied in planished steel, aluminium, or tinned steel, the fittings being of brass. In minor matters great care has been taken, and the clips are of a substantial character, entirely preventing the chattering which was a conspicuous feature of the bonnets of other days. Petrol and lubricating tanks, radiators for fore-carriages, cycle tanks, silencers, etc., were also on view. Bucket and semi-bucket seats were on the stand, and in fore-carriages the Doherty Company has brought out a capital design in metal. The frame is of light iron with aluminium panelling and bucket seat. The ease with which the carriage can be cleaned, together with its neat outline and good workmanship, are factors which should contribute to its popularity.

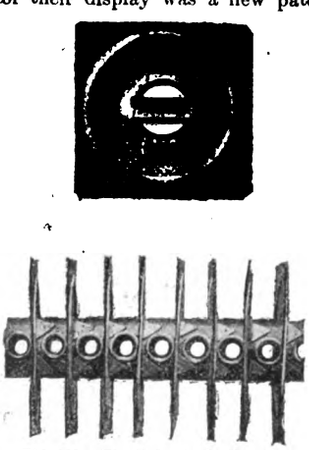


Fig. 109.—The Doherty Radiator.

A long range of tools and machines for motor-car makers, repairers, and the like, comprised the display made by Messrs. C. W. Burton, Griffiths and Co., these including the "Gisholt" combination turret lathe, complete with quick power moving device, one turret and standard set of tools; the "Gisholt" universal lathe and planer tool grinder, a 3 ft. arm "Fosdick" radial drilling machine, a "Lodge and Shipley" lathe, fitted with a quick change gear device; 20 in. "Burton" universal disc grinders, automatic triple action chucking machines, universal grinding and milling machines, crank shapers, cutter grinders, &c.

The Imre Engineering Company displayed the "Universal" silencer for petrol motor-cars and cycles, of which an illustrated description was given in the *Journal* of Jan. 23rd last. The silencer is designed on entirely original lines, the basis of which is the reduction of the exhaust gases from maximum to almost minimum pressure the first journey, through the continued rapid and sudden expansion of the gases as they emerge from each consecutive globe of the series; then on the second or return journey thoroughly cool and reduce the gases to the minimum of pressure and consequent silence at exit by passing them through grooves cut in globes at point of contact with outer cylindrical casing and continued expansion in the various chambers after the streams of gases thus formed enter therein, until final discharge to atmosphere through series of holes in end cap.

Excellent specimens of coachbuilding were shown by Mr. W. Vincent, whose place at Reading is familiar to motorists in the Thames Valley. In addition to motor-car bodies of the tonneau and Roi des Belges type, Mr. Vincent is making a special feature of those with side doors, and also exhibited a good collection of artillery wheels.

Messrs. Grose, Limited, showed their non-skidding and puncture-proof bands, in which the tread of a chrome leather band is fitted with a steel-studded strip. A neat appearance is secured by the leather being formed into the exact curve of the cover it is intended for.

Waterproof garments were shown by Abbotts, whose long experience in connection with costumes for yachting men has given them practical knowledge of the requirements of sportsmen generally that is finding good demonstration in their motoring department. They have a wide range of oilskins for marine motoring, and for motor-cyclists have brought out a new "Combination" coat of good design and workmanship. But their exhibit was by no means confined to leather clothing and the like; they also showed a variety of rubber goods, including mats for the floors of cars, motor air cushions, car covers, leather leggings, and other of their productions in this line.

From the Horn Hill Works, Lowestoft, came a motor-boat, shown by the Durrant's Motors, Limited, who are making a special feature of motors for boats, launches, etc.

Storage batteries were exhibited by the British Steam Traction Syndicate, Limited. For the B.S.T. dry storage battery it is claimed that it can be placed in any position, and that the plates can be charged at an unusually high rate. The absorbent electrolyte is prepared by a special process, which, when placed between the plates, protects the active material from becoming disintegrated and detached. The Syndicate has also brought out a combination battery and lamp for use in petrol stores and motor-houses. The convenient form of this will be apparent from Fig. 110.

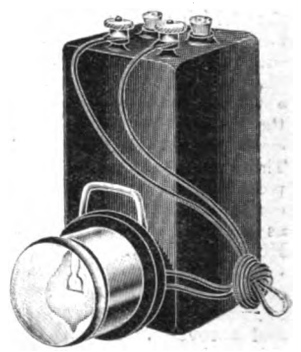


Fig. 110.—The B. S. T. Battery & Lamp.

Tyre exhibits included those of the Clipper Pneumatic Tyre Company, Limited, who showed the Clipper-Michelin, the Clipper-Continental, and the Clipper motor-tyres; the Dunlop Pneumatic Tyre, Limited, who, in addition to the tyres bearing their familiar name, had a range of waterproof motor clothing, motor-car aprons and coverings, and similar goods, in which they have an extensive branch. The Goodyear tyres were on the stand of Mr. A. C. Hills, which also contained a 18-22-h.p. Mercedes car and a two-cylinder Clement car.

Messrs. W. Glover and Sons, Limited, who are giving heed to the development of heavy motor traffic, as well as to the requirements of those who possess cars of lesser power, showed the combination roadside tool described and illustrated in the *Journal* of September 12th last. This can be arranged as a jack, a drill, or a vice—a triple combination that cannot fail to be of service to motorists when trouble befalls them on the roadside. Considerable ingenuity has been displayed in the design and construction of the device.

The Excelsior motor-bicycles and fore carriages were shown by Messrs. Bayliss, Thomas and Co., Limited, who are making them with engines of 2¼-h.p., 3-h.p., 3½-h.p., and 4-h.p. Special interest was shown in the 4-h.p. motor-bicycle and fore-carriage. The cylinder is 90 m. by 96 m., with extra wide bearings, and the engine is of the water-cooled type. The frame is of weldless steel tubing, the engine being in the well-known "Excelsior" position. A Magna Lincona belt is fitted, the carburettor being of the Longuemare spray type, or a specially designed surface carburettor is provided if desired. The 4-h.p. Excelsior motor-bicycle is also supplied with a free engine and two-speed gear, making it one of the most powerful and efficient machines of its class on the market.

At the stand of the Hyde Rubber Works, Limited, was the "Grappler" motor tyre, which has long been before the motoring public. The patents in connection with this are now the property of a syndicate, whose knowledge of the value of the tyre induced them to acquire them at a heavy cost, and to lay down a plant with which to cope with the manufacture. At the same time a most beneficial arrangement has been entered into with the Hyde Rubber Works, Limited, of Woodley, whereby the latter supplies the syndicate with all materials necessary for the manufacture, and places at its disposal their lengthy experience as rubber specialists. The method of attachment is a great point in favour of this tyre, making it practically impossible for the tyre to blow off the rim or the creep when at work.

Messrs. John Child Meredith had a large and representative

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collection of the specialities with which their name and their trade-mark G. O. M. is identified. These included lamps of every kind, carburettors, inlet and exhaust valves, jacks and tools, G. O. M. coils and accumulators, and a new pattern of special contact breaker of the wipe class. Another novelty on their stand was a new toggle switch for fixing to the handle bars of motor-cycles.

Messrs. Henry Whitlock, Ltd., had a conspicuous display in the Main Hall, consisting of Whitlock-Aster cars of 10, 12, and 20-h.p. These are fitted with the new Aster engine with mechanical valves, and at once struck the attention of visitors by the excellence of the coach work. Phaeton and tonneau bodies were shown luxuriously upholstered and characterised by fine workmanship throughout.

At the stand of the Electric Ignition Company was a plentiful assortment of the E. I. C. sparking coils, contact breakers, accumulators, switches, sparking plugs, testing sets, etc. There was also a working exhibit of the "Lodge" coil—an improved system of high tension ignition patented by Sir Oliver and Mr. Alec M. Lodge. As there are always, in the "Lodge" coils, two sparks occurring practically simultaneously, the spark passing at an adjustable gap inside the case has been named the "A spark"; while the spark at the plug used for igniting the charge in the cylinder is known as the "B spark." It is, perhaps, of interest to note that the A spark is the spark used in ordinary coils, and which is so susceptible to short circuits; but, by the "Lodge" arrangement the A spark is shut up in the case of the coil, and is thereby completely protected. The B spark, which gives the charge, is bound to occur in unison with the A spark. By this system of ignition the chances of misfiring are practically wholly eliminated. It may also be added that the only changes needful for this increased reliability are embodied in the coil itself, so that all fittings and connections in use with ordinary coils are used in the same way exactly with the "Lodge" ignition.

Messrs. Geipel and Lange, at their stand in the Arcade, displayed the Vulcan speed indicator, an electrical device for indicating the speed at any moment, without employing moving shafts, bevel wheels, or friction driving. It consists of a magneto driven off one of the wheels and a hot-wire voltmeter connected by means of a flexible wire, so forming the speed indicator. The dial is calibrated to indicate from five to forty-five miles per hour. The magneto is small, weighs only 1½ lb., and is arranged to be fixed on the horn of the front wheel, being driven by a rubber band from a pulley fixed on the wheel. The magneto is entirely waterproof, and the whole design is such as to obviate the necessity for attention. The indicators are made in two sizes—one having a 2 in. dial, for fixing on the steering wheel, and one, with 4 in. dial, for fixing on the dashboard. Another interesting device exhibited was a distance recorder or odometer, giving a record of the distance travelled, and arranged to be fitted on the hub cap of the front wheel of any make of car. It consists of an aluminium box, 4 in. diameter, furnished with a neck which is fitted to the hub cap in a simple manner. The whole of the apparatus revolves with the wheel, whilst a centre shaft is attached by a spring against the axle of the wheel, which is made immovable as the wheel revolves. The body of the recorder consequently revolves, whilst the centre axle remains fixed. The result is, that the internal mechanism operates the indicating portion, which shows at any moment the exact distance travelled since it was fixed. The dials are of the step-by-step

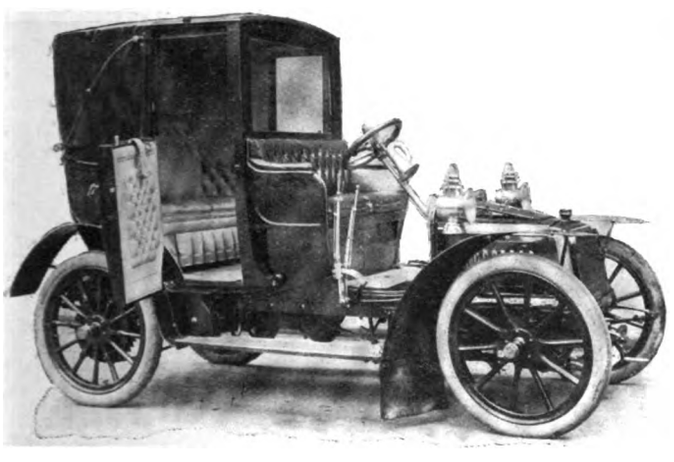


Fig. 111.—A Panhard three-cylinder Landaulet, exhibited at the recent Agricultural Hall Show by Messrs. J. E. Hutton, Ltd.

type, indicating up to 10,000 miles, the lowest dial being graduated in 1-16ths. In addition to the moving dials there is a series of indicators arranged so that a record can be made at any moment of the exact state of the recording dials, enabling the driver at a glance to ascertain the exact distance travelled from the time that the pointers of the indicators were last set. Thus a record of the distance travelled per trip may be obtained. Other exhibits of this firm included the Pyros unbreakable sparking plugs, induction coils, and an "Automatic" accumulator, which does not work when on open circuit, and the Vulcan auto-trembler, suitable for one, two, and four cylinders. The latter, as is now fairly well known, consists of a small high-speed trembler arranged to go in series with a non-trembling coil, thus converting it into a high-speed trembling coil, with its attendant advantages of easy starting under all conditions and perfect firing at every speed.

A good show of lamps, including the "Otto" head light and the "Otto" motor-cycle lamp, was made by Mr. A. Rothschild, who sought to interest the trade in the many good points of some recent introductions in this line.

The Electric Battery Company made a good show of accumulators (Fig. 112) for electric ignition, electric ignition apparatus, including coils, with or without trembler, voltmeters, wipe contact breakers, test lamps, etc. A feature was made of the "Sparkwell" mica plug. This is provided with platinum points, and is claimed to be indestructible and soot proof—two important considerations to motorists.

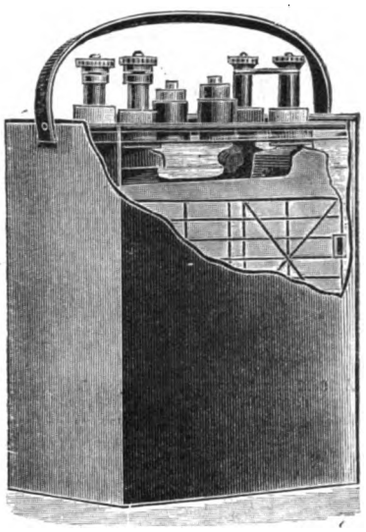


Fig. 112.

Messrs. J. King and Co. had an interesting display, including a sea-going launch, with a 6-h.p. twin-cylinder motor. This firm are becoming well identified with motor boats, dinghies, etc., and their motor has some good points of interest to the growing number of sportsmen going in for marine motoring. The Lozier Motor Company also had a collection of motors and motor launches fitted with their own well-known engine. In the Arcade Messrs. Lister and Sons drew attention to the merits of their "Popular" motor for motor launches, of which they showed an excellent specimen.

On the stand of the Motor Manufacturing Company, Limited, space was found for the Gratze-Oades speed indicator and speed-limit alarm—an ingenious device which was explained by the inventor, Mr. R. V. Gratze. By the method of construction adopted, the deflecting needle is not connected with the rotary portion of the instrument, with the result that no amount of vibration can affect the accuracy of the reading. Steel ball bearings are provided for the rotating part of the device. A novelty in connection with this indicator is the speed limit alarm, which can be set at any required speed. When the speed at which it is set to ring is reached, the pointer rubs over the raised pip on the dial, forming a metallic connection and ringing the alarm. There is a positive drive and connection to transmit the rotary motion by a toothed wheel or worm thread through a jointed or flexible shaft. In advocacy of his ingenious speed indicator, the inventor points out that the instrument indicates the speed the car is travelling at, the maximum speed he has attained, the distance covered, and the warning that a certain speed has already been reached—the latter being a most important consideration in view of the activity of the police in various districts.

The "Max" accumulator on the stand of the Max Accumulator Company attracted notice by its lightness and its reputation for efficiency. It is characterised by a peculiar form of cylindrical electrodes, each electrode being formed of a core of antimoniated lead wire, surrounded by active material, protected by an indestructible covering or braiding of asbestos yarn, similar to that of a cable, and mechanically placed around the electrodes. The disintegration and shedding of the active material which it completely and totally encloses is thus prevented. It can neither leave its support, nor cause short-circuits, even when the electrodes are in contact upon their whole length. In the ignition accumulators the elements are enclosed in cells of transparent celluloid, so that the level of the liquid may be easily checked. Special stoppers are provided to avoid the projection of the liquid, although it permits the escape of the gas evolved during the charge. Batteries for carriage lighting, garages, etc., were also shown on this stand.

The "Calvert" water and air engines, in various powers, were shown by the Stoke Newington Motor Company, who had also a varied assortment of gears, coils, tanks, axles, parts, etc.

At the annual meeting of the General Accident Assurance Corporation, Limited, the chairman said that 1903 had been the best year experienced by the company. To this development the motor department controlled by Mr. A. Nixon has undoubtedly played its part.

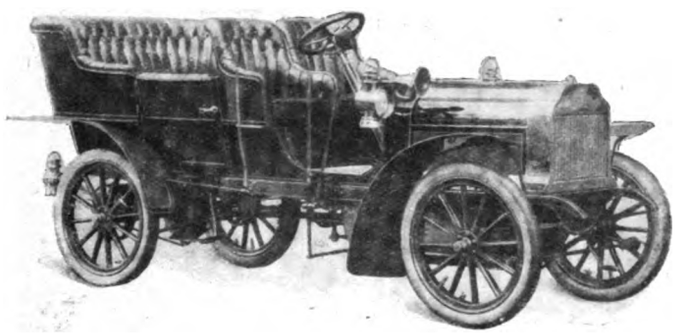
The Kensington Garage, Limited, has been registered with a capital of £2,000 to carry on the business of garage proprietors, manufacturers of, dealers in, and letters to hire of motor-cars, etc. The first directors are Messrs. J. L. Symon and F. King. Mr. Sessions is the manager.

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HERE AND THERE.

AT Hassett Street, Bedford, Messrs. Cruse and Son are adding to their engineering works a motor-car department.

THE next meeting of the General Committee of the Motor Union will be held at 119, Piccadilly, London, W., on Monday next at 5 p.m.



A 10-12 h.p. Argyll fitted with side entrances. The car has a wheel base of 8 ft.; the tonneau is very roomy, and luggage can easily be carried between the doors in the event of the owner going on tour.

BY an Army Order just issued a new class of officers is added to the Army Service Corps with the title of Inspectors of Mechanical Transport.

A DEPARTMENT for the repair of accumulators has been opened by Messrs. J. C. Fuller and Son at their Woodland Works, Wick Lane, Bow, E.

THE Royal Assent has been given to the Bill authorising the eliminating trials of the British cars entered for the Gordon Bennett race to be held in the Isle of Man.

MISS K. D'ESTERRE-HUGHES, the secretary of the Ladies' Automobile Club, will be glad if all communications will now be addressed to Claridge's Hotel, Brook Street, W.

THE Velox Motor Manufacturing Company, Limited, has been registered with a capital of £2,000 to adopt an agreement with the London Pioneer Syndicate, Limited, to manufacture and deal in motors, etc.

ABOUT two-thirds of the course of the Isle of Man eliminating trials will be laid with Westrumite, which will also be used on the roads in the neighbourhood of the Punchestown racecourse during the King's visit to Ireland.

THE Auto-Van Supply Association, Limited, has been registered with a capital of £5,000 to buy and sell self-propelled vehicles of all kinds, and all tools, accessories, and plant used in connection with the manufacture, repairing, storing, cleaning, and using of such vehicles.

A TRADE list of their motor masks, goggles, hoods, etc., comes from Messrs. W. Stephens and Company, an English firm well able to undertake repairs to all descriptions of goggles, which they make a special feature of their business. Motor lamp covers, the "Handy" strap, a washable saddle cover and other minor accessories, are among other specialities of this City house.

MESSRS. PHILIPP AND COMPANY forward a copy of their new catalogue of motor-car fittings, which will be of value as well as of interest to automobile manufacturers. Among the special features of these lists we notice a large selection of lubricators, including many adopted by the leading makers. A wide range of hand steering-wheels in mahogany, ash, or oak, with arms of polished phosphor bronze or aluminium, is also illustrated. As intimated in our report of this firm's stand at the Agricultural Hall Show, they are agents for Messrs. Lloyd and Plaister, whose British-made motor they are placing upon the market. Messrs. Philipp and Company also represent Messrs. Malicet and Blin, whose speed gears are already well known in this country

A MOTOR-CAR is like the human body. Even the soundest will not always withstand over-exertion and habitual misuse.

WE learn that Mr. T. Underwood has resigned his position as sales manager of the Motor Manufacturing Company, Limited, an appointment he has held for some years past.

FEBRUARY proved to be a good month as regards the exports of motor-cars and parts from the United States, the values amounting to £25,448 as against £12,644 in the same month a year ago.

ARRANGEMENTS have now been completed whereby the batteries of electric automobiles may be recharged at the generating station of the Bournemouth and Poole Electricity Supply Company at Bargates, Christchurch.

MR ALDEN SAMPSON, of Pittsfield, Mass., has notified the Automobile Club of America that he will be unable to get his racer completed in time for the Gordon Bennett contest, and has requested that his entry be cancelled.

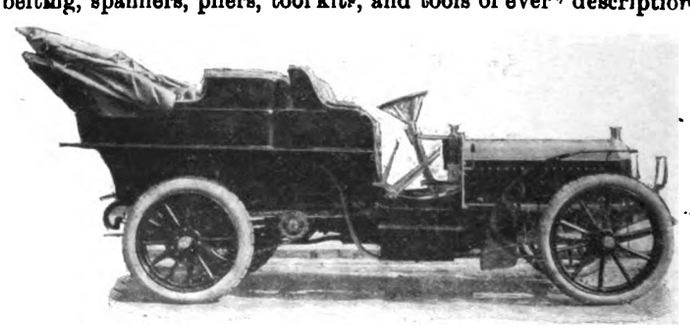
THE twelfth "James Forrest" lecture will be delivered at the Institution of Civil Engineers, Great George Street, Westminster, by Mr. Dugald Clerk, M. Inst. C.E., on Thursday, the 21st inst., the subject being "Internal Combustion Engines."

MESSRS. RENNIE AND PROSSER, LIMITED, have just opened new repair works and free garage at 60, North Wallace Street, Parliamentary Road, Glasgow. The new works, which cover an area of 2,000 square yards, are centrally situated, and equipped with up-to-date plant.

PRINCE and Princess Henry of Prussia arrived in London on Saturday last. Accompanied by Prince Segismund, they drove to the Grosvenor Hotel, but subsequently left there in Prince Louis of Battenberg's motor-car for Radlett, Herts. The Royal visitors are both enthusiastic motorists and have lately acquired a 24-h.p. Benz-Parsifal car.

MESSRS. JOHN CHILD MEREDITH, LIMITED, have sent us a sample of a new sparking plug they are just introducing. The special feature of the plug is that the porcelain only comes in contact with a very small portion of the metal, which prevents the severe pressure upon the porcelain. The plug, which has an unusually stout central terminal, is supplied in neat wood case.

MESSRS. W. H. WILLCOX AND COMPANY, LIMITED, have sent us a copy of the new catalogue of motor-car accessories they have just issued. The list gives particulars of the wide and varied assortment of articles supplied by this firm, including lubricating oils, semi-rotary water circulating pumps, Penberthy automobile injectors, X-L water raisers, wire bound hose, "Richardson" boiler feed pump, lubricators, oil cans, lifting jacks, belting, spanners, pliers, tool kits, and tools of every description.

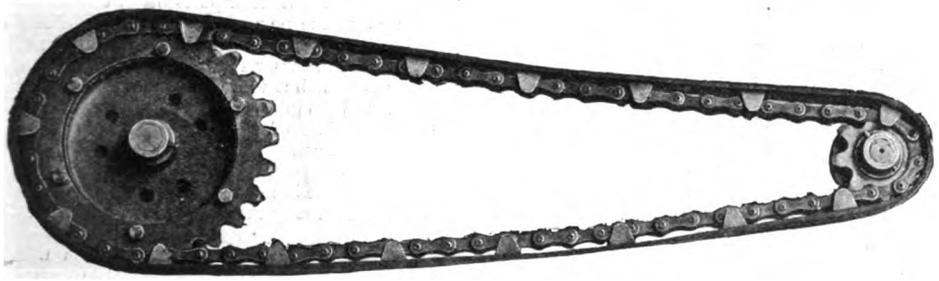


The Rt Hon. A. J. Balfou new six-cylinder Napier Car with Cape-cart hood. The body is exceedingly roomy, holding six people in the back portion and carrying eight in all.

A COURSE of lectures on electric vehicles was begun in the Y.M.C.A. evening institute, Boston, U.S.A., on March 1 with a lecture on the practicability, cost and efficiency of "Electricity as a Motor Power in Vehicles." The second lecture, given on the 8th inst., dealt with "Storage or Secondary Battery"; the third, on the 23rd inst., dealt with the subject of the "Application of Power to Wheels," and the fourth with "Charging Outfits."

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THE accompanying illustration shows the "Little Giant" dirt guard and grease retainer for use on the driving chains of motor-cars which has lately been brought out by the Blackfriars Motor and Engineering Works, Stamford. Every motorist knows that of all the parts that go to the make up of the whole, there is none that is left so exposed to dirt and dust, and so difficult to keep properly lubricated, as the chain. If it were not for this, the life of driving chains, would probably be three times as long as at present. The excessive wear that takes place is due to the grit that finds its way in between the links



and rivets; in addition, the grease and oil which is placed upon the chain for lubricating purposes is quickly thrown off. The protector illustrated herewith consists of a specially constructed belt of a greater width than the chain; clips attached at intervals keeping it in position upon the latter. The device, which can be quickly fitted, prevents mud and dust being thrown up on to the chain, and also prevents the lubricant being thrown off.

THE West London Motor Company, Limited, Hammersmith, have been appointed London agents for the "Clyde" cars.

THE Pytchley Autocar Company, of Bradshaw Street, Northampton, have just enlarged their premises. They now have 450 square yards of showrooms and repair shops in the town, and have now the sole agency for the Midlands for Fiat cars.

THE Chloride Electrical Storage Company, Limited, of Clifton Junction, Manchester, have sent us a booklet descriptive of the "Exide" accumulators they are introducing into this country for use on electrical motor-cars. The "Exide" battery, which is a popular type in America for such work, is claimed to have a very high output per unit of weight without unduly sacrificing mechanical stability and life.

STIRLING'S MOTOR CONSTRUCTION COMPANY (1900), Limited, write us from their boathouse at Strawberry Vale as follows:—In clearing out the van which brought us our goods back from the show at the Agricultural Hall our storekeeper reports that there is a parcel of fittings which do not belong to us. They appear to be brass supports for showing hats or caps, and we thought you might be able to trace the owner by giving the matter a note in the *Journal*. We notice on examining them there are three dozen that bear the name F. McIlvenna and Co., 79, Wood Street, E.C., stamped on."

FROM Messrs. C. W. Burton, Griffiths and Company comes an abridged pocket edition of their catalogue of modern machine tools and workshop appliances. This will be of value to makers as well as repairers of cars, and, in fact, to all using machinery of any kind. Among the machines illustrated and described are various automatic appliances, boring and drilling machines, grinding and milling machines, lathes, saws, and saw benches, twist drills, wood-working machinery, tool grinders, and, in fact, everything which comes under the head of machine tools. Various minor appliances are also described. A separate publication is devoted to engineers' small tools, which have secured universal recognition because of their accuracy and quality. Gauges, drills, vices, etc., find illustration here, while a third catalogue of interest is a treatise on grinding, explanatory of the merits of the Burton disc grinder. Interested readers will be able to obtain any of these useful booklets from Messrs. Burton, Griffiths and Company, Ludgate Square, London, E.C.

MESSRS. THOMAS SHAW, Ltd., of Reform Street, Dundee, are establishing a large motor garage in Ward Road, in that city.

AT the recent Exhibition Automobiles de Luxe took advantage of the occasion to call attention to their system of letting cars out on hire.

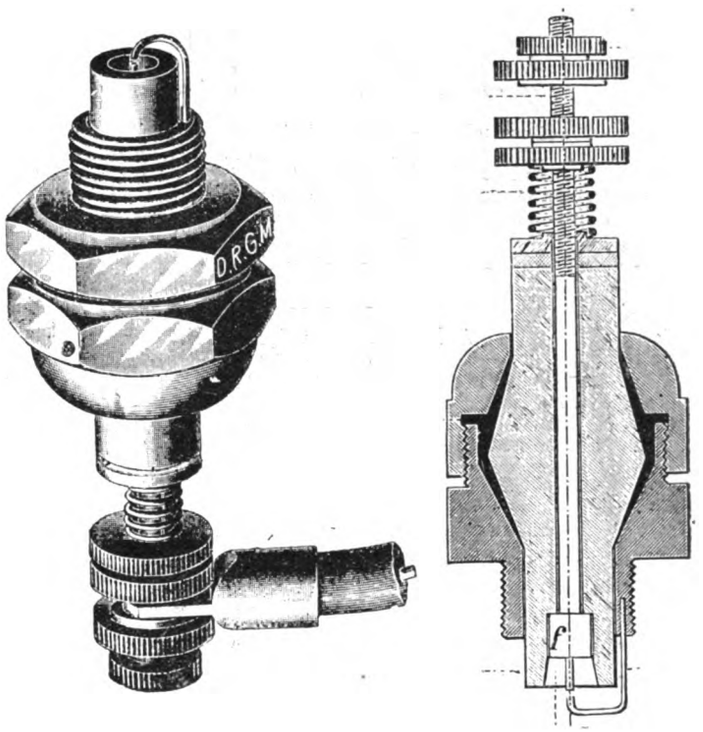
MESSRS HUNTLEY AND PALMER'S biscuit works at Reading are protected from fire by a petrol motor fire-boat in addition to their ordinary appliances.

VIRGINIA BEACH having been found unsatisfactory for speed trials, the eliminating trials for the American team for the Gordon Bennett race will in all probability be held on the Ormonde Beach, in Florida. As there are only three entries for the American team, it would not be absolutely necessary to hold an eliminating race, but we are informed that the Automobile Club of America wishes to convince itself of the fitness of the vehicles chosen to represent it in the race.

AT 20, Danvers Street, Chelsea, S.W., the Grosvenor Engineering Works have a large inspection pit and a competent staff of mechanics who have extensive experience in motor-car repairs. More than a hundred cars passed through the works in the last twelve months.

MESSRS. FLEMING, BIRKBY, AND GOODALL, LIMITED, of Halifax, have just issued a very complete catalogue of their specialities in the way of belting, belt fasteners, pulleys, hose, etc. The list is conveniently arranged in sections, and a number of pages are devoted to useful hints regarding belt drives.

THE ignition plug illustrated herewith in general view and in section is the production of a German firm, the Rapid Accumulatorem und Motorenwerke, of Schoneberg, Berlin. The



plug is notable for apparently excellent insulation of the terminals, and the provision made to prevent fracture of the porcelain core by unequal expansion. The porcelain core is of double conical shape at its middle part, the conical surfaces being surrounded by asbestos. The inner rod is held in place by means of a spring bearing against a nut secured with a lock nut. The insulating core projects a considerable distance beyond the metallic shell at the inner end.

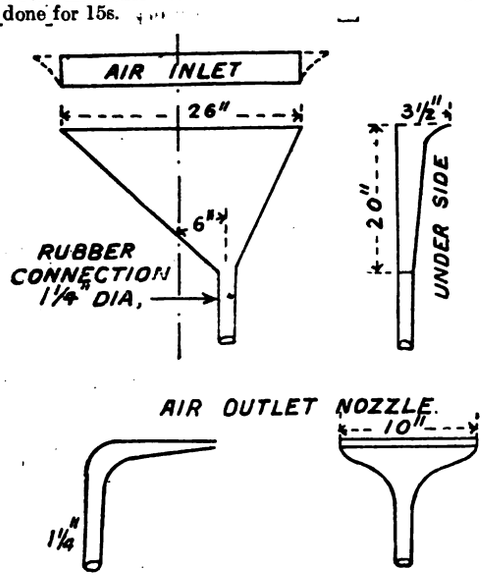
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CORRESPONDENCE.

STEAM CARS.

To the Editor of *The Motor-Car Journal*.

Sir,—I was hoping my letter to the *Journal* would be the means of getting further information from "Steamer" *re* the heating of his car by exhausting into the water-tank the whole of the exhaust steam. I have experimented on most things with the Locomobile, and added many improvements, and any information for the benefit of motorists I am pleased to give. With your permission, I give particulars for cooling of the seats, requested by "Another Steamer." I use a square pattern front condenser and attach a tin taper funnel on the bottom, and secure to condenser by the screws fitted on either side at bottom with iron angle straps. The inlet of this air-funnel is 26 inches by 3½ inches, made taper as shown, and connected with 1¼-inch rubber hose to a tin nozzle with an outlet 10 inches by ⅛ inch; the pipe is placed by the side of water-heater (nozzle on top), and produces a current of cold air under the seat when the car is travelling. The whole job can be done for 15s.



I run two Locomobiles—a No. 2 and a larger pattern. The latter I have had fitted to burn paraffin with the usual petrol burner, by Messrs. Morriss, 82, Stroud Green Road, Finsbury Park. The principle of it is this—it lights up with a pilot lamp (on paraffin); after 20 lbs. of steam the main burner is turned on and a steam jet; the fuel and steam supply works automatically from the usual arrangement on these cars; a pressure of 250 lbs. steam can be reached in twenty minutes.—Yours truly,

Vapeur.

A MYSTERIOUS NOISE.

To the Editor of *The Motor-Car Journal*.

Sir,—Replying to "Dermatine's" letter in the last issue, the clinking noise is no doubt caused by the cardan shaft having become worn, and would only be detected when the car is on the top speed, this because the engine is running at a much less speed than when on the lower gear, and, in consequence, would give an uneven transmission, which is overcome when the engine is running at its nominal speed. Having had precisely the same trouble with a small car, I can speak from experience, and think that upon close examination "Dermatine" will find this to be his trouble.—Yours truly,

T. H. S.

To the Editor of *The Motor-Car Journal*.

Sir,—In answer to "Dermatine," in the last issue, I had a similar experience with a 6½-h.p. Aster gear-driven car, and found the reason was that the bolt at the bottom of the change-speed gear lever had worn and worked loosely, so that when on top speed the gear was not quite home. On fitting a fresh bolt the noise was done away with, until it showed signs of wear, when, if out on a run, and the knocking started, I pressed the lever beyond the final notch, and kept it there with right foot when I wanted to keep the top speed in. Perhaps this might be the reason.—Yours truly,

6½-h.p. Aster.

1904 MERCEDES CARS.

To the Editor of *The Motor-Car Journal*.

Sir,—A friend has sent me a cutting of Mr. Weigel's letter on the subject of the nomenclature of the Mercedes cars, and I have taken advantage of my being with Mr. Jellineck at Nice to obtain from him accurate information on this very confused question of the correct horse-power of these well-known cars.

Mr. Weigel states that the cars being put on the market this year by the Cannstatt Works are as follows:—24-28-h.p., 24-32-h.p., 40-45-h.p., and 60-h.p., whilst his informant in Paris declares that the production of 1904 Mercedes at Cannstatt will be of the following types:—24-28-h.p., 40-h.p., and 60-h.p., and that the other types will not be made at Cannstatt. Neither of these statements is accurate, for the Cannstatt Works' description of the cars being turned out this year is as follows:—18-24-h.p., 24-28-h.p., 28-32-h.p., 40-h.p., and 60-h.p., and all these cars are manufactured at what are known as the Cannstatt Works.

Strictly speaking, no Mercedes cars are being actually manufactured at Cannstatt, the original works having been destroyed by fire last June, and not having since been rebuilt. The essential parts of all the pleasure cars are and will be manufactured at the new works at Unter-Turkheim, four miles from Cannstatt, the old works, or what remains of them, being only used for body making, for storing finished cars, and for offices. The Daimler Company have other works near Berlin, but there only heavy launch and lorry motors are manufactured, and no pleasure cars are made by the company there or elsewhere than at Unter-Turkheim.

To make matters perfectly clear, I cannot do better than to give your readers in tabular form the details of the present output of the Daimler Company, which Mr. Jellineck has supplied me with, the same being a copy of a statement made by the Daimler Company themselves, at Cannstatt:—

Works description of Cars.	Type.	Bore mm.	Stroke mm.
18-h.p.	1903	90	120
18	1904	100	130
24-28	1903	105	130
35-40	1903	116	145
60	1904	140	150
28-32	1904	110	140
40-45	1904	120	150

Now as to Mr. Weigel's complaint that dealers are not entitled to call the 18-24-h.p. 1904 an 18-28-h.p. car, I would like to explain how it is that this car, in the contract under which I bought thirty of them, came to be described therein as an 18-24-h.p. car. It is called an 18-h.p. car because it has the same frame and body as was supplied with the 18-22-h.p. car of 1903. It was called 18-24-h.p. because at that time Cannstatt intended to supply a 20-h.p. motor, that is, a motor of 100 mm. bore and 130 stroke, which they estimated would yield 24 effective h.p., whereas on testing the engine it was found that the motor developed fully 28-h.p. and even more. In these circumstances I felt justified in describing the car as an 18-28-h.p. car; in the same way as Mr. Weigel in his letter describes the 40-h.p. car which gives 45 on the brake as a 45-h.p. car. To me and to any ordinary person it appears reasonable that if a car develops on the brake a certain h.p., one is entitled to call it by the h.p. developed, and surely the most important thing for the buyer is not to know what is the nominal h.p., but to know the actual brake h.p. which can be given, and to see that he gets it.—Yours faithfully,

C. Harrington Moore.

QUERIES *RE* WOLSELEY CARS.

To the Editor of *The Motor-Car Journal*.

Sir,—Can any of your readers enlighten me upon the following experience? My 7½-h.p. Wolseley on a long day's run will vary greatly in "life." The petrol conditions are practically equal, no additional spirit being needed under, say, 120 miles. The air inlet is always full open, and, to utilise top speed to its full capacity, inlet springs are lightly adjusted. The car runs far better in the after part of the day, even at this time of year, and, in the face of a stiff dry wind, travels splendidly with full load.

It seems to me that an additional air inlet to the air bottle, controllable from the dash-board, might be of use. One thing I am quite sure of, viz., that Pratt's "B," although usable, makes a poor mixture, and that Bowley's "A" is better than Pratt's "A," this being shown not in running alone, but also by gravity test. Does anyone know anything of the new Wolseley automatic carburettor, and is their new silencer a great saver of power?—Yours truly,

Jehunior.

[This varying in life is undoubtedly due to want of air, but this can easily be tested by starting the engine and turning off the petrol supply from the tank. If more air is required, the engine will increase in speed as the petrol level gets lower. In any case there would be no harm done in adding an auxiliary airway controllable from the seat, which could easily be shut off if found unnecessary. In our own experience we have found no difference in the running of the car either with A or B spirit.]

THE TIME FOR OVERHAULING.

To the Editor of *The Motor-Car Journal*.

Sir,—Like nearly all mortals, motorists are prone to procrastinate—to put off until some other day the work that should be done to-day. Spring is upon us, and if not already done the work of overhauling and putting in running order one's car ready for the coming season should be put in hand without delay. Such work will have to be done, and it is simply a question of having it done now, when repairers have plenty of time, or of rushing it through a few weeks hence, when pleasant, sunny days tempt the motorist forth and every shop is crowded with urgent

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work. There are many motorists who will say that their cars do not require overhauling; that they are as ready to run now as they were last year. This is true in a measure, but they would give vastly better service if they were gone over by competent hands and put in the pink of condition. This is especially essential with cars that have been laid up for the winter. All machinery is the worse for disuse. Dust and dirt penetrate to the working parts, however great the efforts to exclude them, and should be carefully removed. No machinery will run long without requiring some adjustment, no matter how slight, and the parts which have been cleaned, lubricated and adjusted will perform their allotted functions in a manner infinitely superior to machinery which has been left to itself, even although the latter has nothing really wrong with it.

Again, when cars are "laid up" they are usually dismantled to some extent. The tyres are removed or the wheel jacked up, the batteries disconnected, the cushions taken out, the bright parts vaselined and the entire car covered with sheeting or similarly protected. As every one knows, it is much easier to take down than to set up; and time and opportunity and some skill are ingredients indispensable if a good job is to be made of the latter process. Yet it is usually put off until the last minute, and then hurried through in a careless fashion hardly conducive to the best results. Many motorists like to undertake the "setting up" process themselves, finding pleasure in constructive work of this sort. There are many others who, either from inability or disinclination, do not care to undertake this, and they throng the repair shops just when the opening season rush is greatest. Therefore I venture to suggest to those motorists who intend to have their car overhauled for the coming season that now is the time to put the work in hand.—Your truly,

L. P. Oliver.

THE EVOLUTION OF SPEED.

To the Editor of *The Motor-Car Journal*.

Sir,—This year we shall probably see more cars and motor-cyclists on the road than in any previous season. Many at this moment will be hesitating what their particular mount of 1904 is to be. May I, as a motorist of longer standing, perhaps, than most drivers and riders, venture to point out what, in my humble opinion, so many people lose sight of, viz., the necessity of increased horse power for those who are no longer feather weights?

When I commenced hunting in Leicestershire, more than thirty years ago, a ten stone horse suited my requirements perfectly. Now, alas, owing to Anno Domini, and a certain amount of embonpoint, I have to purchase fourteen stone hunters instead. With a bicycle and a car I maintain the case is identical. If the rider does not want his mount to halt beneath him when ascending rising ground, he must always have a bit in hand on the flat.

I began motoring with a Benz car of 3½-h.p.; my second car, an 8-h.p. Napier, distanced all other English competitors in the 1,000 miles Club run to Edinburgh and back, over which we took three weeks! My third was a 15-h.p., and I am now anxiously awaiting the delivery of a new 30-h.p. six cylinder car.

As a motor-cyclist, evolution has carried me forward in precisely the same progressive fashion. My 1¾ became a 2¾, and I am now the possessor of a Clyde motor-bike that develops an easy 4 on the brake. What is the result? Instead of having to propel, with faltering steps and perspiring brow, an underhorsed machine up wearisome inclines, we now glide gracefully to their summits, without pedalling and without anxiety, no matter how steep the ascent. As to danger, with proper exhaust control on the handle bar, there is absolutely nothing to fear. In any serious emergency, speed by means of this lever can be immediately reduced. In traffic you can crawl behind the slowest growler, leisurely following in his wake.—Yours truly,

E. Kennard.

RESISTANCE IN BATTERY CHARGING.

To the Editor of *The Motor-Car Journal*.

Sir,—Could you inform me if it requires any resistance, and if so how much, to charge a 4 volt 15 ampere accumulator from a 6 volt 40 ampere one.—Yours truly,

D.

[A 4 volt accumulator requires five volts to charge it, therefore it will be necessary to use sufficient resistance in series to absorb 1 volt of the pressure given by the 40 ampere accumulator. Assuming that "D." wishes to pass one ampere through the accumulator to be charged, he will require five volts more or less at its terminals, according to the voltage which the accumulator is giving itself, as the current is produced by the difference in voltage between the accumulator being charged and the accumulator charging. Therefore it is not possible to state exactly how much resistance is necessary, but if 1½ ohm of resistance is provided, this can be cut in or out of the circuit as required. Thin iron wire rolled into a coil or German silver wire make suitable resistances. On no account attempt to charge the accumulator with the whole of the six volts available, as, though it may appear that an increase of one volt will not make a great difference, seeing that it is only an increase of 20 per cent. of the whole amount, it should be remembered that the acting voltage is only the difference between the two accumulators, so that if one gives 4½ volts when being charged, and the other gives five volts, the actual voltage being employed to charge is half a volt, and therefore if the whole six volts is used the acting voltage is increased to three times its previous amount. This point is a very important one to note in charging accumulators, as the excess of charging current may ruin the plates unless due care is taken to regulate the voltage of the charging battery. It is advisable to employ an ampere-meter as a guide to the proper regulation of the resistance. About fourteen feet of German silver wire, No. 20 gauge, will give a resistance of 1½ ohms.]

MOTORISTS, BEWARE OF ENFIELD.

To the Editor of *The Motor-Car Journal*.

Sir,—I have to-day been summoned before the Enfield bench of magistrates for driving a car beyond a speed of twenty miles an hour. In the evidence given I elicited from the first constable who gave evidence that he was quite inexperienced in timing a motor-car, as it was practically his first attempt at timing. He gave in evidence that I covered 352 yards (one-fifth of a mile), in 22 seconds, or at the rate of 32½ miles per hour. The second constable to give evidence, who appears to have timed me over the first mark, swore I was covering only twenty-eight miles per hour; he also said, on my cross-examining him, that his method of timing was to see the car over the first mark, to wave a white signal to the constable at the second mark, and then walk along the road to see the time the car passed the second mark, when he stopped his watch, he being at this moment at least 280 yards from the mark he was trying to see. I submitted to the bench that it was impossible to time correctly on such a system. Mr. Lord, the chairman of the bench, then said, if he had his way he would limit all cars to twelve miles per hour, and any other case that came before him in future which was proved he should impose the full penalty of £10. I was fined £5, and my licence endorsed. I trust all motorists will keep clear of Enfield.—Yours truly,

H. G. Stacey.



A White Steam Car by the S.a.

MOTOR RACING ON ENGLISH SHORES.

To the Editor of *The Motor-Car Journal*.

Sir,—Although I should be very loth to oppose any scheme put forward for the good of the motoring world, I should be extremely sorry to see "Yorkshireman's" proposal, as set forth in your issue of the 25th March, considered seriously.

Filey is by no means the deserted place one might be led to imagine from his description, and I can conceive no worse fate that could befall it than the adoption of such a scheme as his. I feel sure that the inhabitants themselves would strongly object to their splendid sands being made the scene of motor racing. For the matter of that, I do not know any part of our English shores suitable for the purpose. The conditions which obtain on the continent of America are far different to those over here, and there are many things that our American cousins can do there with impunity that are impossible here.

Filey is not an inaccessible place by road, nor is there any lack of accommodation there, but take away the use of the sands and you rob Filey of one of its great attractions.

There is a site, however, which has been under the consideration of the Automobile Club of G.B.I., and which is an ideal one for motor speed contests, and it is a matter of great regret that it has not been acquired. I refer to the land south-west of Clacton-on-Sea, in Essex. There one of the finest tracks imaginable could be made, with the additional advantage of having a depth of water close at hand suitable for carrying out motor-boat races. The distance from London is only seventy miles, with a splendid main road all the way. Further, it is accessible from the Midlands by good roads, and the town possesses ample accommodation for motorists. May I conclude with the hope that we shall never see motor-racing on our English shores, as any such innovation would drive away more people from a place than it would

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attract to it. The sands are the children's playgrounds and should remain as such. Let us have a track near the shore, if you like, but it must be on private grounds.—Yours truly,

F. 110.

THE RULE OF THE ROAD.

To the Editor of *The Motor-Car Journal*.

Sir,—I must apologise for a rather belated communication, as I have been from home, and did not till to-day see Colonel Magrath's letter and your favourable comment on it, touching the Rule of the Road. It is a very important subject.

Colonel Magrath and I—old friends—were close companions on the same car all through the great 1,000 miles trial of four years ago. We jogged along in pleasant amity the whole way, and if we had a friendly difference it was on this question only. I see that with his characteristic energy he has been pressing his views on lord and other mayors, and has gained your sympathy. As my view is opposed to his, holding as I do that the change he proposes would be fraught with great danger to the pedestrian, I ask leave to say a word. The pedestrian rule of keeping to the off-side of the road is based on a sound principle, that those on foot should not walk on the part of the road on which fast and dangerous traffic may come on them from behind, but should face the fast traffic coming towards them, as they can best avoid what they can see, and are not required to be constantly looking round in case any vehicle should be about to run them down. The principle is exactly the same as that contained in the rule for men on foot passing along a railway. The order is that they shall walk so as to have approaching traffic in their view, and should step to the right when a train comes into view. Any other rule is necessarily dangerous, as it places the man on foot with his back to what is approaching. If it is desired to test the matter, let anyone who proposes to cross a street where there is considerable traffic keep inclining to his left until he is in the middle of the street, and when in the middle turn and incline to his right. He will find at once that he has good cause to be nervous. On the other hand, if he first inclines to the right and, after reaching the middle, inclines to his left, he sees everything that is approaching, and can easily regulate his action accordingly, having no need to consider anything but what is in front of him.

As I am writing, allow me to congratulate you on your dropping, in your account of the Carnegie motor house, that ridiculous word *garage*. Please consign *chauffeur* and *chassis* to the same limbo.—Yours truly,

J. H. A. Macdonald.

Books on Motor-Cars.—Mr. E. Cuthbert, who inquires for books on motor-cars, is referred to "The Automobile," by Mr. Paul N. Hasluck, and published by Messrs. Cassell and Co., and to "Motor Vehicles and Motors," by Mr. W. Worby Beaumont (Constable and Co.).

Motor *v.* Delivery Vans.—Replying to Mr. W. J. Magowan, the makers of the combination delivery van and pleasure car illustrated in our issue of the 2nd inst. are the Motor Carrier Syndicate, Cranmer Court, High Street, Clapham, S.W.

Nomenclature.—Mr. B. Aaron writes to suggest the words "Moteer" or "Motician" in place of the term chauffeur.

Steam Wagons.—In reply to Mr. Albert Smith, the makers of the Lancashire steam wagon are the Lancashire Steam Motor Company, Ltd., Leyland, near Preston.

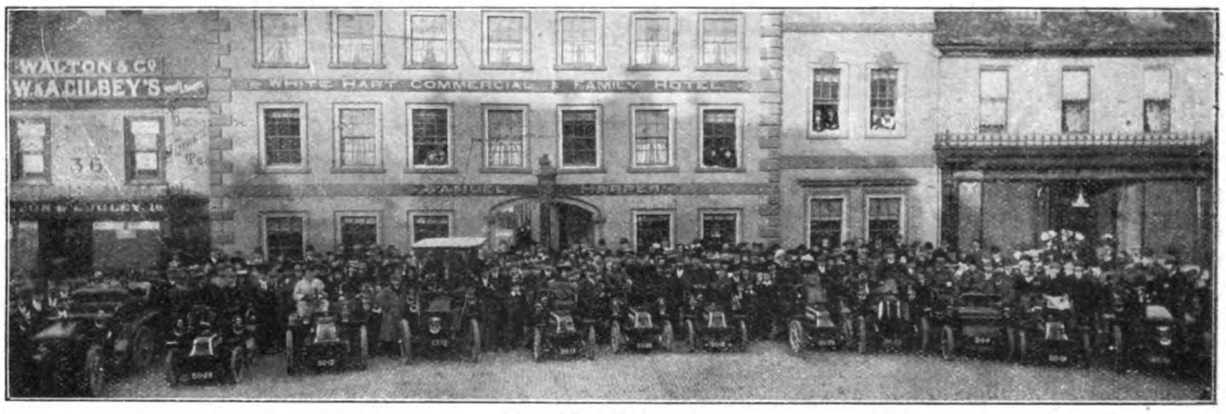
Garage Charges.—A Yorkshire reader asks what would be a fair charge for storing a 10-h.p. car for the year, to include cleaning; also what are the hiring charges for small cars.

Wheel Rims.—A correspondent wishes to know the names of makers of wheel rims. We shall be pleased to hear from readers interested in such work.

CLUBS AND ASSOCIATIONS.

SOUTH LINCOLNSHIRE.

On Easter Monday the South Lincolnshire Motor Club had a run to Spalding. The cars commenced to arrive about three o'clock in the afternoon, making the White Hart Hotel their headquarters. At noon Mr. Arthur Beales left Spalding for Dyke, near Bourne, to fetch Mr. E. M. Pollock, the prospective candidate for the Spalding Division, who arrived at Spalding as the cars were beginning to appear. As they drew up the whole of the vehicles were arranged in line in the White Hart Hotel yard, where they were inspected with evident interest by the people assembled. They were afterwards taken into the Market-place, where they were photographed. The following were amongst the motorists present:—Messrs. W. Garfit, Esq., M.P. (Wolseley), Dr. South, J.P., (Baby Peugeot), Dr. Mason (Baby Peugeot), C. R. Cooke (motor-cycle), H. T. Pilley (Peugeot), Dr. Crompton (Baby Peugeot), Dr. Millar (De Dion), A. W. Holloway (Baby Peugeot), R. Cooke (motor-cycle), F. W. Dennis (Baby Peugeot), A. Beales (Dennis), G. Linnell (Wolseley), C. Holland (Peugeot), R. Holland (Baby Peugeot), H. W. White (motor-cycle), T. W. Mayes (Humberette), A. Green (Baby Peugeot), and F. Richardson (Wolseley). At the tea Dr. Millar occupied the chair, and said how glad he was to see so successful a meeting. Mr. E. M. Pollock said Dr. Millar had asked him to propose a toast, or a sentiment. It was prosperity to the South Lincolnshire Motor Club. The place of the meet, the first of the club, had been well chosen at Spalding, and he went on to refer to the incident recorded elsewhere in our "Comments." In conclusion he declared he had enjoyed the drive from Bourne, his friend Mr. Beales having fetched him in a car, and he was convinced that motoring was a matter in which there must be a good deal of give and take in a district where so many horses were used upon the roads. With these reservations it seemed to him that Lincolnshire was a place where everybody might enjoy the use of the motor-car. They might, therefore, look forward to the speedy development of that club.



The Inaugural Meet of the South Lincolnshire Automobile Club at Spalding.

The following meets have been arranged:—April 28th, Boston; May 14th, Market Deeping; May 23rd, Woodhall Spa; June 2nd, Spilsby; June 16th, Wrangle; June 30th, Kirton. Local motorists intending to join the club should communicate with the hon. sec., Mr. F. Richardson, of Sibsey, Boston.

BERKSHIRE.

The opening meet, reception and gymkhana of the Berkshire Automobile Club will take place at Hall Place, Maidenhead, by invitation of the chairman, Sir Gilbert A. Clayton, on May 28th. Fixtures are also being arranged for June 8th and 25th, July 13th and 30th, and September 14th and 24th.

SCOTTISH CLUB.

The report of the Scottish Automobile Club for the year ended 31st January, 1904, submitted to the annual general meeting of members in the Central Station Hotel, Glasgow, on Tuesday last, gave the membership of the Club as 323, comprised as follows:—Eastern section, 118; Western section, 205. The reports of the sections show the Club to be in a satisfactory financial position, the cash balances on hand as at 31st January last being:—Eastern section, £85 18s.; Western section, £214 12s. 6d. Club meets, competitions, and public trials, as well as meetings for the discussion of subjects relating to automobilism, have been conducted by the Club and its sections during the past year. Several combined meets of both sections took place. Matters affecting the question of affiliation with the Automobile Club of Great Britain and Ireland have been satisfactorily adjusted, and the Club is now represented fully on the committee of the Motor Union. Matters arising out of the Motor Car Act, 1903, have received a large amount of consideration at the hands of the General Council during the past year. Up to the present no roads have been closed, and no ten

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miles per hour limit has been imposed in Scotland under the provisions of the recent Act. The Council are aware that several public authorities have made recommendations to the Secretary for Scotland in these directions. The General Council believe that, before any action is taken, they and the members of the public interested will have an opportunity of making representations on the subject. The following representatives to the General Council have been elected for next year:—Western Section—Messrs. H. M. Napier, W. H. Kingsbury, Jas. Burns, with the chairman and hon. secretary, *ex officiis*. Eastern—Dr. Wm. Blair, Messrs. Stephen Smith and John Wilson, with Messrs. John Macdonald, chairman, and Geo. Macmillan, hon. secretary, *ex officiis*.

The members of the Eastern Section of the Scottish Automobile Club brought their season to a close by holding a social meeting in the North British Station Hotel, Edinburgh, at which there was an attendance of about eighty ladies and gentlemen. Mr. John Macdonald, chairman of the Section, who presided, said that next year they intended to hold a gymkhana, which they expected would prove one of the most interesting and fashionable functions of the season. On behalf of the members, Mr. Norman Macdonald asked Mr. George Macmillan, the hon. secretary, to accept an address and four pieces of silver plate, as a mark of esteem from the members on the occasion of his forthcoming marriage. Mr. Macmillan, in returning thanks, said he was sure the club would soon be one of the most important and largest in the country.

KENT.

THE second annual general meeting of the Kent Automobile Club was held at Maidstone, on Thursday, the 31st ult., the president, Sir David Salomons, Bart., being in the chair. The balance-sheet, showing a surplus of over £17, was adopted. The financial estimate for the present year showed an available surplus of £157, after deducting the sum of £20 for printing and postage. The somewhat large surplus is accounted for by the fact that the A.C.G.B.I. affiliation fees were paid after October 1st last year, so coming under the rule of the parent club, which states that in such a case no fees shall be payable the following year. Votes of thanks to the president and to Dr. Dowding for his untiring and successful work as honorary secretary were carried unanimously. The first meet of the season will be at Tunbridge Wells to-day (Saturday), the rendezvous being the Mount Ephraim Hotel.

LINCOLNSHIRE.

NOTWITHSTANDING the high wind and the fitful rainstorms of Saturday, and the position of Spilsby, there was a very good attendance of members and friends of the Lincolnshire A. C. at the "Shades," the occasion being the opening of the club. There were several fine cars present, and the ride through the gale had created good appetites. The committee held a meeting, and it was stated that the annual dinner to be held to-day (Saturday) is likely to be a great success.

AUTOMOBILE ACCIDENTS.

THERE has died at the Sutton Hospital a young cyclist, named Parkinson Job, who was admitted suffering from a fracture of the base of the skull and a compound fracture of the left leg, caused by his being run into at Belmont by a motor-car. The driver of the car, Emile Richards, living in Tottenham Court Road, London, was arrested, and is now under remand for causing Job bodily harm by reckless driving.

A SERIOUS motor-car accident occurred on the Hampton Court road, Hampton Wick, on Thursday of last week, to Mr. Higgins, of Court Green, Streatham, who, with his daughter, a lady friend, and a driver named Charles Mercer, were proceeding in a covered steam car towards Kingston, having come from Burcott, near Oxford. The driver was endeavouring to pass an electric tram car and was crossing the metals, which had been recently watered, when one of the solid rubber tyred wheels skidded on the wet metals, with the result that the car was swung completely round and fell into a ditch at the side of the road. Mr. Higgins sustained a fractured leg, and was taken to a local doctor, whilst the ladies were badly shaken and bruised.

IN reference to the report of a recent mishap near Maidstone, Messrs. Hulbert, Crowe, and Hulbert, solicitors, acting for the gentleman who was driving the motor-car write:—"The car was not being driven at a rapid rate, but, on the contrary, was at a standstill at the moment of the accident. The nurse who was driving the governess car had partly passed the motor-car when the pony got out of control, turned suddenly round, and when in the act of bolting put one of his hind legs through the spokes of the off-side front wheel of the automobile and fell. In struggling to get free the animal wrenched off its hoof, and had to be killed. The governess car was not touched by the motor, and was not damaged, and our client was in no way to blame for the occurrence."



Alas! Another Case against a Motorist Lost.

LETTERS OF IDENTIFICATION.

BELOW we give the identification marks for Scotland as required by the Motor Car Act:—

BOROUGHS.

Aberdeen	... ...	R.S.	Greenock	... ...	V.S.
Dundee...	... ...	T.S.	Leith ...	... ...	W.S.
Edinburgh	... ...	S.	Paisley...	... ...	X.S.
Glasgow	... ...	G.	Partick	... ...	Y.S.
Govan	... ...	U.S.			

COUNTIES.

Aberdeen	... ...	S.A.	Kirkcudbright	...	S.W.
Argyll ...	... ...	S.B.	Lanark	... ...	V.
Ayr ...	... ...	S.D.	Linlithgow	... ...	S.X.
Banff ...	... ...	S.E.	Midlothian	... ...	S.Y.
Berwick	... ..	S.H.	Nairn ...	... ...	A.S.
Bute ...	... ...	S.J.	Orkney	... ...	B.S.
Caithness	... ...	S.K.	Peebles	... ...	D.S.
Clackmannan	...	S.L.	Perth ...	... ...	E.S.
Dumfries	... ..	S.M.	Renfrew	.. ...	H.S.
Dumbarton	... ...	S.N.	Ross and Cromarty	...	J.S.
Elgin ...	... ...	S.O.	Roxburgh	... ..	K.S.
Fife ...	... ...	S.P.	Selkirk...	... ...	L.S.
Forfar ...	... ...	S.R.	Stirling...	... ...	M.S.
Haddington	.. ...	S.S.	Sutherland	... ...	N.S.
Inverness	... ...	S.T.	Wigtown	... ...	O.S.
Kincardine	.. ...	S.U.	Zetland	... ...	P.S.
Kinross	... ...	S.V.			

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PETROL AND LUBRICATING OIL DEPOTS ON AND ABOUT THE 1904 GORDON BENNETT COURSE.

As mentioned in a recent issue, the Vereinigte Benzinfabriken, of Bremen, has issued a list of depots on and about the Gordon Bennett Course in Germany, where a stock of their Stellin motor-spirit, or benzin, as it is called in Germany, will be found available at the cost of 40 pfennings per litre (can not included), As the list may prove useful to many of our readers we reprint it herewith.

Homburg v. d. Hohe:

Menges & Mulder, Waisenhausplatz.
Carl Mathay, 11, Louisenstrasse.
Otto Voltz, 19, Louisenstrasse.
Georg Schick Sohn, Am Bahnhof, garage for 32 cars.
Carl Deisel, 44, Louisenstrasse.
Carl Kreh, Chemist, Louisenstrasse.
Wilhelm Kranz, Dorotheenstrasse, garage for 50 cars.
Clemens Wehrheim, cycle depot, Louisenstrasse.
Hotel Adler, garage for 22 cars.
Hotel Bellevue, garage for 10 cars.
Hotel Windsor, garage for 4 cars.
Sauer & Hillebrandt, 76, Louisenstrasse, garage for 50 cars.
Actien Brewery, Höhenstrasse, garage for 100 cars.
Jean Becker, Louisenstrasse, garage for 11 cars.
Chr. Acker, Castillostrasse, garage for 50 cars.
Albert Schick, Neuer Weg, garage for 30 cars.
Chr. Lanz, Dorotheenstrasse, garage for 50 cars.
Hugo Eppstein, Elisabethenstrasse, garage for 12 cars.
F. Strauss, 22, Kaiser Friedrich Promenade, garage for 4 cars.
F. Idstein, Kaiser Friedrich Promenade, garage for 7 cars.
Adolf Merle, Ferdinandsgarten, garage for 3 cars.
Franz Supp, Louisenstrasse, garage for 3 cars.
W. Zimmerschied, Deutsches Haus, Dornholzhauser Chaussée.

Dornholzhausen:

Hotel Scheller, garage for 20 cars.
Gärtnerei Maas, garage for 10 cars.

Saalburg:

Saalburg Restauration.
Hotel Cruciger.

Wehrheim:

F. A. Velte.

Usingen:

H. C. Menche.
Georg Peter.

Grafenviesbach:

L. Weil.

Weilburg:

August Bernhardt.
Hotel zur Traube.

Allendorf:

H. Friedrich.

Limburg:

Dr. Kexel, 11, Obere Grubenstrasse.
Gottfried Schaefer, Frankfurterstrasse.
Hotel Preussischer Hof.
Hotel Nassauer Hof.
Hotel Bayrischer Hof.
Hotel Alte Post.

Wilhelmshohe bei Limburg:

Hotel Deutsches Haus.
Hotel Stadt Wiesbaden.

Kirberg:

Gasthaus zur Post.

Idstein:

Heinrich Kornacher.

Konigstein:

W. Zehe 27, Hauptstrasse.
Hotel Colosseus, Hauptstrasse.

Gronberg:

H. Gerstner, chemist.
Hotel Frankfurter Hof.

Ober-Ursel:

Alex Kürtell, 4, Oberhochstadterstrasse.
Jos. Abt.

Friedberg i. Hessen:

J. Baumeister, Hauptstrasse.
W. Flaschenträger, Hauptstrasse.
Albert Gennes, chemist.

Bad Nauheim:

Richard Schwab.
B. Peters, chemist.

Frankfurt am Main:

August Ulrich, 1, Friedenstrasse, garage for 60 cars.
Kaiseröl-Fabrik-Niederlage der Petroleum-Raffinerie vorm. August Korff.
Dr. A. Jassoy, 63, Neue Zeil.
Seiffermann & Uhl, 7, Kronprinzenstrasse, garage for 200 cars.
Hoelzle & Chelius, 4, Catharinenpforte.
Carl May, 51, Kronprinzenstrasse, garage for 20 cars.
Adler-Fahrradwerke Garage, The, Gutleutstrasse.
Joh. Häusler, 10, Opernplatz.

Wiesbaden:

Hotel und Restaurant Grüner Wald, 10, Marktstrasse, garage for 10 cars.
Otto Sassmann, 21, Westerdstrasse, garage for 6 cars.
Carl Kreidel, 36, Webergasse.
Hugo Grün, 3, Kirchgasse.
Friedr. Becker, 2, Moritzstrasse.

CASES DISMISSED.

THERE was an adjourned summons before Mr. Lane, K.C., at the West London Police-court on Tuesday, against the Garage Company (Limited), of Queen-street, Cheapside, E.C., for infringing section two of the Motor Car Act, 1903, by "fraudulently allowing an unregistered motor-car to be used" in the Hammersmith Road on March 5. Mr. Wontner appeared to support the summons on behalf of the Commissioner of Police, and Mr. H.W. Nicholson represented the defendant company. On the day in question a motor-car numbered "A.I.G.H.," and driven by Mr. C. V. Moore, was stopped in the road by Police-constable 789 T, who noticed that the letters were not properly fixed. Inquiry showed that though the car was the property of Mr. George Edwardes it bore the identification mark of the defendant company, to whose garage it had been sent for repairs, and it was not registered. Mr. Moore, who was subsequently summoned for "using an unregistered car," pleaded that the company lent him their identification mark for the purpose of his trying the car to see if the repairs were sound, Mr. Edwardes, who was a friend of his, having asked him to do so. The magistrate, however, held that he had clearly infringed the Act, inasmuch as the car not being the property of the Garage Company, nor "on trial by an intending purchaser," did not come within the exemption granted under sub-section 4 of section 2 to cars of that description, and he accordingly imposed on Mr. Moore a penalty of £3. On the present summons the point at issue was whether the company had acted "fraudulently" in so lending their identification mark. Mr. Nicholson argued that the company had acted in perfect good faith. The car was given to them to repair, and while under their charge was lent to Mr. Moore for the purpose of testing the repairs, after which it would return to the garage. He further pointed out that the reason the car was not registered was because it was sent to the garage before the Act came into operation. The magistrate said the word "fraudulent" used in that particular section of the Act clearly applied to a case where a man did something which enabled another person to represent that he was the owner of the car under the title of these "marks," or that he was the intending purchaser of the car. In this case he was satisfied that whoever allowed the company's marks to be attached to the car believed—and it was not a very violent presumption on the part of a layman—that a car taken out on trial for the purpose of testing the repairs was in the same category as one being tested by an "intending purchaser," or a new car being tested for its running qualities "after completion" by the manufacturer. It should, however, be clearly understood by owners and manufacturers of motor-cars that the words "intending purchaser" meant exactly what they said, and could not be extended to cases of cars on repair. He was satisfied that there was no "fraudulent permitting," and he therefore dismissed the summons.

AT Godalming, Ernest Moore, motor-car driver, High Barn, Hascombe, was summoned for driving his motor-car in Town End Street at such a speed as to be dangerous to the public, on the 11th March. Mr. L. de Michele, instructed by Mr. F. Dowse (Messrs. Mellersh), appeared for the defendant, who pleaded not guilty. Alfred Chaplin, a motor-car driver, who was with the defendant on the day in question, corroborated the evidence of several witnesses. Mr. Stuart Pleydell-Bouverie, living at High Barn, Hascombe, said he was a director of the Wolseley Company, Birmingham. Defendant was sent to him by the company as an experienced driver, and one of the best they had got. He had absolute confidence in him. Chaplin was learning under Moore's tuition. He impressed upon both of them to be most careful in driving, with every consideration for the public. The magistrates decided that there was not sufficient evidence that the defendant was going at an excessive rate of speed, and dismissed the case.

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THE

Motor-Car Journal.

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COMMENTS.

ON the 1st prox. the Irish Automobile Club will enter into the possession of new premises, which have been secured in Dublin, and which will give the organisation a prestige and influence it has not hitherto enjoyed. During the coming summer several good runs will be made to Enniskerry, Killaloo, Malahide, Lucan, and other places near and far from Dublin. The runs will start from the Shelbourne Hotel, Dublin, early in the afternoon. During July, the annual tour of about nine days' duration will be held. It will include a reliability trial at Killarney, and some enjoyable trips in the beautiful Glengariff country, as well as runs as far as Lismore and other delightful spots which were included in the itinerary of the tour following the Gordon Bennett race of last year. Evidently the Irish motorists intend to have a busy as well as a pleasant time together during the coming season.

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Motor-'Buses for London.

WE understand that the officials at Scotland Yard have made an inspection of one of the motor-omnibuses now in use at Eastbourne, and have expressed themselves in favour of licensing vehicles of the same type for service in London. A 'bus has been run from Peckham to Charing Cross and back with some prominent officers of the Metropolitan police force as passengers and within a short time some of the familiar horse-drawn vehicles now in use may be withdrawn by a certain popular 'bus-owning firm in favour of the more modern vehicles. Frankly it must be confessed the London public have so often heard rumours as to the establishment of motor-'bus services that their present scepticism may be excused. But come it must, and the sooner the motor-'bus is a familiar feature of the streets the better will it be for the public convenience.

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Up Porlock Hill.

THE first motor-car to ascend Porlock Hill, near Minehead, was a Napier, which accomplished the feat in August, 1900; later in the same year a Benz made the ascent, since when little has been heard of sensational rides up the steep and famous hill. On the 6th of the present month, however, Mr. J. T. Overton made the ascent on a 16-h.p. Georges Richard car, which was then driven over to Lynmouth and into Lynton. On the following day Mr. Leonard Spong, who had been appointed Hon. Observer by the A.C.G.B I, arrived, but it had rained during the night and the hill was in a very bad condition. A set of Parsons non-skid chains were, however, fitted, and with four persons up the test was tried again. Starting at 10 a.m., Porlock Hill, with four persons up, was negotiated with the utmost ease. From the Ship Inn to the sign-post at the top of the hill, a distance of over three miles, was covered in eighteen minutes, making an average of ten miles an hour. Lynmouth was reached in forty-one minutes, a distance of 11½ miles, including several stops made on the way for restive horses. The hill up from Lynton to Lynmouth was then attempted, but, owing to the very wet condition, it was not very successful; on a second attempt the car was driven up with one person without a stop or any assistance. A return journey from Lynmouth to Porlock was done at an average up to the legal limit. Ilfracombe to Minehead is, according to the Contour Road-book, the worst main road in the South of England. The road then runs to Lynmouth by a sheer descent with an awkward twist at the bottom—about the most dangerous hill in the country. Porlock is then reached by another sheer descent with two twists near the bottom; there is scarcely any surface to this part of the road. The gradients are given as:—Lynmouth 1 in 5 and the other side 1 in 7 for over two miles, Porlock 1 in 10, 1 in 8, and 1 in 6.

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Club for Dorset.

AWAY in the West of England motoring is becoming as popular as elsewhere, and the organisation of motorists is proceeding rapidly. At the April meeting of the Gloucestershire Club, reported on another page, great progress was recounted, and, during the last few days, a meeting has been held at Dorchester for the formation of an automobile club for Dorsetshire. At the latter the Hon. Wilfred Cairns presided, and among those who have already given their names as members are Lord Ilchester and Lord Wimborne. We welcome the growth of such associations, their work not only being to encourage automobilism, but also to protect motorists from petty police persecutions.

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Traders and Private Marks.

GRADUALLY the peculiarities of the new motor-car legislation are being made plain, and a case at Leeds presents an answer to the conundrum "When is a registered motor-car not registered?" A private car bearing a manufacturer's identification mark was being driven under conditions which applied only to new vehicles for trial after completion or cars on trial by intending purchasers. Therefore, it was successfully contended by the police, it was unregistered and the driver liable to a heavy penalty. The case should prove a useful warning to others.

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In the West.

AT the last meeting of the Taunton Town Council the Town Clerk read a letter from Dr. A. Kepple-Reade, the chairman of the Parish Council of Churchstanton, enclosing a resolution passed by that council in favour of petitioning the G.W.R. Company and the L. and S.W.R. Company for the establishment of a motor-car service between Taunton and Honiton, and asking for the support of the Taunton Town Council with regard to the same. Mr. Kirkpatrick thought that if they could get the G.W.R. Company to grant this motor-car service, it would be a splendid thing for Taunton in more ways than one. For one thing, it would give the inhabitants of Taunton a better opportunity of getting to the South Coast, and it would also tap Honiton and probably bring to Taunton a large amount of trade which now went to Exeter. He proposed that they should support the petition. Mr. Sibley seconded the motion, which received unanimous support on the

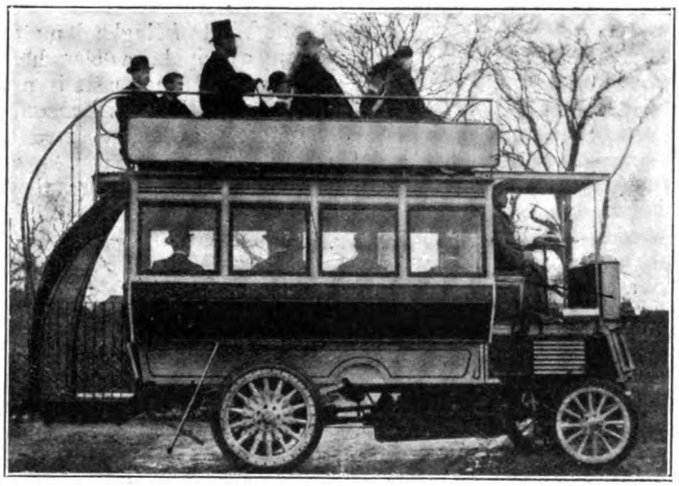
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ground that the service would bring a great deal of business to the town. The motion was carried, and was then referred to the General Purposes Committee, with a request that they would take joint action with the Honiton Council as soon as possible.

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Motor-Omnibuses for the Colonies.

FOLLOWING two Stirling single-deck omnibuses which have been in use in Western Australia for about nine months, the Stirling Motor Construction Company, of Edinburgh, have just shipped a consignment of double-decked omnibuses to Fremantle. These vehicles have been specially designed for use in Perth, Western Australia, and have many interesting features. Accommodation is provided for 30 persons, 14 inside and 16 outside. The motor is of 24-h.p., and the speeds 4, 8, and 12 miles an hour. On large vehicles of this description, on which the public demand rubber tyres, it is of the greatest importance that while great strength in construction is required, they must not be unduly heavy, otherwise the maintenance of the rubber tyres becomes excessive. In this respect Messrs. Stirling are to be congratulated on producing a thirty-seated vehicle weighing not more than 2 tons 15 cwts., or about 20 cwts. less than most vehicles of this capacity. Another point of importance in omnibuses for town work is their over-all length in relation to their carrying accommodation.



In the Stirling 'bus illustrated herewith this is kept within reasonable limits owing to the compact form in which the box seat is placed over the motor, thus saving about five feet in the length compared with designs having the motor under a bonnet in the usual way. The extreme width is 7 feet, and the upper deck is reached by an easy stairway. The well-known "Stirling" system of transmission is used in these omnibuses, and also their system of natural circulation of the cooling water. The vehicles are fitted with powerful brakes, while two ignitions are provided to the engines—high tension from accumulators and low tension magneto.

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Post Office Service.

A PARAGRAPH has been going around the press stating that the Post Office would be willing to contract with motor-van builders to supply a number of vehicles for use in the service were such automobiles of a reliable and steady running character. This is news which has been before the trade for the last few years, and we begin to think that the dilatory methods of the postal authorities are partly responsible for the delay of that Government department in adopting a means of locomotion which has proved applicable in other countries. As a matter of fact, a motor-van is being used for the mail service between Epping and London, and we believe this car has run continuously for the last six or seven months, only being late on one occasion. This was owing to causes which have no relation whatever to the vehicle. Mails are now carried between Liverpool and Manchester by motor-cars, and an extension of the system should be made ere the British Post Office is left behind the Continent in this matter.

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Cricketers and Motoring.

MR. C. B. FRY, cricketer, footballer, writer, and a dozen other things besides, may frequently be seen on his motor-car, and now we hear of another well-known cricketer joining the ranks of motorists in a practical fashion. Mr. L. C. H. Palairet, the England and Somerset cricketer, has joined the Bridgwater Motor Company, Limited, and will actively interest himself in the automobile industry. The advent of sportsmen like Mr. Palairet into the business will ensure its continuance with energy and enterprise.

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The Indecision of Pedestrians.

THE first fatal accident im Liverpool in which a motor-car was involved has just taken place. Such fatalities are always regrettable and generally unavoidable. In this case the result would probably have been identical had the vehicle been drawn by a horse instead of being propelled by a motor. An old lady was crossing the road when she saw a motor-brougham being driven by the driver to the City Engineer coming along. She halted in the roadway as he was slowing down. Naturally when he saw her stop he determined to go on, and so quickened his pace. The lady at that moment seems to have decided to continue crossing the road and stepped in front of the car, by which she was knocked down. A fatal result followed the accident, and at the inquest the jury returned a verdict of "Accidental death," exonerating the driver from all blame. Mr. J. A. Brodie, the City Engineer, who was riding in the motor-car at the time, confirmed other witnesses as to the occurrence and testified as to the care of the driver. But the accident enforces an opinion we have often expressed as to the indecisiveness of pedestrians when crossing the roadway being responsible for many of the mishaps that occur in the streets.

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The late Sir Henry Thompson.

THE death of Sir Henry Thompson robs London Society of its most eminent surgeon and the automobile movement of one of its most important advocates. Sir Henry's distinguished medical career and his success as an artist have been the themes of the newspaper obituary notices. We would, however, add a word as to his enthusiasm for motoring. In June, 1901, he bought a 6½ h.p. car and forthwith began a two months' tour in Buckinghamshire and Berkshire, making Boxmoor his headquarters. Although he engaged a driver, he was at some pains to become fully acquainted with what he called the "Anatomy and Physiology" of the car. In August of that year he wrote to the "Times" and inaugurated an important correspondence on the attitude of drivers of horses to automobiles, which proved the most useful to the motoring fraternity of any series of letters appearing outside the columns of the motor-car press.

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Police and Speed.

SIR HENRY was a regular reader of the *Motor-Car Journal*, and in his book on the subject referred to the records we published some time ago as to the heavy fines obtained from victims of police traps. Before Parliament fixed the speed limit at twenty miles an hour, he declared that "the pace of a motor-car on an open country road may certainly be safely permitted to reach twenty miles an hour and cannot be regarded as 'furious.' It seems now to be quite forgotten that steam-coaches were driven with perfect safety at fully this speed on good and open roads in the former half of the last century." Only within the last few weeks had Sir Henry Thompson enjoyed some long motor-car rides, and he will be much missed in a wide section of London society.

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The Motor-Car on the Racecourse.

Of the utilities of the motor-car there is no end, and even on the racecourse it has shown its value. On Tuesday Mr. G. T. Langridge, a motorist resident at Epsom, was at the races when an unfortunate incident occurred on the course. In the race for the Great Metropolitan Stakes there was a regular scrimmage, as St. Patrick's Day struck into either the favourite or Puerto, and came down, Grey Tick and Induction falling over him. It was at first feared that the jockeys had been badly hurt, and Mr. Langridge's car was at once requisitioned to take two of the unfortunate riders to the hospital, where it was discovered that their injuries were not so serious as had been supposed.

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"Chauffeur Petrol."

According to a Canadian contemporary, the proceedings at the first annual banquet of the Toronto Automobile Club were enlivened by several "genuine letters of regret," including a code cablegram "by command of His Majesty King Edward from Henry Petrol Hankins, chauffeur in extraordinary to the royal garage." This is said to have "brought down the house," a catastrophe not to be unexpected. Something serious once happened to Ananias, but it only happened once.

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Quashing Convictions.

During the progress of the Motor-Car Bill into an Act we expressed a hope that every opportunity for appeal would be taken advantage of, so that police and magistrates would be taught to recognise that care should be paid to accurary, even when dealing with such maligned persons as motorists. So far, two appeals have been made and both have been successful in quashing the original convictions. Last week we recorded an instance at Beaconsfield, now we are able to congratulate Mr. J. R. Egerton, of Ipswich, who appealed to the Quarter Sessions against a conviction by the Ipswich magistrates on a charge of driving a motor-car in a manner dangerous to the public. The constable, questioned by the Recorder, showed great carelessness in distinguishing between "a man" and "people"; while under cross-examination by Mr. Wild, his views as to speed were found to be somewhat visionary. In addressing the Court for the appellant, counsel contended that under the conviction there must be real danger to a person or persons proved to be actually using the highway at the time, because certain words of the section had been omitted from the charge. The danger must be actual, and not hypothetical. He submitted as a matter of law that there was no evidence of actual danger. In the end the Recorder expressed himself as satisfied that Mr. Egerton was a careful and skilful driver and quashed the conviction.

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No Scales with Motor-Cars.

Section 9 of the Bread Act of 1822, under which a well-known firm have just escaped penalty at Brentford, applies only to "cart or other carriage drawn by horse, mule, or ass." Vehicles thus propelled have to carry scales, but the chairman of the Bench rightly observed that as nothing was said in the Act about motor-propelled carts he could do nothing but dismiss the summons, which he did accordingly. We do not advance this immunity from carrying scales as an argument in favour of the automobile, but it is significant of the way things are done by the Legislature that no effort has been made to bring the Bread Act up to date.

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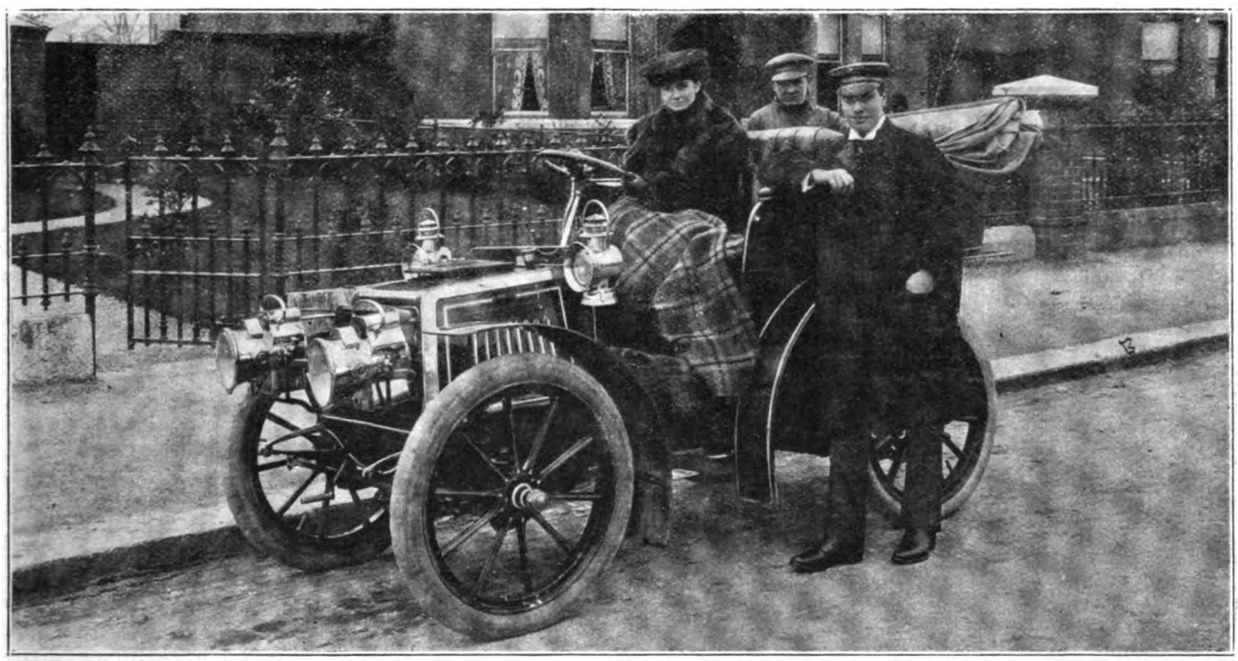


Photo by] Sir Valentine and Lady Grace and their Panhard Car. *[F. P. D'Arcy.*

An Indignity to the Press.

On Saturday the cars entered for the Eliminating Contest in the Isle of Man were weighed-in at the dimly-lighted and inconveniently arranged garage—we beg pardon, motor house — of the A.C.G.B.I. Representatives of the automobile press attended at an early hour to see the vehicles and record their impressions. But, alas for confiding journalistic nature! At the stroke of noon the order to clear the place of all save judges and drivers was given, and the Pressmen were ushered to the gates, which were closed behind them. Outside they were able to realise the ridiculously awkward means of exit and entrance to the establishment, which can only be regarded as a miserable makeshift for such a wealthy body as the Automobile Club.

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Courtesy in the Old Days.

But on the question of the treatment meted out to the Press something more should be said. In the old days of Whitehall Court the Press was regarded as worth consideration. In return, it helped to make the club what it is today. Now, however, times have changed. From its com-

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manding position in Piccadilly it assumes an air of lofty indifference to those who have assisted to lay its foundations, and is, apparently, determined that now it has become a newspaper proprietor, no civility shall be shown to journalistic confreres. Such, however, is not in accord with professional etiquette, and would certainly not be tolerated even in parochial journalism. We doubt whether the proprietors of the "Eatanswill Gazette" would have thus acted towards other journalists in that locality.

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Repair of Roads.

THIS is one of the many seasons in the year when some of the local authorities seem to delight in renewing the surface of the roads. Where this is expeditiously done, no complaint can possibly be made; but, unfortunately, many of those responsible for the work are prone to leave the roads overnight in a very rough condition. Often, too, it is late before the steam roller can pass over these portions on the next day, with the result that motorists going that way have to run considerable risk of punctures. The point may not be apparent to local surveyors who do not care anything for motorists or other users of their roads, but it is an important one in view of the opening of the touring season, which, after the weather of the last few days, seems to be with us at last.

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Action by a Club.

THE subject has been before the Gloucestershire Club for discussion, and a resolution calling the attention of the Highways Committee of the County Council to the subject has been unanimously adopted. This set forth the unsatisfactory way in which the roads are left, more particularly from Saturdays to Mondays—just the period when outdoor pastimes are most generally indulged in. The remedy, of course, is to have all metal placed on the highway rolled in before work ceases for the day—a plan that might easily be adopted if the repair of the roads were properly organised and efficiently supervised.

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Sense in Wales.

WE are glad to see that practically the whole of the local authorities in Wales have recognised the Local Government Board's view with regard to the speed limit, and have refrained from unnecessary applications for its restriction. Newport, however, has obtained an unenviable notoriety by reason of the persistent way in which the town councillors have maintained their resolution to apply for a reduction of the speed limit to ten miles an hour. The Monmouthshire County Council, on the other hand, declined to make any such application, with the result that motorists in the county area may attain a speed of nineteen miles without being penalized, while one of eleven miles will be sufficient, should the Newport wiseacres have their way, to secure conviction. It is to be hoped that when the Local Government Board give their decision with regard to the Newport application, as well as to those of Winchester and Dover, something like uniformity in a speed limit of twenty miles will be obtained.

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Police Traps.

THE police seem to be renewing their trap-laying propensities, and from several parts of the country news comes of victims having been caught. The example of the Surrey police seems to have got as far north as Yorkshire, and motorists passing through Leeds are warned by the Yorkshire Club of the police trap at Roundhay Park. Constables are located near the police station, and also at the old entrance to the Park, and on Sunday last they were noticed busily taking numbers of cars passing that way, and also the time they occupied on the journey. If this sort of thing continues, we are afraid our northern friends will become as embittered against the authorities as a good many southern motorists have just cause to be. In consequence of the severe exposure of the police in Captain Morgan's case we understand they discontinued their underhanded methods for a while, but it has just come to our knowledge that they intend forthwith to commence their trap again. All Metropolitan motorists should therefore be exceedingly careful when proceeding along the Addison Road. The recent traps have been laid on the east side of the railway bridge near Addison Road Station. Any motorists stopped by these men should at once demand all particulars of the alleged offence and should examine both the stop-watches and take a note of the same at the time.

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A Record Australian Trip.

AUSTRALIA has already its automobile records, that for distance being held by Messrs. W. B. Wilkinson and W. A. Whitehead, of Stawell, Victoria. They have spent twelve days on a 6-h.p. car, touring *via* Melbourne, Wangaratta, Albury, to Sydney, returning to Stawell by much the same route. In reading an account of the run we were struck by the frequency with which the vehicle was stopped to allow horses to be led past—a reminder of the early days of the movement in this country. In most cases the fears of the animals were easily allayed. Several exciting incidents were, of course, met with; but even in the out-of-the-way places of the Antipodes the motor-car is ceasing to be an object of wonderment.

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Progress at Bombay.

HARDLY a week passes that does not bring with it news of automobile developments in India, and now we learn of the formation of the Bombay Motor-Car Company to give attention to the movement in that important city. The Indian Government might further encourage the introduction of motor traffic by amending the inconsistencies in the Customs regulation dealing with motor-cars. A steam traction engine is imported into India free of duty, but a steam motor-car has to pay 5 per cent. duty. The Government endeavours to explain this anomaly by ruling that motor-cars carrying goods are free, but motor-cars carrying passengers are dutiable. Such a contention seems unreasonable as well as inconsistent, and an interesting instance has arisen in Bombay itself. The Bombay Municipality have recently imported a motor-car or wagon to transport mutton from Bandora to Bombay. It was imported free of duty, yet the same vehicle carrying passengers would cost its owner 5 per cent. more. An early occasion should be found to alter such an inconsistent ruling.

MR. E. MACRORY, K.C., who died on Monday, was one of the founder members of the A.C.G.B.I.

MR. J. LYONS SAMPSON was in charge of the weighbridge at the weighing-in of the British racers last Saturday.

ON Wednesday next the annual meeting of the Roads Improvement Association will be held at the Westminster Palace Hotel, London.

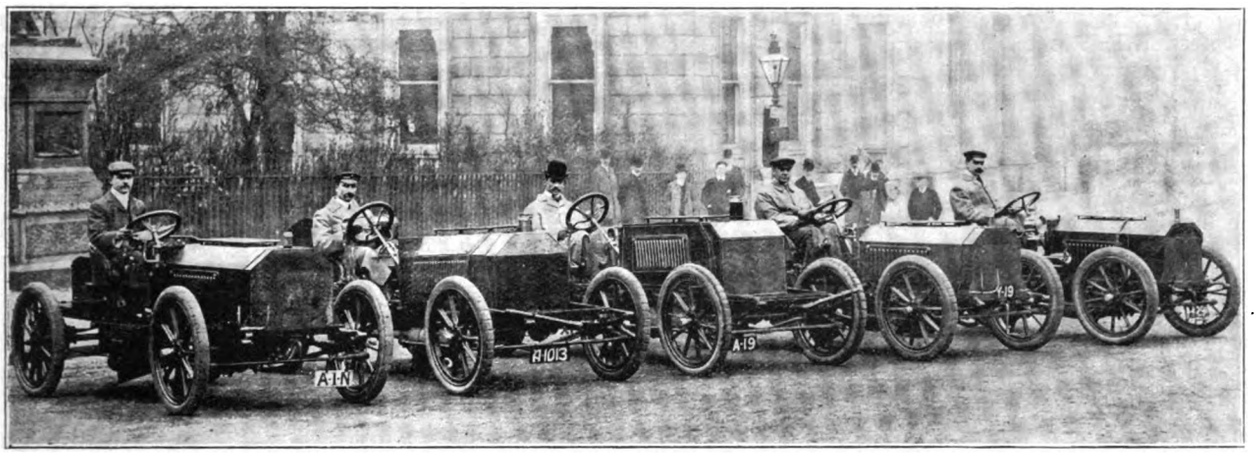
THE Official Information Department of the Manx Government, 2, Coronation Chambers, Douglas, will be pleased to supply information to intending visitors to the Isle of Man.

THE Louis Leaky Aluminium Company, Limited, are newcomers in the automobile trade. They are introducing a new 15-h.p. car known as the "Phœbus." It is fitted with a Mutel four-cylinder engine, and is on modern lines throughout.

ON account of so many members of the Nottinghamshire club intimating their intention of being present at the Eliminating Trials in the Isle of Man, the date of the next hill-climb of that club has been altered from the 14th to 28th May.

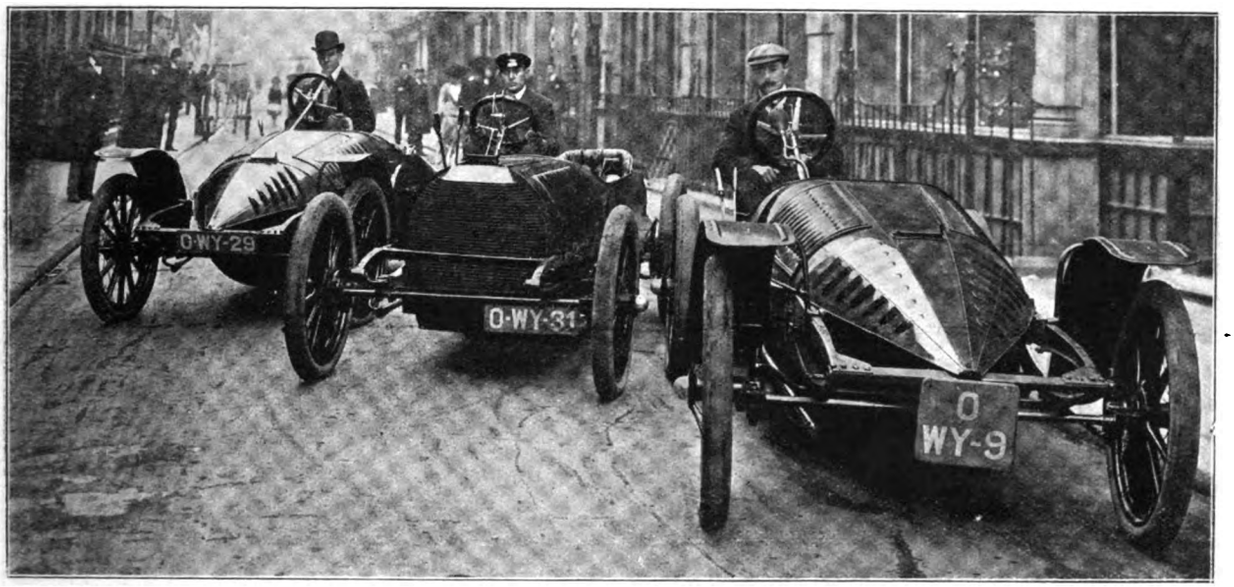
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The British 1904 Gordon Bennett Racers.



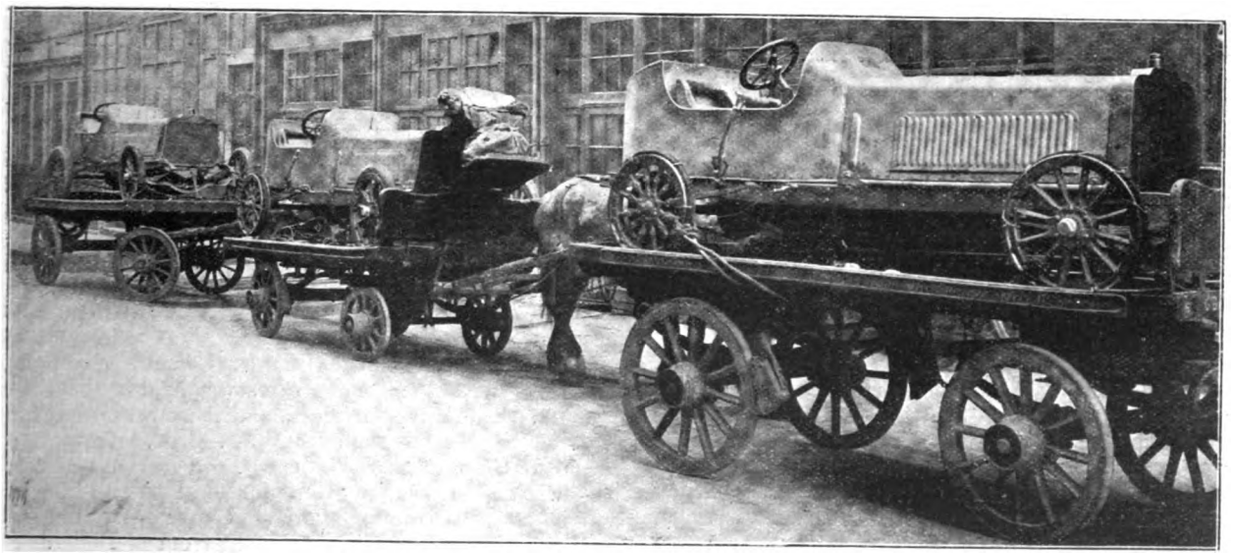
Mr. W. Clifford-Earp. Mr. S. F. Edge. Lieut.-Col. Mark Mayhew. Mr. J. Hargreaves. Mr. J. W. Stocks.

Photo by] The Five Napier Cars. *[Clarke and Hyde.*



Mr. C. Jarrott. Mr. S. Girling. Mr. Campbell Muir.

The Three Wolseley Cars.



Photos by] The Three British Darracq Cars. *[Argent Arch r.*

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GORDON BENNETT RACE NOTES.

ON Saturday eleven cars of British make were weighed-in at the Automobile Club's garage and definitely accepted as fully qualified entries for the Eliminating Test in the Isle of Man. The judges for the purpose of inspection who were in attendance were :—Major Lloyd, Mr. Worby Beaumont, Colonel Crompton, Mr. Lyons Sampson, Captain Nugent, Mr. Mervyn O'Gorman, Mr. E. H. Cozens-Hardy, Mr. Claude Johnson, and Captain Bowman-Manifold. The work of inspection proved a long and tedious process, and lasted practically from noon till 6 p.m., only a few motorists being present to watch the departure of the vehicles.

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THE Wolseley cars—two with strange beetle-like bodies—were the first to arrive, turning into the garage shortly after seven o'clock in the morning. Then came the five Napiers, and as the minutes passed 11 a.m. it was wondered whether the Darracqs would arrive in time. Mr. J. Ernest Hutton was present, but no cars belonging to his firm appeared, and he had given up all hope of having them finished for inspection. Excitement grew as the hour of noon approached, and it was a visible relief when the three Darracqs appeared in Down Street ten minutes before the latest time for entering the garage.



Photo by] One of the British Darracq Racers entering the A.C.G.B.I. Motor House. *[Argent Archo*

THEN the Press were directed outside the building and as to what happened no record can be given. This was not the desire of the manufacturers who were within, for, as one of them told us, several of the mechanics could have been dispensed with to make room—if the absence of such was the excuse of the Club—for the half-dozen gentlemen who were present on behalf of the automobile journals.

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THE following are the weights of the several cars presented:—The five Napier cars weighed respectively 2,182, 2,111, 2,199, 2,177, and 2,144 lbs. The three Darracq cars, 2,205, 2,219, and 2,205 lbs. The three Wolseleys, 2,163, 2,157 and 2,191 lbs.

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THE Darracq cars left St. Enoch Station, Glasgow, by special train at 9.3 p.m. on Friday night, a great crowd cheering them on their way. Among those who assembled at the station were several members of the Scottish Automobile Club, including the Marquis of Ailsa, while the hon. secretary of the Western Section, Mr. R. J. Smith, accompanied the cars to London, where they arrived on Saturday morning. Chatting with Mr. William Weir, of the firm of G. and J. Weir, who had been responsible for the oversight of the cars during their construction in Scotland, we learned that the firm do not at present contemplate entering the automobile industry. They accepted the order to build three racing cars merely as an engineering feat, and are naturally proud that, never having made a car before, they should have been able to complete the three cars in time. Altogether 800 men must have had a hand in the work, and for some weeks over sixty have been continuously engaged on the cars—the Scottish idea of the Sabbath being thrown to the winds and the work done in three shifts of eight hours each.

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THE Darracq cars have motors capable of developing 90-h.p. at 1,500 revolutions, a speed which can be considerably accelerated. These are hung low in pressed steel frames. There is a direct drive to the rear live axle. In addition to the high tension ignition a magneto is fitted. In their grey square bonnets the cars looked formidable rivals, although the manner of their leaving the garage was less nimble than that of the Wolseley and Napier racers, which were driven away at the close of the afternoon. The Darracq cars have bolted Michelin tyres which have been made in London, no less than nine tons of machinery having been sent over by the French company so that the conditions of entry might be kept to the letter.

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AT Saturday's inspection, Mr. A. Rawlinson, who will drive one of the Darracq cars, was in charge of the contingent. The other drivers will be MM. Hemery and Edmond.

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MR. J. W. ORDE has again visited the Isle of Man to decide where the hill-climbing tests will be held. It was originally thought the hill-climbing tests would be made from Ramsey to Snaefell, but later advices suggest that the tests may be up Creg Willey's Hill (at Glen Helen), or Crellin's Hill (Douglas).

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COLONEL FREETH and Supt. Boyd are driving out daily on the route of the British eliminating race, engaging intelligent men to serve as special constables on the day of the trials. Five hundred men are required, and of these more than two hundred had been engaged at the beginning of the present week.

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A MEETING of the Douglas Committee appointed in connection with the coming races was held in the Town Hall last week. The Mayor presided, and there was a large attendance. A copy of a telegram from Mr. Orde, secretary to the Automobile Club, to His Excellency Lord Raglan was read, in which it was stated that the events for the 10th and 11th of May—the trial races and the hill-climbing contests—were fixed, but that the date for speed trials along the front of Douglas Bay was not as yet definitely settled.

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THE brief itinerary of the race is as follows:—Starting from the Quarter Bridge, about a mile outside Douglas, the cars will be driven through Ballasalla, 8 miles; Castletown, 1·4; Foxdale, 7·1; Kirk Michael, 8·7; Ballaugh, 2·1; Ramsey, 9·1; Willaston, 13; and Quarter Bridge, 1·4; a total distance of 51·1 miles, which in all probability will be covered six times, thus making a total of rather more than 300 miles—a far more adequate test than the mile runs indulged in on the Welbeck course last year.

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THE following are the names of the drivers of the various cars which will compete in the French eliminating contest on the 20th May:—

DE DIETRICH.—Jarrott, Gabriel, and Baron de Forest.
PANHARD.—H. Farman, Teste, and Tart.
BAYARD-CLEMENT (Talbot).—A. Clement, jun., Guders, and Hanriot.
DARRACQ.—Baras, Beconnais, and Wagner.
GEORGES RICHARD-BRASIER.—Thery, Caillois, and Stead.
MORS.—Sallerons, Leger, and Lavergne.

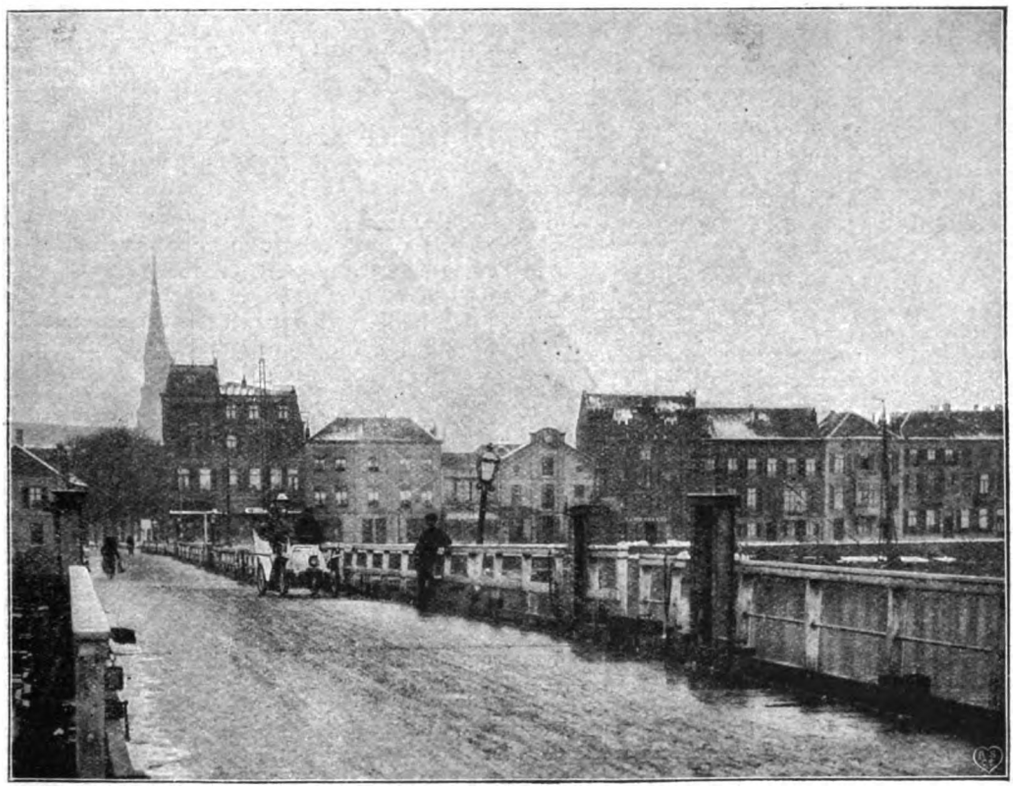
AN American correspondent writes that it is possible that the American elimination trials, if such trials are required, may not be held at Ormond Beach, Florida. The failure of Mr. Alden Sampson to have his car ready and the inability to secure information from Mr. P. Cooper Hewitt as to the present condition of his car, seems to indicate that only the Peerless cars will be ready for the A.C.A.'s inspection. If trials are deemed necessary an effort may be made to try the cars on some course nearer New York than the Florida beach. Altogether rather pessimistic rumours are current with regard to the American team for the Cup race. There are those who prophesy openly that there will be no trials at Ormond, and in fact, no American team at all in the great contest.

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THOSE motorists who intend to visit Germany for the Gordon Bennett race, and who have not yet made any arrangements in regard to accommodation, are advised to write to the "Wohnungs-Nachweis fur das Gordon Bennett Rennen, Kurhausbad, Homburg von der Hohe." The committee which has this department in hand announces that there are still about 4,000 rooms available at moderate prices, ranging from five shillings. Good rooms, not attics, are to be had at this charge, whilst accommodation can still be found for 1,000 cars.

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THE German Automobile Club announces that tickets for the two grand stands which are to be erected on either side of the starting and finishing point of the Cup race at the Saalburg will be sold at 50 shillings each. These stands have seating capacity for 3,000 persons altogether, and include numerous boxes with four or six seats. Two elevated platforms adjoining the stands are also in course of construction and will afford accommodation for several thousands of visitors. The seats here are not numbered, and are available to all who obtain a pass, for which the charge is 20 shillings. Another stand is to be built on the course between Homburg and the Saalburg, tickets of admission to which are obtainable at the moderate price of 5 shillings.



A Cudell Car on the Floating Bridge over the Rhine at Arnhem, Holland.

GOBRON-BRILLIE.—Rigolly, Duray, and A. Burton.
HOTCHKISS.—Baron P. de Crawhez, A. Fournier, and Amblard.
TURCAT-MERY.—Rougier and De la Touloubre.
GARDNER SERPOLLET.—Le Blon, Chanliaud, and Pelzer.

Some surprise has been expressed at the absence of the name of Henri Fournier in the Hotchkiss team. It is stated that this well-known motorist has decided to give up racing and to devote himself entirely to business in the future.

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THE first of the Hotchkiss Gordon Bennett racers is now on the road. The body of the car takes the form of a long torpedo, the wheel base of the vehicle being nearly ten feet. The four-cylinder engine is stated to develop 100-h.p. at a speed of 950 revolutions per minute.

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WE are informed by the London Motor Garage Company, Limited, the English agents of La Compagnie Belge de Construction d'Automobiles, that the drivers of the three "Pipe" cars running for Belgium in the Cup Race are M. L. Hautvast, M. G. Augieres, and Baron Pierre de Crawhez. Augieres, it will be remembered, was the holder of the world's record until recently, and Baron Pierre de Crawhez was the winner of the Circuit des Ardennes race last year.

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THE NAPIER MOTOR-BOAT.

By S. F. Edge.

THE question of building a suitable motor-boat to defend the British International Cup and the Gaston Menier International Cup, both held at present by my Napier boat, is a very serious one, in view of the fact that so many countries are this year taking up the motor-boat most energetically, and are making a very serious bid to try and take these cups away from English manufacturers. I suppose that most people feel as I do, that even if we cannot be uniformly successful on land with our British motors, we must never lose our supremacy on the sea, and, with this fact before us, the question of the Napier defender has engaged our most serious attention for a great many months past; the result we hope to have on the water towards the latter end of next month.

The question of the engine, reverse gear, and all machinery appertaining to it, and the building of the same, have been engaging Messrs. Napier's attention at Acton for some considerable time, and the machinery is just about ready to put into the hull, which is being built by Messrs. Yarrow, the famous torpedo boat constructors. To give some idea of the time, energy, experiments, and money that must be expended before first-class results can be obtained, I have had a series of photographs taken which deal merely with the question of the shape of the hull. These have nothing to do with the hundred and one experiments that have been carried out with regard to the most suitable material for the hull, the system of building it, the best kind of engine to be employed, where the weights shall be placed, how many revolutions per minute the engines run best at, and the kind and number of propellers. Each and every one of these subjects is in itself an exhaustive matter, and when one thinks that only the shape of the hull is dealt with in these photographs, I need scarcely say more on this head.

The hull experiments were as follows. First to build a number of full sized models, giving an exact reproduction of last year's boat, with which we have had tangible results. Then to try this same boat at speeds in excess of what it did last year, as our new boat must be much faster. Now to carry out our tests, after having made the various models, we had to get a torpedo boat, shown in Fig. 1 with one of our models lying alongside. The boat in question is a very fast boat, built by Messrs. Yarrow, and fitted with their turbine engines. The photograph also rather clearly shows the boom used for towing, as, of course, it was necessary to tow the model some little distance from the side of the vessel, so as to be entirely free from wash, and that is also why it is towed up so close to the bow of the torpedo boat, so as not to feel the wash from the torpedo boat itself, and also at the same time to be in a position where most careful observation and records could be made, and photographs taken.

Photograph No. 2 shows a photograph of the model of the old Napier, travelling at twenty knots. In the third photograph is a view of the same boat at twenty-five knots, from which it will be seen that the disturbance of the water was very great, and that the model was quite unsuitable for a twenty-five knot speed. Photograph No. 4 shows a development in which we got a very perfect bow wave at twenty-five knots, but the stern wave was very bad and we had to give it up.

In the fifth photograph is a model which gave most excellent results so far as bow waves was concerned, and a clean run from the stern, but, unfortunately, whilst being very perfect in absolutely smooth water, as can be seen from the photograph, this in the end was found quite hopeless in rough water. It would not steer properly, and other defects became apparent. The same model is illustrated in the sixth picture. In the centre will be noticed the water indicator for showing whether the boat kept a level keel or not. In these experiments a great number of scientific details had to be thought out. No. 7 shows what we thought was a fine model, until we got her at speed, and then we found, although she took very little power to pull her (and all the pull is registered by a dynamometer, so that we knew exactly what each model took to move through the water), the bow waves, although being light water, still made it rather hopeless, as the boat would have been very difficult to steer, and exceedingly damp for the people steering.

A fine model is that shown in Fig. 8, which clearly demonstrates the extraordinary clean run from the stern, and the relatively small bow wave. No. 9 shows even more clearly that the bow wave is almost non-existent at a speed of 25 knots, equal to 28·788 miles per hour. These photographs, as I have previously mentioned, merely indicate one direction in which our experiments had to be made.

Unfortunately we had bad luck with our cruising model at Monte Carlo, as, contrary to everyone else, we have determined to keep our motor-boats quite silent. Others have simply let their exhaust go straight into the air, and with 200-h.p. engines the noise may be more readily imagined than described. We had some difficulty in keeping our exhaust properly water cooled, because suitable pumps had never so far been manufactured, and here again we have had to experiment for ourselves, and invent pumps for the purpose. These will shortly be accomplished, and then we shall not have the same trouble as we had at Monte Carlo, which threw our 35 ft. cruiser out of the race.

PROGRESS IN CYLINDER DESIGN AND CONSTRUCTION.

IT is evident, from the care which manufacturers are giving to the fit of pistons in their cylinders, that the motors now being produced are likely to be highly satisfactory as regards ability to hold compression. Not only are cylinders being bored with greater exactness in point of perfect rotundity of section and equality of diameter at all points, but a great deal of attention is expended upon the manufacture of the piston rings, to cause them to fit the sides of the piston grooves, and upon the peripheral surface which bears upon the cylinder walls. No matter how perfectly the rings are fitted, however, there is inevitably a break in each one which allows of its expansion to conform to the contour of the cylinder wall and to compensate for wear, and no practical method has ever been devised to prevent the escape of gas at this point. Until of late the number of rings employed upon the pistons of automobile engines has been three, but recently quite a number of manufacturers have begun to employ a larger number, four rings are common, and in some instances five are made use of. This increase in the number of rings employed must tend to minimize to a very high degree the escape of the charge.

Another direction in which progress is to be noted is, remarks the "Horseless Age," in the designing of cylinders so as to be proof against loss of true cylindricity through unequal expansion. It is held in some quarters that the cast water jacket with its cored passages and widely varying wall section acts to encourage cylinder deformation when the motor is hot, and the sheet metal jacket, with its flexibility, is claimed as a solution of the difficulty. Whatever the merits of the case may be, it is clear that the attention of designers is attracted more than hitherto by the problems arising from the change of cylinder-contour due to heat and the effects thus produced upon compression and engine friction.

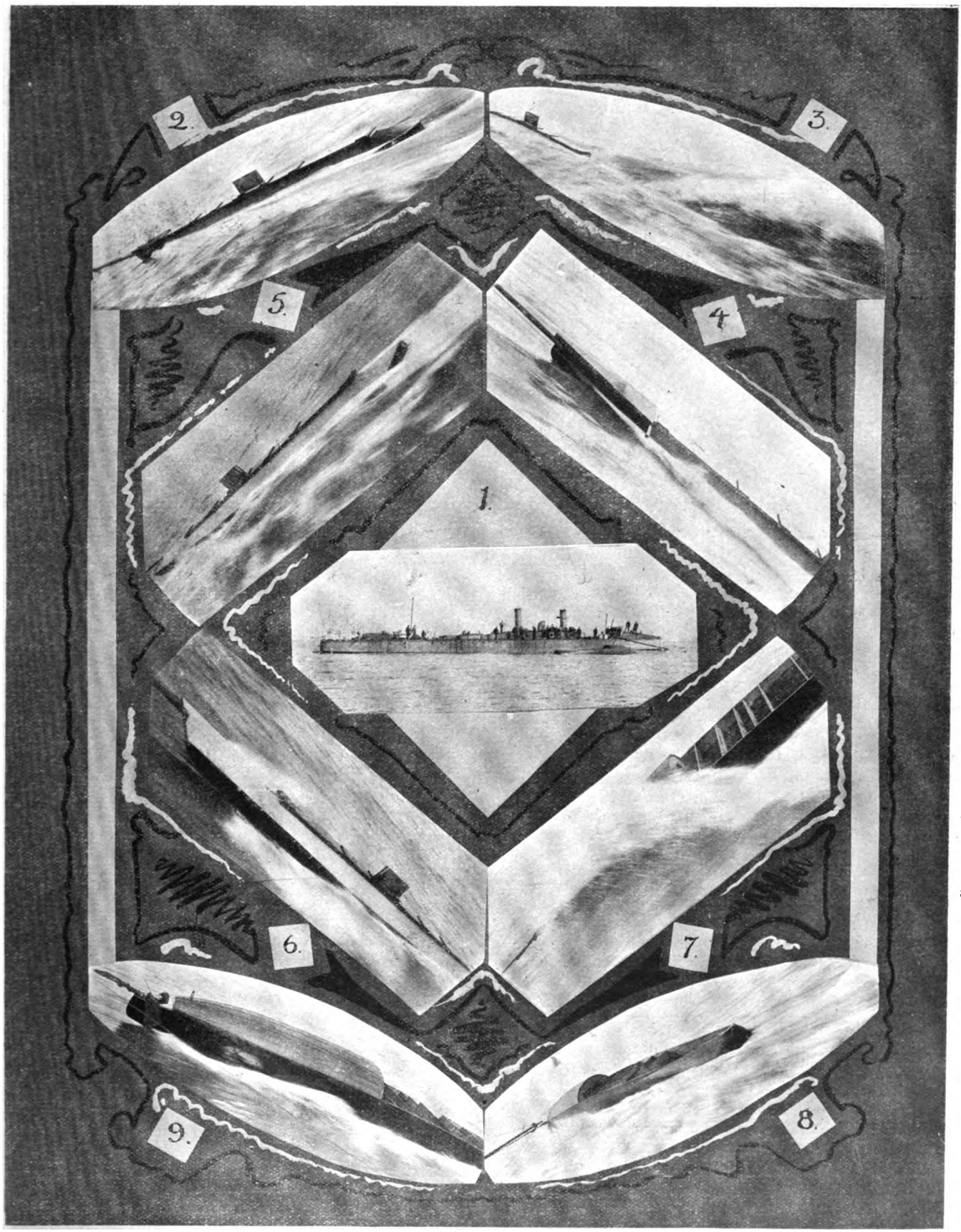
Baron de Caters is credited with the intention of making an early attempt to lower Rigolly's kilometre record. He will make the trials on a 90-h.p. Mercedes on the new Ostend road.

Messrs. Tilling, Limited, obtained damages in the Wandsworth County Court against Mr. C. F. Newman, a contractor, of Pope's Grove, Strawberry Hill, for causing injury to two of their omnibus horses with a motor-car. The defence was that the omnibus was suddenly pulled up and so caused the accident. Judge Russell, in finding for the plaintiff company, said that if people in charge of motor-cars could not control their machines in time of emergency they must take the consequences.

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The Napier Motor-Boat.

(See page 174.)



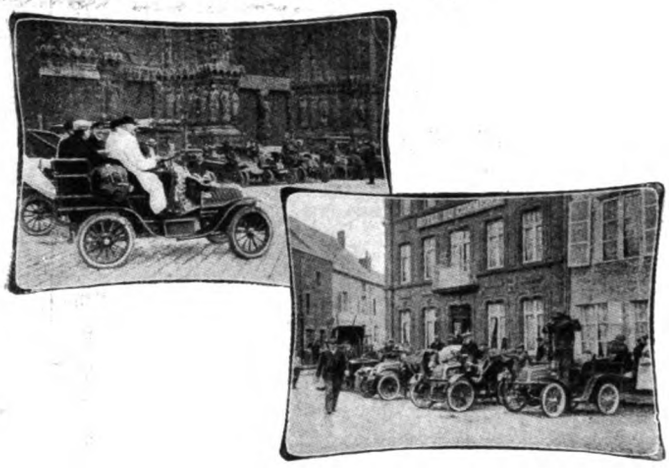
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CONTINENTAL NOTES.

The King of Italy Welcomes the Motorists.

Italian motorists are jubilant over the reception they have received at the hands of the King of Italy, himself an enthusiastic automobilist. His Majesty recently accepted the invitation of the Club to become its honorary president, and in celebration of this it was decided to offer him an illuminated diploma of office. Accordingly a "caravan" of motorists set out early last week from Milan to convey the parchment to Rome. To their surprise they were met on the outskirts of the capital not only by all the leading motorists in Rome, but by the King himself, who, after inspecting the various cars, headed a procession to the Quirinal.

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Touring on the Continent.—A group of De Dion Cars at the Cathedral at Rheims, and at Rocroi.

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Improving Hotels.

The Italian Touring Club, which has been devoting attention for a long time past to the question of improving the hygienic conditions of hotels, has just issued an interesting booklet on the subject. It deals with the questions of heating, ventilation, illumination, etc., and gives many hints which should be of considerable use to Italian hotel proprietors. The C.T.I. has also issued a very useful map of the district forming the Swiss-Italian frontier.

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The Paris-Bordeaux-Paris Motor-cycle Reliability Trial.

No less than sixty-five entries have been received for the Paris-Bordeaux-Paris reliability trial for motor-cycles organised by the Auto-cycle Club de France. The weighing-in operation commenced on Wednesday, while the trial proper started at 6 a.m. on Friday, the competitors being sent off in pairs at intervals of a minute, the first day's destination being Tours, a distance of 162 miles.

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The Paris-Nice-Paris Anti-skid Trial.

The endurance test for anti-skid devices terminated successfully at Paris on Tuesday of last week, when the six competitors all arrived in good condition from their journey to Nice and back, a distance of 2,500 kilometres. These included Samson I. (fitted on a 24-h.p. De Dietrich, three passengers), Samson II. (12-h.p. Panhard, three passengers), Samson III. (20-h.p. Chenard Walcker, four passengers), Billet (20-h.p. Prunel, five passengers), Herault (14-h.p. Renault, five passengers), and Fouilloy (16-h.p. Mors, three passengers). The tyres, which were all in excellent condition after the long run, were carefully photographed, and the judges are now preparing their report.

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Motor-Boats on Lake Lucerne.

A series of motor-boat races will be held on Lake Lucerne in July next. On the 23rd there will be a race for cruisers, and on the 24th one of 114 kilometres for boats of a length not exceeding eight metres.

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Motor-Cars in Italy.

According to a return lately issued, there were only 1,870 motor-cars in use in Italy at the commencement of the present year. The largest number are in the province of Turin, which is responsible for 350 of the total, Milan province coming second with 239 and the province of Florence third with 169.

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The Herkomer Trophy.

The Bavarian Automobile Club has resolved to postpone the competition for the Herkomer trophy until next year. Owing to the lateness in getting out the invitations and to the fact that the leading automobile clubs are just now engrossed in preparation for the Gordon Bennett race, it is felt that the competition could not be organised on a scale befitting its importance.

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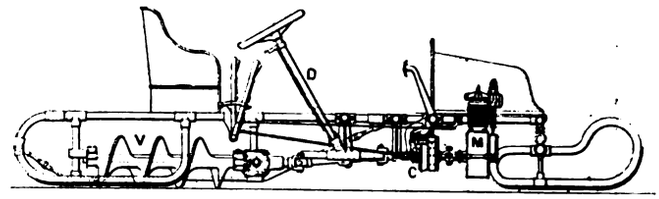
The Nice-Rome Tour.

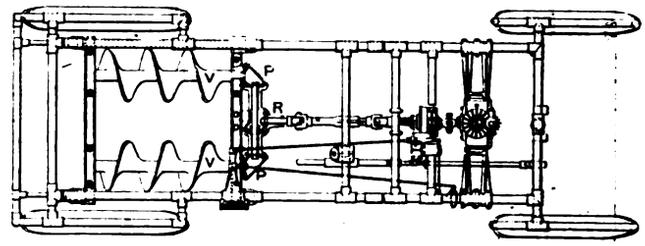
The tour from Nice to Rome, organised by "La France Automobile," commenced on Monday by a preliminary consumption test over a 80 kilometre course in the neighbourhood of Nice. Tuesday was devoted to brake trials, while on Wednesday a start was made for Turin, a distance of 212 kilometres. Altogether 22 entries were received for the tour.

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A Motor Sleigh.

"La Vie Automobile" in a recent issue describes a motor-sleigh which has been designed by M. Nez. Vigneti, of Paris, which, it is stated, is being built for the Russian Government for military transport purposes in the Far East. Illustrations showing an elevation and plan of this novel vehicle are given herewith. Propulsion is effected by means of the two parallel endless screws V V, which obtain a grip on either snow or ice and thus drive the vehicle forward. These screws are actuated by the bevel wheels P P, which receive their motion from the central shaft R. This communicates with the clutch C and the motor M, located in the fore part of a tubular frame. The other organs are practically the same as those of a petrol-driven





motor-car, there being brakes, steering wheel, and change-speed gear, etc. The frame of the vehicle itself is mounted on U-shaped steel runners. The illustrations show a single-cylinder engine, but the sleigh under construction will have a 10-h.p. two-cylinder motor, which, it is stated, will give the vehicle a speed of from twenty to twenty-five miles per hour over a frozen surface.

A LAD was summoned at Southampton under the Motor-Car Act for driving a motor-cycle in Shirley without a licence. It appeared that the lad had the machine out for an hour on hire from a Shirley agent, and the Chief Constable said he did not wish to press the charge, but he added that if the law had allowed him to do so he would have brought the owner of the machine to Court for letting it out to an inexperienced lad.

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THE SIDE-SLIP TRIALS.

ON Monday the Side-slip Trials of the A.C.G.B.I. commenced in a burst of sunshine which, having been continued for more than a day, has given a new pleasure to those whose duties were with the cars. Each day during the present week a run will be made, the total, including next Monday's, mileage being 850 miles. Thus some idea of the durability of the devices will be obtainable before the actual tests will take place. The behaviour of the cars not being in question, any number of stops are being allowed provided a note be made in the record sheet of the exact time occupied by each, so that the average speed of the car for the day's run may be ascertained. Every renewal, adjustment, or examination that is made of a non-slipping device must be noted by the Observer, and in cases of mishap as full details as possible must be recorded. When a device is renewed or a breakdown to the car renders it unable to complete the journey the Observer must either remain with the vehicle the whole time repairs or renewals are being undertaken, or he must have the device removed from the wheel and himself take possession of it and return with it to the Automobile Club, handing it to Mr. Basil Joy, the technical secretary. Disabled covers or tubes must be taken possession of in a similar manner. At stopping places, such as where stops are made for lunch, the Observer is expected not to allow the car to be out of his sight, so that no opportunity may be afforded the driver or other person to interfere with the device. Record-sheets have to be handed to the technical secretary, who attends at the Locomobile garage in Sussex Place, South Kensington, each night.

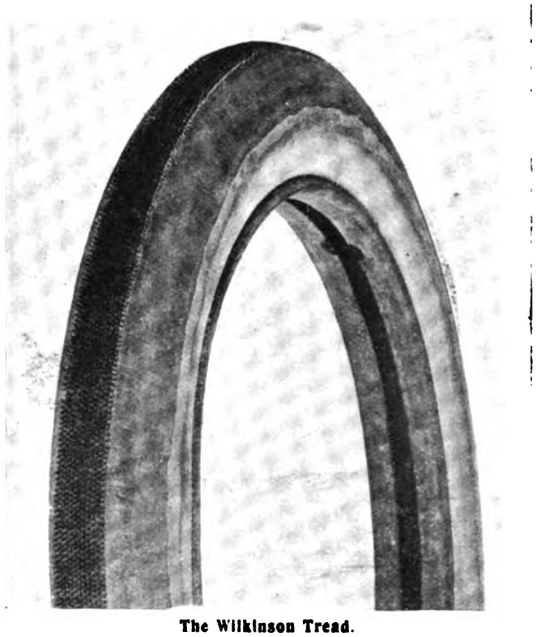
In our issue of the 9th inst. we gave the list of entries up to date. Altogether sixteen were received, and of these eleven actually started on Monday morning. Unfortunately the car on which Mr. Cavendish's device was fitted was stolen, with the result that the entry had to delay its start till Tuesday. Those that actually started were as follows:—

Official No.	Name.	Price for a tyre 810 by 90.	Nature of device.
1	Mr. Samuel Butler	£4	Flat discs on tread held on by steel stems passing through the cover.
2	Mr. H. S. H. Cavendish	£15 per car	Single disc running on ground between back wheels.
3	Mr. W. Hunt ...	£15 15s. per car	Double roughed discs running on ground between back wheels.
4	Mr. W. Maitland Edwards	£4 19s. per tyre	Detachable leather band fitted with steel segments riveted thereto.
6	Mr. Alex. Nicholson	£16	Steel blades on back wheels with springs; not touching tyres and lifted from contact with road by lever.
7	Mr. Mark Vivian ...	£2 2s. per tyre	Tread consisting of alternative sections of hard and soft rubber.
8	Wilkinson Tyre and Tread Co. ...	£3 15s.	Fine steel wire staples embedded in tread.
9	W. Jenkinson and Co.	£6 per wheel	Detachable leather ribbed cover.
11	Sainsbury's Anti-Skidders	£7 10s. per car	Spring fork carrying blades each side of tyre, supported on rim.
12	L'Empereur ...	£4 per tyre	Steel plates connected by links fitted on tread, detachable and kept on by inflation of tyre.
14	The Parsons Non-Skid Co.	£4	Detachable chains on tread.
15	The Civil Service Motor and Cycle Agency, Ltd. ...	£5	Detachable leather cover fitted with steel studs (Billet).

Unfortunately Messrs. Rourke and Horsborough's device, which consists of double discs running on the road between the back wheels, was not ready in time to be started with the others.

Monday's run was to Margate and back by way of New Cross and Deptford, where tram lines had to be negotiated. Across Blackheath the route was up Shooter's Hill, followed by a deep drop to Welling. From Dartford, the road by Greenhithe and Northfleet was taken, and thence something like dust was met with in passing through Rochester, Chatham, and Sittingbourne. After a brief halt at the Clock Tower at Margate, the cars returned by the same route, reaching London again about seven o'clock. The cars made good running, and the Observers on Nos. 7, 8, 11, 12, 14, and 15 seemed well satisfied with the performances of the various devices with which they were fitted.

Tuesday's run was by way of Hammersmith through Colnbrook, Slough, Maidenhead, Reading, Savernake Forest, to Marlborough. Several tyre troubles were encountered. On Wednesday another pleasant day's journey was experienced; on Thursday the trip was to Birmingham, thence on Friday to Nottingham, the vehicles being due back in town on the 23rd. Next Monday the endurance trial will be completed with a trip over the tram lines of West London. Tests of power absorption and resiliency will follow, the latter taking place on Thursday at Barnet. On the 7th prox. the side slip trials will take place on the track at the Clement-Talbot Works at Ladbrook Grove, London, W.



The Wilkinson Tread.

Following the descriptions of some of the devices that have appeared in previous issues we illustrate herewith the Wilkinson non-skidding tread, which is taking part in the trials. The wires are pricked on the slope and the treads are run with the wires pointed toward the back of the car, so that in running there is an inclination for the wires to cushion towards each other. They also offer the least resistance to the running. The wires are made of hardened steel, and are set in staples. It is claimed that these treads prevent side-slip, and they are a great protection to tyres against cuts and punctures.

AT the meeting of the Hotchkiss Ordnance Company in London on Tuesday, Mr. C. F. Parsons referred to the way in which the automobile industry had been tackled. The company had found a firm to purchase the entire output of cars and take the whole risk. He believed that in the current half-year they would complete cars to the value of £100,000, and the greater part of that output was already, he believed, sold in advance.

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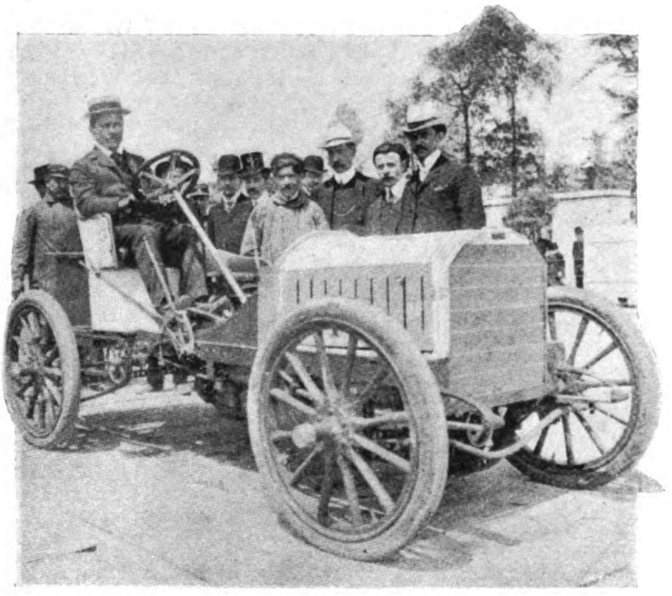
THE HIGH-TENSION IGNITION SYSTEM FOR PETROL MOTOR-CARS.

By J. W. Frings.

(*Continued from page* 147).

E. M. F. (Electro-motive force).—Practically equivalent to pressure. The term E. M. F. is used to denote that which moves or tends to move electricity from one place to another. The unit of electro-motive force is the volt, the simplest illustration of the term being that an ordinary ignition accumulator, which consists of two cells in series, gives a pressure, when fully charged, of about 4·4 volts, or 2·2 volts per cell.

Resistance.—That property of bodies by which they obstruct the steady flow of electricity through them and resolve into heat the energy of the current which is passing. The internal resistance of a battery is due to this property acting in the liquid of the cell which forms part of the path over which the current is flowing. The external resistance of the circuit is similarly due to this property acting in the conducting medium, the wiring, in the external circuit. Resistances are also occasioned by imperfect contacts at points. Such resistances are affected by pressure, for when the two surfaces of a conductor, which through



Signor Storero on a 1903 Fiat Racer—one of the drivers in the Italian Gordon Bennett team.

dirt, or oxidation, etc., are making an indifferent contact, are forced into more intimate contact the current passes more freely. The resistance of a conductor is inversely proportional to the area of its cross section, and directly proportional to its length. There is also the specific resistance to be considered, the various conductors varying widely in their capacity for conduction. Copper has a very low specific resistance, the resistance of lead is approximately twelve times as much as that of copper; and iron about eight times as much.

Ohm.—The ohm is the unit of resistance, and is practically illustrated by stating that 100 yards of ordinary telegraph wire has roughly the resistance of one ohm. As the resistance is inversely proportional to the cross sectional area, a wire having a resistance of one ohm would, if its diameter were doubled, have a resistance of only ·25 ohm. The internal resistance of an accumulator is practically nil, whilst that of an ordinary dry cell is about ·5 ohm. With four such cells in series the internal resistance would be about 2 ohms, consequently short circuiting would not do very great injury beyond wasting the current, at a comparatively slow discharge rate.

Magnetic Field.—The force with which a magnet attracts or repels another magnet or a piece of steel or iron is called magnetic force, the amount of the force exerted being greatest at the poles of the magnet, and it is inversely proportional to the distance at which it is acting. The immediate neighbourhood of a magnet is called the magnetic field, in which magnetic induction takes place.

Condenser.—This is an apparatus consisting of alternate sheets of tinfoil and paraffined paper—insulation—used in connection with an induction coil, into which the current flows when the circuit is broken. The effect of this is to suppress the inverse current at make and to strengthen the direct electromotive force at break.

The accumulator and coil system of ignition is called high tension owing to the fact that electricity of high potential difference is used for the actual ignition, the spark which fires the charge being produced from the induced current circulating in the secondary winding, which has a potential difference of some thousands of volts.

The principal members of the system are the battery, coil (and condenser) and the sparking plug; the other integral portions being the contact breaker, switch and wiring ("leads" and "returns"). Dealing with them in the order given above, I will first take the battery, of which in common use there are two types, presenting distinct features:—Dry batteries (primary), and accumulators (secondary batteries) or so-called storage batteries.

Dry Batteries.—These are usually modifications of the simple voltaic elements—zinc and carbon—of constant or non-polarisible type, filled with some material to prevent the liquid electrolyte from spilling. These cells have a larger capacity for current, size for size, than accumulators, and as the internal resistance, when four are coupled in series, is reasonably high, the possibility of damage by "shorting" is not great. As, however, the energy developed depends entirely upon the consumption of zinc, which forms one of the elements of the cell, and this is changed (by chemical decomposition) without possibility of restoration to its original form by further chemical or electrical action in the cell itself, it follows that when the cells, or series of cells, generally four, which form the battery have expended their latent energy in giving off current, the battery is useless and must be discarded, as it would be almost as costly to renew the zincs and remake the cells as to furnish new ones. The initial cost of the dry battery is far less than that of an accumulator, and it is capable of standing rougher and more irregular treatment than the accumulator. The renewal, however, of dry batteries, as against the cost of recharging accumulators, would make the primary batteries twice as costly as the other in continued use. The voltage of dry cells is generally about 1·25 each, so that the battery of cells gives normally about five volts. It is possible with some forms of primary batteries to partly renew the vitality of the cells by recharging from a dynamo, chemical reactions taking place to a small degree in the battery under the influence of the powerful current from the dynamo which enable the battery to give out for a limited time a fair discharge. Practically speaking, however, when a set of dry cells fails to give a useful working current it may be discarded.

(*To be continued.*)

We understand that the Thames Ironworks Company is about to build steam lorries.

The Antwerp Automobile Club has decided to hold a series of 500 metre speed trials, with standing start and stopping finish, on May 8th.

The motor-boat race at Monaco for the Prince de Monaco Cup was run off last week, the winner being the Georges Richard boat "Trefle à Quatre." The distance was 2,852 metres, and this was covered in 4 m. 17 sec.

It is announced that the French State Railway authorities are about to inaugurate services of motor trains. M. Purrey, of Bordeaux, is designing the cars, each of which is furnished with its own steam motor, and has accommodation for thirty-six passengers. They are designed to attain a speed of sixty miles an hour.

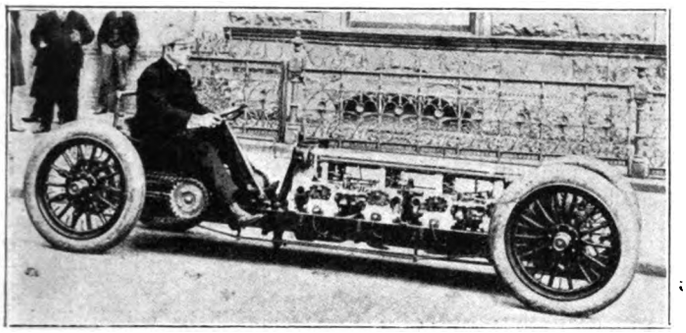
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HERE AND THERE.

AN automobile club has just been formed at Toulon, France.

THE Cardiff Corporation have acquired two motor-wagons from Messrs. Mann, of Leeds.

A POWERFUL racing machine, the nominal horse power of which is said to be 100, has just been completed by the Buffum



The "Central Greyhound" 100-h.p. Racer.

Manufacturing Company, of Abington, Mass., for the Central Automobile Company, of New York. It will be noted from the accompanying illustration that the car is somewhat like the Winton Bullet in appearance. It is, however, longer and lower (only clearing the ground by about six inches), and of apparently greater power. The frame is of channel steel, the suspension being by means of spiral springs. The power is supplied by an eight-cylinder opposed horizontal engine, provided with four carburettors and mechanically-operated inlet valves. The radiator is cooled by means of two fans. The car has no change speed gear. At the rear end of the clutch shaft is fastened a bronze mitre pinion meshing with a similar pinion on the countershaft which carries the differential. From the countershaft the power is transmitted to the rear wheels by the usual side chains. The wheel base of the vehicle is ten feet and the overall length thirteen feet. The car, which weighs 2,300 pounds, is to be entered in all American road or track races during the coming season for which it is eligible. It is to be called the Central Greyhound, and, judging by its appearance and enormous engine capacity, the name is an extremely suitable one.

THE Newport (Mon.) Watch Committee has refused to withdraw its application for the ten mile speed limit.

THE latest cycle trader in Ireland to go into the motor-car business is Mr. J. Wright, of Hill Street, Newry.

MESSRS. P. AND T. MURPHY, of Clonmel, now undertake the repair of motor-cars as well as the design of automobile bodies.

THE Eastbourne Town Council are inviting, through our advertisement columns, applications for the post of traffic manager of the Corporation motor-omnibus service.

THE Pope Motor-Car Company, of Hartford, Conn., U.S.A., has recently received an order for ten four-cylinder petrol cars for shipment to Japan, for the use of the Japanese army.

UNDER Section 10 of the Motor-Car Act, about 2,000 sign-posts would be required in the area of the Derbyshire County Council, which has decided to take no action in the matter for at least a year.

REFERRING to the recent motor-car exhibition at the Agricultural Hall, the "Motor Age" of Chicago, says:—"The show is well managed, and in some respects is more popular with the general public than the Crystal Palace show, one reason being that it is held in a building more generally accessible. Probably, also, the nearness of spring and country motoring has created a buying spirit not prevalent at the time of the other great show."

A SECOND car is to be purchased by the A.C.G.B.I.

WHY is it that the petrol tank frequently develops an aching void when within ten miles of a base of supplies?

AN electrical trolley motor-omnibus service is about to be started between Wermelskerchen and Dhunn, Germany.

AGENCIES have been established at Taunton and Weston-super-Mare by the Bridgwater Motor Company, Limited.

THE Prince of Wales, having concluded his visit to Windsor Park, returned to town by motor-car to Marlborough House.

THE mayor of St. Louis, U.S.A., has appointed a special committee to welcome the automobilists to the city on the occasion of the projected big tour.

THE life of a motor-car is measured by the excellence of its manufacture, but the years of usefulness of the best automobile in the world can be shortened by misuse.

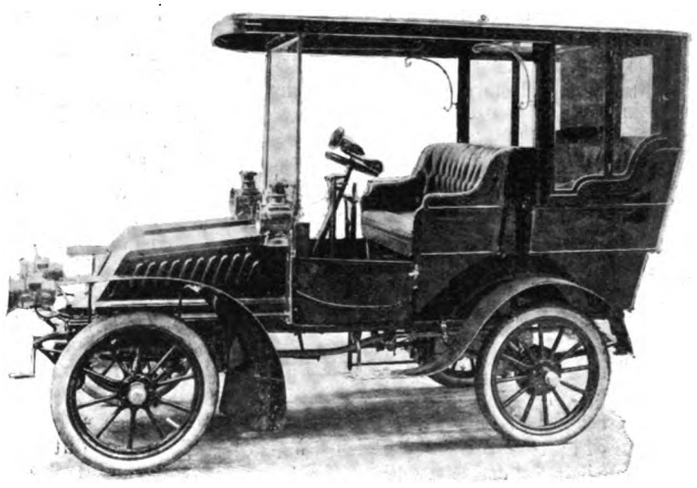
MR. G. W. BURNELL has removed from Lower Brook Street to Albion Street, Rugeley, where he will have every facility for the repairing of motor-cars and cycles, and storage room for twenty cars.

BECAUSE he competed in unsanctioned meets at Savannah, Ga., on February 25, and at Birmingham, Ala., on March 8, Barney Oldfield has been suspended by the Racing Board of the American Automobile Association.

MR. HARRY SNOWDON, A.M.I.E.E., the manufacturer for the United Kingdom and Colonies of the Nodon Patent Electric Valve, has removed from Queen Victoria Street to larger offices at Balfour House, Finsbury Pavement, E.C.

THE Du Bois Company, Limited, who have taken up the London Agency for the Dennis cars, have opened a depot at 4, Princes Street, Hanover Square, W. The premises include not only a showroom, but a large lift gives access to the basement, where cars may be washed or repaired.

THE first loads of merchandise conveyed by motor lurry in the Lake District have been delivered at Ambleside from Windermere. The directors of the Lake District Road Traffic Company witnessed the power of the lurry as it ascended some of the steep gradients leading towards the Kirkstone Pass.

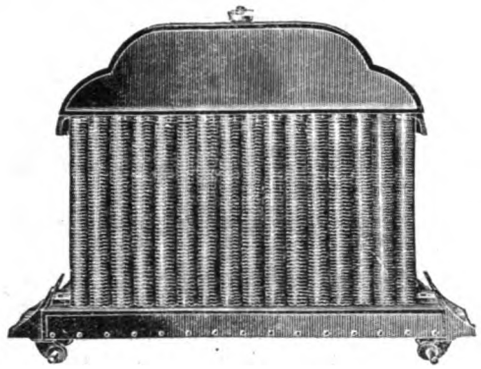


A 10-h.p. De Dion with Detachable Brougham Top.

A PROPOSED tax of £3 on every automobile or other vehicle not drawn by horses and used exclusively for business purposes, and £6 on every such vehicle used for pleasure driving or the transportation of passengers, was discussed by the municipal authorities of Montreal at a recent special meeting of the city council called to consider proposed amendments to the city charter. Nothing can be done in the matter until it reaches the Provincial Legislature. In all probability several meetings will be held to discuss the proposed tax, those interested in motoring having resolved to fight against it.

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As mentioned in a recent issue, the Coventry Plating and Presswork Company, Limited, have lately brought out a new radiator for use in connection with the water circulation of petrol cars. The feature is the employment of a tube claimed to be 40 per cent. lighter than those usually employed, to which



radiating fins of aluminium are fitted in a special way. The fins are in metallic contact with the tube, they being held in position by a self-locking arrangement dispensing with the use of solder. In addition to their extreme lightness, the makers claim an increase in efficiency, they being able to guarantee the same cooling effect with 15 per cent. less tubing, in feet, than used in the ordinary rubber pipe radiator.

SOME experiments are about to be made in Antwerp with a new dust-laying preparation known as "Goudroginite."

SIR GILBERT CLAYTON EAST will welcome the members of the Berkshire Automobile Club to his place at Maidenhead on the 28th prox.

THE opening run for the season of the Western Section of the Scottish Club will be held to-day (Saturday) to the Dreadnaught Hotel, Callander.

FIELD-MARSHAL SIR E. WOOD, V.C., Commanding 2nd Army Corps, availed himself of the services of the Motor Volunteers on the occasion of his visit to the defences of Dover.

THE Continental Caoutchouc and Gutta-Percha Company draw our attention to the fact that their new treads are stamped "Continental Protector" in combination with their well-known trade mark.

MESSRS. MONTAGUE HAWNT AND COMPANY have been appointed sole wholesale agents for the United Kingdom for "Valvoline" and "Wilburine" oils, both of which have attained a large degree of favour among motorists.

THE Hitchon Gear and Automobile Company, Limited, has been registered with a capital of £10,000 to adopt an agreement with Mr. A. Hitchon for the working of Patent No. 18,460 of 1901, for improvements in transmission appliances in connection with automobiles. The registered office is at Moscow Mill, St. Oswaldtwistle, near Accrington, Lancashire.

MESSRS. JOSEPH LUCAS, LIMITED, send their catalogue for the season, in which illustrations are given of some good styles of headlights, including the "King of the Road," with its patent locking device. They have also a new pattern back light with white side lens and ruby back. The list also describes a large selection of motor-horns and fittings, motor pumps, motor outfits, jacks, lubricators, etc., as well as the firm's motoilers and their well-known Wells Lucas motoil and auto grease.

MESSRS. SALSBURY AND SON have brought out "Gre-Solvent," a useful preparation for cleaning the hands after doing repairs or adjustments to the engine, tyres, etc. This Gre-Solvent will thoroughly cleanse the hands, leaving the skin quite clean and soft. The "Dazlit" metal polish, also introduced by the firm, is made according to a formula upon which Messrs. Salsbury and Son, Limited, have made metal polishes for years for their own use, and having tried all descriptions of metal polishes in the business, they now confidently assert that they have never found any to equal this. There is no acid or grit of any description in it, and it can be used with perfect safety upon the most delicate materials.

MOTOR-CYCLING NEWS.

SIMULTANEOUSLY with the side-slip competition for cars, a similar trial of devices for use on motor-cycles will take place on the grounds of the Talbot Works, Notting Hill Gate, W., on the 7th prox.

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THE Auto-Cycle Club will hold a hill-climbing competition on May 14th, the entries being divided into the following classes:—(1) Machines with engines having a cylinder capacity of 70 by 70, or the equivalent volume swept out; (2) Machines with engines having a cylinder capacity of 76 by 76, or the equivalent volume swept out; (3) Machines with engines having a cylinder capacity of 80 by 80, or the equivalent volume swept out; (4) Machines with fore-carriages, side-carriages, and trailers, carrying two passengers. The location of the course will not be announced until the last minute, and the event will be confined to members of the club. Two silver medals will be given in each class, provided there are sufficient entries, whilst a gold medal will be given for the most meritorious performance of the day.

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A COMBINED run of motor-cycling clubs will be held at Great Yarmouth on the 28th prox., on the suggestion of the Auto-Cycle Club.

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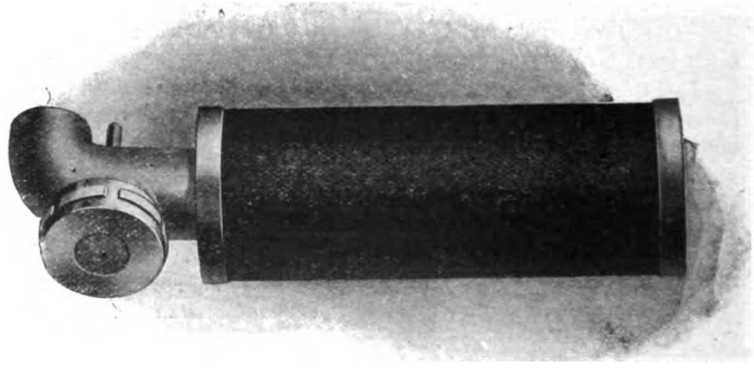
THE Auto-Cycle Club have had in hand the case of the motor-cyclist who was summoned at the Wallasey Petty Sessions (near Birkenhead) and fined 5s. for not exhibiting a red light at the rear of his cycle, their contention being that a motor-bicycle only requires the ordinary light. The club now understands that the magistrates' clerk, on looking further into the matter, has come to the conclusion that the club's contention is right, and that no further convictions will be recorded in such a case. In the case of certain motor-cyclists who had been summoned, no further proceedings are to be taken.

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THE Hereford Automobile Club has decided to hold a hill-climb for motor-cycles at Dinmore Hill on the 3rd May.

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THE accompanying illustration depicts the exhaust box fitted to the "Ariel" motor-cycles. It is of special construction, and is so designed as practically to deaden the noise of the explosion. The device consists of three circular tubes telescoping into each other, with holes drilled in various positions for allowing egress of the exhaust gases. The makers claim the "Ariel" machine to be one of the quietest—if not the quietest—motor-



bicycle upon the market. As will be seen from the illustration, a valve is fitted (operated by a small lever close to the saddle in reach of the rider), which, when open, releases the exhaust gases direct into the air without passing through the exhaust box. This, however, only need be used when climbing exceptional hills. The makers, the Ariel Cycle Company, Limited, point out that it is also very useful in effectually disposing, for the time being, of the motor cyclist's *bête noire*, *i.e.*, a yapping dog.

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SPEED CALCULATION.

AN ingenious and exceedingly convenient method of finding the rate per mile travelled by a motor-car or other vehicle has been devised by Mr. E. D. Winans, of the American Darracq Automobile Company. It takes the form of a table, which is printed on a card, with a key, by means of which a motorist can tell at a glance the rate of speed for any given number of seconds. The table is a double one, the speeds up to a mile a minute being read from the columns at the left hand side and top, and those above that—*i.e.*, at slower than a mile a minute—being read inversely, or from the figures in the little squares.

The table and accompanying key are as follows:—

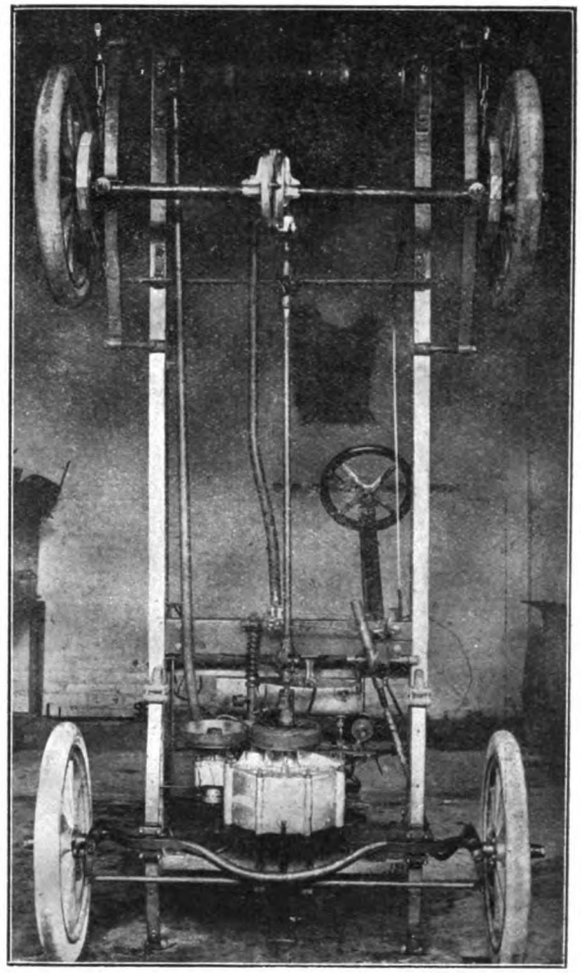
	0	1	2	3	4	5	6	7	8	9
0	8	3600 1 hr.	1800 30.00	1200 20.00	900 15.00	720 12.00	600 10.00	514 8.34	450 7.50	400 6.40
1	360 6.00	370 5.27	300 5.00	277 4.37	257 4.17	240 4.00	225 3.45	212 3.32	200 3.20	189 3.09
2	180 3.00	171 2.51	164 2.44	156 2.36	150 2.30	144 2.24	138 2.18	133 2.13	129 2.09	124 2 04
3	120 2.00	116 1 56	112 1.52	109 1.49	106 1.46	103 1.43	100 1.40	97 1.37	95 1.35	92 1.32
4	90 1.30	88 1.28	86 1.26	84 1.24	82 1.22	80 1.20	78 1.18	77 1.17	75 1.15	73 1.13
5	72 1.12	71 1.11	69 1.09	68 1.08	67 1.07	65 1.05	64 1.04	63 1.03	62 1.02	61 1.01

The left hand column indicates the tens—the upper cross column the units of the speed per mile in seconds. Where these columns intersect will be found the speed per hour. Thus 45 seconds to the mile equals 80 miles per hour, that being the figure at the intersection.

When the speed is over a minute to the mile, take the figure denoting the time in seconds and follow out reversely. The result will show the rate per hour; thus 1·20 to the mile is 45 miles to the hour.

THE "UTILE-SIMPLEX" CAR.

THE other day we had an opportunity of making a short trial run on a novel four-seated car which is being introduced by the Utile Motor Manufacturing Company, of Kew Gardens, the novelty lying in the fact that no gear-box, in the usual sense of the term, is employed. In outward appearance the little car resembles an ordinary cardan shaft driven tonneau. The single-cylinder 8-h.p. engine is on the lines of the well-known De Dion, the valves being interchangeable therewith. The crank case is, however, of much larger dimensions than usual, to admit of an extra-large half-speed cam shaft, an intermediary pinion being provided to cause the crank and cam shaft to rotate in the same direction, the object of which is dealt with below. By means of a wedge-shaped piece inserted between the exhaust valve stem and the cam-controlled valve lift, and actuated by a lever on the steering standard, the lift of the exhaust valve can be varied, a notable elasticity being thereby imparted to the engine. As already mentioned, no gear box is fitted to the car, 90 per cent. of the running being done on the top direct gear. For starting purposes and for use on very steep hills a second speed is made available by utilising the enlarged half-speed shaft. The accompanying illustration gives a view of the *chassis* from below. From this it will be seen that both the crank shaft and the cam shaft have friction clutch members fitted at their rear ends, and another clutch member, which corresponds with both of these, is mounted on the forward end of a short shaft from which a universally-jointed shaft extends to the live axle. The short clutch-shaft is carried by a bracket pivoted on the engine between the two clutch members, and also on a cross piece on the frame, in such a way that the clutch can be withdrawn by a pedal in the usual way sliding it endwise, and that it can then be swung over so as to come in line with either the crank shaft or the cam shaft, this being done by a lever on the steering standard corresponding to the change-gear lever. Two forward speeds are in this way obtained, and on the high gear there is a direct drive from the crank-shaft to the rear axle. In this very simple manner all that is necessary in the way of speed-reduction gear for a light vehicle is secured, and in addition to this, the mechanism is in every sense self-aligning, and the transmission losses under ordinary conditions are reduced to a minimum. Even when the cardan shaft is being driven by the cam shaft, the former shaft lies at but a small angle from the straight, owing to its length.



Underneath View of "Utile-Simplex" Car.

A single central radius-rod, which is fixed to the casing enclosing the live axle, is hinged at its forward end to the frame just above the clutch shaft, and also relieves the torque of the backaxle.

During the course of the recent Exhibition at the Agricultural Hall, the car took a load of four passengers up Pentonville Road, N. We have had evidence, too, that the method of utilising the cam shaft as the low gear works excellently in practice. The clutch member on the short shaft connected with the cardan is a double one. On the top gear it surrounds the clutch member on the crank shaft, while on the lower gear it goes inside the member on the cam shaft.

H.R.H. PRINCE HENRY OF PRUSSIA has brought over his motor-car to use whilst in England, and to show his regard for law and order promptly registered his car No. 4761A., obtaining a regulation number plate from Messrs. Gamage, Limited.

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CORRESPONDENCE.

A USEFUL HINT REGARDING TYRES

To the Editor of *The Motor-Car Journal.*

Sir,—May we be allowed to give your readers the benefit of a little matter of tyre practice which one of our directors has recently found to be of the greatest utility? The idea is simply an adaptation of the method of using up of hitherto deemed worn-out covers. Some time ago Mr. Paul Meyan pointed out that he used old outer covers superimposed on his ordinary covers; we believe his method was to use old covers of a larger initial size than his covers proper, and attach them by inserting them between the latter and the rims. A contemporary of the *Motor-Car Journal* now points out that an old and therefore stretched cover of the same initial size as the normal cover may be used by cutting off its edges and simply placing it over the latter when this is deflated, and then blowing up hard; our director, however, found this method of attachment not sufficiently secure.

The obvious extension of the idea was to sew straps to the old covers and secure these to alternate spokes in a manner that will suggest itself to anyone. We can assure you the result is most surprising and satisfactory; any saddler can sew on the half dozen or dozen straps for a few shillings, and the old cover so secured is perfectly firm. Even if it is badly cut the cuts do not gape (though it is advisable to place canvas behind them), and of course there is no wearing surface equal to that of a properly vulcanised rubber one. Owing to the severance of continuity between the attached cover and the ordinary cover puncturing objects that pierce the former are turned at the surface of the latter. We have a sharp nail three inches long that was picked up at the first trial, pierced the outermost cover and then simply passed in between the two for a distance of a couple of inches, where it was tightly held. We are convinced that this method of using up old covers will be more than a boon to every driver who makes use of it, and we trust this will be our excuse for the length of our communication.—Yours truly,

The Cambridge Autocar Co., Ltd.

THE CAPACITY OF ACCUMULATORS.

To the Editor of *The Motor-Car Journal.*

Sir,—Owing to the French manufacturers of accumulators marking batteries at exactly double their true capacity, the custom has arisen in this country of calling a 10 ampere-hour battery "20 ampere-hours capacity." The trade always ask for a 20 a.-h. accumulator, meaning cells containing one positive and two negative plates, the positive plate being of such an area that it cannot possibly give much more than 10 a.-h. capacity. We are sometimes told that though the capacity may be lower at a continuous current discharge rate, it is much higher on intermittent ignition work; this is true, as, whilst on continuous discharge work, the plate will give 8 a.-h. capacity, and on ignition one may safely reckon 10 to 12 a.-h. This, however, is not double the capacity. To show the absurdity of marking 10 a.-h. cells at 20 a.-h., there are price lists in circulation at the present moment containing the following:—Capacity, 20 a.-h.; charging rate, 1½ amperes for eight hours. This is equivalent to 12 a.-h. being put into the battery when charged, and yet you are informed you can get out of it 20 a.-h., which is absurd.

Having been compelled to adopt this absurd method ourselves prevent confusion when corresponding with the trade, who ask for and order 20 a.-h. accumulators as a general term only, we now think it is quite time that accumulators should be marked by their true capacities and thus save considerable confusion when they are taken to be charged. In our new price list for 1904, each accumulator is marked at the capacity it will give when discharged at its normal rate continuously on a resistance. We recently saw a note to the effect that the capacity of the usual 20 a.-h. battery had been increased to 25 ampere-hours, which is only another instance of perpetuating a fable. In all accumulators made by us, we (in common with several other makers in this country) have stated the correct capacity on continuous current discharge; but in selling French types of cells in competition with French manufacturers I believe we have all had to adopt the French capacity rates for our own protection. For instance, in our last year's list we give an accumulator as 13 a.-h. on continuous discharge work and 20 a.-h. on ignition work.—Yours truly,

Peto and Radford.



La France] Motoring in Tunis.—The Natives at Medjez el Bab inspecting the Modern Means of Locomotion. [*Automobile.*

STEAM CARS.

To the Editor of *The Motor-Car Journal.*

Sir,—As a user of paraffin burners for the past three or four years, my experience will doubtless be useful to your correspondents "Locomobile" and "Steamer" in your issue of the 9th inst. I found that my Clarkson burners gave very good results if properly attended to, but they apparently do not do themselves justice working under a Locomobile. The Cremorne burner, owing to its compactness, is, however, much more readily adapted to this type of car, and after fifteen months' experience of this burner on my car I find no tendency of the jet to clog, and can average seventeen miles an hour over ordinary roads. I should mention, however, that I took the precaution to have a strainer fitted on the oil pipe, which, no doubt, lessens the risk of clogging. I also fitted a steam jet, finding this necessary in order to obtain full power from the burner

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without smoking. Perhaps the makers will explain why this is necessary, as a steam jet is not economical.

My experience of injectors is that they are not much use on light cars. They are wasteful in steam, and, unless used constantly, are a failure. I am looking out for a good steam touring car to seat from four to six people and capable of travelling at least one hundred miles on one charge of fuel.

I would like some advice on the boiler question. The Miesse and the White have flash boilers. What is the life of these boilers; perhaps some of your readers will give me their experience? It seems to me that a water tube or tubular boiler would be more serviceable for touring.—Yours truly,

LOCOSURREY.

TYRES AND CARBURETTORS.

TO THE EDITOR OF *The Motor-Car Journal.*

SIR,—There has been lately a large correspondence in the motor papers concerning pneumatic unreliability. I have this year had my tyres (810 by 90), although in good condition, fitted with extra treads by Messrs. Capon Heaton and Company, Limited. I thought it would be useful information that, contrary to theory, this has not affected either resilience or speed. Moreover, the quality of the rubber is so good that it does not cut, and it would now take a very formidable instrument to puncture. My car is a fairly heavy one, and I attribute my record of "no punctures on motor tyres up-to-date" to the fact that I keep my back tyres up to 90 lbs., and the front to 80 lbs.

Users of Longuemare carburettors will find it a great improvement to fit a shutter (hinged) on the air inlet, close to the carburettor. It is easily made by oneself, and in my case I have gained power. The air lever can be left farther open and the shutter will actually govern my engine (Aster).—Yours truly,

THOMAS HALLEWELL.

HIGH SPEED ON THE ROAD.

TO THE EDITOR OF *The Motor-Car Journal.*

SIR,—On my way back from a trip on my motor-bicycle into Bedfordshire yesterday, I had come down Barnet Hill and was just getting to the top of the rise where the new park is, when a huge towering car came past me with the roar of an express train at a speed I should calculate of close upon forty miles an hour. I was myself travelling about fourteen miles per hour, and it came past me so fast that it was impossible to read the back number. The car was enveloped in dust and it was impossible to see through the cloud it raised behind for fully a minute, which in itself constituted a serious danger to other traffic. The occupants appeared to be dressed in light fur coats. At the time (Sunday afternoon about 5.5 p.m.) there was a good deal of cycling, motor and other traffic on the road, and it was simply miraculous that the car got through without an accident. I asked two or three cyclists and motorists if they happened to catch sight of the car's number, but they all said they could not, but a cyclist told me that the car was a sixty horse power and belonged to the proprietor of a daily journal, and that the driver was a gentleman who will participate in the eliminating contest. This is the class of driving that has brought about the present Act, and such speed at such a time and in such a place is wicked. It would, however, in this case, be interesting to know whether my informant is correct in his statement as to the owner and driver of the car in question. I hope not, as drivers or owners who use their powerful cars in this manner are the worst type of "road-hog." You can publish this letter if you like, and if I see the car again and get a chance to see its number, I shall most certainly lay information before the police. High power and speed is absolutely useless except for racing purposes, and the use of it on the road only brings stringent laws into force which operate against innocent users of the highways and the real culprits go scot free.—Yours truly,

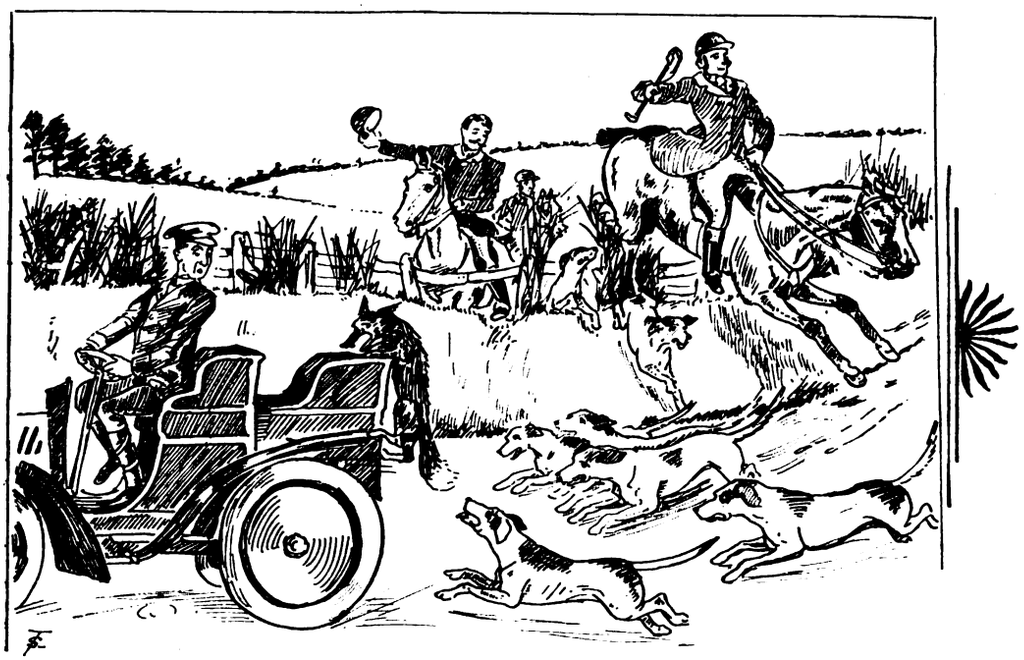
MOTOR-CYCLIST.

TO THE EDITOR OF *The Motor-Car Journal.*

SIR,—May I have the use of your columns to bring forward a suggestion to prevent the wicked and reckless behaviour of some motor-car drivers? It is common knowledge that the worst offenders are the irresponsible paid hands (very frequently French), and also, it must be admitted, the "trade car."

I drive fast at times (alas! I too am a victim of Sergeant Jarrott) but always carefully, and the criminal recklessness round corners at cross roads, or when children are about, that is seen makes one wonder the police are so tolerant! My suggestion is that all private owners, careful drivers, should themselves take the numbers and report to the police of the district and, say, to the Automobile Club, any wanton driving. This would make all drivers careful, if their own brethren "gave them away," as at present a policeman is the only person some are afraid of, and in this way much might be done to avert the animosity felt by many of the public, and in some cases, it must be admitted, justifiably, to all motorists, when it was seen that there was a determination on the part of reasonable drivers to put a stop to the scandal which has caused so many fearful accidents, always, or nearly so, from the twin causes, recklessness and carelessness.—Yours truly,

H. ELLIOT PYLE.



"Sanctuary." From the Experience of a Member of the Eridge Hunt.

DELIVERY VANS.

TO THE EDITOR OF *The Motor-Car Journal.*

SIR,—In November last the firm by whom I am engaged purchased a motor-van. The car in question is a 16-h.p., constructed to carry 30 cwt. at speeds up to fifteen miles an hour, for six months, but up to the present has proved a failure, as the list of mishaps I enclose will show. We were thinking of having twelve cars and do away with the horses and carts we are at present using, but I am afraid this has knocked it on the head. You cannot wonder at business people not using cars instead of horses when they see and have trouble the same as this; it is only ruining an industry, and not only giving themselves a bad name, but other makers "who build a good car" also.—Yours truly,

J. G.

QUERIES *RE* WOLSELEY CARS.

TO THE EDITOR OF *The Motor-Car Journal.*

SIR,—I should hesitate before admitting such variation in running as Jehunior" describes to be due to variation in the quality of the petrol.

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It is hardly likely that anything like stratification can take place in the tank under running conditions, and with almost any good spray carburettor the ill effects of heavier spirit are negligible, except sometimes as regards ease of starting. With light inlet springs, however, irregularities due to sticking of valve stems are more noticeable, and they are best kept free by the use of a little graphite on them, conveniently applied by mixing with petrol. It is always an advantage to be able to regulate the air from dashboard, and an addition to this effect is advisable; but if the existing air inlet is fully open, and this is insufficient, it looks as if the jet may have been unduly enlarged. It is hardly likely to have been sent out in this state, though I have known this happen on more than one foreign car. The new automatic carburettor of the Wolseley Company regulates by a vertical piston valve with side slots, somewhat similar to that of the Krebs, but actuated by the pressure of the exhaust on the diaphragm. This should give regulation both to the speed of the engine and the charge it is taking. The new silencer is certainly an improvement, but the gain in this direction cannot be very large, except as regards silence.—Yours truly,

R. W. B.

1904 MERCEDES CARS.

To the Editor of *The Motor-Car Journal*.

Sir,—With reference to the statements made in the technical press during the last few weeks, we should esteem it a favour if you publish the following letter we have received from M. Jellinek-Mercedes giving particulars of the Mercedes cars that we have bought from him, as follows:—

Translation.—"In reply to your letter of the 7th April, I inform you that the whole of the 18-h.p. 1904 carriages with motors giving on the brake about 28-h.p. are manufactured in the new factory at Unterturkheim, near Cannstatt. The 24-28-h.p. and the 35-h.p. are only made in very small numbers. Your carriages are of the 18-h.p. 1904 with motor giving about 28-h.p. on the brake; your 28-32-h.p. giving about 34 to 35-h.p. on the brake; your 40-45-h.p. giving about 45-h.p. on the brake.—(Signed) Jellineck-Mercedes."

In order to still further enlighten the public, we append a complete list of the cars turned out from Cannstatt other than racing cars, with cylinder capacity and brake horse power.

It should be noted that what is known as the 1903 type has the valves on the top of the cylinders, while that known as the 1904 type is similar to the 1902 type with the valves at each side of the cylinders.

It should also be mentioned, however, that none of the 24-28-h.p. or 35-40-h.p. were made in 1903, that they were all made this year and are really the 1904 cars.—Yours truly,

J. E. Hutton, Ltd.

[The enclosed list is confirmatory of that given in our Correspondence columns (page 162) last week.

To the Editor of *The Motor-Car Journal*.

Sir,—With reference to the letter of Mr. Harrington Moore, I am quite prepared to accept the letter that he states he holds, subject, however, to his accepting mine, which I am prepared to show him.

The letter he owns denies mine, I admit, but mine also denies his. I think, therefore, that very little heed need be taken of the statement made by either letter, as seemingly they are somewhat recklessly written, but I would suggest that Mr. Harrington Moore uses his own judgment, and I would ask him whether the 18-h.p., which is 5 mm. less bore than the 24 h.p, would give the same power on the brake? I think he will agree that there is a very grave mistake here.

In France the new so-called 18-h.p. is called 20-26-h.p., which is getting somewhat nearer the mark.

As regards the somewhat cutting remarks as to where my firm get their Mercedes cars from, I would suggest to Mr. Harrington Moore that in all probability the cars that he is selling come through the same source, although he is not aware of it, and the friends whom I have the honour of being in business with probably hold more of the Mercedes stock than he cares to state, although he may know it.

I would suggest that Mr. Harrington Moore writes to Monsieur Jellineck, and he will probably receive an answer to the effect that my statements are correct and that the Cannstatt Company cannot deliver any goods until next autumn.—Yours truly,

D. M. Weigel.

Dust Laying.—In answer to H. L. P., full particulars of Westrumite can be obtained from Westrumite Ltd., Dacre House, Victoria Street, Westminster.

The Balmforth Steam Boiler.—Replying to Messrs. J. Mowlem and Company, Limited, the Balmforth boiler illustrated in our issue of the 9th inst. is made by Messrs. T. Balmforth and Company, Engineers, Luton.

Messrs. Wallis and Watson, of Trinity Street, Leeds, have been appointed sole agents for Yorkshire for the Duryea cars.

CLUBS AND ASSOCIATIONS.

YORKSHIRE.

On April 9th the first meet of the Yorkshire Automobile Club took place at Aberford, where about fourteen cars arrived, their passengers including Messrs. Tempest, Milner, Mr. and Mrs. Jessop, Mr. and Miss Armitage, Mr. and Mrs. Hepper, Mr. Kirk, and Mr. Faiers. Tea was taken at the Swan Hotel.

On Saturday last the meet was at Ilkley, with headquarters at the Middleton Hotel. There was an excellent muster of Yorkshire members to meet the members of the Burnley and District Club, and in all there was a gathering of about sixty persons.

GLOUCESTERSHIRE.

The April general meeting of the Gloucestershire Automobile Club was held at Gloucester. There were present the president, Mr. Algernon H. Wyatt, the hon. treasurer, Mr. F. M. Bostock, and the hon. secretary, Mr. A. Arthur Dale, and a large attendance of members. The President, in opening the proceedings, alluded to what the club hoped to accomplish in the future. After the reading of correspondence by the secretary, a list of gentlemen desiring to become members of the club was presented.

The hon. secretary next read the committee's report. The report was received. The hon. secretary also read his report of the meeting of the Motor Union, which he had attended as one of the club's representatives upon the general committee of that body. The president then addressed the meeting upon the matter of the inconvenience to motorists from unrolled metal left on the highway overnight. He gave instances of his own and others' experience of the danger, referring also to the risks which motor-cyclists ran when suddenly encountering an unrolled stretch of road. He moved the following:—"That this club desires to call the attention of the Highways Committee of the County Council to the unsatisfactory condition in which the roads are left overnight, and more particularly from Saturday to Monday, in several districts in the county where repairs to roads are being carried out, by reason of the roadmen leaving an unnecessarily large quantity of loose stone on the highway, and respectfully requests that steps may be taken to see that all metal placed upon the highway is rolled in before work ceases for the day." The motion was seconded, and after a few remarks of entire approval, the question was put to the meeting and carried unanimously. The President also brought forward two other motions relating to the lighting of vehicles. The first suggested the adoption of a bye-law by the city of Gloucester and the boroughs of Cheltenham and Tewkesbury similar to that in force in the county. The second, which was to be addressed to the County Council, was in the following terms:—"That owing to the increasing number of motor-vehicles on the highway at night this club is of opinion that it would add to the safety of all users of the road if the bye-law at present in force in this county relating to the lighting of timber wagons were extended to every vehicle on the highway at night time." Upon the motion being seconded, a short discussion took place. Put to the meeting, the motions were carried unanimously.

LINCOLNSHIRE.

The third annual dinner of the Lincolnshire A.C., held at the Saracen's Head Hotel, Lincoln, on Saturday, was a success. There were quite a hundred present, many of whom came on cars. Mr. E. H. Arnott drove from town on a 15-h.p. Napier; Mr. Ross Browne, Nottingham, drove his 24-h.p. Georges Richard; Mr. J. S. Sandars drove his 12-h.p. Siddeley, Mr. A. A. Padley had his new De Dion, Mr. C. H. Seely, M.P., was on his 12-h.p. Daimler, Mr. Parsons Wright was on his 6-h.p. Regal, Mr. G. Linnell (Market Deeping) was on his 10-h.p. Wolseley, Mr. Husband (Crowland) was on his 8-h.p. Wolseley, Mr. C. A. Moring was on his 12-h.p. National, Mr. G. Godson was on a 6-h.p. M.M.C., and Mr. C. Nainby, Mr. C. Holland, Capt. J. A. Cole, and Capt. Lyall, with other members, drove parties over.

Sir Hickman Bacon, Bart., presided, and after the loyal toasts gave "The Houses of Parliament.'

In response, Mr. C. H. Seely, M.P., urged that the Parliamentary party had done what was possible in respect to the Act, and he thought that after all there was not a great deal to complain about. Though motorists had not got all they desired, neither had anti-motorists, and he believed that the fact that now all motors were easily identified would prevent the hostility against motorists, because it was easy to ascertain who were responsible for wrongdoing and the actual offender could be bought to book. Apart from the pleasure side of the movement he thought it would affect such engineering centres as Lincoln and be a great benefit to the city. The commercial side was indeed important, and he would impress upon them that the country which was proceeding at the pace of a horse was severely handicapped as against the country where they went at the pace of motors.

Mr. J. D. Sandars, a vice-president of the club, in giving "The county and city magistrates," gave some reminiscences of his experiences with police and magistrates, but outside his own county, where he was never molested. He thought that was because the police and magistrates endeavoured to administer the law sensibly. When, however, the roads were used for "world's records," even in the early hours of the morning, prompt and decisive action was taken and action that did a lot of good. They were fortunate in being able to be on such good terms with the authorities in the county, and he was sure the members appreciated that fact and would do nothing to imperil the trust placed in them.

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Mr. C. A. Moring, in giving "The Club," said it was the most distinguished of all the provincial clubs. In proposing "The Visitors," Capt. J. A. Cole referred to the extraordinary growth of the club, and the efforts it had made in several ways. As for the dust nuisance, he was pleased to say that a Lincolnshire surveyor was experimenting with some new material and was sanguine of being able to almost entirely eliminate dust.

Mr. Rees Jeffreys gave an entertaining speech, but before doing so apologised for the absence of other London automobilists. He said that Colonel Mark Mayhew was busy that day in the weighing-in of the cars for the Gordon Bennett, and so was Mr. Cordingley, who had determined to run down. He was pleased to say that as a result of the weighing-in there would be three makes in the tests, the Napier, the Darracq, and the Wolseley. He urged them to assist the commercial side of the movement, which would be of great benefit, and the use of motors as 'buses and the like would do a lot of good in finally breaking down the remnant of hostility.

Capt. Mitchell Innes, who also responded to "The Visitors," commented on the excellent relations existing in the county between the police and the magistrates, and he was sure, from what he had seen, that much of that was due to the way the club had gone to work, and the influence and care it had exercised. He had been giving his superintendents practical acquaintance with, by taking them on their rounds, so that they could be able to properly judge both sides.

MIDLAND.

THE opening run of the Midland Automobile Club was held on Saturday last at Stratford-on-Avon. Nearly forty members were present, several of whom subsequently went on to Alcester. The roads were in good condition.

The club will hold a Whitsun meet on the 21st, 22nd, and 23rd May. A special tariff has been arranged with the management of the hotel.

GLASGOW-LONDON RELIABILITY TRIALS.

FOR the Glasgow to London Reliability Trial for touring cars, organised by the Western Section of the Scottish Automobile Club, the following entries have been received:—

Description of Car.	Starting Order Number	Name.
I.—CLASS A.		
6-h.p. Vauxhall ...	8	P. C. Kidner.
6½-h.p. Cadillac ...	21	Anglo-American Motor-Car Co., Ltd.
6-h.p. Light Wolseley	26	Rennie & Prosser, Ltd.
II.—CLASS B.		
12-h.p. Gladiator ...	2	Thomas Shaw, Ltd.
10-h.p. Argyll	4	Hozier Engineering Co., Ltd.
10-h.p. Rykneild ...	7	Rykneild Engine Co., Ltd.
12-h.p. Richardson ...	9	J. R. Richardson & Co., Ltd.
12-h.p. Eagle Light ...	12	Eagle Eng. and Motor Co., Ltd.
12-h.p. Arrol-Johnston...	13	Mo-Car Syndicate, Ltd.
12-h.p. Siddeley ...	17	Siddeley Autocar Co.
12-h.p. De Dion ...	22	J. W. Stocks.
16-h.p. Maxim ...	24	The Lond. Gen. Automobile Co., Ltd.
16-h.p. Crouan	28	F. W. H. Garner.
8½-h.p. Humber ...	29	Humber, Ltd.
III.—CLASS C.		
16-h.p. Sunbeam ...	1	John Marston, Ltd.
14-h.p. Renault 1904 ...	3	Roadway Autocar Co., Ltd.
12-h.p. Argyll	5	Hozier Engineering Co., Ltd.
16-h.p. Argyll	6	Hozier Engineering Co., Ltd.
16-20-h.p. Martini ...	10	H. H. P. Deasy and Co., Ltd.
24-h.p. Eagle Light ...	11	Eagle Eng. and Motor Co., Ltd.
12-h.p. Sunbeam ...	14	John Marston, Ltd.
12-h.p. Pipe	15	London Motor Garage Co., Ltd.
16-h.p. Rochet-Schneider	16	Morgan Donne.
20-h.p. Spyker	18	J. W. Broadhead.
16-h.p. Delahaye ...	19	Saxon Motor Co., Ltd.
18-h.p. James & Browne	20	James and Browne, Ltd.
18-h.p. Baudouin-Dechamps	23	J. J. Leonard and Co.
20-h.p. Thornycroft ...	25	Thornycroft Steam Wagon Co., Ltd.
18-h.p. Siddeley ...	27	Rennie and Prosser, Ltd.

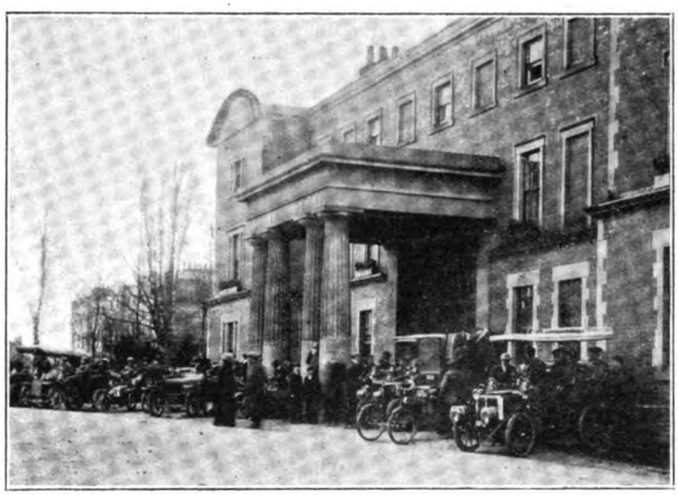
THE POLICE AND MOTORISTS.

AT the Christchurch Police Court, Charles Pooss, a cycle and motor-car engineer, of the Triangle, Bournemouth, was summoned for having driven a motor in Castle Street, Christchurch, on the 1st April, at a speed which was dangerous to the public. Defendant pleaded not guilty, and, in the course of his evidence, said that when last served with a summons the officer had said "I will have you again soon." The Superintendent of Police observed that, under these circumstances, after such imputation against the constable's character, he would ask the Bench to adjourn the case until another constable could be called. The Bench decided to adjourn the case until the next sitting of the Bench—April 25th.

AT the Hailsham Petty Sessions, William Clee, of Bexhill, was summoned for driving a motor-car at a greater speed than twenty miles an hour on March 27th.—Mr. Lawson Lewis appeared to prosecute, and Mr. F. P. M. Schiller (instructed by Mr. Alan F. Harvey), for the defence. Defendant pleaded not guilty.

Mr. Lewis, in his opening statement, said that on Sunday, the 27th March, Sergeant Allcorn and P.C.'s Waghorn and Upton were on the Dicker-road timing motor-cars, and about 3.15 in the afternoon defendant came past in a motor-car, registered No. D 446. P.C. Waghorn started the "machine for timing motor cars" over a measured furlong, which the car covered in 15 secs., giving a speed of 30 miles per hour. P.C. Waghorn, of Lewes, gave evidence of using the electrical "timing machine," and generally supported Mr. Lewis's statements. Mr. Schiller cross-examined witness as to the watch and apparatus, from which it appeared that the watch was started by Upton, after a warning bell had been rung, and stopped by Waghorn on the car passing him; the watch being started and stopped by the pressing of electric buttons. Sergeant Allcorn also gave evidence. He stopped the car, jumping over a four-foot-six hedge, and putting up his arms in the middle of the road.

Mr. Schiller, for the defence, urged that the watch was no evidence at all, as it had been held that it must be shown by certificate that the watch was accurate. Secondly, the margin of error in stop-watches was very large, especially when they were placed near an electrical instrument. The magnetisation made them wholly and utterly unreliable. The constables were no doubt trying to do their duty with an



The Joint Meet of the Leicestershire, Nottingham, and Derbyshire Clubs at Ashby-de-la-Zouch.

ingenious but incomplete device. He urged that on the preliminary point the evidence failed.

The magistrates retired to consider the point, and on returning decided against Mr. Schiller, who formally asked for a case to be stated. The Bench, after retiring to consider their decision, announced that in their opinion the car at that point was going over 20 miles an hour. They imposed a fine of £5, and costs 12s.

Formal notice of appeal was given.

MR. MOFFAT FORD, of Shaftesbury Avenue, was before Mr. Plowden at Marylebone, on Tuesday, to answer a summons for driving a motor-car in Bayswater Road at a speed exceeding twenty miles an hour on the 2nd inst. Two constables said they stood a quarter of a mile apart in the Bayswater Road on the afternoon in question. By arrangement a signal was given, and both the officers timed the defendant, who was driving a motor-car, with chronograph watches as he passed over the distance named. One watch registered 33½ sec., and the other 34 2-5 sec., or about twenty-six miles an hour. The defendant cross-examined the constable at some length, and then said he should be able to prove that the method adopted by the police in testing the pace at which motor-cars were running was not to be relied upon. Mr. Swindley examined the two watches, and they were fairly correct "in the ordinary way," but he did not consider the methods of the police as good scientific timekeeping. Mr. Plowden said that unless the witness could prove that the calculations of the police in this case were wrong, his evidence was valueless. In giving his decision, the magistrate said he had to decide between the defendant's eighteen miles an hour "metaphorically speaking," and the constables' watches. The methods of the police might be capable of improvement, but for the present they held the field. He saw no reason to doubt either the watches or the constables. They might be wrong as to a fraction—one could not reach perfection in these matters—but they

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were very much nearer than the man who, "metaphorically speaking," said he was travelling at a speed just within the law. He fined the defendant £3, with 2s. costs.

THE case at the West London Court in which Charles Ashley was summoned for driving a motor-car beyond the statutory speed of twenty miles an hour was again adjourned on Tuesday.

Mr. Wontner appeared for the police, and Mr. Staplee Firth defended.

Two police officers stated that over a measured distance of 220 yards they timed the defendant's car and found it to be going at the rate 28 miles an hour. The policemen did not stand at the end of the 'track," but some 20 yards further down, and Mr. Firth argued that under such circumstances a correct record could not have been registered.

The defence raised by Mr. Firth was that the timing was quite inaccurate, and that the car, which belonged to Dr. Lawrie, of Harley-street, and was bringing the doctor and a party from Sandown Park races on the day in question, was only going 15 miles an hour.

Mr. Mervyn O'Gorman and Mr. Cozens-Hardy, judges for the Automobile Club, stated that, with Col. Crompton, R.E., they had made a speed test of the car over the same measured eighth of a mile along Kensington Road, and found that the highest speed it attained was 19·7 miles an hour.

LETTERS OF IDENTIFICATION.

BELOW we give the identification marks for the English and Welsh Counties.

Anglesey	E.Y.	London...	A.
Bedfordshire	B.M.	Merionethshire ...	F.F.
Berkshire	B.L.	Middlesex	H.
Breconshire	E.U.	Monmouthshire ...	A.X.
Buckinghamshire ...	B.H.	Montgomeryshire ...	E.P.
Cambridgeshire ...	C.E.	Norfolk...	A.H.
Cardiganshire ...	E.J.	Northamptonshire ..	B.D.
Carmarthenshire ...	B.X.	Northumberland ...	X.
Carnarvonshire ...	C.C.	Nottinghamshire ...	A.L.
Cheshire	F.	Oxfordshire	B.W.
Cornwall	A.F.	Pembrokeshire ...	D.E.
Cumberland	A.O	Peterboro', Soke of ...	F.L.
Denbighshire ...	C.A.	Radnorshire	F.O.
Derbyshire	R.	Rutland	F.P.
Devonshire	T.	Salop	A.W.
Dorset	B.F.	Somerset	Y.
Durham	J.	Southampton	A.A.
Ely, Isle of	E.B.	Staffordshire	E.
Essex	F.	Suffolk, East	B.J.
Flintshire	D.M.	Suffolk, West	C.F.
Glamorganshire ...	L.	Surrey	P.
Gloucestershire ..	A.D.	Sussex, East	A P.
Herefordshire ...	C.J.	Sussex, West	B.P.
Hertfordshire ...	A.R.	Warwickshire ...	A.P.
Huntingdonshire ...	E.W.	Westmorland ...	E.C.
Kent	D.	Wight, Isle of ...	D.L.
Lancashire	B.	Wiltshire	A.M.
Leicestershire ...	A.Y.	Worcestershire ...	A.B.
Lincolnshire, parts of Holland ...	D.O.	Yorkshire, East Riding	B.T.
Lincolnshire, parts of Kesteven ...	C.T.	Yorkshire, North Riding	A.J.
Lincolnshire, parts of Lindsey... ...	B.E.	Yorkshire, West Riding	C.

CASES DISMISSED.

THE adjourned summons against John Rabling, of Guildford Street, Russel Square, W.C., for driving a motor-car at Surbiton at a greater speed than twenty miles an hour, has been dismissed at Kingston, Rabling, who swore that his speed did not exceed eighteen miles an hour, being given the benefit of the doubt. The chairman added that if the charge had been one of driving to the common danger the defendant would have been heavily fined, as to drive at a speed of eighteen miles an hour on a Sunday afternoon along the Portsmouth road at Surbiton was very dangerous to the public.

AT Hexham Petty Sessions, last week, Dr. J. A. Jackson, of Hexham, was summoned for driving a motor-car on the highway at the parish of Newbrough and failing to stop when signalled to do so by Supt. Appleby. Sup. Appleby, Deputy Chief-Constable of Northumberland, said that on Sunday, March 13th, he was driving a dogcart from Haydon Bridge to Hexham. When a little to the east of Bush Cottages he observed a motor-car approaching. It was emitting vapour freely, and as he had a young mare in the trap, and he was afraid that the animal would be alarmed, he held up his right arm as a signal to the motor-car, which slackened speed. When within sixty or seventy yards of the car he again held up his hand, but the car still came on, and when the mare got opposite to it she swerved, and an accident was just avoided. The car was not stopped as required by section 6, article 4, of the Local Government Board regulations. The defence was that no signal was given, and that the car was slowed down to allow the mare to pass. Dr. Jackson, Dr. Smurthwaite, of Newcastle, and Miss J. A. Jackson, who were also in the car, denied seeing Superintendent Appleby make any signal to stop. The case was dismissed.

BEFORE Mr. M'Connell, K.C., Robert Forsyth, a motor-car driver, was indicted for having, by the wanton driving of a motor-car, caused grievous bodily harm to Mrs. Amy Ryder, wife of a cabdriver living at Park Walk, Chelsea. At the close of the evidence for the prosecution the jury thought that although the matter might be one for a civil court, any negligence of Forsyth was not sufficient to substantiate a criminal charge. They therefore acquitted the accused, and he was at once released.

CONVICTIONS AGAINST MOTORISTS.

Andover	Reckless driving	£5 13s.
,, ...	Travelling above legal limit	£1, etc.
Guildford	No number	10s.
Epsom	Leaving car unattended	6s. 6d.
Wallasey	Unilluminated number	20s., etc.
Richmond	No light	20s., etc.
Chester	Riding motor-cycle on foot-path	6d. and costs.
Nottingham	Furiously riding motor-cycle	20s., etc.
North London ...	No light	2s. costs only.
Navan	No identification mark	10s., etc.
St. Helens	Furious driving	Costs only.
Bristol	Furious driving	£5, etc.
Lincoln	Unregistered motor-cycle	1s., etc.
,, ...	Employing unlicensed driver	1s., etc.
Altrincham	Reckless driving	£5.*
Enfield	Exceeding speed limit	£5, etc.
,, ...	Exceeding legal limit	20s., etc.
Stockport	No light	2s. 6d., etc.
Bromley (Kent) ...	No light	10s., etc.
Lytham	Emitting steam	Costs.
Bodmin	No rear light	2s. 6d., etc.
Brentwood	No light	£3, etc.
,, ...	Above legal limit	£5, etc.
Towcester	Driving furiously	£3, etc.*
Slough	No light	10s.
Richmond	Not carrying a lamp visible at a reasonable distance	5s., etc.
Southampton ...	Riding motor-cycle without licence	Costs.
,, ...	Above legal limit	£5.
Malton	No licence	£1, etc.
Brecon	Not stopping when requested	30s., etc.
York.....	Refusing to stop when requested	£5, etc.
Brentwood	No light	£3, etc.
Petworth.....	Reckless driving	10s. 6d., etc.
Cheltenham	Reckless driving	£3, etc.

* Licence endorsed in addition to fine imposed.

A POINT FOR DEALERS.

AT the Leeds Police Court, Thomas Walker, jun., was charged with a breach of the Motor Car Act. Mr. Dalton (Deputy Chief Constable) said that on the afternoon of Sunday, March 20th, the defendant was seen driving a motor-car in Great George Street. The car bore the general manufacturer's identification mark—"U.M. 14"—but Mr. Dalton explained, this mark could only be used under two conditions—conditions which applied to new cars for trial after completion, or cars on trial by intending purchasers. This particular car was not being used under either of the conditions, and was therefore unregistered. This was the first case in Leeds under the new Act. The maximum penalty for a first offence is £20, but the Bench imposed in this case a fine of £2, including costs.

TO CORRESPONDENTS.

All communications intended for insertion in this Journal or relating to Editorial matters should be addressed to THE EDITORIAL DEPARTMENT, MOTOR-CAR JOURNAL, *39 and 40, Shoe Lane, London, E.C., and must be written on one side of the paper only. Letters must in all cases be accompanied by the name and address of the writer, as no notice will be taken of anonymous communications.*

The Editors cannot undertake to return MSS. or drawings, although every effort will be made to do so in the case of rejected communications. Where such are regarded as of value, correspondents are requested to retain copies.

To insure insertion communications and contributions must be in the Editor's hands by Tuesday forenoon of the week in which the same are intended to appear. Disappointment may be caused by non-compliance with this rule, and to avoid this earlier receipt, if possible, is necessary.

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THE

Motor-Car Journal.

VOL. VI.] LONDON, SATURDAY, APRIL 30, 1904. [No. 269.

Published Weekly by CORDINGLEY & CO., 39 & 40, Shoe Lane, London, E.C.

COMMENTS.

THE Motor Volunteer Corps is gaining ground, and during the present visit of the King and Queen to Ireland the members of the corps who are resident in Ireland have been assigned the important and honourable duty of acting as a Guard of Honour and escort to their Majesties, and of conveying their staff. This is the first time the corps also has been given such a distinction, and it is interesting not only as providing a new use for a popular branch of the service, but as evidence of the Royal concern for the future of automobilism.

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Dashwood Hill.

A REMINDER of the old days on Dashwood Hill, when the Premier lunched *al fresco* while the cars rushed up the hill and down again, comes in the report of the hill-climbing contest just held by the Oxford and District Automobile Club. The police have evidently softened their manner towards motorists in allowing such an event to take place, and we hope they will also recognise that, when proper organisation is maintained, there is nothing so very dreadful in such a competition. The course selected by the Oxford club was from the cross roads at the bottom of the hill to the gate at the top, a distance of 930 yards, with an average gradient of one in eleven. In the most severe portions it is one in eight. There were three classes. In that for cars costing about £250, Mr. Biscoe was first on his 10-h.p. Talbot in 2 min. 47 1-5 secs., and in that for cars costing less than the figure already named, Dr. W. J. Turrell's Eagle runabout made the ascent in 2 min. 10 2-5 secs.

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West Ham Club.

ALTHOUGH one of the newest, the programme of the West Ham Motor Club for the coming season is the longest we have seen. About eighty runs for Thursdays, Saturdays, and Sundays have been arranged up to and including October 30th. Although this is practically a suburban organisation, it has already attained a large membership and secured the active support of several leading men in the borough. The idea is to foster and encourage skill in the manipulation, care and control of the automobile, and "to arouse a wider interest among persons, already motorists, in the general efficiency of their vehicles." The club has attached itself to the Motor Union, and under the captainship of Mr. G. Davis, with Mr. A. C. Davis as hon. secretary, promises to become a useful factor in the popularisation of motoring in the eastern suburbs.

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Marine Motoring.

ON Whit Monday, the season on the Norfolk Broads opens with a regatta. This will be held on Oulton Broad, and among the new events will be a competition for motor-boats not exceeding thirty feet overall. The Marine Motor Association rules have been adopted for the contest, and a handsome challenge trophy has been offered by Mr. Maudsley Brooke, which will be known as "the Brooke trophy," the competition for which will be an annual event. From what we can hear, there is already a good list of entries, and this contest will give a new zest to the opening of the season on the Broads.

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In the Sky.

NOT only is the motor-boat season commencing, but the receipt of the programme of the Aero Club reminds us that great doings are likely to take place in the skies during the coming season. The Committee have arranged for members to make ascents in the new club balloon of 45,000 cubic feet capacity. Opportunities will be given for private ascents with friends at any time. The first meet of the club, which will have its headquarters at the Crystal Palace, will be on Saturday next, May 7th, and a programme of the fixtures for the season can be obtained from Mr. E. O. Pope, secretary, at the club room, 110, Piccadilly, W.

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Motor May-Day.

THE Motor May-day will, this year, take place on the last day in April, owing to May 1st falling on a Sunday. A parade of motor-vans will assemble this (Saturday) afternoon at 3 o'clock on the Thames Embankment, immediately to the east of Charing Cross Railway Bridge. After being judged, a procession will be formed, which will proceed down Victoria Street and Grosvenor Place to Hyde Park Corner, where it will be disbanded. We understand that close upon 100 vehicles are anticipated, which speaks well for the growth of the motor-van industry since the early days when practically every heavy motor-vehicle could have been got into the Minor Hall at the Motor-Car Exhibition at Islington.

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Beyond Experiment.

THERE is no doubt that the commercial aspect of automobilism will have to be even more closely considered than has hitherto been the case. The number of motor-vehicles in use for the transport of goods, the conveyance of produce, and municipal work is increasing every week, to the undoubted advantage of British industry, which leads in this particular branch of the business. Fortunately the firms engaged in the manufacture of these heavy vehicles have been able to study the problem from a practical point of view, with the result that local authorities, as well as the great distributing houses, recognise that heavy motor traffic has got beyond the experimental stage.

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Educating the Public.

THE idea of an annual demonstration of the advance that has been made is worthy of encouragement by all users of such vehicles. In London a few hundred motor-vans can be scattered about the various suburbs without making any appreciable impression on the minds of the public. But when such vehicles are brought together in parade the importance of the transition now being wrought becomes apparent to the man in the street, and conviction as to the utility of the innovation is

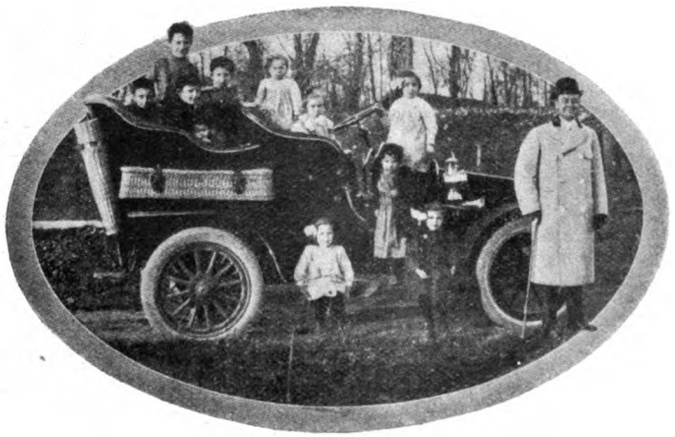
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hastened. Just as the early meets of the A.C.G.B.I. were useful in familiarising folks with the outline and appearance of automobiles, so will a succession of May day parades do much to popularise the heavier form of motor traffic.

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THIRTEEN motorists summoned for various alleged offences have appeared at the Haywards Heath Petty Sessions. In court was a display of the methods and the men by whom they were captured. The electrical apparatus used by the police was produced, fully explained, and worked upon the solicitors' table. The police operating the apparatus were Sergeant Suter, P.C.'s Waghorn, Huntley, and Rummery. Mr. Lawson



Mr. John Farson, the President of the Chicago Automobile Club, believes in educating the American youth to the joys of motoring. The above illustration shows a party of youngsters on their return from a ride in Mr. Farson's Winton car.

Lewis appeared in support of the summonses, and Major Lang, Chief Constable, was in court—an array of force showing how determined the police were to secure verdicts. Their solicitor commenced by saying that proceedings had not been taken unless the motor-cars had exceeded a speed of twenty-five miles an hour, and in measuring the furlong several yards had been thrown in, so that it could not be said there was a possibility of mistake. Three licenses were endorsed and not a motorist escaped penalty.

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Birmingham and Motor-'buses.

A CORRESPONDENCE eulogising motor 'buses as against tramcars has broken out in the Birmingham newspapers, and should be useful in pointing out the merits of the automobile to the local authorities of other Midland towns. Everywhere it is being recognised that the old-fashioned 'bus must go, that the motor vehicle has more adaptability, occupies less space, secures greater speed, and is, in every way, an advantage. Under these circumstances, and having regard to the connection of the Midlands with the motor-car industry, we look to makers of cars to assist those who are now doing something to popularise the motor-'bus with the public.

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Up Porlock Hill.

APROPOS our paragraph concerning the famous Porlock Hill, it may prove useful to our readers to know that there are two methods of performing the ascent. One is, of course, by the old road, the other by the comparatively unknown new road. In the former instance, the condition of the ground makes the ascent a somewhat fearsome task. The new road, which is only open on payment of a toll, offers a stiff but gradual climb from the level to the inclined plane. The going is, however, fairly good. It is a glorious climb, the road, perilously narrow, following a zig-zag path amidst scenery which reminds one of Switzerland. The view of the Bristol Channel and the run across Exmoor are superb. Mr. Louis Vincent accomplished the journey on a 10-h.p. Lanchester in the company of Mr. Gilbert Fabian and Mr. A. H. Vincent, in the course of a tour in Devon and Cornwall, without a hitch. The Automobile Club might with wisdom follow the example of the C.T.C. in the way of guide posts, as in the case of the Porlock Hill the existence of the new road is only known to a few, and Mr. Vincent informs us he learned of it through the courtesy of a member of the Devon and Exmoor Staghounds. Should this paragraph meet the eye of any of the members of the "Hunt," they might accept his apologies for the stampede which his presence caused among the animals, and which is thus conveyed through our columns.

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A Census of Cars.

A PARLIAMENTARY return will shortly be issued showing the number of motor-cars (distinguishing motor-cycles from other cars) registered by each registering authority in the United Kingdom under the Motor-car Act of 1903 up to the first of April, and the number of licences under the Act granted to drivers under the same Act, distinguishing between cycles and other motors. Since we gave a complete return of the first month's registration, no effort has been made to keep a tally of the automobiles in use, and the figures that have lately been published are mere matters of conjecture. Some interest therefore attaches to the new return, the issue of which will be awaited with considerable curiosity.

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A 2,000 Mile Run.

ON Saturday midnight Mr. Cecil Edge started on a two-thousand mile run on a 15-h.p. Napier. The ride is undertaken to specifically try under severe conditions the new synchronised Napier ignition, the new Napier carburettor, and the new system of building up cylinders with copper jackets



The Napier starting on its 2, 00-mile run.

formed by an electrical process. Mr. Edge will be relieved at the wheel from time to time by Mr. F. G. Cundy, but both of them will remain on the car throughout the journey, which will consist of a run from the Automobile Club, Piccadilly, *via* Land's End and John o' Groat's back to Brighton, and then to the Automobile Club. It is in no sense a speed competition, but purely one to test various parts of the motor-car in a way that will, if it is possible to make them fail, do so. They will run without attention from start to finish.

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Discretion Wanted.

THE police will have to temper justice with discretion, or they may ultimately find themselves in difficulties. The other day a constable in the East End, in the officious discharge of his duty, watched the driver of a motor-van go into a house of refreshment. There was no extraordinary delay, but, filled with enthusiasm for his calling, he determined on a charge. Fortunately the driver had taken every precaution against the motor being started, so that the scheme of Sir Robert availeth nothing. As will be seen from the report elsewhere, the case was rightly dismissed.

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Lady St. Lawrence.

AMONG lady drivers of motor-cars is Lady Geraldine St. Lawrence, whose photograph we have pleasure in reproducing herewith. On her 12-h.p. Darracq she has travelled over 5,000 miles since February of last year, touring about Bournemouth, Eastbourne, and the south coast, as well as through Kent and Hertfordshire. From her place at Windsor she generally comes to London by motor-car, rarely indeed falling back on the train, which she regards as a somewhat primitive form of locomotion. The present car is her ladyship's second automobile, and she has rapidly developed into one of the most enthusiastic of lady motorists.



Lady Geraldine St. Lawrence on her Darracq Car.

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Motor-car Literature.

ALREADY the number of books devoted to the automobile has assumed fairly formidable proportions, and of the making of these there is apparently no end. The third edition of Messrs. Lewis and Porter's "Law Relating to Motor-Cars," published by Messrs. Butterworth and Company, has just reached us. As we hinted on the publication of the first edition of this handy volume, it gives a lucid idea of the state of the law with regard to the motor-car. Not only are the Acts of 1896 and 1903 given, but the regulations of the Local Government Board are also included in the volume, which has a useful index. In view of the many cases which have been before the courts during the last few weeks, the work is one which should become quickly popular among motorists.

No Costs to the Police.

AT length Mr. Lane, K.C., has concluded the hearing of the case against a motor-car driver which Mr. Staplee Firth has stoutly defended on three or four occasions. Two police-constables swore that, standing twenty yards below the end of a measured distance of two hundred and twenty yards, they timed the car with stop watches and found it was going at the rate of twenty-eight miles an hour. Mr. Firth, for the defence, called witnesses to prove that according to their opinion the car was not travelling more than fifteen miles an hour. Moreover, an expert test of the capabilities of the car was made by Colonel Crompton, R.E., Mr. Cozens-Hardy, and Mr. O'Gorman, and they stated that the highest speed attainable was nineteen miles an hour. The magistrate, in giving his decision on Monday, remarked that the circumstances in which the police had to conduct such trials must involve a very considerable margin for error. He was bound to say he agreed with a remark dropped by Mr. Firth, to the effect that such methods pursued by the police must give rise to great embarrassment. He thought the weight of evidence, however, in this case rested with the police, and he therefore convicted. A fine of £3 was imposed, his worship refusing to grant costs to the police.

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Useful Defences.

ALTHOUGH the police secured a verdict they did not gain their costs—a poor sort of victory, in which their position was most unpleasant throughout. Motorists who take a bold stand against the police in such cases have to waste much time and sacrifice more than the public knows; but they are rendering good service to their fellow automobilists, and are to be congratulated even when they are defeated on such terms as were inflicted in the West London court.

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Duty Free Alcohol.

THE Society of Chemical Industry met recently in Burlington House, London, to hear a paper by Mr. Thomas Tyrer, a past president, on the need of duty-free alcohol for industrial purposes. There is an over-production of spirit from grain for whisky, and owing to the surplus supply

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some Scotch distilleries have had to shut down. This surplus, it is contended, could be advantageously used by our manufacturers, if the Government would grant a similar privilege to that extended by the German Government to the manufacturers in the Fatherland and free spirit from duty for industrial purposes. A movement is growing in America to remove excise restrictions, so that the makers of commercial articles can compete with the other nations, and it is claimed by English chemists that the removal of existing restrictions on raw material and surplus spirit would be of great advantage to our national commerce.

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A Fenland Compromise.

MOTOR-CAR drivers are not likely, after all, to be excluded from the main road from Spalding to Crowland after dark. As this runs along a bank, it was considered that the driving of motor-cars at night would be a highly dangerous proceeding, and it was proposed to prohibit the motor traffic. With certain restrictions, however, as to lights—one being placed at each end of the road, and one in the middle, so that they shall illuminate the notice boards—and a speed limit of ten miles an hour, the special committee of the Holland County Council now recommend to the Local Government Board that the road in question shall be open to motorists as to other vehicles. This is a compromise which should be fairly satisfactory to all parties; for, although local drivers might object to the closing of such roads, they are certainly somewhat dangerous to strangers unaware of the proximity of the drains that still exist in the Fens.

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In the Park.

IN the House of Commons Mr. Bull has asked Lord Balcarres whether he was aware that in some of the roads in Hyde Park motor-cars were not allowed, but that such roads were only indicated by a regulation in small type on a general notice board, and whether, to avoid constant mistakes by motorists coming for the first time to the park, he would cause conspicuous notice boards to be placed at each end of these prohibited roads stating clearly that motors were not allowed. The First Commissioner of Works has made inquiry, and, according to Lord Balcarres, he regrets that he cannot agree that the present arrangement is unsatisfactory. There are constables on duty at either end of the prohibited road. They have experienced no difficulty, and are much more efficient as a warning to motorists than any notice board. Such, at least, was the official view.

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The Eliminating Trial.

INTEREST in the Eliminating Race to decide the British team for the Gordon Bennett contest is being intensified as the day draws near. The following is the order of the competitors' positions in the race to be held in the Isle of Man on May 10th:—Mr. Stocks, Napier; M. Edmond, Darracq; Mr. Hargreaves, Napier; M. Hemery, Darracq; Mr. Earp, Napier; Mr. Muir, Wolseley; Mr. Edge, Napier; Mr. Girling, Wolseley; Mr. Rawlinson, Darracq; Mr. Jarrott, Wolseley; and Lieut.-Col. Mayhew, Napier. On Wednesday five hundred yeomen were sworn in by the Manx magistrates, to police the roads for the Gordon Bennett Eliminating Trials in the Isle of Man. They took the oaths of allegiance to the King and the Governor of the Island. On Thursday next the Governor of the Island, the Council, and the members of the House of Keys will go in motor-cars for the historic ceremony of promulgating the motor-car law on Tynwald Hill.

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In Norway.

MR. AND MRS. C. J. GLIDDEN, of Boston, U.S.A., who are now in London, have visited four thousand cities, towns, and settlements on his automobile. Apparently his most serious troubles have been in the north of Europe. The serious restrictions which were sought to be imposed in Norway prohibited anything like motor-car touring in the country. One was that they must send a man ahead on horseback to say that they were thinking of approaching a certain place. Another was that notification should be sent to the sheriff of each place of the exact time when they would pass through. Then they were expected to publish in the newspapers several weeks in advance the route of the proposed journey. There were other foolish regulations too numerous to mention. Mr. Glidden was turned off and drove through Sweden instead. There they had four in the car, having taken an interpreter on board. North of Stockholm, for a thousand miles, the people had never seen a motor-car before. Mr. Glidden was the first person who had ever crossed the Arctic Circle in one. The Norwegians will be sorry for their opposition to the automobile sooner or later.

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Blackheath Club.

THE Blackheath Automobile Club was formed at a meeting held on Wednesday. The following were appointed to the committee: Dr. J. Strickland Goodall, Messrs. L. Beadle, H. Cunis, A. Duckham, L. C. Lambert, H. Norfolk and S. Norfolk; treasurer, Mr. W. O. Bedford, R.N.; hon. sec., Mr. A. Roberts, Madgelands, Beaconsfield Road, Blackheath, S.E. The inaugural run will take place to-day (Saturday). Local motorists will assemble at 2 o'clock in Beaconsfield Road, Blackheath, round the small Green, opposite Ingleside Grove, where they will be marshalled. The cars will then proceed to Crown Point, Seal Chart, near Sevenoaks, by any route at drivers' option. Tea will be taken at the Sir Jeffery Amherst Hotel at 5 o'clock, the return being commenced at 6.30 o'clock p.m.

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Australian Advance.

THE first motor-car to travel the Bega district of New South Wales caused a mild sensation. Mr. Levy, representing Messrs. Hoffnung and Company, of Sydney, has travelled in this car through the Milton district. Then from Nelligen up the Nelligen mountain on to the tableland, making from Braidwood to Cooma, and through Monaro, and down the Big Jack Mountain, which is considered the steepest grade in the southern district. Hills and mountains were negotiated quite comfortably, and this is an important step towards dispelling the idea that motor-cars could not traverse the hilly roads in the Coast district. The question of providing a motor-car to convey the mails between Cooma and Bega is now being considered by the Federal postal authorities, consequent upon the agitation of the Bega Vigilance Association, and the recommendation of the New South Wales Railway Commissioners, who suggested a motor-car service some time ago to accelerate the mail service to Bega, which would mean a saving of twenty-four hours between Bega and Sydney.

A MOTOR-CAR service from Ballater to Balmoral, *via* the Bridge of Gairn, Abergeldie, Crathie, Inver, and Bridge of Dee, is being started.

AS we go to press we learn that there is a probability of another alteration in the course for the French Gordon Bennett eliminating contest.

A GOLD medal for motoring and sporting clothing has been awarded to Messrs. Alfred Dunhill, Limited, at the Crystal Palace International Dress, Clothing and Textile Exhibition.

SNAPPING of a chain and punctures delayed Mr. Cecil Edge in reaching Inverness, but repairs were effected without stopping the engine. On Wednesday afternoon he passed south through Carlisle on his way to London, where he was due early on Thursday morning.

DURING the period from March 23 to April 20 the London Council registered 261 motor-cars and 294 motor-cycles, making the total number of cars and cycles registered in London 2,914 and 2,063 respectively. The total number of licences and general identification marks issued is 7,195 and 247 respectively.

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THE SIDE-SLIP TRIALS.

WITH THE COMPETITORS ON MONDAY.

MONDAY morning broke fine and bright, about as unpropitious for side-slip trials as could well be, had it not been for the occasional efforts of district authorities to provide a suitable surface with the aid of water-carts. But neither competitors nor Observers objected, and our contentment was great when the ever urbane technical secretary indicated the luxurious Roi des Belges tonneau of a fine 15-h.p. Panhard as our abiding-place for the day. Its tyres and non-skidders looked sensible, and the driver correctly, as it turned out, expected no trouble from them. But we cannot help a suspicion that he was aware that, in default of the ubiquity of Sir Boyle Roche's bird, a car that completes its journey rapidly and uneventfully is not the best place from which to see the incidents of a trial, and a whisper connecting our vehicle with "two o'clock on Sunday morning," from some who had been on last week's runs was somewhat disturbing.

Few participants seemed to have a much better idea of time than a Surrey policeman, and it was long after ten before most of the cars had started, these including a 10-h.p. Georges Richard with the L'Empereur link covers, the Billet, the Parsons, the Wilkinson, and the Vivian, whose driver, we were glad to hear, was able to take part in the run in spite of his bad spill on Saturday. There were also the mechanical devices, the Sainsbury, showing some wear on the cover from the forked blades, the Nicholson, somewhat similar in principle but retractible at will, and not touching the tyre, and the two devices which depend on trailing metal discs; also a posse of motor-bicycles, the riders of which, with their observers on cars, seemed to have a good deal of mutual anxiety.

Shortly before eleven we got off, and made good running through the traffic, several sudden stops on wet tramlines demonstrating the advantage of roughed tyres, and after passing the Nicholson 12-h.p. Star running steadily, and the Parsons stopped by the roadside, at half-past eleven, we began to indulge in hopes of getting back to the club to lunch.

Alas! it was not to be. At Colnbrook we overtook a long procession of carts, in close order, and when half way along perceived a cart entering the narrow passage left at the other end, fifty yards ahead. Stopping immediately, we expected it to do the same, but the carter, who seemed to have been making experiments prompted by Dr. Ormandy's recent paper, whipped up and tried to pass by driving on the path, colliding with our off Bleriot, which was not strong enough to stand the strain, and driving our car twelve feet back. One of the spectators proved to be the local police superintendent, who after much difficulty succeeded in eliciting the carter's name, which, with the subsequent formalities, detained us some time.

Ten minutes after starting further trouble began—the pump leather was nearly gone, and before reaching Slough had quite disappeared. Fifty minutes in that interesting old town, while a bootmaker repaired damages; meanwhile the cars we had passed went by with looks of complacent sympathy. Finally we got on the move again, but not for long; at the Yew Tree Inn, on the Slough-Beaconsfield road, the engine went on strike, and a steep hill intervening between that place and Beaconsfield, there was nothing for it but another overhaul, which revealed valves entirely gummed up, the result of lubricating them with oil. When the eight had been attended to (possibly six and eight-cylinder engines may have their drawbacks) we got off again, a Wolseley and the "Billet"-tyred car with its bicycle having passed us in the interim, as well as the big motor omnibus which plies on that road, whose offers of assistance we politely refused. We were now going, though feebly, just managing to surmount the danger-boarded hill; but matters improved a little, and, with another short stop or two, we got home without a breach of the law. Here we found the Billet, reporting little except the breakage of one securing wire, and the loss of its attendant bicycle, which we were unable to give news of, and having business which did not allow of a possible midnight return, turned over the car to another Observer for the second round, and waited for the further arrivals at the garage. The first proved to be the Georges Richard, with L'Empereur covers, which had done its two rounds without a hitch, at a good legal average, while a little later the Benz-Parsifal with Vivian treads turned up, but it was only its first lap. The driver, however, was unequal to another round, as we heard, after his accident last week, and had to retire. Further waiting brought no news for some time, and we left with the fate of those on the road still undecided.

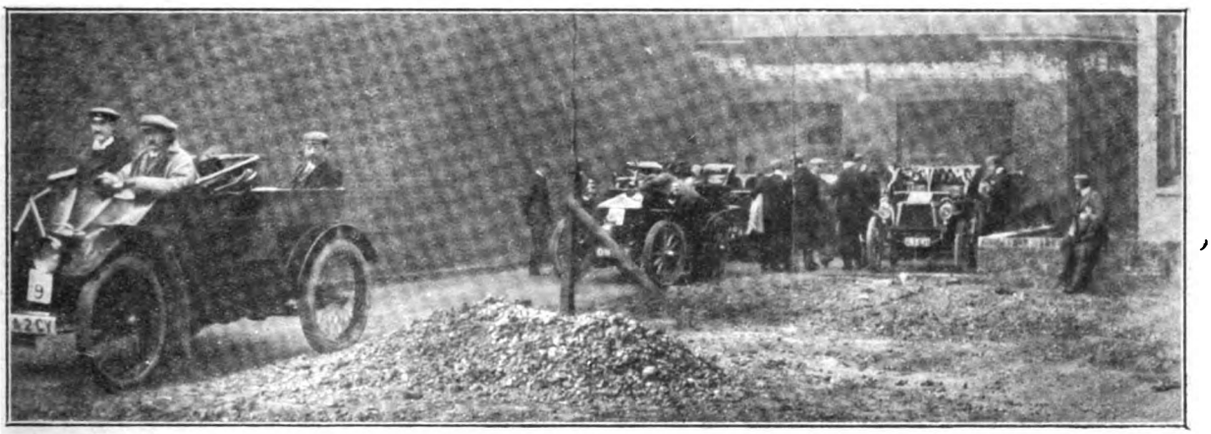


Photo by The Cars leaving the "Locomobile" Garage. [*Mr. A. E. Perman*

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MR. W. MAITLAND EDWARDS withdrew from the Side-Slip Trials because his own car broke down at the last moment. Mr. Eadie very kindly lent him a Royal Enfield car, which went through the trials admirably, but the tyres were smaller than the tyres for which Mr. Edwards had made his non-skids, so that he had to hurriedly rush through a pair of other covers to fit these smaller tyres in about three hours. The result was that they were so imperfectly constructed that they would not stand the wear and tear on the road that they were required to do. Thus it will be seen that the reason of withdrawal was simply faults caused by hurried construction, and had nothing to do with the design. Owing to there not being time to make another pair of covers with which to complete the road journeys, the Edwards is not available for the actual side-slip contests.

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THE Midland A.C. entertained the officials connected with the A.C.G.B.I. side-slip competition to a dinner at the Grand Hotel, Birmingham, on Thursday of last week. A large party were present, including the president of the club—J. Broughton Dugdale—Sir J. H. Macdonald, W. Ballin Hinde, Alfred Bird, J. Holder, Rees Jefferies, Basil Joy, T. C. Aveling (hon. sec.), E. A. Stephens, C. P. Type, Hamilton Barnsley, Dr. Wingfield,

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Major Lindsay Lloyd, H. Luff-Smith, A. Johnson, Pinsent, Lawrence and E. C. Lord. Dinner over, an adjournment was made to the motor garage to inspect the various non-slip devices. Ample assistance was given by the club members in piloting the competing cars through the Birmingham streets, and additional services were rendered by Mr. E. A. Stephens, the following day, in carrying members of the Press and also piloting the car through Coventry *en route* for Nottingham. The Wolseley Co. also sent a special car over to Coventry for this purpose.

THE hill-climbing contest of the Herefordshire Automobile Club has been postponed from the 3rd to the 10th May, the day of the Gordon Bennett race.

WE learn that a public service of motor-cars is to be inaugurated early next month between Wimbledon station and the Polytechnic estate. A 15 minutes' service will be maintained in both directions.

WHILE a motor engine was proceeding to a fire at Liverpool, the wheels skidded on the tram lines, causing it to swerve violently against an electric standard. Several firemen were thrown off and badly injured, while the motor was partially wrecked.

THE COST OF OPERATION.

ACCORDING to a popular idea motor-cars are an expensive luxury—"the toys of the rich." The great attention which is now being paid to cars for "men of moderate means" has, however, done much to remove this impression, and with the rapidly growing number of vehicles available at a popular price, queries as to the cost of running and maintaining the same are frequently being received. The cost of keeping a motor-car may be divided up into several factors, as follows: Cost of operation, maintenance and depreciation. A complete account of the cost would, of course, also include interest on investment. It is this combined cost of operation, maintenance, etc., that especially interests the user and prospective owner. Any one of the separate items is of little value, especially the item of operating cost, which is always small as compared with the figures of maintenance and depreciation.

It is, of course, too early for much information on this subject to be available, as to figure the average cost per mile during the life of a vehicle the latter must be run till it is completely worn out, or at least so far run out that its further use is commercially impracticable. Few vehicles have reached this state, and those that have are to-day out of date, and it would be unfair to draw conclusions as to the cost of keeping an up-to-date vehicle from the cost of keeping these.



Photo by] The Side-Slip Trials.—The Motor-Cars and Cycles Preparing to Start on Thursday of last week. *[Argent Archer.*

ANOTHER motor-car trip from San Francisco to New York is to be attempted during the coming summer. The run is to be undertaken by Mr. B. Holcomb, who will drive a 30-35-h.p. Columbia petrol car built by the Electric Vehicle Company, Hartford, Conn.

THE other day we had an opportunity of going over the large and well-equipped motor repair works which have lately been established in Croxted Road, Herne Hill, S.E., by Messrs. F. Garner and Company. Not only has plant been installed for the repair of all kinds of cars but a motor-body building department has been added, while storage accommodation is available for about twenty cars. Needless to add, a supply of petrol, motor oils and accessories is kept on hand.

MR. ANDRE A. GODIN, the British agent for the Dinin ignition accumulators, has just issued two useful pamphlets relating to these batteries; one refers to accumulators filled with acid for motor-cars, and the other to batteries filled with solidified electrolyte for use on motor-cycles. The booklets have been specially prepared to give all information to motorists who use these batteries. They give full details respecting the treatment and charging of accumulators as well as many useful hints of a general nature. Users of Dinin accumulators would do well to obtain a copy of the pamphlets, which will be furnished gratis.

A factor of great influence upon the expense will always be the care of the owner. In this connection we would, states the "Horseless Age," quote M. Michelin, the tyre manufacturer, who states that 60 per cent. of the tyres returned to his factory for repairs or to be exchanged have been injured solely through the carelessness of the drivers. Excessive speeds are most trying to all parts of the mechanism—a fortunate condition in one respect, as it is bound to put a check to the speed craze. The careful owner who avoids excessive speeds, the ruts and obstructions of the roads, and who forestalls as much as possible all accidents by proper attention to the lubrication and regular inspection of all parts subject to wear or liable to come loose through the vibration, will, in all probability, succeed in running his car at a much smaller cost and with more general satisfaction than one who does not take these precautions.

We have given accounts of the cost of operating cars in several previous numbers. As this factor is dependent upon so many variable conditions, it is, of course, desirable to have the experience of many users, aud we take this opportunity of stating that we are always glad to receive communications bearing on this subject for publication in the *Journal*.

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THE OPENING MEET OF THE SCOTTISH AUTOMOBILE CLUB.

[By Our Special Correspondent].

A SARCASTIC Southerner once remarked "Glasgow was a first-rate place to get out of," and if there was a sly hit at its grey streets and many chimneys, it is very true from the point of view of the ease with which its citizens can readily transport themselves by road, rail, or river to the most beautiful and romantic parts of the country. This never came home to me more vividly than on Saturday last, when in quest of the owner of a fast car with whom I was to attend the opening meet of the Scottish Automobile Club at Callender.

Leaving Glasgow early in the forenoon, we had a capital run north, *via* Cambernauld and Denny, and past the famous field of Bannockburn into Stirling. The day was dry and clear, and as we approached Stirling the scene was very fine—the Castle Rock and Wallace Tower in front, while the clear outline of the Ochils stretched to the right and the snow-clad peaks of the nearer Grampians were conspicuous to the north and west. We sped gaily right through the busy county town, up the banks of the Forth, and along one of the best motoring roads in the country, straight, level and wide for several miles, into Doune. We smiled as we remembered an incident that happened here on a fishing excursion with a friend on one occasion. He had toiled all day and had still an empty basket when a man hailed him, and, after inquiring as to his success, shared a full basket of fine trout. Our companion at the inn door later in the evening pointed out the man to "mine host" as the keeper who gave him the fish, and was aghast when told that his benefactor, whom he had tipped with half-a-crown, was a peer of the realm and a large local proprietor. We could fancy the mirth at his lordship's dinner table that evening.

A pleasant run on the switchback road along the Teith brought us to Callander in good time for lunch, and at the Dreadnought Hotel I found we had been anticipated by many cars. Many well-known motorists were to be seen. Mr. Adams, the chairman of the Western Section, was just getting out his Wolseley, Mr. R. J. Smith, the honorary secretary, Mr. John Ross, Councillor McFarlane, Edinburgh, Mr. Hugh Reid, Mr. Lobnitz, and Mr. Holms Kerr being among the well-known figures, and we noticed the Compte Louis de Clerq, wearing the badge of the French Club, on a pure white Gillet-Forest car. It was quite a representative gathering, comprising about fifty cars, and as they all were well laden, well nigh 200 ladies and gentlemen.

After lunch we spent a pleasant hour talking petrol with friends and examining the vehicles. There was a wide range—Panhards, Daimlers, De Dietrich, Darracqs, Wolseleys, Napiers, Humbers, Talbots, Peugeots, and, as is to be expected among over a score different makes, a goodly show of Glasgow Argylls, Albions, and Arrol-Johnstons, as well as one—to us—new Glasgow car, the St. Vincent.

The advent of so many vehicles created quite a stir in the little tourist resort, and a number of the visitors, of whom there are few at present, inspected them during the afternoon. Callander is an ideal place for a meet. It is central and is accessible from both Glasgow and Edinburgh, both of which cities were well represented on Saturday, is at the gateway of the Highlands, and the rugged grandeur of the surrounding Bens give an impression of solitude and majesty which is difficult to reconcile with a breakfast near Glasgow Bridge two or three hours before.

Some of the party left early, to go further north and return to the city of St. Mungo by Glen Ogle, Glen Falloch and Loch Lomond. We took the hill road to Thornhill to Aberfoyle and found there again quite a small motor meet, many having elected to visit the Clachan for tea, and there, in the Bailie Nicol Jarvie Hotel, the experiences of the day were discussed. There was really not much to discuss. The days of breakdowns are over. On Saturday we scarce heard of a tyre trouble, and let me here say this that was not the fault of certain of the road authorities. For five miles we drove over certainly a bye-road, new metal patches, and up one place we had to go right through a stretch like an open quarry. If these are the County Councils, who have received no encouragement from Mr. Graham Murray for their restrictive proposals, coals of fire for automobilists could be better represented than by undressed macadam.

My host landed me safely at my door just as darkness set in, and I was able before leaving him to congratulate the Club on the success of their opening meeting, and to drop a hint that I would not object to be a regular guest. The policy of the Club in arranging their runs to such and to so many parts of the country must have much value in accustoming the rural population to motor traction, and have a powerfully educative influence generally.



A Trio of Motoring Doctors—Dr. Du Beauvais, Dr. Sharp and Dr. Gilpin—at the Meet of the Lincolnshire Automobile Club at Grantham.

AT a meeting of the Derbyshire County Council, the Highways Committee reported that consideration had been given to the provisions of the Motor Car Act, 1903. Returns had been obtained from various local authorities, from which it appeared that the number of posts required for the county under section 10 of the Act was about 2,000, and the probable cost of erecting such posts would vary from 10s. to 20s. each. The Committee recommended that no action be taken with regard to the posts for at least one year.

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THE HIGH-TENSION IGNITION SYSTEM FOR PETROL MOTOR-CARS.

By J. W. Frings.

(*Continued from page* 178).

ACCUMULATORS.—On the other hand, accumulators with careful use, improve with each successive charge and discharge, and may reasonably be expected to give some years' constant service. The internal resistance of an accumulator being extremely low—practically nil, in fact—it is very necessary that great caution should be used to avoid short-circuiting it, *i.e.*, the resistance of the coil should always be included in the external part of the circuit for the current to traverse. All accumulators, as was inferred under "Ampere," are constructed to charge and discharge at a certain rate. A certain number of hours is necessary to permit the chemical reactions in the paste to be effected without danger of damage to the grids, or plates, and if these changes are hurried, either in charging or discharging, beyond a certain limit, the rapidity of the reactions forces the paste out of the grids and the latter buckle and bend under the stress. The voltage of the accumulator, as well as its discharge rate, is more constant than that of the dry battery, so that whenever a convenient means, at a reasonable cost, of recharging exists the accumulator is to be preferred. An accumulator which consists of two separate cells connected in series should show a voltage of about 4·4 when fully charged, its ampereage capacity depending, of course, on the size of the plates. As the charge is withdrawn from the battery the voltage falls, but not in proportion, as will be shown. Assuming the charge to be thirty ampere-hours, it will be found that one half that charge may be withdrawn with only a fractional fall in voltage, say to 4 volts, but after that point has been passed the fall in voltage is far more rapid, till it drops to 3·8 or 3·5, at which figure the battery may be considered to have been discharged as far as is advisable. Many authorities contend that it is best to withdraw no more than 25 per cent. of the total charge from the cells before recharging, but with care 75 per cent. of the charge may be withdrawn if the cells be recharged immediately. If it is desired to leave accumulators out of work for some considerable time, they should be fully charged before being put aside, and it is desirable, in any case, to give a small recharge, whether working them or not, at intervals not greater than a month. There is a constant tendency on the part of the cells to discharge themselves automatically, and when this is not neutralised, by recharging, sulphating of the plates—an inimical reaction of the paste—occurs, which interferes seriously with the capacity of the cells until remedied by continued charging at a low rate. The normal discharge rate through a well-constructed coil, which, by its resistance, reduces the discharge, will be about half an ampere, so that if a battery of 40 ampere-hours capacity be used with this discharge rate, and one half or rather more of the total charge be withdrawn, the accumulator will work the ignition system, with continuous discharge, for 40 hours or more. But as there are intermissions—breaks in the continuity of the current supplied for ignition purposes—probably nearly double this number of hours' work could be obtained. In the construction of the accumulators it is necessary to have spaces between the plates for the electrolyte to function as one of the elements of the cell, and herein lies the possibility of short-circuiting internally, by undue vibration as well as excessive discharging. When the paste, which, in forming the cells, is forced into perforations in the lead grids under great mechanical pressure, drops to the bottom of the cells or lodges between the plates, it forms a bridge for the passage of the current and destructive discharge. In justice to the makers it must be said that the accumulators as usually made stand wonderfully well the enormous shocks and incessant vibration to which they are subjected on motor-vehicles. Recent advances in construction have been made by "armouring" the plates, *i.e.*, protecting them from the possibility of dropping paste particles, occasioning a short circuit, by sheets of finely perforated celluloid closely attached to the plates, the perforations allowing a free circulation of the electrolyte. The greatest danger of injury, buckling the plates by external short-circuiting, is, however, only partially obviated by this armouring, and the experiment, too frequently made, of endeavouring to ascertain what charge, if any, remains in the battery by connecting the terminals with a stout wire or good conductor should never be indulged in. Neither should an amperemeter—an instrument for measuring current strength—be coupled direct across the terminals of an accumulator, affording as it does a path of practically no resistance, in other words, a short circuit, and allowing the accumulator to discharge itself at many times its correct discharge rate.

The Induction Coil.—This is perhaps the least understood of the various items of the ignition system. Its particular function is to "create," by induction, a high-tension discharge across the gap at the sparking plug. The coil itself consists of at least four important elements, and, in the case of a trembler coil, of an additional one, the vibrator, or trembling contact breaker. The four elements which comprise the coil proper are the iron core, the primary and secondary windings and the condenser. The primary circuit consists of a number of turns of fairly stout insulated wire wound spirally and in superimposed layers around a bobbin within which is placed the core, the latter, when the current is allowed to circulate in the primary, becoming a powerful electromagnet. The passage of a current through a coil of wire creates a magnetic field throughout its immediate vicinity. Such a coil is termed a solenoid, and possesses all the properties of a permanent magnet with the important difference that the magnetism is wholly under control, and ceases entirely when the circuit is opened. The strength of the magnetic field, and consequently of its inductive capacity, is proportional to the number of turns of wire and the ampereage of the current which is flowing. If, whilst the current is circulating in the turns of a solenoid, a mass of iron is introduced within the coil, it is found that the intensity of the magnetic field is increased enormously, this being due to the fact that iron has less magnetic resistance than air, or a greater conductibility for the lines of magnetic force, in the ratio of one to two thousand. If the core be a solid piece of iron, "eddy" currents are produced in its mass, so that it is usual for the core to be constructed of a bundle of soft iron wires, each lightly insulated from the other, and the whole pressed into a cylindrical form. As has been said, the strength of the magnetic field is proportioned to the number of turns and strength of current circulating in the solenoid, so that it is advisable to have as many turns as possible, without opposing too much resistance to the current flow in the primary circuit, the complete path of which embraces the whole of the low-tension wiring—the lightly insulated conductor—and which passes in turn from the battery through the primary windings to, and through, the interrupter and switch and so back to the battery. It is now obvious that whenever the primary circuit is closed an extremely powerful magnetic field is created in its vicinity. Whenever a magnetic field is introduced into a solenoid an induced current of contrary direction is created in that solenoid, and with each make and break in the generating circuit a reversal of direction is given to the induced current in the adjoining solenoid. The potential difference of such induced current is directly proportional to the number of turns and inversely proportional to its proximity to the locality of greatest intensity of the magnetic field. It follows, then, that in order to secure the highest efficiency in the secondary discharge—in which current strength (ampereage) is of no importance compared with difference of potential (voltage)—this result will be best obtained by a great number of turns—many layers of very fine insulated wire wound around the primary coil as closely as efficient insulation of turn from turn, as well as of layer from layer, will permit.

(*To be continued.*)

Mr. Lambert, of S. R. Bailey and Lambert, Limited, has been ordered by his doctor out of England for a few months. In future all business of the firm will be transacted from Pelham Street Garage, South Kensington, W.

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GORDON BENNETT RACE NOTES.

THE course for the British Eliminating race has been finally decided. The start will be from the level, at the Quarter Bridge, and the finish will be on the level in front of Mrs. Fuller's house, on the road leading from Bray Hill, past the foot of Brunswick Road, to the Quarter Bridge. The "control" places include Ballasalla, Castletown (from the railway station to the Malew Road), Ramsey (from the Windmill to Mayhill), and the sharp turn at Watterson's (Tromode, near Douglas). By the permission of Mr. Oates, Cronk-ne-berry, several nasty corners have been removed from the course on the approach to Douglas, by the road from Cronk-ne-Mona to Watterson's Tromode. This improvement in the road will be permanent, and makes one of the advantages which all classes of horsed vehicular traffic will derive from the arrangements for the motor races. For the purpose of providing stands to view the race, the Town Council have secured all the fields between the foot of Bray Hill and the Quarter Bridge.

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THE Mayor of Douglas has declared that all the dates are now positively fixed—the 10th of May for the British eliminating trial over the course already fixed; the 11th of May for the hill climbing contests; and the 12th of May for speed tests. Subject to arrangements for barricading, etc., being made with the Douglas Town Council, the speed tests will be along the Douglas Bay Promenade. The venue for the hill-climbing contest has not been fixed, according to latest advices.

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MANY persons anxious to have the best view of the races are wondering what point of the course to occupy. Snaefell will certainly be a favourite place, there will be plenty of room and to spare, and, if it be a fine day, Pen-y-Phot will be hard to beat for a comprehensive view. The Keppel Gate will be another good point, and, it should be added, there will be electric cars running to Snaefell at all hours of the day. Mr. J. Cunningham intends to erect near the Bungalow a number of bell tents for parties who desire to spend the night there, to be in readiness for the morning. Mr. R. M. Gardiner, the manager of the Electric Railway Hotels, is making most elaborate arrangements at the Bungalow for providing any number of people with refreshments; so that, next to Douglas, the bulk of the sightseers will probably be in the neighbourhood of Snaefell.

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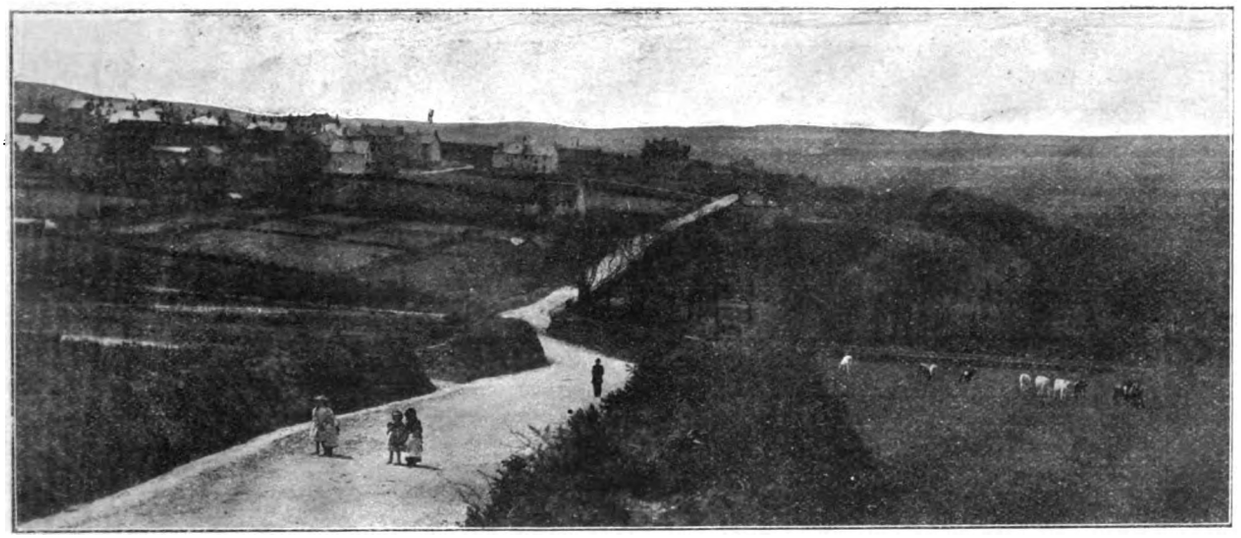
THE services of a score of trained ambulance men have been secured. These will be distributed over the course in squads of four each, under the charge of a properly qualified medical man. The ambulance corps is recruited entirely from the Onchan Branch of the St. John Ambulance Society. According to present arrangements there will be five stations on the course, viz., the house of Mrs. Clucas, Spring Valley, near Douglas; the Victoria Road Board School, Castletown; a house adjacent to the Ballacraine Hotel, St. John's; the Municipal Buildings, Ramsey; and the Bungalow, Snaefell Mountain.



Widening the Road and Easing the Curves at Cronk-ne-Berry.



The Course near Kirk Michael.



Photos by The Road down the Hill to the Finishing Point [*D. Collister*

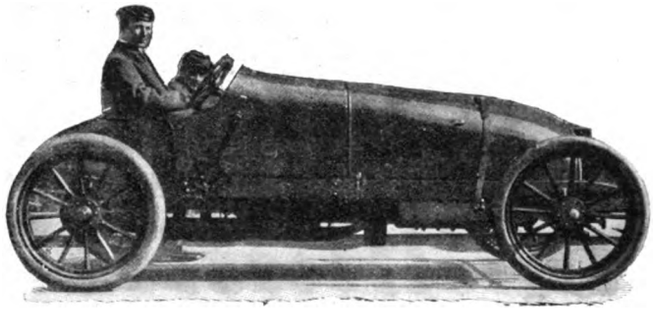
THE ELIMINATING COURSE IN THE ISLE OF MAN.

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THE 1904 Gordon Bennett race is apparently to be well supported by Royalty. In addition to the Kaiser, the Grand Duke of Mecklenburg-Schwerin, the Grand Duchess Anastasia, Prince and Princess Friedrich Leopold of Prussia and Prince-Friedrich Karl Hohenlohe have notified their intention to witness the event.

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THE Continental-Caoutchouc and Gutta Percha Company are prepared to furnish particulars of the route, hotel accommoda-



M. Clement, junr., on the Clement-Bayard Racer.

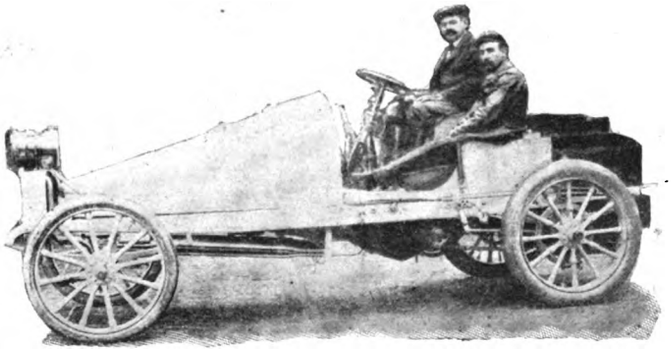
tion, and any further information required by English Automobilists going over to the race. An Automobile Guidebook for Germany is being issued by the company.

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ANOTHER chance is to be given motor-car builders in the United States to be represented in the American team in the Cup race, the racing committee of the A.C.A. having announced that the entry list for the American team has again been thrown open and would remain open until May 1. The reason given for the re-opening of the list is that the withdrawal of the Sampson car left a vacant place in the team. It is understood, however, that the real cause is that the Winton Company desired to make an entry. The old and new entries must be submitted to the committee on May 1st.

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OF the twenty-nine cars entered for the French team, eighteen will have side chain transmission, viz., Mors, De



M. Pelzer on the Serpollet Racer [*L'Automobile.*

Dietrich, Hotchkiss, Georges Richard-Brasier, Gobron-Brillie, three each, Clement-Bayard one, and Turcat-Mery two; eight cars—Darracq and Panhard three each and Clement-Bayard two, will have cardan shaft transmission, while the three Gardner-Serpollet cars will be driven by a single chain. The latter will have six-cylinder engines. All the petrol cars will have four-cylinder vertical motors.

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As mentioned above, two of the Clement-Bayard cars will be of the cardan shaft driven type. One of them, with M. Clement, junr., at the wheel, is illustrated herewith. The four-cylinder engine is rated at 80-h.p., the cylinders being 155 mm. bore by 160 mm. stroke. The Clement-Bayard chain-driven racer is a more powerful car, having an engine developing from 100 to 120-h.p. It is not yet completed, and there is a doubt as to whether it will be ready in time.

MOTOR-CYCLING NEWS.

A CUP of the value of £200 has been offered by the Italian sporting journal "Verde e Azzurro" for a motor-bicycle event during the coming season. It will probably be allotted to the Milan-Venice contest in July.

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PROFESSOR HUGH L. CALLENDAR will read a paper on "The Indicator Diagram of a High Speed Motor" before the members of the Auto-Cycle Club on Wednesday next. The diagrams will be displayed on a screen, and the apparatus by which they are obtained will be shown in use on a motor-cycle.

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UNDER the auspices of the Motor Cycle Union of Ireland, a hill-climbing competition—the first of the season—took place at Bangor, County Down, on the 16th inst. There were fifteen entries for the event, which was over a 750 yards course. The results were:—McFarran, 2¾-h.p. Bat, 1; Stewart, 3-h.p. Centaur, 2; McStay, 2¾-h.p. Riley, 3. The winner's net time was 42 3-5 sec. A protest was afterwards laid against the winner owing to a discrepancy in his entry form, it being discovered on weighing the competitors that McFarren scaled about 12 lbs. lighter than his entry. He was consequently disqualified, the first place being awarded to Stewart, McStay being second and Vincent third. On Saturday last the members of the Union held a run from Dublin to Portmarnock. The object of the outing, apart from being an official opening to the season, was to test the suitability of the silver strand at Portmarnock for the speed trial which the Union intends to promote during the year.

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AT a meeting of the Metropolitan District Association of the Cyclists' Touring Club last week, Mr. A. Candler read a paper on the motor-bicycle. The author considered that a novice should be satisfied with a 2-h.p. engine. Fifty pounds would, in his opinion, buy a first-class machine with the necessary extras and accessories. The outlay for a year's riding of 5,000 miles would not exceed £10 for fuel and repairs. The rear tyre should last about 5,000 miles, and the front one nearly double that distance. A very liberal allowance for depreciation added to the out-of-pocket expenses showed that a penny a mile was an outside estimate of the cost of motor-cycling. Experience had showed him that, with regard to touring, it was easy to run a hundred miles a day for a fortnight on end, devoting only twenty minutes to half an hour daily to oiling up and ascertaining that everything was in order.

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SO far forty-four entries have been received for the twenty-four hours' run to Edinburgh which is being organised by the Motor-Cycling Club. The competitors will meet at the Red Cross Hotel, Paternoster Square, E.C., at 8 p.m., on Friday, May 20th, and must be prepared to move to the starting point (G.P.O.) at 9.45 p.m., where they will be despatched at intervals of thirty seconds. The first will leave at 10 p.m. The order of starting will be in accordance with the receipt of entry. The programme and time table are as follows:—Biggleswade, check by giving up ticket, no need to dismount unless petrol is required. Grantham, control and check, no rider to leave before 3.45 a.m. Arrangements will be made here for early breakfast, and for filling petrol and oil tanks, and also lamps (oil or carbide) at reasonable charges. Tuxford, check by ticket. Wetherby, control and check, no rider to leave before 8 a.m. Durham, control and check, no rider to leave before 11.30 a.m.; lunch will be served here. Alnwick, check by ticket. Berwick-on-Tweed, control and check, no rider to leave before 3.30 p.m. Dunbar, check by ticket, no need to dismount. Levenhall (Musselburgh), control and check, no rider to leave before 7.40 p.m. Finish, North British Hotel, Edinburgh, close to G.P.O.; check. Riders can obtain petrol at the following places: Biggleswade, Grantham, Wetherby, Durham, and Berwick-on-Tweed.

A FULL list of agents for Pratt's motor spirit will be sent to anyone dropping a postcard to the Anglo-American Oil Company, 22, Billiter Street, E.C., the sole importers.

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THE "BROOKE" 15-20-H.P. CAR.

ONE of the surprises of the recent Show was the new four-cylinder 15-20-h.p. car exhibited by Messrs. J. W. Brooke and Company, Limited, and illustrated in Fig. 1. The frame is of pressed steel with an internal supplementary frame to carry the engine and one end of the gear box. The secondary frame consists of a light but strong channel section. The engine

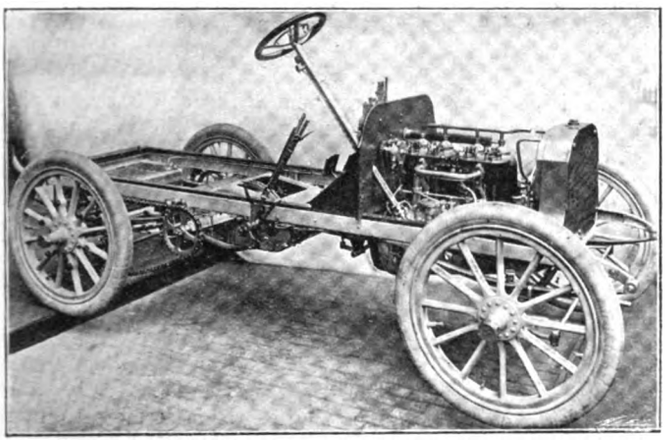


Fig 1.—Chassis of Brooke 15-20 h.p. Car.

is placed longitudinally on this and is supported by four feet, the whole being under a neat bonnet. The front of the latter is filled by a honeycomb radiator, a current of air being drawn through it by a belt-driven adjustable Blackman fan. The front and back ends of the frame both taper to form the spring hangers, the back springs being spread to obviate the rolling motion noticeable in narrowly-hung cars.

A view of the engine showing the inlet valve side is given in Fig. 2, from which it will be seen that the four cylinders are cast in two pairs, the water jacket also surrounding the valves. The latter are all mechanically-operated and interchangeable; they are located on the opposite sides of the cylinders, being driven by separate cam shafts; the induction cam shaft also operates the

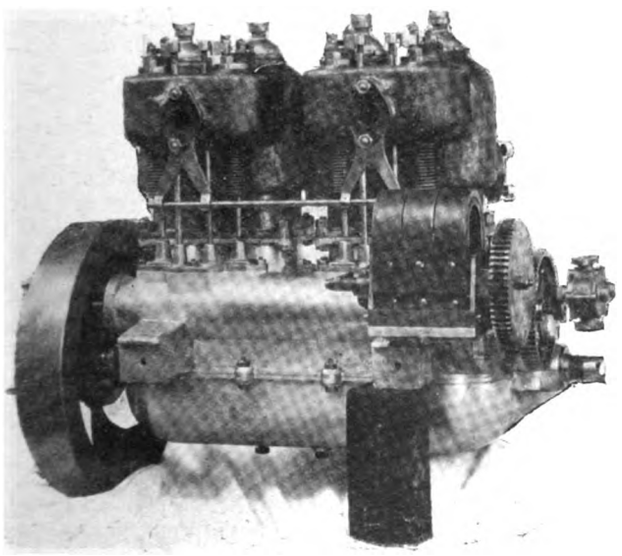


Fig 2.—The Brooke 15-20 h.p. Four-Cylinder Motor.

magneto tappets. The cylinders are 3 5-8 in. bore by 4¾ in. stroke, the normal speed being 900 revolutions per minute. Ignition is by low tension magneto, the magneto machine being driven by fibre wheels on an extension of the induction valve cam shaft; the igniters are placed immediately over the inlet valves and are operated by vertical shafts which obtain a bearing in the main cylinder casting. The ignition advance is obtained by raising or lowering the actuating rod, and as these work inside the crank chamber on discs formed on the cam shaft with steel cam plates securely screwed to them, they are consequently always working in oil. High tension ignition is fitted as an auxiliary; the contact breaker is of the regular "Brooke" type, driven by a chain and placed on the dashboard; the sparking plugs are fitted immediately over the exhaust valves. Each cam shaft has three bearings; the crank shaft has two large end main bearings with an additional bearing between each crank. A gear driven pump is fitted on an extension of the exhaust camshaft and is self-contained with the engine. The inlet for the water is at the bottom of the jackets and the outlets are formed by cones on the highest spot in each cylinder. The flywheel, of large diameter, is bolted to a flange on the end of the crankshaft and contains the internal friction clutch, which when in action gives no end thrust. A fan is formed by the arms of the flywheel to exhaust the hot gases from under the bonnet.

The carburettor used on this car is an automatic one of special design and combined with the Brooke patent governor; a sectional view of it is given in Fig. 3. A. is the float chamber of the standard type, B. being the jet and P. the outlet of the gases to the motor. The hot air enters at F. and the additional air is admitted according to the requirements of the motor by the disc valve D^1, which works in the casting D.; the tension of the spring underneath the valve D^1

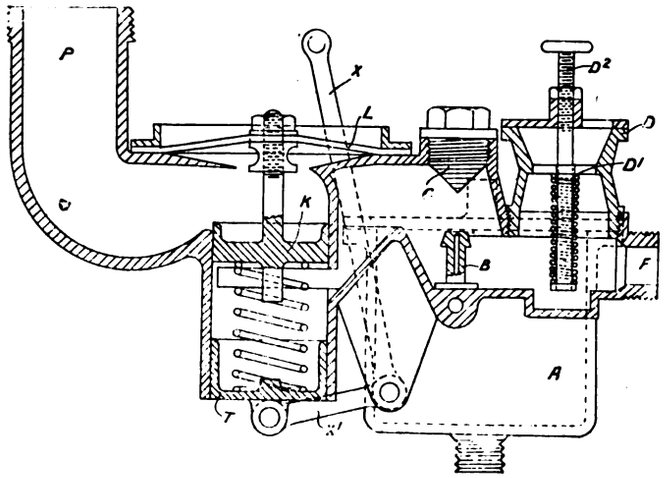


Fig. 3.—Section of Brooke Automatic Carburettor.

is regulated by means of the spindle D^2. This constitutes the carburettor portion of the device; the governing is effected by means of the piston K., the gases passing over the jet and through the slots, and thence through the angular pieces in the piston K. The tension of the spring underneath the latter is regulated by another piston T., which in turn is controlled by the levers X^1 and X. from a rack on the steering wheel, so that the tension of the spring on the piston K. can be regulated as desired, and consequently the speed of the engine governed. L. is a leather diaphragm to which is attached the piston K. by means of a rod cast in one piece with it. At a high rate of speed the engine is creating greater suction than at a low speed, and consequently the passing vacuum caused in the pipe P. has the effect of causing the leather diaphragm and the piston to fall and so close the ports admitting the mixture.

The power is transmitted to the gear box through an internal leather-faced clutch contained within the flywheel. Between the clutch and the gear box is a flexible joint which compensates any want of alignment between the two and permits the clutch to be detached without disturbing the engine or the gear box. The latter is similar in many respects to the gear-box fitted to the standard Brooke cars, but, instead of a chain, a propeller shaft and bevel wheels have been fitted, and the three-point suspension has been adopted. The gear box proper consists of five parts—the top and bottom halves, the two arms to

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the sprockets and the bevel pinion bearing. The gear box can be dropped right out of the car in less than ten minutes, the only operation necessary being the uncoupling of the propeller shaft and the slackening away of the nuts on the three suspending points. Three speeds forward and one reverse are fitted, all actuated by one lever and operated by a circular cam inside the gear box, a section of which is given in Fig. 4. The forward speeds are all obtained by chains of 1 in. pitch running in thin oil, the desired pair of chain wheels being made to transmit the power by means of claw clutches. The reverse is obtained by means of gear wheels. The system has been in use now about

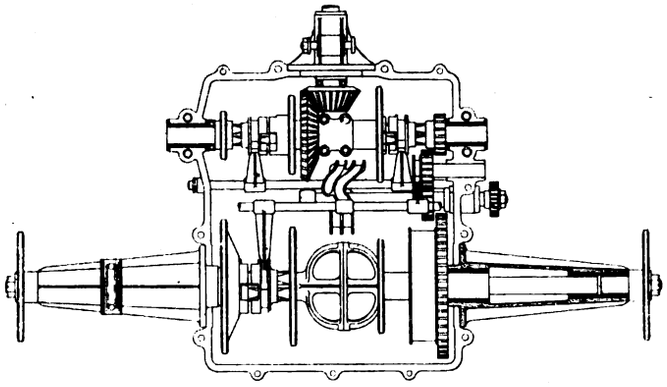


Fig. 4.—Sectional Plan of Change-Speed Gear on Brooke 15-20-h.p. Car.

three years on Brooke cars, and after 17,000 miles on a vehicle weighing 23 cwt. the chains were found not to have lengthened, owing no doubt to the favourable circumstances under which they run. The bevel gears have ball thrusts fitted to them; the bevel pinion bearing is lubricated by a ring, the oil being kept at a constant level automatically from the gear box, a similar arrangement being provided on the sprocket shafts. From the differential shaft side chains transmit the power to the rear road wheels; the chains used are only 1 in. pitch, a very small size for so large a car; they have, however, special large rivets and a high breaking strain, and are claimed to be very silent in operation.

The control is from the steering wheel, two racks being provided therein, one for the throttle and one for advancing or retarding simultaneously the magneto and high tension ignition. Two switches are provided on the steering column casing, one for the magneto and one for the high tension, so that either can be used at will, or after starting on electric it can be switched off and the magneto switched on without the driver having to leave his seat. The hand brake is arranged on the same quadrant as the speed lever, and not only applies the metal to metal brakes on drums on the rear wheels, but also can be adjusted to withdraw the clutch if desired. The two pedals are of large size, and of the "push away" type. The left pedal operates the clutch and the right one a metal to metal brake within the gear-box. An accelerator pedal is also being fitted to control the governor in addition to the throttle control on the steering wheel. The dashboard is of the Mercedes type with inclined foot rest, and is fitted with coil, lubricator and pressure indicator. The coil is provided with both isolating and short-circuiting push buttons, and the lubricator is on the Dubrulle system worked by the pressure of the exhaust gases. The exhaust box is placed at the rear of the gear box and is fitted with a dust preventer. The petrol tank, which has a capacity of 9½ gallons, is located at the back of the car, with a large filling plug in an accessible position. The differential gear runs inside the gear box, and is constantly exposed to the action of the oil bath. The sprocket spindles are in one piece from the differential to the sprocket pinions, so that everything is cased in. A large inspection cover is fitted to the top of the gear box; it is fixed by catches instead of bolts, thus facilitating examination. The wheel base of the chassis is 7 feet 8 ins., and the gauge 4 feet 6 ins.; this, in conjunction with the long springs, makes it an exceedingly smooth-running car, which reflects much credit on its designer.

SOME USEFUL NOTES.

FEW things are more annoying or more difficult for the motorist to deal with than a water-circulating pump which persistently leaks. Such a pump is almost hopeless, because the defect can usually be traced to faulty designing, owing to the bearings not being long enough. When this is the case, the pump being driven by chain or frictional contact with the flywheel of the engine has the driving pressure applied at one point, thus causing the pump spindle to bear against opposite ends of the bearing. Now, the shorter such a bearing is the greater the wear will be, and so soon as this reaches an appreciable amount a permanent leakage will set in. This can only be cured by rebushing or lining the bearing, which would have to be repeated at very short intervals.

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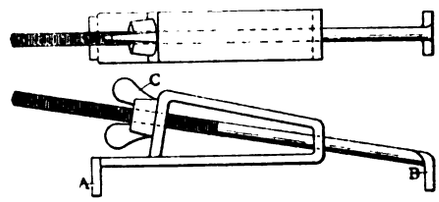
INSTEAD of a long plain bearing, many pumps are fitted with a stuffing box and gland. Asbestos, tow, or other material is packed into the stuffing box and the gland is tightened up to make a water-tight joint around the revolving spindle. The stuffing box is the cylindrical chamber formed upon the body or cover of the pump. It is bored out considerably larger at its outer end than the diameter of the spindle, and is provided with an internal screw thread. The gland is simply a long sleeve fitting over the pump spindle. It is screwed to fit into the stuffing box, and is provided with a hexagonal head so that it may be tightened up with a wrench. Even the best of pumps will leak in time through the bearing becoming worn. When this occurs the best packing to use is one composed of alternate rings of rubber and hard fibre, which should be a good fit over the spindle. If the pump runs at too high a speed for the rubber rings to stand up to, then alternate the fibre rings—which should be at least one-eighth of an inch thick—with asbestos cord.

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THE Longuemare carburettors are made in so many sizes that it is often difficult to ascertain which is the right one to adopt. It may, therefore, be useful to mention that the most suitable carburettor for use with a certain engine is that which has a gas outlet pipe slightly larger than the admission port of the motor. Thus in the case of an engine having a gas inlet 39 or 40 mm. diameter, the carburettor having an outlet 41 mm. diameter should be adopted, while for motors with gas inlets of 20, 21, or 22 mm. diameter the one having a 22 mm outlet should be selected.

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THE accompanying sketch shows a little device which will be found useful in putting on automobile chains. The chain can be put on the two sprockets, and by the use of the device the ends may be brought together with ease. After the chain has been placed round the chain wheels the lugs A and B



are put through the end links, and the thumb nut C is screwed up until the connecting links are in such a position that the connecting bolt may readily be fixed in position.

IT is proposed to hold, under the auspices of the Aeronautical Institute, a series of trials of screw propellors, designed for aeronautical purposes. At first, only rotary propellors, and those up to about four feet in diameter, will be tested. For this purpose, the Aeronautical Institute will provide a motor of from ¼ to ½-h.p., together with all the other necessary apparatus except the actual propellors.

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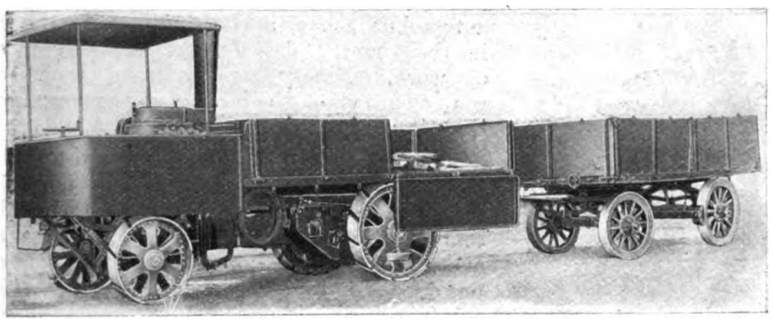
HERE AND THERE.

AN automobile club has just been formed at Novarra, Italy.

MR. A. E. MAJOR, of Reading, has purchased the well-known Serpollet car, the "Easter Egg."

THE West Surrey and Reading Automobile Clubs will meet at the George Hotel, Odiham, to-day (Saturday) at 4.30 p.m.

WE illustrate herewith a new Colonial type of steam wagon with trailer, recently introduced by the English Steam Wagon



Company, of Hebden Bridge. The vehicle is designed to carry five tons, and to haul three to four tons on the trailer. The general details of the boiler, engine, and system of transmission of the English steam vehicle were dealt with in the *Journal* of Nov. 28th last. As will be seen from the illustration, both the wagon and the trailer are fitted with sheet metal removable sides and ends to enclose the load.

THE Scottish Motor Garage Company, Ltd., of Glasgow, have entered a 12-16-h.p. Renfrew car for the Glasgow to London Reliability Trial. Its number will be 30.

A PROPOSAL has been made for the Motor Volunteer Corps to be provided with a machine-gun, which, it is suggested, may be carried with the gun attachment on a motor-car.

THE Clyde Cycle and Motor Car Company have opened a large garage at their depot in London Road, Leicester. It possesses every convenience for automobilists who desire to store their cars, including a complete repairing shop.

CONFIRMING our statement last week with reference to more motor-'buses being placed upon the streets of London, Mr. R. S. Tilling, at the annual meeting of Thomas Tilling, Limited, stated that £1,000 had been set aside for experiments with a motor vehicle which he thought would answer their requirements.

IN the report of A. W. Gamage, Limited, to be presented at the seventh annual meeting on Wednesday next, reference is made to the acquisition by the company of a building site adjoining the present premises, with a frontage of ninety-five feet to Holborn and a depth of 153 feet. This will cause the Black Bull Tavern, where Dickens gathered local colour for "Martin Chuzzlewit," to disappear, thus removing another of London's old landmarks.

A NEW tail lamp, designed to show not only a red light to the rear, but also to illuminate the number plate, has been introduced by Messrs. J. and R. Oldfield, of the Refulgent Lamp Works, Birmingham. The lamp, which is known as the "Dependence," is provided with double side lights, one of which illuminates the plate while the other throws a light on to the off-side, thus enabling the driver by a turn of the head to at all times assure himself that the tail lamp is burning.

A MEETING of the Birmingham Motor Express Company has been held, when it was resolved that the capital be increased from £5,000 to £20,000. It was also reported that additional cars would be placed on the Hagley road route the second week in May, and that the Watch Committee have granted the application of the company to work a quarter of an hour's service to Harborne.

THE Motor-Car Owners' Co-Operative Association will in future be known as Glaskin and Company.

THE Motor Improvements Company, Limited, has been registered with a capital of £5,000, to manufacture and deal in motors, motor-cars, etc.

THE Elsworth Automobile Company are adding to their showrooms in Manningham Lane, Bradford, a department devoted exclusively to motor clothing and accessories.

LADY CURZON, who is staying at Deal, paid a visit to Walmer Castle on Monday, driving over in her motor-car.

THE Wolseley Tool and Motor Car Company, Ltd., are, we hear, about to invade the American market with "Wolseley" cars.

A COMPANY has just been formed in Venice with a capital of £12,000, to be known as La Societa Veneziana di Automobile Nautiche.

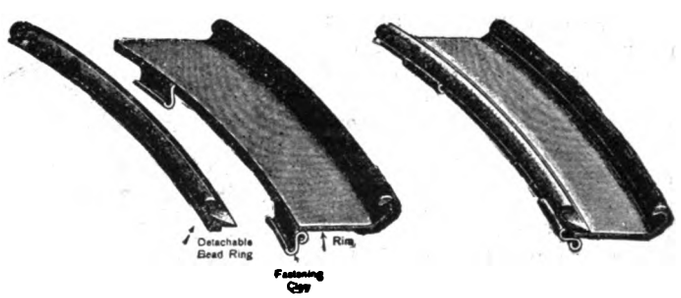
FROM the Continental Caoutchouc and Gutta-percha Company comes a new price list of "Continental" motor sundries, including repair patches, garters, jacks, tyre levers, etc.

TWENTY-NINE entries have, so far, been received for the Belgian Circuit des Ardennes. Mr. S. F. Edge and Mr. C. Jarrott are among those who have entered for the event.

THE Cadillac cars of the Anglo-American Motor Car Company, Limited, are, we learn, now being fitted with Clincher rims and Dunlop double-tube tyres 750 mm. by 85 mm.

"AHOY" is a liquid metal polish which the makers, the Hansa Chemical Works, are advising motorists to use on the brass work of their cars.

WE had an opportunity the other day of inspecting a new two-piece rim for pneumatic tyres which has recently been introduced by the Harburg and Vienna India Rubber Company, of Harburg, Germany, and London. The arrangement, which is designed to permit of the easy attachment and detachment of the beaded edge type of motor-tyres, is illustrated herewith. It will be seen that to one edge of the rim small hinged clips or claws are attached at intervals. Eight of these clips are fitted to the usual sizes of motor-tyre rims. The detachable ring, which is in one piece, has, in addition to the usual bead to receive the edge of the tyre, another small groove into which the ends of the clips fit. The more the tyre is inflated the greater the grip of the clips on the detachable ring, while even with a deflated or punctured tyre there is no danger of the

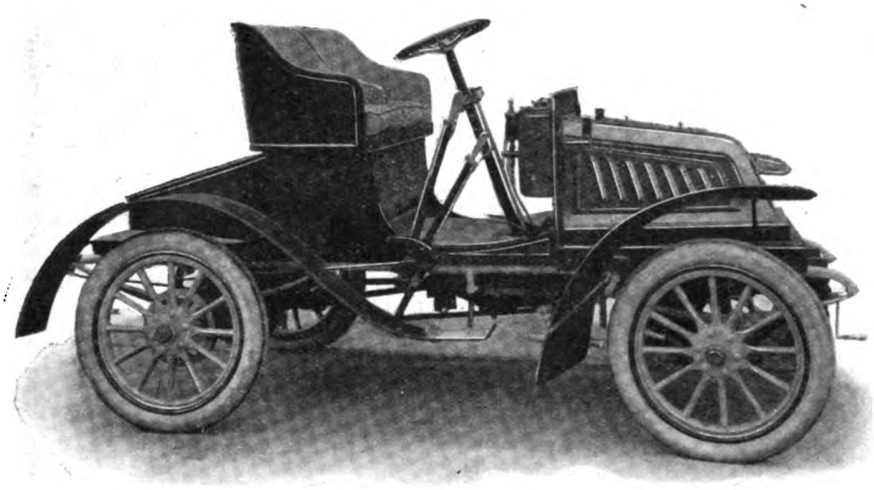


clips losing their hold on the ring, so the latter cannot come off accidentally. The new two-piece rim has already met with a favourable reception on the Continent, and, in view of its simplicity, should also quickly become popular in this country. The makers claim that it permits a tyre to be fitted on to a rim in less than two minutes, and this without using any tyre levers or other tools. All that is necessary is to fix the tyre and detachable ring in position and turn up the hinged clips so that the ends of the latter engage the groove in the ring, as seen in the right-hand illustration. The rim is made to suit all the well-known makes of beaded-edge motor tyres.

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A NEW weekly illustrated journal for motorists has just made its appearance in New York under the title "Motoring and Boating."

UNIVERSAL AUTOMOBILES, LIMITED, is the name of a company registered to carry on the business of manufacturers of and dealers in motor-cars, etc.



The Anglo-French Mot Syndicate's 6-h.p. Mercury Simplex Car. (*See issue April 16th, page 157.*)

AN experimental plant for testing the power and efficiency of automobiles has been installed in the mechanical engineering laboratory of the Worcester Polytechnic Institute, at Worcester, Mass., U.S.A.

A PUBLIC meeting to advocate railway motor omnibus services in the Farnham and Haslemere districts was held at Wrecclesham Schoolrooms, near Farnham, on Wednesday. Mr. A. Harris, of the Farnham Potteries, is taking a lead in the matter.

LIEUT. the Hon. A. V. Verney-Cave and Messrs. Lindsay Bury and F. J. Frost, Motor Volunteer Corps, were engaged under the General Officer Commanding the Western District on a Staff ride in the neighbourhood of Bournemouth, at the end of last week.

ONE of the saddest aspects of motor driving is, says the writer of motor notes in the "Bystander," that "if one starts with a vehicle of low horse power it is absolutely certain that, sooner or later, its owner will desire to discard it for a car with more power and with a greater turn of speed. This has, in the ordinary course of nature, just happened to a neighbour of mine, who set off to the Crystal Palace recently, with a cheque in his pocket, where we happened to foregather, and spent some instructive hours "havering" with the various stallholders. Several times did he make the Sydenham pilgrimage, but the cheque remained—a blank. Then I met him later, at the Agricultural Hall, and in a corner of the gallery he suddenly met his fate. Merely a naked *chassis*, and, after a searching inspection by one of our best-known motor, *dilletanti*, the draft was drawn to pay for this identical and attractive skeleton."

THE Harrow District Council has decided to urge the Middlesex County Council to obtain powers, under the Motor Traffic Act, 1903, to close the road at Grove Hill, on which the recent accident occurred, to motor-cars.

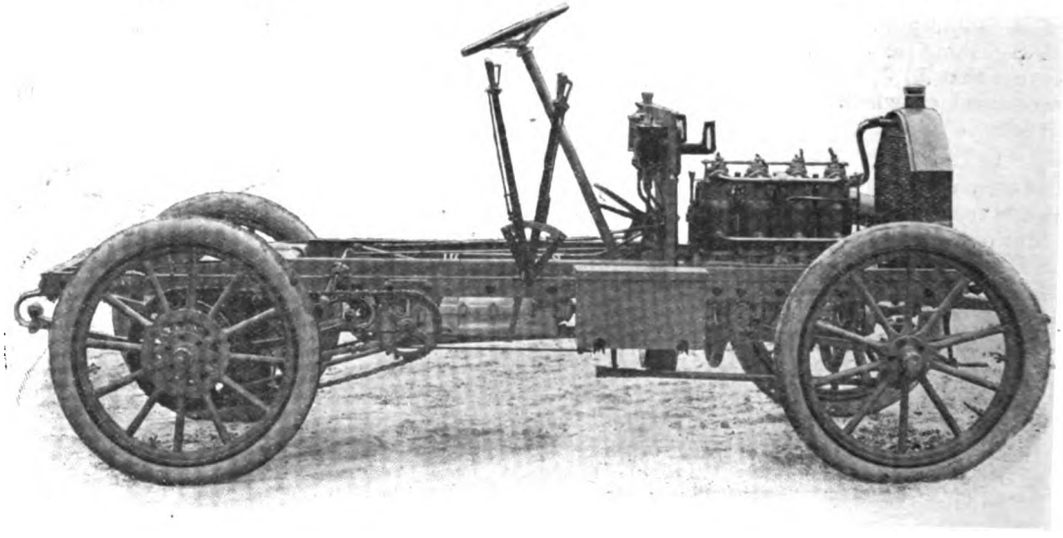
ORDERS have been given for a second Mechanical Transport Company (to be numbered the 78th) of the Army Service Corps to be formed at Aldershot on the 1st of May. The first Mechanical Company (the 77th) is stationed at Chatham.

THE Young Men's Christian Association's automobile school at Boston, U.S.A., the first in the country, has finished its first session of work. Ninety certificates of proficiency were awarded, on the basis of written examinations in lecture and shop courses.

THE poetry of motion has its most exhilarating expression in the rhythm of motoring, remarks an American worker, who considers that if you have never sat at a steering wheel and enjoyed the delight of directing a safe and powerful car over beautiful country roads, drinking fresh air and feeling the thrill of a new life, you cannot realize how splendid a pleasure you are missing.

"KELLY'S CUSTOMS TARIFFS OF THE WORLD" has just been published by Kelly's Directories. Hitherto these have appeared in the same firm's "Directory of Merchants, Manufacturers and Shippers," but owing to the growing size of that volume the tariffs are now, for the first time, issued in a separate book which extends to seven hundred quarto pages with two closely printed columns to the page. Every care having been taken to ensure accuracy, the work will be of undoubted value to all commercial men.

AT Gamage's, in Holborn, a lamp called the "Zanardini" is now on view, in which there are no rubber bags to cause trouble. All the parts are get-at-able, and it is possible to turn the gas off and on constantly till the carbide is used up, as the water is driven out of the carbide chamber immediately the light is turned out. At a trial of motor lamps held by the Rhone Automobile Club in March, this lamp took the first prize and also won the gold medal of the Automobile Club of France in April, 1903. The front of the lamp is elliptical, the reflector parabolic, and the general ensemble sufficiently striking to attract visitors to the idea.



Chassis of 24-h.p. Prunel Car. (*See issue April 2nd, page 106.*)

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CONTINENTAL NOTES.

The Bordeaux "Automobile Week."

THE programme of the Bordeaux "Automobile Week," which is to extend from the 8th to the 14th May, has just been issued. On the first day there will be a series of motor-boat races; on the 9th, a competition of touring cars, with an excursion to Medoc. The touring test will be continued on the 10th, on which day there will also be a run to the Sauternes district. On the 11th, an exhibition of cars and flying machines is to be arranged; on the 12th, a balloon and flying machine competition; and on the 13th and 14th, a trial of heavy motor-cars, including delivery vans and public service vehicles.

A new Spirit for Motor-cars.

LE COMPAGNIE DES ALCOOLS FRANCAIS have recently introduced a new alcohol fuel for motors, which they have named "Motoral," and which they claim will increase the power of high speed motors by fifty per cent. There is a certain proportion of water in the alcohol, which, it is claimed, gives rise to the increased power. When the charge is fired, the water is, it is stated, converted into high-pressure steam, which softens the force of the explosion and prolongs the action of the same on the piston. "Motoral" requires a larger air supply to the carburettor than petrol, while it will work equally well with a ten per cent. addition to the latter.

A Novel Motor-Cycle Competition.

THE Moto Club of Marseilles is organising a somewhat novel form of competition for motor-cyclists to be held in June next. It will be known as a "Rallie Postal Moto-cycliste"; each competitor when ready to start will draw a sealed envelope from a bag. In the envelope will be found instructions to proceed to a certain post-office in the district and bring back a letter from the poste restante. Thus the competitors will not know the journey they are to make until the moment of starting. The prize will be awarded to the rider performing his task in the shortest time.

Dispatch Carrying by Motor-Cycle.

SOME interesting trials of dispatch carrying by motor-cyclists were held last week under the auspices of the Austrian Ministry of War. As a basis of the tests, it was presumed that the telegraph and the railway services had broken down, and that the main roads were held by the enemy. The riders had, therefore, to make use of bye-roads, and in case of breakdown of the machine, it was understood that the journey must be continued, not by motor-car, or motor-cycle, as these would probably not be available in time of war, but by ordinary vehicles or bicycles. Two messages were sent at different times; the first one was in charge of two riders who conveyed it from Vienna to Kaumberg; here it was handed over to another couple of motor-cyclists, who hurried along with the dispatch to Hadersdorf. From this place to Laa another relay had charge of the message, and still another back to Vienna; the total time occupied in covering the 300 kilometres being 8 hours 29 minutes. The second message was sent over the same course, but in this instance only one rider had charge of it on each of the different stages. The dispatch was, however, successfully delivered round the circuit in 9 hours 33 minutes.

A Consumption Test at Marseilles.

THE Automobile Club of Marseilles is organizing a "Circuit au Bidon" for the 15th May. Before starting each car, with its full load of passengers, will be weighed and then given half a litre of spirit for each 100 kilogrammes. The course is from Trets to Pourcieux, and then almost to Aix, whence the cars will return to Trets. The winning car will be that which covers the longest distance on the petrol supplied.

The Paris-Bordeaux-Paris Motor-Bicycle Reliability Trial.

OF the sixty-eight entries which were received for the 1,200 kilometre reliability trial for motor-bicycles organised by the Autocycle Club de France, fifty-nine faced the starter at 6 a.m. on Friday last week. The riders were sent off in pairs at two minute intervals from St. Mande, the last being despatched just before 7 o'clock. The day's destination was Tours, a distance of 258 kilometres, forty-eight riders completing the journey. The first to reach Tours was Foulon on a Bruneau chain-driven machine, he arriving at 2.23 p.m., Olieslagers on a Minerva being second at 2.31 p.m. An early start was made on Saturday, the first of the forty-eight riders being sent off for Bordeaux at 5.5 a.m., amidst a heavy shower of rain. The distance to be covered was 342 kilometres (214 miles); a stiff day's journey, especially in view of the heavy roads, and it is not surprising that a number of competitors had to give up. The first to reach Bordeaux was Olieslagers (Minerva), who arrived at 4.56 p.m.; Kuhling on a Gobron-Minerva coming next at 4.59 p.m. At 10 o'clock on Saturday night only twenty-eight of the competitors had arrived.

Alcohol Exhibition at Vienna.

THE International Alcohol Exhibition was opened on Thursday last week at the Rotunda, Vienna, by Archduke Franz Ferdinand. Only Austria-Hungary, France, Germany, and Russia are taking part in the show, which is intended to illustrate the rapid development of spirit as an article for motor power, lighting, and heating. The Rotunda presents a marvellous collection of entirely new branches of industry which have sprung up within the last few years. The increased use of alcohol opens new prospects to agriculture, and it is thought that the losses which agriculture has sustained within the last thirty years by American competition may be compensated for by the production of spirit from potatoes. The French section has been well supported by automobile manufacturers in France, among the cars



Touring on the Continent.—A Stop at Laibach, Austria.

represented being C.G.V., Gardner-Serpollet, Renault, De Dion, Mors, De Dietrich, Clement-Talbot, Panhard, Darracq, Chaboche, Peugeot, Krieger, Brouhot, Gobron-Brillie, and Tony-Huber.

Speed Trials and Racing at Arras.

THE programme of the races at Arras in connection with the exhibition which is to be opened in that town on the 19th May has now been drawn up. In the afternoon of the 25th there will be a series of standing mile and flying kilometre speed trials on the Arras-Douai road; a kilometre hill-climb on the Doullens hill will be held on the 26th; a five-kilometre race will be run off on the 27th; while on the 28th there will be a touring competition from Arras to Touquet, via Boulogne.

Motor-Boat Racing.

THE entries for the second annual contest for the Gaston Menier Cup so far number nine, three of which are English. The trophy is to be competed for in Trouville roadstead on Sunday, August 21st, the distance to be covered being three miles. The French entries are:—M. H. Fournier, Hotchkiss; Georges Richard, Trefle à Quatre II.; M. Clement, Bayard; M. Legru, Gardner-Serpollet; and M. Dubonnet. The English competitors comprise a Napier, a Hutton, and a Thornycroft boat, while Germany will be represented by a Mercedes.

WE learn that the Southport Tramways Company has made arrangements for storing, cleaning and repairing motor-cars at its depot at Churchtown, Southport.

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CORRESPONDENCE.

ACCUMULATOR CHARGING FROM PRIMARY BATTERIES.

To the Editor of *The Motor-Car Journal.*

Sir,—Can you assist me with any hints on the charging of accumulators? I have a four-cell Peto and Radford charging battery fitted with an adjustable wire coil resistance, but when newly charged, as per directions, I find that with the full resistance interposed there is still a current of about eight amperes, which is more than double the charging rate of my cells. What I wish to know is whether I can connect two cells in series, and let the full eight amperes through, so allowing four to each, which is the full charging rate; or if not, how can I reduce the current? Thanking you in anticipation.—Yours truly,

C. R. W.

[When a good primary battery is made up with fresh solutions, it gives its maximum voltage, and therefore offers a low opposing electromotive force to the primary battery, an excessive rush of current being the result. To overcome this difficulty, it is best to connect up three instead of four cells of the primary battery to the accumulator. This can easily be done, as the battery mentioned by C. R. W. is provided with separate terminals to each cell. After some little time the voltage of the cells will fall, and the voltage of the accumulator will rise, causing a fall in the strength of the current, in which case the fourth cell can be put in and the accumulator left until it is charged. C. R. W. in his query asks if he can connect two cells in series, but evidently two cells in parallel is meant, as it is only by connecting them thus that the current can be divided between them. This, however, would not help, as by so doing the opposing voltage is reduced. Connecting three cells up is the best method, and the resistance can be used to obtain exact regulation of the current.]

GENUINE DE DIONS.

To the Editor of *The Motor-Car Journal.*

Sir,—I desire to call attention to the fact that no De Dion Bouton 6 or 6½-h.p. car has been made with a three-speed gear, and cars thus described cannot be genuine De Dions. As such advertisements are frequently inserted in the motor papers, I shall be obliged if you will insert this letter to warn intending purchasers to make sure, before buying a car as a De Dion-Bouton, that it is really our make throughout, and not merely fitted with a De Dion-Bouton motor. We are always pleased to advise anyone on the subject if they will send us the number of the motor. This number is stamped on each half of the crank case on the right hand side when facing the timing gear.—Yours truly,

De Dion-Bouton, Limited.

VARYING VALVE LIFT.

To the Editor of *The Motor-Car Journal.*

Sir,—I notice in your account of the "Utile-Simplex" car you state that the exhaust valve has a variable lift. Surely this is detrimental to engine and valve on account of the back pressure caused when the valve has anything less than full lift. It is very noticeable with a small engine how soon it overheats (with consequent slower running) when the valve is not getting the full lift, and this must be considerably greater with an 8-h.p. engine. Would it not be a better plan to adapt a variable lift to the inlet valve, as this in itself answers the purpose of a throttle very well, and I have been surprised how much quieter the engine runs when the inlet valve is getting little or no lift. Having less distance to travel, the valve shuts with much less noise. Running the engine in this way with the ignition set, the speed can be varied from about 200 to 2,000 r.p.m. by simply giving the inlet more lift, this allowing a greater charge of gas to enter the cylinder. By giving exhaust valve less lift to obtain slower running you only over-heat the engine, but by leaving exhaust lift set, and giving less lift to inlet valve, the engine not only runs quieter but keeps much cooler; at least this is the effect on a 1¾-h.p. air-cooled engine, and I fail to see why it should not be so with a larger engine. I shall be glad to hear other readers' opinions on this subject.—Yours truly,

A 2,708.

A TRIP TO GERMANY FOR THE GORDON BENNETT.

To the Editor of *The Motor-Car Journal.*

Sir,—I propose travelling by road to Homburg for the purpose of witnessing this year's Gordon Bennett race, and shall be glad to hear from motor-cyclists desirous of joining in what cannot fail to prove a most interesting tour from every point of view. In laying my itinerary before you, I should like it to be clearly understood that I propose neither the shortest nor the most convenient route, but rather one leading throughout past picturesque country and rich in historical associations. Starting from London on June 11th, my route will be as follows:—London, Croydon, East Grinstead, Uckfield, Lewes, and Newhaven. After crossing, Dieppe, Neufchatel, Rouen, Pont d'Arche, Bonnières, Nantes, St. Germain, and Paris. So far the road has followed the Seine Valley, now it runs up that of the Marne as follows:—Meaux, Chateau-Thiery, Epernay, Chalons-sur-Marne, Verdun, Metz (then up the Valley of the Moselle), Luxemburg, Treves, Coblenz (or, alternatively, up the Valley of the Nahe), Saarlouis, Kreuznach, Bingen; from either Coblenz or Bingen up the Rhine to Mainz, thence across country through Hoechst to Homburg. The total distance to be covered by road is approximately 620 miles, for which I allow five days, thus providing an ample margin for sightseeing and all eventualities, and arriving in Homburg in time to go over the course previous to the race. I do not consider it advisable that those taking part in this tour should keep together, as this is always attended with difficulty in the case of motor-cyclists. My suggestion is, therefore, that by following the same route and meeting at predetermined halting places each noon and night, the desired result would be attained. Riders would soon sort themselves out and find companions of identical tastes in the matter of pace, wayside halts, etc. It is needless to point out the inadvisability of any but experienced riders taking part in a tour such as I have proposed. A working knowledge of French and German is also desirable. Those whom the matter interests will oblige me by addressing their communications to the Automobile Club.—Yours truly,

M. T. Tuchmann.

STEAM CARS.

To the Editor of *The Motor-Car Journal.*

Sir,—As a user of paraffin burners I think what I have to say will interest "Locomobile" and "Steamer." I have tried most of the known makes of burners and also some of the unknown, but have, at the present time, a burner made by the National Burner Company that takes up no more room than the fire-box fitted to ordinary American steam-cars, being very similar in outward appearance. This burner is fitted with a pilot light and can be left for hours, ready to start at a moment's notice. I have run my car now 4,000 miles with this burner, and the average consumption of oil is one gallon for every twenty to twenty-five miles, with four passengers up.—Yours truly,

Superheat.

To the Editor of *The Motor-Car Journal.*

Sir,—In reply to "Locosurrey's" letter, I would strongly advise him to have a car fitted with a "flash" boiler if he intends using it for touring. The life of a flash boiler depends largely on the efficiency of the appliance fitted for regulating the proportion of fuel and water, as, in the event of this proportion becoming disturbed, the boiler obviously becomes either cold or unduly overheated.

In the case of the Miesse car this depends on the driver's judgment. The Serpollet system of oil and water pump having a constant proportion of stroke is a very good one, but inefficient working of either of the pumps at once disturbs the proportions of fuel and water, and causes trouble. When I was choosing a car, this was a point I gave considerable attention to. I finally purchased a Relyante steamer, which is built somewhat on Serpollet lines, but special attention and care has been paid to the design of the pumps to insure a constant efficiency. I have now driven about 3,000 miles, and never had the slightest trouble with my generator.—Yours truly,

J. L.

To the Editor of *The Motor-Car Journal.*

Sir,—I should feel greatly obliged if you could give me the names and addresses of makers of motor-cars or lorries which use paraffin or kerosene as a fuel instead of petrol. I am looking for a type of vehicle for use in the tropics, where petrol is both expensive and difficult to deal with. If any of your readers have had experience of the working of such engines I should be glad to know their views.

I have seen an extract from a foreign paper stating that a car with 8-h.p. engine of Leatch make, has been doing well in the Straits Settlements, but I cannot trace the firm who made it.—Yours truly,

F. H.

[Steam cars using paraffin as fuel are made by Turner's Motor Manufacturing Company, Limited, Wolverhampton, and the Cremorne Motor Manufacturing Company, Lots Road, Chelsea, S.W., both of which concerns will no doubt be glad to furnish particulars of their vehicles. We have no knowledge of a car known as the Leatch.—Ed. M.C.J.]

"PUMPING" MOTORISTS.

To the Editor of *The Motor-Car Journal.*

Sir,—As an example of the method which the police apparently are adopting of "pumping" motorists for their line of defence before taking out a summons, the following may be of interest and serve as a warning to others who may be the subject of this disgraceful practice.

At the end of last month a police officer in "mufti" called on me and informed me that a constable had reported the number of the car I was driving in the Essex Road, N., at 10.15 p.m., on the 22nd of the month, as belonging to a car which was not provided with a light so as to illuminate the number plate on back of car nor showing a red light in the opposite direction I was travelling. This being the first information about this matter I had from the police, I asked why the constable had not called out so as to draw my attention to it at the time. I was shown a copy of the report, and nothing suggested that the constable had made the slightest attempt to draw my attention to his assertion.

I further explained that the lamp was alight a short distance before and after the place where the constable was supposed to have seen the car, and that I had not been down to light it in the meantime, and that I had a friend with me at the time who would be able to bear out my statement.

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In response to some further question, I said the constable had, no doubt, made a mistake owing to the bright electric light in the road having "killed" the smaller light of the lamp, and so, according to his report, he had not noticed the two red lights produced by the front lamps and showing towards back of car. This served to strengthen my opinion. The gentleman in "mufti," who said he had come to inquire into the case, was most civil, and thought I would probably hear no more about it as my explanation seemed very feasible and satisfactory. A few days after I, however, received a summons and, in consequence, had to appear at the North London Police Court, only the offence about not illuminating the number board being mentioned.

In defending the case I asked for the report, of which I had seen the copy, to be produced, as this would prove that the constable had overlooked the red lights and therefore would be more likely to overlook the number illuminating light, the latter being more the colour of the stronger light illuminating the road. This report could, however, not be produced in court, and upon questioning the constable he declared to have seen the two red lights before mentioned. After having raised a few more points the magistrate, however, considered the evidence sufficient to give me the benefit of the doubt and dismissed the case. The next day I heard that a similar inquiry had been made by the police in a case where the owner is accused of having driven above the legal limit; the inquiring "gentleman" left after having given a similar satisfactory opinion as in my case and a few days after a summons was served.—Yours truly,

F. WIEDEMANN.

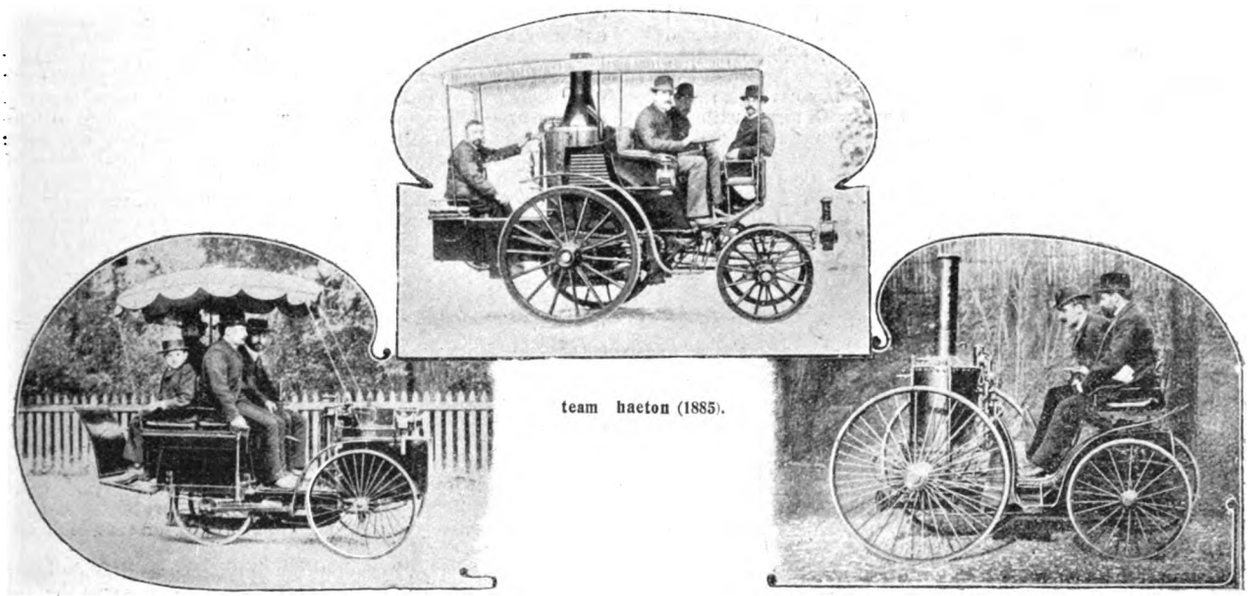
is a gross exaggeration, as it would lead one to infer that the others of the party were unable to render any, which is not the fact. The reports were evidently constructed by a sensation-mongering reporter, probably because the owner of the car refused, shortly after the occurrence, to supply any information to an interviewer, in the idea that he would thus prevent horrors of the usual type gaining currency.—Yours truly,

WILLIAM E. MOSS, Hon. Sec.

COMPETENCY ON THE ROAD.

To the Editor of *The Motor-Car Journal.*

SIR,—Your correspondence *re* drivers is undoubtedly of the greatest interest to all concerned with the welfare of the industry, and I, for one, sincerely hope it will bear the desired fruit, viz., the weeding-out process, and give honour where it is due, and save the confusion and difficulty of trying to decide who is a genuine professional mechanician. The best men I have met with through the shops and on the road have shown the least swagger and the most consideration for their car and the other users of the road, and still upheld their own dignity with all the ability circumstances desired whenever the occasion for same arose. That a real good man is the positive cheapest there can be no argument, and to make a good man, on a piece of well-made, fairly complicated mechanism, dealing with the laws of speed and gravitation, and the unlevel surfaces of the various roads, carrying the lives of his employer and family and the other users of the road in his hands, having to contend with the nervousness of various horses, pedestrians, excited children, irate old gentlemen, foolish dogs, greasy sets, etc., and still keep going at a good speed, and as cool and



team haeton (1885).

A Steam Quadricycle (1885). A Belt-driven Steam Ca (1883).

SOME EARLY DE DION STEAM CARS.

TYRES AND CARBURETTORS.

To the Editor of *The Motor-Car Journal.*

SIR,—As a user of the Louguemare carburettor I would be very pleased if Thomas Hallewell would give fuller information as to fixing a shutter on the air inlet. The carburettor inlet pipe on my 12-h.p. car is fixed on to the exhaust pipe and is perforated round same. My air lever has no regulating rod to dashboard, and I have to regulate the air lever under the bonnet before starting, and it makes not the slightest difference whether the air lever is half open or wholly open as to the running of my car, no matter when running the engine free or when on the road.

If you or any of your readers can give me any information as to what should be done to improve matters I will take it as a great favour. I could easily have a rod on to the dash if this would assist, but my opinion is that the carburettor is not getting sufficient air. R. W. B. states that the jet may have been unduly enlarged; will he explain where said jet is to be found and how best to correct error? A hint on how to best get gear box wheels to mesh when changing speed will be of great assistance. I can change from lower to higher speeds all right, but when coming down, should I wait a second or should this changing be done quickly?—Yours truly,

MACK SICCAR.

SENSATIONAL REPORTING.

To the Editor of *The Motor-Car Journal.*

SIR—As there may be some inquiry respecting the accident to a Liverpool motorist, reported in the daily papers as having occurred on the Cat and Fiddle road last Sunday, I am glad to tell you I am authorised by the owner and driver of the car, who is a member of the Liverpool Self-Propelled Traffic Association, to write you.

To say that the gentlemen of the Imperial Yeomanry who kindly went for assistance "found the lady unconscious and apparently dead" pleasant as sitting on a chair, he wants all his faculties on board, which must mean, first, *prevention* by forethought and foresight in a degree that can only be got by absolute experience of a long-standing practical acquaintance with the nature of the metals and parts under his control. Second, *cure* (should it be needed), and how to turn, fit, forge, or braze or solder a spare part with makeshift tools anywhere from home, and so save being stuck fast, and this *promptly*. This means resource and mechanical ability of no small order. That is why men who possess these qualities can always get a job straight away at a works, with a greater freedom than usually offered in private, with not so many often reverse-opinioned persons to please, and also why menial duties, such as house or garden, are uninteresting and objectionable.—Yours truly,

W. C. READ.

DECAUVILLE CARS.—Mr. J. W. Hicks writes:—"I shall be glad if any of your readers would give me their experience of Decauville 10-h.p. cars.

THE "KOSMOS" TREADS FOR PNEUMATIC TYRES.—A correspondent enquires for the name of the English agent for these treads.

RADIATORS.—Mr. Frank Morriss, of King's Lynn, writes:—"In the last issue of the *Journal* I notice a description of a radiator made by the Coventry Plating and Presswork Company, Limited. May I be allowed to state that I made a radiator on this principle as far back as the end of 1902, and, indeed, exhibited the same at Cordingley's Show in 1903? I enclose you an illustration of one of my radiators, which are made in any shape desired and of various dimensions, suitable for cars of any horse-power. This type of radiator, when properly constructed, is most efficient and far stronger than the usual honeycomb type. Care must, however, be exercised in the design; it took me some time to arrive at the correct proportions, but I can supply a radiator of this type suitable for any car."

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INTERNAL-COMBUSTION MOTORS.

By Dugald Clerk, M. Inst. C.E.

—♦—

The annual "James Forrest" lecture at the Institution of Civil Engineers was delivered on the 21st inst. by Mr. Dugald Clerk, M. Inst. C.E., who chose as his subject one that he is well qualified to deal with, viz., "Internal-Combustion Motors." Mr. Clerk covered the whole ground of gas and oil engines, but we have confined our abstract to those portions dealing with petrol and alcohol motors which are of particular interest to motorists.

During the past twenty-five years engineers have applied internal-combustion motors to all manner of uses in powers ranging from the tiny ½-h.p. motor to the huge 2,000-h.p. engine. They have adapted the motors to the consumption of many different kinds of inflammable gases and vapours, and they have continually increased both mechanical and thermal efficiency until, at the present time, these motors compete with steam in almost every field. For small and moderate powers their advantages greatly outweigh those of steam. Light hydro-carbons had been early utilised in these motors, but it required the advent of the motor-car, with the beautiful small high-speed engines originated by Daimler, to make petrol consumption a matter of commercial importance. The production of these petrol engines is now conducted in all countries on a very large scale indeed, and the desire to utilize local inflammable material has led to the use of alcohol in similar small motors specially arranged for that fuel. Much has been done, but more still remains to be done before finality can be said to be even approximately attained.

Much difference of opinion still exists on physical and chemical points of the highest abstract scientific interest; but all are agreed, so far as practice is concerned, on certain main features. These leading features are: initial compression of the working fluid, exposure of the flame to the smallest area of cooling surface for the shortest time; and the use of the lowest flame temperatures consistent with high available pressures. In many cases motors deviate somewhat from these understood requirements; generally not from ignorance on the part of the designers, but from some stern practical necessity. Some of these matters, both practical and scientific, will be here discussed. Development has followed two main lines. First, improvements relating to the motor itself, including changes in the thermo-dynamic cycle, followed in the treatment of the working fluid and the inflammable gas within the motor by the modification of such details as admission valves, igniting devices, governing methods and water and air-cooling systems. Starting-gear has also been carefully studied, and, both from the thermo-dynamic and the mechanical point of view, it may be safely said that these motors have attained a great measure of perfection. Secondly, parallel with the improvements relating to the motor itself have proceeded those relating to means of generating the inflammable gaseous or vapour fuel intended to operate the motor. These improvements have related to the economical production of ordinary coal-gas, to the effective production of producer-gas from anthracite, bituminous non-caking coal, coke and other solid fuels, to the treatment of heavy and light hydro-carbons and alcohol to produce an effective inflammable vapour, and to the purification and collection of blast-furnace gas, coke-oven gas and natural gas.

Car motors are very commonly made of the inverted vertical type, and they run at speeds of from 600 revolutions up to and even over 1,200 revolutions per minute. In these engines the cylinder and combustion spaces are well water-jacketed, and now both inlet and exhaust valves are usually positively operated. Ignition is effected electrically, sometimes by a magneto machine and sometimes by accumulator and induction coil and jump spark. Many varied types of engines, however, are now used for motor-car purposes, and it cannot yet be said that the motor-car engine has attained fixity of type, although for the present the inverted vertical engine is in the ascendant. Considerable variations in the construction of motor-car engines may be expected within the next few years. The magneto appears destined ultimately to supplant all other modes of ignition.

The present position of the theory of the internal-combustion motor is in the state of that of the steam engine at the time of Watt, before the accurate determination of the properties of steam. As Watt knew of the latent heat of steam but did not know all its properties accurately through a considerable range of pressures and temperatures, so engineers now know of a similar absorption or suppression of heat existing in gaseous explosions without knowing accurately its causes or proportions under all the various conditions of practice. It is perhaps in this task of settling the data for an accurate standard engine of comparison that the physicist and chemist can assist the engineer most effectively. So far, by following the broad lines indicated, heat efficiencies have improved from 15 per cent. to 30 per cent.; and, without doubt, further improvement in efficiency will be made, but with present knowledge it would be impossible to say that the next twenty years would carry us from the 30 per cent. efficiency of to-day to, say, a 60 per cent. efficiency. That efficiencies can be increased much further cannot be doubted.

Gas-engine constructors have noted that among all uncertainties there emerges one certain fact, that the higher the compression—or rather, the smaller the compression space relatively to the cylinder volume—the greater the economy to be obtained from the engine. They have seized upon this fact, and the past twenty-five years of English and continental practice have shown steadily increasing compression. Improvement in this direction may be considered as due to bettering the conditions of the thermo-dynamic cycle; but another line of improvement is also open, and that line is to reduce the heat losses to the lowest possible point. All internal combustion motors suffer large heat-losses because of the contradictory requirements of the practical cycle. The cycle requires a charge of working fluid first as cold as possible, then compression of that charge without heat loss or gain, then combustion producing high temperatures, succeeded by expansion, also without heat-loss or gain. In an ordinary internal-combustion motor of medium size these opposite conditions follow each other in the same cylinder at intervals of about one-sixth of a second, and in a high-speed petrol motor at from one-twentieth to one-fiftieth of a second. It is, therefore, impossible to arrange cylinder conditions to minimise heat-flow, because any attempt to keep surfaces hot to prevent heat-loss at once introduces heat into the working fluid at a time when it should remain cold. Some heat-loss, therefore, from the hot gas to the relatively cold walls is unavoidable. This loss, however, becomes naturally less and less with increase in the dimensions of the engine. With engines of similar proportions, the surface exposed for cooling flame increases as the square, while the capacity of the engine increases as the cube. From this it follows that the larger engines should lose less heat proportionately than the small ones.

As a rule it may be taken that gases which are rich in hydrogen are highly inflammable, and pre-ignite readily. Such dangerous mixtures can only be compressed to a moderate degree without risk. It has been found, for example, that in petrol engines the compression can be carried higher than in heavy oil-engines, and that with some kinds of heavy oil compression must be lower than with other kinds. On the other hand, it appears that, with alcohol as the inflammable material, compressions can be carried very much higher than with petrol. At present the engineer knows, from previous experience, that, if he carries his compression beyond a certain limit for a certain gas, he will at once make his engine relatively unworkable by frequent pre-ignitions. The great limiting element in all internal-combustion motors, so far as high compressions are concerned, is this one of pre-ignition. They are due to many causes; sometimes to a small incandescent part of metal or to a porous surface of metal within the cylinder; sometimes to a hot piston end; sometimes to an over-heated exhaust-valve; possibly to charred matter of carbon deposited in the cylinder. In all cases, however, pre-ignition occurs owing to the tendency of these engines to be over-heated.

Definite chemical information is much wanted on the ignition points of various gaseous mixtures when treated under internal combustion motor conditions in fairly large volumes. Experiments, such as chemists sometimes conduct, in narrow glass or metal tubes are of little use in considering this question of pre-ignition. Such experiments, if made, would require to be performed with comparatively large bodies of material exposed for definite fractions of a second to certain graduated temperatures.

This is found to be the case, but it is also found that in engines above certain dimensions the reduction of cooling surface can be pushed too far. This is due to the fact that an engine piston has to compress an inflammable mixture to high pressure before ignition occurs at all. If the products of the previous combustion be not entirely removed, then in a large engine the temperature remains so elevated that the initial or suction temperature of the engine is raised and at high compressions pre-ignitions occur.

This question of pre-ignition limits the engine designer in many ways, and it becomes absolutely necessary to preserve the inflammable mixture during compression at a temperature below its igniting point. Any inflammable mixture only requires to be sufficiently compressed to ignite without any other means of inflammation. Unfortunately the conditions of maximum economy in engines are also conditions which favour pre-ignition. In small motors pre-ignitions are rare and are not dangerous; in large engines they are unfortunately somewhat frequent, unless mean pressures be kept down and extensive cooling adopted, and when they do occur they are somewhat dangerous. It is unfortunate, also, that no exact knowledge exists as to the temperature of ignition of different gaseous mixtures, and the engineer has been obliged to accumulate very considerable knowledge of the subject by the simple process of pushing his compression with each gaseous fuel as high as he dare without producing pre-ignition. If with any fuel he produces pre-ignitions, then he at once alters his compression space and other parts, so as to reduce the compression.

With regard to vaporizing devices for using petrol, petroleum and other hydro-carbons, great progress has been made, and the advent of the motor-car has brought into the field a large number of able engineers entirely untrammelled by any considerations of precedent. Their efforts have resulted in extremely interesting constructions, which are highly successful in vaporizing and applying these fuels to the use of the motors. The question of carburettors for light oils presents many interesting scientific peculiarities, part chemical and part physical, which require minute investigation. Alcohol, too, has been pressed into the service, and its properties, chemical and physical, supply a fresh series of problems for the chemist, the engineer and the physicist. Remarkable results have been obtained in Germany by the use of alcohol. Professor Meyers' recent tests with alcohol engines prove astonishing efficiency to be obtained from this substance. It may be said, however, without exaggeration, that the whole world is now alive to the possibilities of the internal combustion motor, and the progress will be more and more rapid. These motors have almost fulfilled the expectations of those engineers who—like myself—have devoted a large part of their lives to their study and advancement. They are looking forward now to the completion of the work begun so many years

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ago, and expect, at no distant date, to find the internal-combustion motor competing with the steam engine even in its latest form, the steam turbine, on sea as vigorously as it does at present on land.

CLUBS AND ASSOCIATIONS.

WEST SURREY.

THE annual general meeting of the West Surrey Automobile Club was held at the Lion Hotel, Guildford, on the 19th inst. Those present included Colonel Fairtlough, chairman; Messrs. E. and F. Baring-Gould, Buttemer, Crothers, Noble, Pullman, Ponsford, and Tessier. The accounts, showing a balance in hand of £13 on the year, were passed, and the committee for the current year were elected as follows: Colonel Fairtlough, Messrs. W. G. Crothers, Wilson Noble, J. F. Ponsford, E. E. Pullman, A. C. Tessier, and R. W. Buttemer.

The Club is taking active steps towards assisting in the laying of several trial patches of Westrumite in the neighbourhood, which it is hoped will lead to a considerable diminution in the dust nuisance so peculiarly obnoxious on the chalk and sand formations.

The first run of the season took place on Saturday, when Mr. J. H. Knight kindly entertained members to tea at his residence at Farnham. Eight cars, besides those of several visitors, took part, and the interest of the proceedings was added to by an exhibition of Mr. Knight's car built by himself in 1895, and the first petrol car made in this country.

LINCOLNSHIRE.

THIS club held a very successful meet at Grantham on Thursday, the 21st inst. Eighteen cars and cycles arrived at the George Hotel shortly after 4 o'clock, and their arrival was watched with considerable interest. It was an exceedingly pleasant afternoon for motoring, and many ladies took part in the trip. Some of the cars came from places as far distant as Gainsborough and Market Rasen, while others were present from Lincoln, Boston, Bourne, and Stamford. Mr. G. Linnell's car—a 12-h.p. Wolseley—which brought a party from Market Deeping, proved an attraction, as did also the Richardson cars. The array of motors in the hotel yard was inspected with considerable interest by many of the townspeople who assembled to witness the meet. The motorists also included Mr. H. T. Pilley and party (Boston) on an 8-h.p. Peugeot, Mr. B. Smith (Horbling) on a 12-h.p. Richardson, Mr. G. Garnett and party (Gainsborough) on an 18-h.p. M.M.C., Mr. F. Richardson and party (Sibsey) on a 10-h.p. Wolseley, Mr. and Mrs. Padley (Market Rasen) on a 6-h.p. De Dion Dr. and Mrs. de Beauvais (Ancaster) on a 7½-h.p. Daimler, Capt. and, Mrs. Lyall (Grantham) on a 7-h.p. Panhard, Mr. and Mrs. Jevons (Market Rasen) on a 9-h.p. De Dion, Dr. and Mrs. Sharpe (Brant Broughton) on a 12-h.p. Richardson, Dr. Gilpin and party (Bourne) on an 8-h.p. Peugeot, Mr. C. Nelson and the Rev. Wardle Hall (Lincoln) on a 4½-h.p. De Dion, Mr. C. J. E. Parker and party (Grantham) on a 10-h.p. Panhard, Mr. H. D. Tryon and party (Stamford) on a 10-h.p. Pick, Mr. R. M. Wright and Col. Harding (Lincoln) on a 12-h.p. Darracq, Mr. Wilkinson (Lincoln) on a 3-h.p. Ariel cycle, Dr. Benson (Market Deeping) on a 3½-h.p. Royal George cycle, and Dr. Stanton (Market Deeping) on a 1½-h.p. Royal George cycle. The motorists and their friends had tea together at the hotel, and commenced the return journey shortly after half-past five o'clock.

WOLVERHAMPTON.

SATURDAY was the opening run of the season of the Wolverhampton and District Automobile Club, the place selected for a visit being Newport, Salop. On reaching Wrottesley Park, where the cars assembled, a photograph was taken, amongst the seventy present being Mr. Trevor F. Young, 18-h.p. "Star"; Mr. T. T. Mills, 8-h.p. "Sunbeam"; Mr. F. Platt, 6-h.p. "De Dion"; Miss Smith (Oaken), 12-h.p. "Sunbeam"; Mr. S. R. Rhodes, 16-h.p. "Ariel"; Mr. G. Evans, 10-h.p. "Wolseley"; Mr. W. Evans, 20-h.p. "M.M.C."; Mr. Scott, 7-h.p. "Panhard"; Mr. Rochelle, "Gladiator"; Mr. F. Jenks, 8-h.p. "De Dion"; Mr. Arnold Mills, 7½-h.p. "Wolseley"; Mr. J. W. E. Stirk, 12-h.p. "Sunbeam"; Mr. W. G. Owen, 10-h.p. "Wolseley"; Mr. W. H. Evans, 10-h.p. "Wolseley"; Mr. Herbert, 5-h.p. "Humberette"; Mr. J. O. Evans, 10-h.p. "Wolseley"; Mr. A. E. Price, 6½-h.p. "De Dion"; Mr. J. Barnett, 24-h.p. "Wolseley"; Mr. B. Payne, 4½-h.p. "De Dion"; Mr. Edward Lisle, 12-h.p. "Star"; Mr. Percy Bayliss, 7-h.p. "Panhard"; Mr. E. Bayliss, 8-h.p. "Wolseley"; Mr. E. Lisle, jun., 7-h.p. "Star"; Mr. Lewis, 8-h.p. "De Dion"; Mr. T. Cureton, 12-h.p. "Sunbeam"; Mr. Louis Connolly, 4½-h.p. "De Dion"; Captain W. H. Haden (Siddeley), 7-h.p. "Star." In addition to the motor-cars, Mr. W. H. Jenks had a motor-cycle, and later on Mr. C. F. S. Boyes also joined with his motor-cycle, on which he has ridden 2,000 miles.

Leaving Wrottesley Park, the cars were soon on the Holyhead road, and making their way to Newport. Motorists must feel they owe a deep debt of gratitude to the Staffordshire County Council for the splendid way in which that body looks after the main roads. The Holyhead road was left at the Junction at Kingswood, then up the hill, over Kingswood Common, and the cars were in Shropshire, going through the village of Albrighton, and then on to the village of Tong, made famous by Charles Dickens in "The Old Curiosity Shop." There was a good view of Tong Castle. The motor-cars stopped in front of the Royal Victoria Hotel, Newport, and soon there was a collection of them close to one of the gates leading to the parish church, for the residents of the Salopian town to look at. Soon after tea the return journey was commenced.

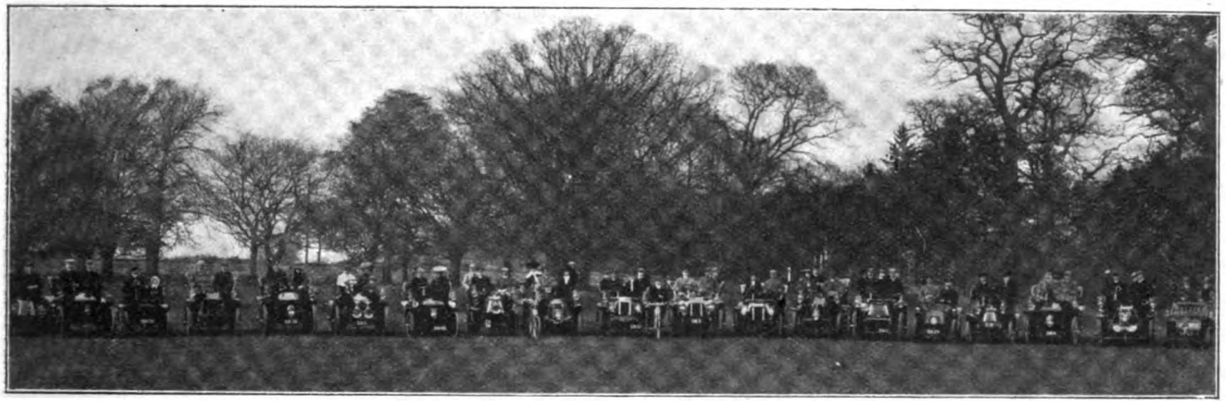


Photo by] The Meet of the Wolverhampton and District Automobile Club at Wrottesley Park. [Bennett Clark.

THE STORAGE OF PETROLEUM.

MESSRS. BRADBURY AND COMPANY (Limited), motor-cycle manufacturers, of Oldham and Farringdon Avenue, E.C., have been summoned for having on their London premises 4½ gallons of petroleum which was found to exceed the proper flash point allowed by the Act. When the inspector under the Act called at defendants' premises in Farringdon Avenue on the 8th April he seized four drums of spirit. When tested it was found to give off inflammable vapour at 4 degrees above freezing point. Professor Redwood had no doubt that it would give off an inflammable vapour at zero Fahrenheit; 73 deg. was the legal limit. For the defence it was submitted that the company had acted in ignorance, but were perfectly willing to adopt what measures might be suggested. They took the greatest care. Mr. Alderman Smallman imposed a penalty of £10 and £4 4s. costs.

CASES DISMISSED.

THE journeys of two motorists returning from Tarporley races were interrupted by the police at the foot of Luddington Hill—which is described as a steep and dangerous incline, about three-quarters of a mile in length—who appeared before the magistrates at Eddisbury. One of these, John Taylor, of The Hollies, Gatley Road, Cheadle, was said to have come down the hill at a speed of 28 miles an hour. The constable who made the statement admitted that the car was stopped within ten or twelve yards, and the magistrates were satisfied that it was under control and dismissed the case.

THE first case under the Motor Car Act at the East Grinstead Petty Sessional Court has just been heard. Herbert Burbidge, of East Grinstead, was summoned for two offences at Forest Row on April 9th—one for failing to produce his license as the driver of a motor-bicycle under the conditions of the Act, and the other for using a motor vehicle with a registration mark fixed thereon in accordance with the Act, but which was not easily distinguishable by the police by night. Defendant explained that the bicycle was brought over from Crawley for him to try before making a purchase. He rode to Forest Row, and was mending the engine for nearly an hour. He told the constable he had no

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driving licence, but secured one a few days afterwards. The lamp was an acetylene one, and he had previously turned it down while the bicycle was stationary. When he turned it up it did not burn well, and the letters were not brilliantly illuminated. The Bench decided that the case should stand over for investigation, and just before the Court rose the Chairman said they had considered the circumstances, and thought that defendant had been rather indiscreet, but that the offences were committed more or less in ignorance. The case would be dismissed.

EDWARD A. HELLMUTH, of Mona-terrace, Chiswick, appeared to answer a summons as the driver of a steam motor-vehicle for leaving the motor without taking due precaution against it being started in his absence. Constable 23 K R on the evening of April 8 saw the defendant, who was driving a light locomotive, pull up at a coffee-house in the Mile-end Road. He made up the fire and then adjourned to the coffee-house, and afterwards admitted that he had left no one in charge. During the whole time the engine was under steam. The defendant said he did take precaution against the motor being started. He screwed down both brakes and put the engine out of gear. He also locked the top gear so that it was impossible for anyone to start it. He put the valve in mid gear to prevent it going backwards or forwards. Had all the levers been moved it would not have started. The magistrate observed that the defendant appeared to have fulfilled the regulations, and apparently did all that he was required to do. The summons would be dismissed.

LETTERS OF IDENTIFICATION.

BELOW we give the letters of identification for the English and Welsh county boroughs.

Bath	F.B.	Lincoln	F.E.
Barrow-in-Furness	E.O.	Liverpool	K.
Birkenhead	C.M.	Manchester	N.
Birmingham	O.	Middlesbrough	D.C.
Blackburn	C.B.	Newcastle-upon-Tyne	B.B.
Bolton	B.N.	Newport (Mon.)	D.W.
Bootle	E.M.	Northampton	D.F.
Bournemouth	E.L.	Norwich	C.L.
Bradford (Yorks)	A.K.	Nottingham	A.U.
Brighton	C.D.	Oldham	B.U.
Bristol	A.E.	Oxford	F.C.
Burnley	C.W.	Plymouth	C.O.
Burton-upon-Trent	F.A.	Portsmouth	B K.
Bury	E.N.	Preston	C.K.
Canterbury	F.N.	Reading	D.P.
Cardiff	B.O.	Rochdale	D.K.
Chester	F.M.	Rotherham	E.T.
Coventry	D.U.	St. Helens	D.J.
Croydon	B.Y.	Salford	B.A.
Derby	C.H.	Sheffield	W.
Devonport	D.R.	Southampton	C.R.
Dudley	F.D.	South Shields	C.U.
Exeter	F.J.	Stockport	D.B.
Gateshead	C.N.	Sunderland	B.R.
Gloucester	F.H.	Swansea	C.Y.
Great Yarmouth	E.X.	Walsall	D.H.
Grimsby	E.E.	Warrington	E.D.
Halifax	C.P.	West Bromwich	E.A.
Hanley	E.H.	West Ham	A.N.
Hastings	D.Y.	West Hartlepool	E.F.
Huddersfield	C.X.	Wigan	E.K.
Ipswich	D.X.	Wolverhampton	D.A.
Kingston-upon-Hull	A.T.	Worcester	F.K.
Leeds	U.	York	D.N.
Leicester	B.C.		

POLICE TRAPS.

AT Wallop (near Andover) P.S. Barton, of the Hants Constabulary, is becoming a rival of Sergeant Jarrett. He has devised a trap on the main road leading from Andover to Salisbury.

ON the Portsmouth Road, at Surbiton, the police have a measured quarter of a mile.

THE police trap at Bolney, on the Brighton road, during the first three days of April resulted in thirteen summonses.

CONVICTIONS AGAINST MOTORISTS.

Camborne	Furiously riding motor-cycle	2s. 6d.
Hanley	Unlicensed car	20s., etc.
Halifax	No light at rear	5s., etc.
Winchester	Driving to common danger	£5, etc.*
Ashton	No light	2s., etc.
Birmingham	No number	10s., etc.
Andover	Reckless driving	£1, etc.
Farnham	Failing to stop after an accident, contrary to Section 6 of the Motor Car Act	£5.

* Licence endorsed in addition to fine imposed.

COMMITTED FOR TRIAL.

AT Epsom Police Court on Monday Emile Richard, a motor engineer, of Tottenham Court Road, W., was charged, on remand, with the manslaughter of Frank Parkinson Job, while in charge of a motor-car on the Brighton Road, at Belmont, on April 4th. Mr. William Lewis, from the Public Prosecutor's Department, prosecuted on behalf of the Treasury, and Mr. Symons defended. The accused, when arrested, said that he had to choose between a motor-cycle and the cyclist, and he alleged that the motor-cycle did not leave him enough room to pass. The accused had a French driver's licence, but did not possess an English driver's licence. He was committed for trial, bail being allowed.

DEBATEABLE MATTERS.

IN the course of a paper read before the Society of Arts on Popular Motor-cars on the 20th inst., Mr. Mervyn O'Gorman gave the following list of debateable matters on which the public have various views :—

Engine :	(i.)	Multiple	*v.*	Single cylinders.
	(ii.)	Vertical	*v.*	Horizontal engines.
	(iii.)	Small enclosed	*v.*	Large flywheels.
	(iv.)	Racing bonnets and cellular radiators	*v.*	Unobtrusive bonnets and gilled tubes.
Frame and Gear :	(v.)	Valves in pockets	*v.*	Valves in cylinder head
Control :	(vi.)	Spray carburettor	*v.*	Surface wick and others.
	(vii.)	Induction supply of gas	*v.*	Pressure supply.
	(viii.)	Side chains	*v*	Direct drive, live axles (this fashion has lately received the order of right-about turn).
	(ix.)	Four-speed sliding gear	*v.*	Two-speed of any other type.
	(x.)	Governing by throttling the inlet	*v.*	Throttling exhaust, hit and miss, altering mixture, &c.
	(xi.)	Long wheel base	*v.*	Springs properly damped.
	(xii.)	Heavy	*v.*	Light cars (here the turn is coming.)
Body :	(xiii.)	Ornate Carrosserie	*v.*	Simple and smooth bodies.
	(xiv.)	Wheel Steering	*v.*	Tiller steering.
	(xv.)	Racing results	*v.*	Reliability trial results.

MESSRS. H. MILLER AND COMPANY, LIMITED, of Birmingham, send a copy of their new catalogue. In glancing through this we notice that twenty-seven designs of cycle and motor lamps are illustrated, so that the firm is in a position to meet practically all classes, from the humblest motor-cyclist to the motor autocrat. There are too many lamps to describe in detail, the designs embracing patterns to burn either acetylene gas, petroleum, ordinary vegetable oil, or candle. In addition to lamps, Messrs. Miller and Company have added a spec ia chemical department to their business, and are in a position to supply burning and lubricating oils. These are put up in special tins enamelled in colours, which make an attractive display for the trade. They also supply repair outfits, cements, and non-inflammable solution, and are making a speciality of ordinary carbide.

TO CORRESPONDENTS.

All communications intended for insertion in this Journal or relating to Editorial matters should be addressed to THE EDITORIAL DEPARTMENT, MOTOR-CAR JOURNAL, *39 and 40, Shoe Lane, London, E.C., and must be written on one side of the paper only. Letters must in all cases be accompanied by the name and address of the writer, as no notice will be taken of anonymous communications.*

The Editors cannot undertake to return MSS. or drawings, although every effort will be made to do so in the case of rejected communications. Where such are regarded as of value, correspondents are requested to retain copies.

To insure insertion communications and contributions must be in the Editor's hands by Tuesday forenoon of the week in which the same are intended to appear. Disappointment may be caused by non-compliance with this rule, and to avoid this earlier receipt, if possible, is necessary.

The Editors do not hold themselves responsible for the opinions expressed by their correspondents, or for statements and facts which do not appear in the editorial columns.

The Editors and Publishers beg also to state that they will accept no responsibility for unsolicited contributions, even if used, unless payment for same is directly specified in forwarding, and the terms arranged before publication.

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THE

Motor-Car Journal.

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COMMENTS.



IT would appear that May-day parades of automobiles are likely to become a familiar feature in all the big centres of population. Not only was there the motor-van parade in London on Saturday last, but the Automobile Club of America has also made a beginning in having a May-day parade of automobiles, the date, however, being fixed for the first Saturday in the month, owing to the 1st inst. falling on a Sunday. The Mayor of New York will probably head the procession, and many public men have promised to take part in the event. The display is to be practically confined to motor-cars for touring and pleasure purposes, but the main point of interest is that on both sides of the Atlantic the automobile should be figuring in a parade which has hitherto been almost wholly identified with the horse.

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Fighting the Dust Nuisance at Wandsworth.

WE are glad to notice that Wandsworth is taking a prominent part among Metropolitan boroughs in inaugurating experiments with the view of combating the dust nuisance. The long straight thoroughfare known as Trinity Road, connecting the town with Balham and Tooting, has been selected for the trials, and the other evening men were engaged in sprinkling a stretch of the road, by means of the ordinary watering carts, with a solution of a new dust layer or binder known as Hope's Pyne Oiline. A further piece of the same road is, we understand, to be shortly treated with Westrumite for the purpose of ascertaining which preparation is the more effective and durable. Whether Wandsworth's enterprise is due to the fact that its Mayor, Mr. J. W. Lorden, has lately joined the ranks of automobilists, or to the growing automobile traffic along its main thoroughfare, which forms part of the high road from South London to Richmond and Kingston, we do not know, but the example it has set is one we strongly recommend to other Metropolitan boroughs.

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A Trade Distinction.

FOR the first time the automobile has made its way to the agenda paper of a trade union assembly, and at the Scottish Trade Union Congress just concluded the following resolution was submitted on behalf of the Coachmakers' Society:—"That, seeing the motor-car is a growing industry, the congress is of opinion that the structural work, apart from the power section, belongs exclusively to the coachmaking trade, and deprecates any attempt on the part of any other trade to claim or encroach on such industry." This having been seconded, it was moved and seconded by the delegate of Furnishers, that, not having sufficient information before them, the congress declined to commit itself to an opinion which might prove inimical to the interest of their trades and lead to friction between them and the congress. In the discussion which followed, the general opinion was that the resolution by the coachmakers would lead to serious disagreement among the trades, and that the object of the congress was to unite the trades and not place barriers between them. The amendment was carried by 69 against 8.

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In the Park.

IN the House of Commons on Monday Lord Balcarres, in reply to a question by Mr. Cathcart Wason, said that since the beginning of January there had been only one summons for excessive driving of motor-cars in Hyde Park, as compared with 108 during the whole of 1903, an improvement which is as creditable to the police as to the motorists. The limitation of speed in Hyde Park does not come under ordinary law, but under the Parks Regulation Act of ten years ago. These regulations provide that the speed should be such as the traffic requires, and that it should be reasonable.

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No Speed Limit.

WHILE on this point we would advise the coroner of the city of Durham not to place too much reliance upon the idea of a speed limit as affording safety to the public. In a case in which an old lady had been knocked down and killed, the witnesses agreed that a speed of six or seven miles an hour had not been exceeded. The coroner suggested that no one should travel through the narrow streets of the old city at more than four miles an hour. Even this restriction would not be satisfactory. The law should deal with cases of driving to the common danger in such circumstances, for speeds that are perfectly safe in one place are simply murderous if indulged in at another time in another place.

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In the City.

THE Common Council of the City of London have decided to make application to the Local Government Board for regulations in pursuance of sub-section 9 of the Motor Car Act of 1903, putting its provisions into force in the whole of the City of London. This will mean that throughout the City no persons will be allowed to drive a motor-car at a speed exceeding ten miles an hour, an exceedingly reasonable suggestion, against which motorists will have nothing to say. In fact, there is really no reason for the Act to be put into operation, as the provision is already carried out by every sensible motorist. We doubt whether the traffic will allow a speed of anything like the rate suggested, and it may safely be said that the City of London will occupy a unique position in the fact that it is likely to be the only place in the United Kingdom where the Local Government Board will readily approve of the reduction of the speed limit to ten miles per hour.

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Motor Cycles and the Yeomanry.

IT would seem that the automobile is becoming really ubiquitous in the Army. The other day Mr. Allhausen asked the Secretary for War whether he would sanction the use of a limited number of motor-cycles in lieu of horses for despatch carrying, ordinary work, or other purposes by Imperial Yeomanry during their annual training. Mr. Arnold-Forster was sympathetic to the extent that he replied that there would be no objection to the use of a "very limited number" of motor-cycles

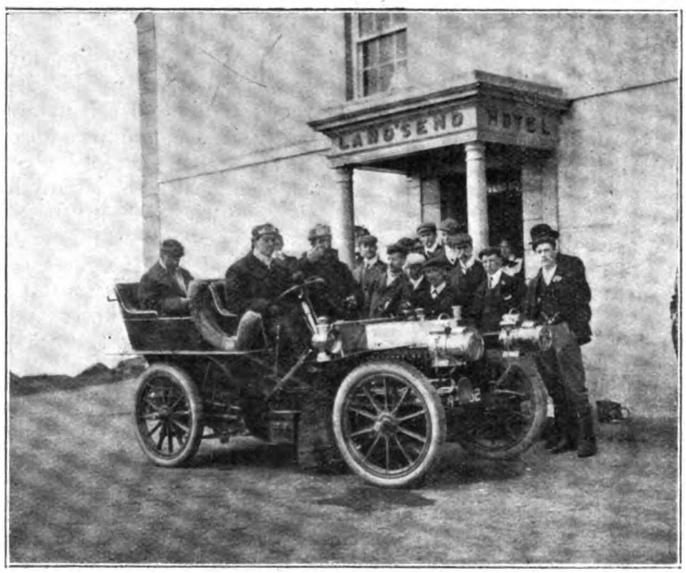
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in the way suggested by the M.P. for Hackney, provided that the proper training of Yeomanry in the use of horses was not in any way inteferred with. On the question, however, of the owners of motor-cycles being permitted to draw an amount equivalent to the allowance to existing owners of horses, as a forage allowance, he was decidedly reactionary, and curtly answered that the proposal could not be sanctioned. We do not despair, however, for it will be remembered that when the use of the motor-car in connection with the military manœuvres was suggested, the War Office declined to treat owners of cars with anything like generosity. The good work, however, that has been done has convinced the War Office of the absolute necessity of encouraging the use of the automobile, and the cars having proved their value, it only remains for the motor-cycle to do likewise for its owner to be compensated. This is but right, for he places his machine as well as his services at the disposal of his country.

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A 2,000 Miles Run.

MR. CECIL EDGE is to be congratulated on his feat in performing a run of 2,000 miles on a motor-car. Unfortunately he was not able to accomplish the task he had set out to do without a stop, but managed to break at least two world's records, and from that point of view the trip was eminently



The Napier Car at Land's End—

successful. Recently a non-stop run of 1,000 miles has been made between London and the Midlands, but Mr. Edge travelled 91 miles more than that without a stoppage of the engines. He started on April 25th from London, and arrived at Tewkesbury the next day, having first called at Land's End. On Monday he was up among the Grampians, plunging into a mountain stream, without, however, stopping the engines. Tuesday night he reached Dingwall, after having stopped at John o' Groat's sufficiently long enough for the accompanying photograph to be taken. Wednesday he got to Shap Fell, but unfortunately up the hill the cover of one of the tyres burst, necessitating a delay till another arrived. Thursday night was spent at Warrington, and on Friday morning, last week, he arrived just before 10 o'clock at New Burlington Street, London, subsequently going to Brighton and Worthing and ultimately finishing the run at the Automobile Club, having covered a distance of 2,068 miles.

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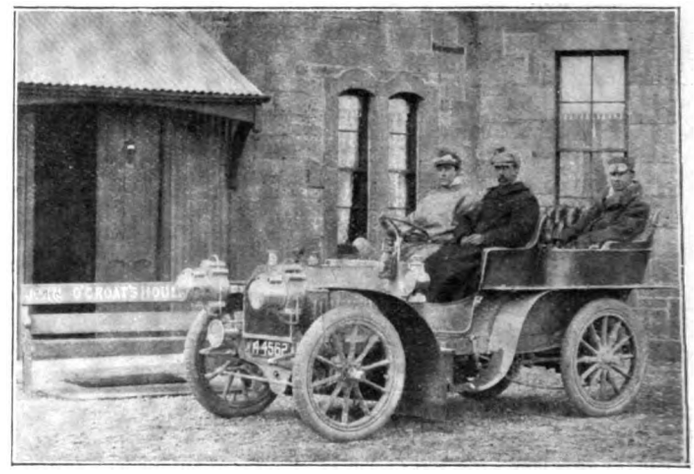
A Severe Test.

MR. CUNDY shared with Mr. Edge the handling of the steering wheel, and very little rest did they get during the week. The burst tyre must have been recognised by both as a providential incident, enabling them to get a little sleep while waiting for the new tyre to arrive. The trip was singularly free from incident, although three chickens, a calf, and a lamb ceased existence in consequence of the overbearing attitude adopted by the car towards these unfortunate beings. From start to finish the time occupied was 136 hours, and in going from Land's End to John o' Groat's, the distance of 865 miles, the actual running time was less than forty hours. Previously to this, the best run was that of Mr. Douglas Whitehead, who accomplished the trip in 45 hours 13 minutes. In endeavouring to demonstrate the strength and durability of an English motor-car Mr. Edge certainly succeeded, the only mishap on the car itself being the breakage of two chains, but otherwise the vehicle demonstrated the sturdy character of British productions.

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Alcohol for Motorists.

A NEW factor has been introduced into parliamentary life by the development of the automobile party of last year into a permanent committee, including practically all the motorists on both sides of the House. A meeting was held last week, at which Messrs. C. E. Shaw, C. D. Rose, W. Palmer, Hudson Kearley, Major Jameson, and Col. Sadler represented all shades of political feeling. They were, however, able to unite in their enthusiasm for automobilism. Mr. Scott Montagu, who was in the chair, must have felt that he presided over a body which is likely to be of considerable influence in the near future. Among the other matters discussed was the question of the duty on alcohol imported for industrial purposes, and it was decided to present a petition to the Prime Minister and the Chancellor of



And at John o' Groat's.

the Exchequer, urging that spirit imported for purely industrial and non-potable use should be received free on the lines laid down by Mr. Tyrer at the Society of Mechanical Industry to which we made reference in our last issue.

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The Aid of the Chemists.

THE hope of the Parliamentary Party is that the Government may consent to appoint a small committee of experts to investigate the matter and to make some definite report to the Treasury which may have the effect of securing the desired concession. If such is done, the chemists of the country, like Mr. Ormandy, will doubtless join in the movement by carrying out further experiments likely to assist the movement for the utilisation of alcohol in connection with motoring.

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Motor-Cars and the Post-Office.

AS was briefly mentioned in the *Journal* for the 23rd ult., the night mails between London and Epping have for some time past been conveyed by a 16-h.p. Milnes-Daimler car belonging to Mr. George Hayes, of Plumstead. The vehicle leaves Mount Pleasant, W.C., every night at 11.50 p.m., and runs *via* South Woodford, Woodford Green, Buckhurst Hill

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and Loughton, short stoppages being made at each of these places to deliver mails at the sorting offices. Epping is timed to be reached at 2.8 a.m., and ten minutes are allowed for unloading the car and reloading it with local mails for the metropolitan district. The return journey, which starts at 2.18 a.m., is made *via* Chingford, where further mail bags are picked up and Mount Pleasant is again reached at 4.20 a.m. The service, which has been experimentally run for the past eight months, has proved so successful that, we learn, the G.P.O. authorities have decided to put it on a permanent basis, and have arranged a three years' contract with Mr. Hayes, who is having a new 16-h.p. van of the same type built for the purpose. The Post Office have two other motor-cars in use in the London district by way of experiment—an 18-h.p. Durkopp, which is conveying the night mails to Redhill, and a "General" light van, which is used for short journeys in the Metropolitan area. In the latter class of delivery work the automobile has proved its capabilities to the satisfaction of the postal authorities, who, we understand, are contemplating putting a number of additional cars in service at an early date.

Financial Success.

THE Board of the Hozier Engineering Company, Limited (makers of the Argyll motor-cars) have declared an interim dividend for the half-year ending 31st March at the rate of 20 per cent. per annum. The half-yearly dividend on the 6 per cent. preference shares will be paid on the same day. The dividend on the ordinary shares for 1902 was 5 per cent. and last year 10 per cent. This notable success of a British company will be gratifying to our readers and distinctly encouraging to the shareholders in the concern. Doubtless the company would assign as the chief reasons for their success the standardisation of parts, adhering to one pattern right through the season, the adoption of modern labour saving machine tools, the use of a most complete set of jig fixings and gauges, and, of course, the securing of a large market which enables them to have a continually growing production which has now reached fifty cars per month. To these factors might also be added Mr. Alec. Govan, the managing director of the company.



Photo by] The Eliminating Contest in the Isle of Man. A View of the Course Between Ballacrane and Glen Helen. *[G. B. Cowen, Ramsey.*

Cars at Cardiff.

REALLY some of the Welshmen are too tenacious in their campaign against motor-cars. We refer, of course, to the stubborn minority and not to the great bulk of the people, who readily recognise that the automobile is opening up a great deal of their beautiful country for touring purposes, and thus adding something to the wealth of the mountainside, to say nothing of the fashionable resorts along the seashore. Newport, of course, has proved obstinate, but we are glad to say that the Cardiff Cabs Committee has rejected an attempt made to restrict the speed of motor-cars to a ten-mile limit when passing through that important commercial centre of the Principality. The question arose last week on a report of the Chief Constable to the effect that the total amount of fees received in connection with the registration of cars and the licensing of drivers was £142, the details being as follows:—Cars, 42; motor-cycles, 103; car drivers, 154; cycle drivers, 50; manufacturers registered, 10; total 359. The chairman of the committee pointed out that up to the present drivers had been given a little latitude, till the working and provisions of the Act became a matter of common knowledge. If, however, any abuse of the privileges which they have been given takes place prosecutions will have to be instituted, and the chairman therefore warned motor-car drivers of the attitude likely to be taken in future. We would wish that the chairmen of all local authorities were as sensible as the gentleman who presides over the deliberations of the Cardiff Cabs Committee.

The Blackheath Club.

LAST week we recorded the formation of the Blackheath Automobile Club. It has quickly got to work and held a very successful inaugural run last Saturday. Although the day was dull and rain threatening, fourteen cars, one tandem, and two motor-bicycles arrived at the meeting place, where the photograph on page 225 was taken. A start was made about 3 o'clock for Seal Chart, near Sevenoaks, and there thirty-seven members and friends sat down to tea, which was served at the Sir Jeffrey Amherst. Subsequently some of the members took the opportunity of impromptu runs on the fine roads, and hill-climbs on the steep gradients adjacent to Seal Chart, whilst others visited the Pine Woods. A start home was made about 7 o'clock, and all who took part enjoyed the opening run and

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were enthusiastic as to the future of the Club. The members taking part in the run included:—Messrs. L. Beadle (8-h.p. Regal), H. A. Cunis (5-h.p. Humberette), C. Chittick (6-h.p. De Dion), O. F. Flather (6½-h.p. Century tandem), J. H. Fraser (12-h.p. Hurst), Dr. Goodall (6-h.p. Stirling), B. Kingsworth (6-h.p. Panhard), Professor Carlton J. Lambert (6½-h.p. Talbot), F. Nichols (14-h.p. Renault), H. Norfolk (14-h.p. Renault), S. T. Norfolk (8-h.p. Renault), J. S. Prestige (10-h.p. Panhard), J. T. Prestige (14-h.p. Talbot), A. Roberts, hon. sec. (7-h.p. Daimler), and A. F. Yarrow (7-h.p. Panhard). The Club has decided to affiliate with the Motor Union, and Lord Hugh Cecil, M.P. for Greenwich, has consented to act as president.

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"Nervous Wobblers."

In the case at Winchester the other day when Earl Russell was threatened with the endorsement of his licence, Lady Russell described one of the witnesses as a "nervous wobbler." He was a cyclist with the same careless disregard of decision in crossing the road as some pedestrians evince. Unfortunately this is not an isolated example of the road pest, for this class of road nuisance turns up everywhere, and Lady Wimborne was the victim of an accident caused by a foolish cyclist in Dorsetshire the other day. It appears that a cyclist who was proceeding in the same direction as her ladyship's motor-car for some unaccountable reason swerved right in front of it. The driver immediately turned the car, and brought it under the bank and avoided the cyclist, who again turned into the motor, and was thrown off. There was no room to bring the car out from the bank until clear of the cyclist, and this left little room for the turn which was necessary to avoid a brick culvert, which the car struck when almost stopped. The cyclist, who, but for the prompt action of the chauffeur, would probably have lost his life, rode off without offering to render assistance.

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Irish Services.

In the House of Commons, on Tuesday, Mr. W. Redmond showed some solicitude with regard to the proposed motor-car services in Ireland, which have been so persistently boomed during the last few years. It was with some sort of satisfaction, however, that Mr. Wyndham was able to announce that this service would be started as soon as the necessary steps were completed for putting the roads in order in various parts of the country. Unfortunately, the Irish local authorities do not always recognise the advantage it would be to their local prosperity if they carried out their duties in connection with the roads of their particular districts. For instance, only last week, at the meeting of the Mountbellew District Council, the question of a motor-car service between Ballinasloe and Mountbellew was considered, Lord Clanbrock and others writing in support of the scheme. The County Council reported that it would require something like £1,300 to put the roads and bridges in a condition to render the service at all acceptable to the district. Immediately this was made known, the Council rejected the proposal by a large majority. Apparently the wiseacres on this estimable local body failed to see the fact that such a large amount would have to be expended in order to put the roads in a satisfactory condition indicates that they have wilfully neglected their duties in the past.

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The King's Visit.

It is to be hoped, however, that one result of the present visit of the King and Queen to Ireland will be the recognition on the part of the people of the wisdom of overhauling their roads with a view to putting them into a condition equally as good as those on this side of the Irish Sea. On Tuesday His Majesty went for a motor trip through the heart of the Blackwater country from Lismore Castle, where he has been staying as a guest of the Duke of Devonshire. Fortunately the roads in that particular district have had some sort of attention since the motor tour of last year. No less than five motor-vehicles took part in the trip, that of Lord Dudley being driven by the Lord Lieutenant himself. In the pilot car was Mr. Penrose, the Duke of Devonshire's agent. This preceded the canopied one, in which was His Majesty with the Duchess of Devonshire and two of the house party. In the next car the Duke of Devonshire, wrapped in a red padded coat, had the front place next the chauffeur, and in the covered body of the vehicle the Queen sat, wearing her green travelling dress, with fur storm collar. There were three open cars following, one of them driven by the Marquis of Waterford.

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Motor-Car Mishaps.

Accidents continue to be reported from many quarters, mostly owing to the errors of drivers of horse-driven vehicles. One of the most serious has occurred near Seaford. The car was going down a very steep hill outside the town, and apparently got out of control. It rushed down the descent, and dashed into a huge tree. The force of the impact with the tree must have been frightful. The front of the car penetrated the tree, which was a very large one, several inches, and it took some considerable time to extricate it. The wrecked car was afterwards taken away from Seaford by rail. The passengers, a lady and gentleman, were thrown a distance of twenty or thirty yards, sustaining slight injuries. The driver, however, was badly hurt, but the latest reports are that he is progressing favourably.

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The Inland Revenue and Motor-Cycles.

The case O'Donoghue v. Moon, in which a revenue officer appealed against a decision of the justices of Bristol dismissing an information for keeping a motor-cycle without a carriage licence, was heard in the King's Bench Division on Wednesday. The Solicitor-General, in supporting the appeal, pointed out that the Customs and Inland Revenue Act of 1888 described a carriage as a vehicle "drawn by horse or mule, or drawn or propelled upon a road or tramway or elsewhere other than upon a railway by steam or electricity or any other mechanical power." The only question, therefore, was whether a motor-bicycle was a vehicle "drawn or propelled by mechanical power." He submitted that it was, and that an Excise licence should be taken out. The matter was made still clearer by the Light Locomotives Act of 1896, which said that a "light locomotive," a definition which included a motor-bicycle, was "to be deemed to be a carriage" within the meaning of the statute. The Lord Chief Justice gave judgment, allowing the appeal, and said that it seemed to him that a machine which carried a person along the road was not the less a carriage because it contained a very uncomfortable seat, and one which shook the rider about very much.

An Automobile Club for Rhodesia has been formed at Bulawayo. Mr. A. R. Atkey, of Nottingham, was present at the inaugural meeting and gave some useful advice.

Mr. Charles Cordingley is reducing his automobile stud and is desirous of disposing of his well-known 40-h.p. Mercedes. Inquiries respecting the same may be addressed to the office of the *Journal*.

The leading tyre companies have appointed agents in all the more important centres in the Isle of Man, the principal being Messrs. J. and W. White, Prospect Hill, Douglas; Brooke and Co., Parliament Street, Ramsey; and T. W. Ratcliffe, Engineering Works, Castletown.

The track at Ladbroke Grove, W., which was originally intended to be used for the side slipping competition to-day (Saturday), will not be ready in time. It has therefore been arranged with the Locomobile Company that the trials will take place in their riding school, which has an excellent asphalte floor. The surface will be made greasy with a preparation of soft soap.

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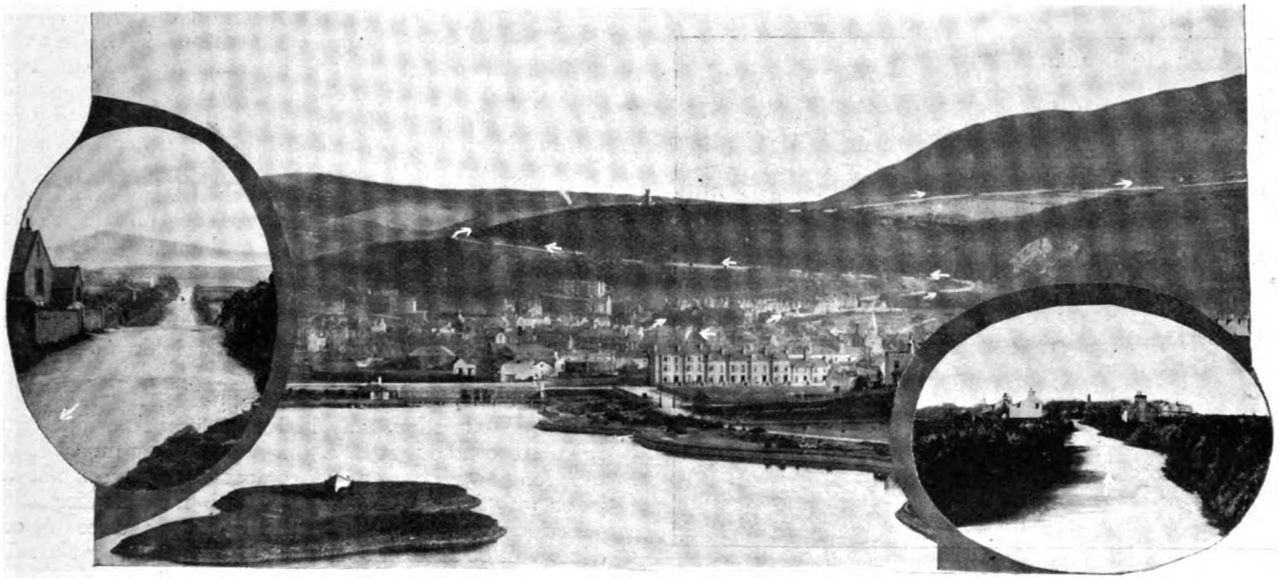
SCENES IN THE ISLE OF MAN.



The First Turn up the Barrule Mountain Road, Ramsey.

Craig Willie's Hill—a Dangerous Turn at the Bottom.

The Road at Judes Andreas.



The Course at Cronk-e-Voddy.

The Steep Ascent from Ramsey.

Near Ballaugh Old Church.



Serpentine Turns on Barrule Mountain Road, near Ramsey.

Approaching Kirk Michael from the West.

The Measured Mile between Ballaugh and Ramsey.

Photos by [*G. B. Cowen, Ramsey.*

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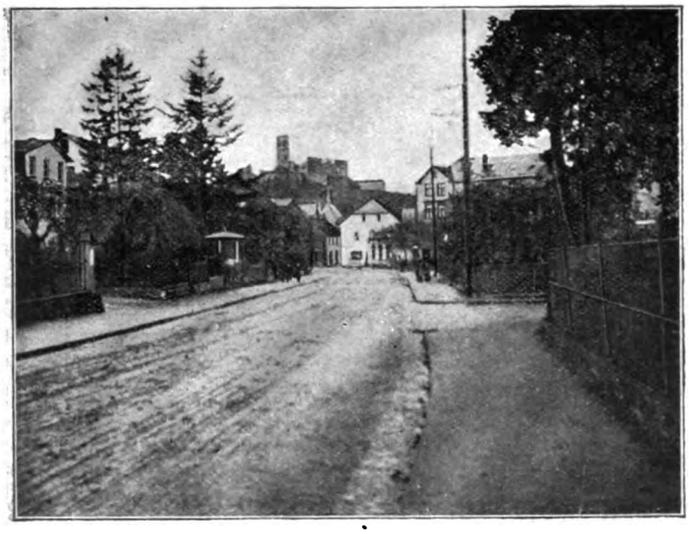
THE ELIMINATING TEST IN THE ISLE OF MAN.

ON Monday morning next, at 10 a.m., the eleven cars that will take part in the Eliminating Test in the Isle of Man will be weighed at Douglas.

THE EIGHT HOURS TRIAL.

Then on the following day (May 10th), an eight hours' trial will take place. This is intended to be:—(a) A high speed reliability trial, including: (b) Speed tests against time over half a mile on the flat in each circuit. (c) Speed tests against time in climbing a hill in each circuit. (d) Acceleration tests from rest and stopping observations. (e) Observation of the skill and suitability of the driver. (f) Examination of condition of cars at termination of trial. The course will be divided into sections, and a maximum and minimum time will be fixed for each section.

The cars will start at five minutes' intervals in the order given in last week's *Journal*. The first car will start at 9 a.m. from the railway crossing close to the Quarter Bridge, one mile west from the town of Douglas. If within one minute of the word to "go" being given a car does not start, the driver shall then move the car to the side of the road, and it will not be permitted to start until all the other cars have departed, but the driver shall proceed to make ready to start, and note will be taken of the time so occupied.



A View of the German Gordon Bennett Course at Konigstein.

Small triangular green flags signify "Drive with caution for 440 yards." Large green flags signify "Corner to be negotiated in 300 yards." Large red and green flag signifies "Stop in 300 yards." Large red flag means "Stop."

The following will be the controls:—

	Mls.	Fgs.	Minimum time. Mins.	
1. Ballasalla (inward) to Castletown (outward)	1	3	4	The town of Castletown is 1 mile 3 furlongs from the beginning of the control.
2. Foxdale (stop and start)	—		—	For the purpose of negotiating railway bridge.
3. Kirkmichael ...	0	4	2	Control extends through village.
4. Ramsey	0	4	2	Through the outskirts of the town.
5. Willaston Corner to Quarter Bridge	1	4	3	Passing through no villages but on a winding road. Outward end of the control at Quarter Bridge.

The total distance round the circuit, including controls, is 51 miles 1 furlong.

Replenishments of fuel, water, and oil can only be made within the Ramsey control, at the outward end, and at no other.

There will be two speed tests in each circuit, viz., half-mile on the flat and about 2¼ miles hill climb. The half-mile speed test on the flat will commence about one mile after passing Ballaugh Old Church. The start of the half-mile, which will be indicated by a flag marked "START" (which can be seen at some distance), will be taken flying, and the end of the half-mile will be indicated by a flag marked "FINISH," which will also be taken flying. Passing, if necessary, is permitted between Ballaugh Old Church and the end of the speed test. The Hill Climb will commence from a standing start at the outward Ramsey control, and will finish at a point 2 miles 480 yards beyond, the rise being approximately 1,019 ft. The end of the Hill Climb will be indicated by a flag marked "FINISH," and will be taken flying. Passing during the Hill Climb is permitted. After passing the end of the Half-mile Speed Test, and again after passing the end of the Hill Climb, ordinary speed can be resumed, as a car need not arrive at the next control before the expiration of the minimum time for the stage.

When a car has run eight hours, including the time in controls, it will be stopped at the finishing point at Quarter Bridge on next arriving there.

Passing will not be permitted except—

(*a*) in controls by the direction of the Control Marshal;
(*b*) on the two speed sections; and
(*c*) in the case of a car being in obvious difficulties.

In selecting the team, consideration will be given to the skill and suitability of the drivers, as demonstrated in the acceleration tests, in the accuracy of coming to rest on entering controls, in speed tests, in promptness in getting away from controls on the word to start being given, and in the general management of their cars. At the close of the Trial on the Tuesday the cars must be placed in the custody of the Club, and no adjustment, repair, or other work shall be done to them until after examination by the judges, which will not be concluded until 12 o'clock (noon) on Wednesday, May 11th. It is not necessary that the ratio of gears used in the selection trials should be the gears used in the Gordon Bennett Race, but they must not be altered during the four days in the Isle of Man, after weighing on Monday, May 9th.

HILL-CLIMBING TEST.

On Wednesday, May 11th, at 3.30 p.m. competitors will be required to take part in a hill-climbing test on a hill about one mile long near Ramsey. A competitor who does not take part in, or who is late for the hill climb may be disqualified from selection for the Gordon Bennett team, as the results of this hill climb will be taken into consideration in making the selection.

ACCELERATION AND SPEED TRIAL.

On Thursday, May 12th, at noon, competitors will be required to take part in an acceleration and speed test on the Parade at Douglas. The cars will be timed from a standing start in order to test acceleration, and after a run of a quarter of a mile will be timed over a flying kilometre.

THE Sligo Motor Service Company has been registered with a capital of £750 to run motor or other cars, vehicles, or engines for the conveyance of passengers or goods between Sligo and Rosses Point, and between Sligo and Bundoran.

EARL RUSSELL has entered into the necessary sureties for the purpose of appealing to the Hants Quarter Sessions against the decision of the Winchester justices fining him £5 and costs for driving to the danger of the public at Kingsworthy.

AT a meeting of the Aberdeen County Road Board, a discussion took place in regard to a letter from the Secretary for Scotland, in reply to the application by the County Council for the restriction of motor-car traffic on certain roads in the county. Mr. Graham Murray was of opinion that such restriction should not be imposed until it was seen how the statute operated. By ten to seven votes, however, it was resolved to recommend the County Council to reaffirm their former deliverance on the subject.

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GORDON BENNETT RACE NOTES.

DR. DAVIES, who had charge of the ambulance classes in Ramsey, has been appointed Hon. Police Surgeon by his Excellency the Lieut.-Governor during the races, and there will be an ambulance station at the Municipal Offices. Dr. Davies has been asked by Col. Freeth, who has the matter in hand, to secure the services of some half-dozen certificated ladies who attended his classes, and these will be supplied with the Red Cross badges. Stretchers and bearers are also to be provided.

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BOTH the Manx Northern and the Isle of Man Railway Companies have generously agreed to suspend all traffic on the day of the race, a matter of no small importance, inasmuch as the course is intercepted by railway lines at four separate points.

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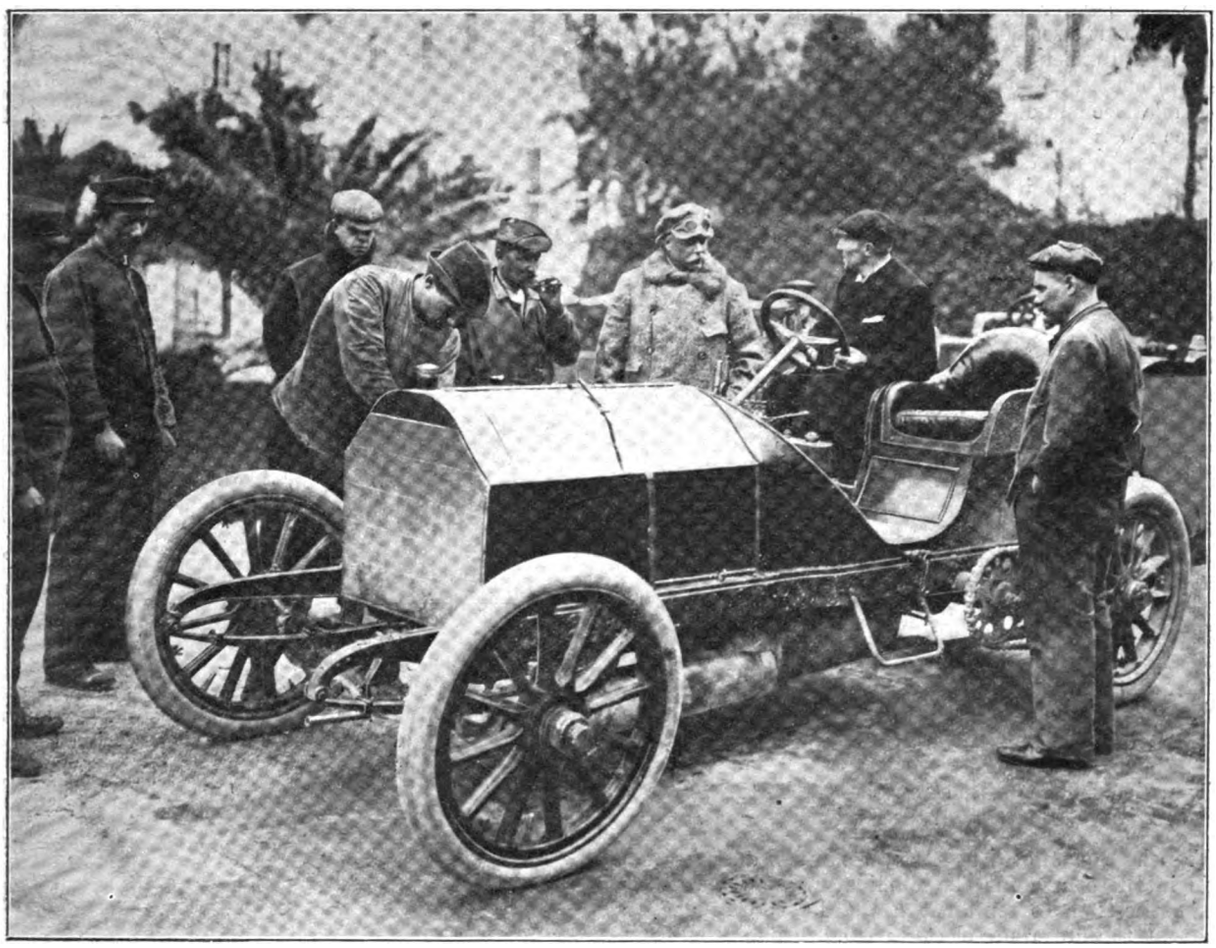
THE German Automobile Club has issued a warning to motorists that in the interests of the safety of the general public they must adhere to the police regulations when travelling over the Gordon Bennett course. The police have had instructions to stop all offenders, who will be liable to have their driving certificate withdrawn.

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BARON PIERRE DE CRAWHEZ met with an accident the other day which will probably prevent his driving in the French eliminating contest. While examining his car, the Baron's middle finger was badly injured by being caught between some gear wheels.

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ONE of the Pipe cars which will represent Belgium in the Cup race has just made its appearance on the road. It is stated



M. C Jenatzy on the 80-h.p. Mercedes at Nice. [*Allgemeine Automobil Zeitung.*

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THE Napier headquarters during the course of the Gordon Bennett Eliminating Trials in the Isle of Man will be the Bay Hotel, Douglas. Many of the members of the A.C.G.B.I. will be staying at the Peveril or the Villiers Hotels.

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THE Vacuum Oil Company have, we understand, made arrangements for adequate stocks of their Vacuum mobiloils and greases in the Isle of Man. Mr. J. R. Corlett, of Victoria Street, Douglas, and Mr. F. Gash, Castle Street, Douglas, will, in addition to keeping the Vacuum mobiloils, also be able to effect repairs to cars, and provide garage accommodation. Messrs. Brooke and Company, Parliament Street, Ramsey, are offering similar facilities for motorists, and at the Villiers Hotel, Douglas, and from Mr. Hampton, on the South Quay in the same town, the Vacuum oils may also be obtained.

to have engines capable of developing up to 100-h.p. A committee of the Belgian club has been appointed to examine the three cars to ascertain if they conform to the regulations.

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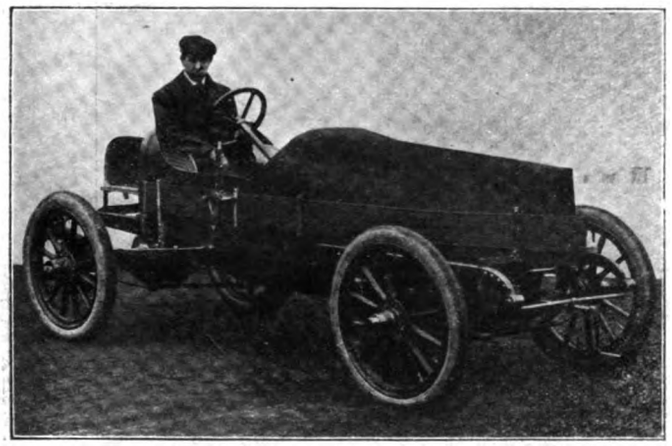
BARNEY OLDFIELD, who has been disqualified by the American Automobile Association for taking part in unlicensed race meetings, is no longer connected with the Winton Motor Company. He is reported to have immediately entered into negotiations with the Peerless Motor-Car Company with a view to driving the car which this concern has entered for the American Gordon Bennett team.

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FOLLOWING the reopening of the entries for the team to represent America in the Cup race, comes the announcement of a formal application of the Winton Motor-Carriage Company for a position on the team.

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THE Peerless Motor-Car Company, of Cleveland, have sent us particulars of the car they have built for the American team for the Gordon Bennett race. We give an illustration of the vehicle with Mr. L. P. Mooers at the wheel herewith. The car, which is of the live axle type, is provided with a four-cylinder engine nominally rated at 50-h.p. In the particulars sent us by Mr. Mooers it is stated that three automatic inlet valves are provided in the head of each cylinder, and that the sparking plug is in the centre of the head between these valves. All four cylinders are cast in one piece. There are in the racer no especially radical differences from the Peerless standard four-cylinder cars, the main thing being, of course, that this car is bigger and more powerful all around. The wheel base is 8 feet 8 inches, and the tread 4 feet 6 inches. The radiator consists of sixteen five-sixteenth inch copper tubes lying close to the bonnet, and extending from the rear around the front and back to the rear on the opposite side. The water tank holds about eight gallons and the petrol tank about twenty-two gallons. The front wheels are 34 by 3½ inches in diameter, and the rear wheels 36 by 4½ inches. The bonnet is rounded and comes to a sharp point, so that it greatly resembles the end of a canoe inverted. The mixture and spark advance levers are mounted on the steering wheel. Four speeds forward and a reverse are provided. One of the interesting points of the car is its light weight, viz., about 16 cwt. 80 lbs., so that it is well within the limit. The lighter the car—



Mr. L. P. Mooers on the 50-h.p. Peerless Racer.

keeping always in mind requisite strength—the better the tyres and wheels will, it is claimed, stand the strain.

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THE French Minister of the Interior has caused an alteration to be made in the course for the eliminating contest on the 20th inst. for the team to represent France in the Cup race, on the ground that the first route elected passed through too many villages and comprised too many sharp turns. The new course is only 92 kilometres long, and runs from Mazagran to Vouziers, and thence *via* Le Chesne (where the new route commences), Louvergny, Bouvellemont, Tourneur, Neuvizy, Rethel, and back to Mazagran. The course will have to be covered at least six times, and as in each circuit there are four neutralisations, each of the twenty-nine competing cars will have to be started and stopped twenty-four times.

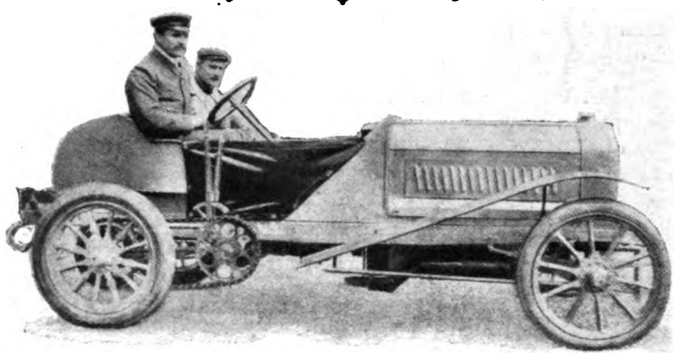
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THE Sporting Committee of the A.C.F. has fixed Mazagran, between Rethel and Vouziers, as the starting point of the French eliminating race. Mazagran is a lonely spot represented by a single roadside cafe, seven miles from Attigny, the nearest railway station. The weighing in will be commenced at 10 a.m. on the 19th inst. The best way, by road, from Paris to the starting point is *via* Chateau-Thierry, Rheims, and Attigny.

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L'AUTO is organising a special train to the French Ardennes for the Eliminating Trials on the 20th inst. Under the arrangements, the train will leave Paris on May 19th at 7.10 p.m., and will be so arranged as to serve within easy distance of every point of importance on the course. The return journey will be on May 20th, starting from Vouziers at 6 2 p.m., reaching Paris at 10.20. The charge for a seat in the special train is 70 fr. Dinner and dejeuner will be served *en route* for respectively 7 fr. and 5 fr. (wine not included).

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M. Caillois on the George Richard-Brasier Racer.

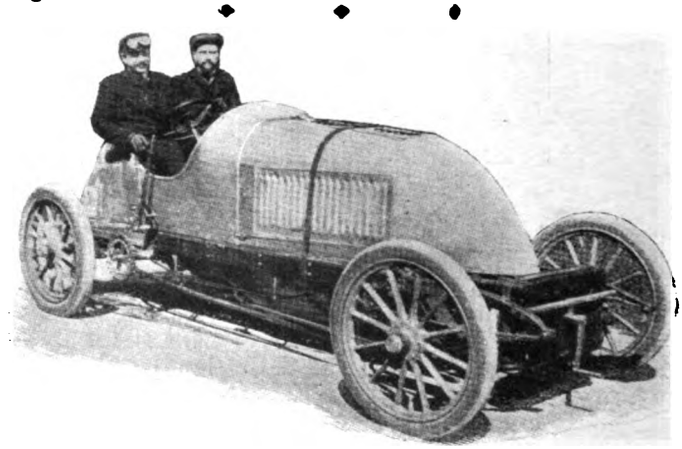
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AS was announced in the *Journal* a month or so ago, the 1904 Panhard Gordon Bennett racers will be of the cardan shaft and bevel gear driven type. The cars have, it is stated, four-cylinder engines of 100 h.p. The cylinders are of steel, with copper water-jackets shrunk on; mechanically-operated inlet valves have been adopted, and both magneto and high tension ignition are fitted. The vehicles are now undergoing their preliminary road trials.

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THE De Dietrich racers are now completed and are on the road. So are the Mors cars, of which little or no particulars are available. It is stated, however, that one of the principal features is to be found in the engines, the crank shafts being set slightly in advance of the cylinder axis. Although new to Mors, this is not a novel departure, as an English concern—the Putney Motor Company—have been making their Craig-Dörwald motors in this way for some time. It is claimed that by thus setting the crank shaft forward, both shock and vibration are reduced owing to the direct thrust on the driving stroke, and that in addition there is a mechanical advantage at the end of the compression stroke. The Darracq racers are also now out on the road undergoing their trials. They are identical with those built in England, of which we gave an illustration in a recent issue.

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M. H. Fournier on the Hotchkiss Racer.

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THE arrival of the Wolseley racers attracted much attention at Douglas, where Lieut.-Colonel Mayhew arrived on Tuesday. The Wolseley cars are garaged at Okell's Brewery. The Darracqs will be put up in the Steam Packet Co.'s shed on the Battery Pier; and the Napier cars at the Bay Hotel. Mr. Jarrott and Mr. Campbell Muir are staying at the Peveril.

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THE MAY DAY PARADE.

THE scene on the Thames Embankment on Saturday last, when eighty-two motor vans drew up for the first annual motor May-Day parade of such vehicles, was hardly a picturesque one. The names on the vans were entirely of the utilitarian order, and even when, some hours after the assembly commenced, the parade moved westward, it could hardly be said to be in accord with the poetry of motion.

The truth is that heavy vehicles do not present the attractiveness to the public that light cars do, and on this account the event failed somewhat as a spectacular effort. Nevertheless, it was a useful innovation, and should have a great educational influence in demonstrating to business men, and those concerned with the industrial world, that the motor-vehicle is being adapted to a strictly commercial purpose. The Midland Railway, for instance, had two Milnes-Daimler lorries, each of 9½-h.p., and the great carrying firms like Pickford, Carter Paterson, and C. Webster were represented not merely by an isolated vehicle, but by a "stud" of three and four each. This proves that such experts in the transport of goods recognise that the motor-vehicle has gone beyond the experimental stage, and that they are justified in steadily adopting automobiles. Purveyors of foods and condiments seem to have taken kindly to such vehicles, and Bird's Custard Powder and Allenbury's Foods proclaimed the reliability of the automobiles. Brewers and similar traders have evidently gone seriously into the business. Messrs. Watney, Coombe, Reid and Company, Fremlin and Company, and J. Dewar and Sons also sent vehicles. An important section was that of vans for municipal purposes, the City of London Corporation and the Westminster Borough Council sending contingents. It is to be regretted that Chelsea, which was a pioneer in this movement, and has five vehicles of the Lancashire Steam Motor Company, should have declined to allow any of its wagons to take part in the parade. The caravan restaurant attracted much attention, illustrating a development that should appeal to all classes of the community.

Very few incidents occurred; one of the vehicles bore the highest number we have yet seen, viz., A. 5008. The ascendency of steam in this department is shown in the fact that twelve petrol and one electric comprised the total that were not propelled by steam.

In addition to the heavier classes of vehicles, a few lighter vans propelled by motor-power were also included in the Parade, and considerable interest was taken in the White steam cars, utilised by Messrs. Liberty and Company for their fashionable West-End trade. The Bryant and May van was another striking vehicle, and that of Messrs. Warings, with its spick and span green tints and highly polished brass work, appealed strongly to the popular imagination.

Unfortunately for the spectators the judging of these vehicles occupied a considerable time and proved a very monotonous operation. The judges began their work at 3 o'clock, and it was nearly 6 o'clock before they had gone the whole length of the procession as it was drawn up on the Embankment.

It was to be noted, however, that among the onlookers were a considerable number of interested gentlemen who regarded the parade from a purely business point of view, and were present in order to take stock of the progress that the movement has made. Thus it served a very good purpose, and, although popular interest seemed somewhat lacking, that should not at all dishearten the organisers of the parade, who may be assured that a good many prospective users of motor-vehicles were among the observers. Mr. Basil Joy is to be congratulated on the efficiency with which he carried through the details of the afternoon.

The following vehicles were found by the Judges to be in first-class condition and so were awarded a first prize:—

Description.	Owners.
Wallis Tractor and Trailor	Wild and Robbins.
Foden Tractor and Trailer	Chislehurst Mineral Water Co.
Milnes-Daimler Delivery Van	Bird's Custard Powder.
Thornycroft Steam Wagon	Allen and Hanbury.
Yorkshire Steam Wagon	Allen and Hanbury.
Thornycroft Steam Wagon	J. Dewar and Sons.
Straker Steam Wagon	Carter, Paterson and Co.
Lancashire Steam Motor	Mann, Crossman and Paulin
Fischer Petrol-Electric Van	Hampton and Sons
Milnes-Daimler 'Bus	G. Hayes
Thornycroft Steam Wagon	Schweppes Ltd.
Thornycroft Steam Wagon	Searcy, Tansley and Co.
Lancashire Steam Motor	Bryant and May
Straker Steam Wagon	Provincial Carriers
Thornycroft Steam Dust Cart	City of Westminster
,, ,, Water Cart	,, ,,
,, ,, ,,	,, ,,
Straker Steam Wagon	Piggott Bros. and Co.
Thornycroft Dust Cart	City of London.
,, ,, ,,	,, ,,
Clarkson, Ltd.	Hamilton and Co.
Lancashire Steam Motor	H. Greenfield and Co.
Straker Steam Wagon	Dorman, Long and Co.
Thornycroft Restaurant Van	Caravan Restaurant Co., Ltd.
Thornycroft Steam Wagon	British Vacuum Cleaner Co.
White Steam Van	Liberty and Co.
Thornycroft Steam Wagon	Sanderson and Sons
Straker Steam Wagon	T. and W. Farmiloe, Ltd.

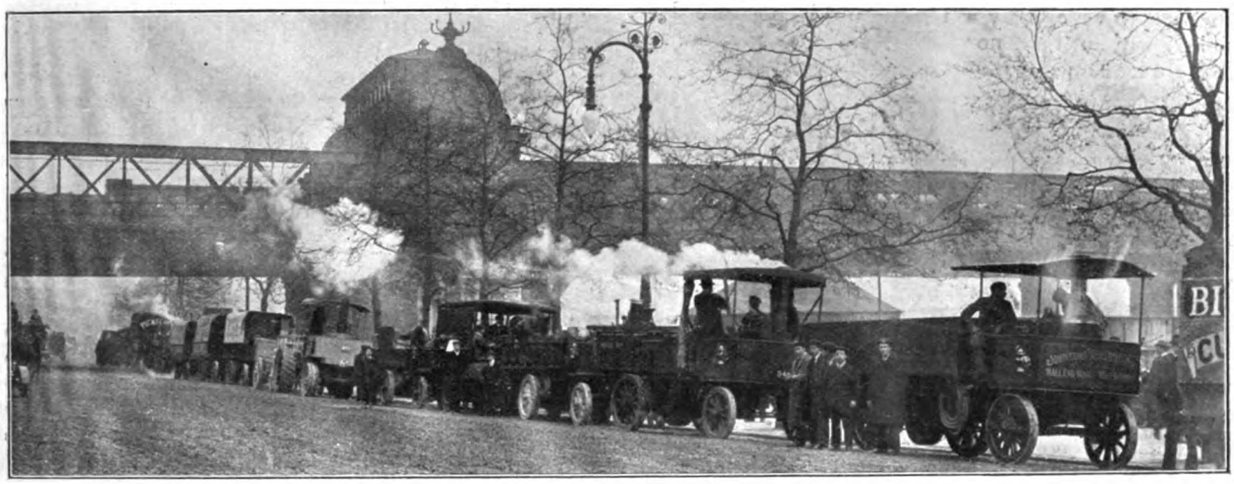


Photo by The Scene on the Embankment. [*Argent Archer.*

The three City of Westminster vehicles were considered by the judges to be of a very high order of merit and would certainly have had the team prize if one had been awarded. The vehicles belonging to Messrs. Hamilton and Wild and Robbins were also considered worthy of special notice by the judges.

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THE SIDE-SLIP TRIALS.

THE TESTS ON FRIDAY.

ANOTHER stage in the trials, after one or two cars, including the Butler and the Rourke, had made up their distances uneventfully by a special run on Tuesday (26th ult.) was reached on Friday, the 29th ult., when the eleven competitors remaining started out for Potter's Bar for the resiliency trials on a hill in the neighbourhood. Several stops were made on the journey for the purpose of transferring the judges, who accompanied the run, from one car to another, some confusion being caused by a few drivers, unfamiliar with the route, stopping for this purpose at Finchley Road under the impression that they had reached Finchley, where the change should have taken place. In spite of the generally dry roads, the hill just before Barnet was greasy as usual, and the device on our car proved a welcome and apparently effective safeguard, which was to receive a further practical test before we had finished our return journey.

Arriving at the hill, we found No. 3, a Wolseley, which had started half an hour before us, already there, while the Georges Richard, L'Empereur, and Parsons, No. 14, were close behind. The hill proved to be about 500 yards long, with a gradient we should guess to be about 1 in 20, and a gentle up grade of 1 in 30 or thereabout at its base. Down this hill the cars were sent, one at a time, with the engine out, the distance to which they would run up the opposite slope, both with and without their non-skid devices, being measured. Two trials were made under each condition, which, of course, in



The "Crown" Tyre Protector entered by Messrs. W. Jenkinson & Co. in the Side Slip Trials. The protector consists of narrow transverse strips of solid leather threaded on wires to form a complete cover to the tyre. The ends of the strips are joined to a common strap on each side, and the device is retained on the tyre by lacing under the rim. The strips of leather are so arranged as to present a rough surface on the tread.

the case of fixed treads involved changing the covers, while occasional interruptions caused by the passage of leisurely country carts—and cows—further prolonged the proceedings. At this stage the majority of those concerned began to realise the wisdom of the minority who had provided themselves with needful provender, and hasty automobile reconnaissances were made along the road in both directions, one car returning after a short absence with the news that they could get nothing but plum cakes, and producing a large consignment of the same in evidence. These, however, were better than nothing, and served until the other car, which had ventured further afield, came back with a mixed cargo of sandwiches, whisky and ginger beer, little of which accompanied it in its further journey to the top of the hill. With the advent of provisions, however, the weather changed, and continued showery during the rest of the afternoon, though not enough to greatly affect the road surface before the trials concluded.

The following figures, being in most cases the average on the four runs of each car, though unofficial, will give some idea of the various performances.

No. 1. Butler, 15-h.p. Panhard, ran 13 ft. 8 in. further without the device than with it. First two runs only.
No. 2. Cavendish, 10-h.p. Panhard, averaged 34 ft. further without device.
No. 3. Hunt. Wolseley, averaged 43 ft. further without.
No. 5. Rourke, Pipe, did 142 ft. further without. First two runs.
No. 6. Nicholson, Star, did 80 ft. further with the device than without: apparently method of withdrawing it exercised a certain braking action.
No. 7. Vivian, Benz, did 35 ft. further with device. First two runs.
No. 8. Wilkinson, Wolseley, did 14 ft. further with than without First two runs.
No. 11. Sainsbury, Argyll, 36 ft. further with device. First two runs.
No. 12. L'Empereur, 86 ft. further without than with device. First two runs.
No. 14. Parsons, averaged 59 ft. further without device.
No. 15. Billet, averaged 121 ft. further without device.

Comparisons on this point will be brought out by the actual skidding tests, the date for which is as yet uncertain. The difference between the furthest and the least distance run by any of the cars was 520 feet, and in some cases the difference between two runs of the same car under similar conditions was greater than any variation caused by the device; the fact, however, that the road was slightly damped by a shower before the trials were over may have had some influence on the results. With regard to the motor-bicycles, some of the devices, as the Wilkinson and Parsons, seemed to have little effect, while others, as the very ingenious Empire, which consisted of two legs with castors, on springs, and retractible by back-pedalling, had, as might be expected, a considerable retarding action. This, however, would be of minor importance in a device only dropped when required.

The trials concluded soon after 4 p.m., rain falling fast before the return journey was finished, and making the roads, as town was approached, rather treacherous. This, however, gave an opportunity of observing the use of the devices not to be despised, and we understand from the passengers on the various cars that most of them were more or less effective.

QUIET RUNNING.

IN the not very far distant future quiet running will be an indispensable attribute of a high-class petrol car. Lacking it, a vehicle efficient in other respects will prove slow of sale, critical buyers refusing to be cajoled into purchasing it. The feature is one which now marks many high-grade productions, in which engine design and construction have been carried to a stage closely approaching perfection. By the use of lavish generosity in the matter of power, thus providing a reserve for bad roads and steep hills, which obviates any necessity for overworking the engine, makers are able to show results which stamp their cars as a distinctly superior product. Buyers recognize the fact that in these cars the engine always, or nearly always, runs at a normal rate, the reserve power being sufficient to cope with any emergencies which may arise.

Not very long ago all petrol cars were noisy. Their appearance was heralded by a din, in which the throb of the exhaust vied with the rattle of transmission gear for pre-eminence. When abnormal conditions prevailed, when the going was heavy and the engine was called on to do its utmost, the hub-bub became greater, until it seemed as if the limit of endurance and performance had been reached. All that is being changed. Every maker's aim is to provide his car with sufficient power to cope with emergencies without having to call upon the full capacity of the engine. The measure of his success depends, in a way, upon the power carried in reserve. If the tractive resistance, say, on a steep hill, increases 50 or 100 per cent., as it frequently does, the motorist does not want to cut down his speed correspondingly; consequently, he calls on his reserve power and takes the hill at a speed little, if any, slower than that at which he had been going along the level.

In other words, the desideratum with the petrol car is greater flexibility, just as this is the feature which most commends the steam car. Greater power means greater flexibility, for with it the driver is measurably free of limitations imposed by the necessity of changing speeds every time the character of the road changes. A little extra horsepower is like a corps held in reserve, which can be called on in time of need and made to pluck success from apparent failure.

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The Paris-Bordeaux-Paris Motor-Bicycle Reliability Trial—The Scene at the Finishing Point.

CONTINENTAL NOTES.

Hill-Climbing at Perigueux.

A hill-climbing competition is to be held on the 15th inst. over a kilometre course at Perigueux. The contest will be open to (1) motor-bicycles under 50 kilog.; (2) motor cycles weighing 50 kilog. and over; (3) voiturettes under 400 kilog.; (4) light cars between 400 and 650 kilog.; (5) cars between 650 and 1,000 kilog.; and (6) cars over 1,000 kilog. As we go to press we learn that the Prefet of the Department has refused to sanction the contest.

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Motor-Boating from Rouen to Havre.

A motor-boat race is to be held on the Seine from Rouen to Havre on the 10th and 11th July next for the "Coupe de Rouen." A large number of entries has, it is stated, been received.

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The Calais-Dover Motor-Boat Race.

The Automobile Yachting Committee of the A.C.F. has fixed Calais as the starting point of the motor-boat race to Dover on the 8th August next. The event is international, and will be open to steam and electric launches as well as to boats fitted with petrol, alcohol, or petroleum motors. An exhibition of the competing boats is to be held in one of the docks at Calais on the 7th August.

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The Belgian National Circuit.

Le Circuit National Belge is to start on the 31st inst. from Brussels, Antwerp, Liege, and Spa being visited. At the last-named place it is probable that a new competition will be inaugurated—to test which car can run the slowest over a kilometre course with the engine throttled down to its minimum speed.

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The Italian Motor-Cycle Reliability Trial.

So far twenty-seven entries have been received for the 1,000 kilometre reliability trial for motor-cycles, which is being organized by the "Gazette dello Sport," of Milan, for June 12th next. The entries comprise the leading Italian, German, French and Austrian machines, English motor-cycles being still noticeable by their absence from these Continental competitions.

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A Tyre Test.

M. L. Bourcier Saint Chraffrey, who was identified with the recent anti-skid trial from Paris to Nice and back, is now organising a pneumatic tyre test from the point of view of traction effort. It is to be held on the 27th inst., on the macadamised National road on the right bank of the Seine, starting from Neuilly. The different tyres entered are to be tried on an electrical car (rear wheels 1,020 by 120) and the weight on the back tyres will be fixed at 1,000 kilog. The trial will be divided into two classes: (1) smooth tyres, and (2) tyres fitted with anti-skidding bands, and these will be tested under pressure of 6, 5 and 4 kilogs. per square centimetre.

Automobiles in France.

According to a return of the French Administration des Finances, there were 19,886 motor-cars in use in France at the end of 1903, as against only 7,260 in 1902 and 1,672 in 1899. The largest number of cars is in the Department of the Seine, which is responsible for 4,570 of the total, Seine-et-Oise coming next with 1,146. Of motor-cycles there were, according to the return, no less than 19,816 in use, of which 4,264 are in the Seine Department.

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The Paris-Bordeaux-Nice Motor-Bicycle Reliability Trial.

The reliability trial for motor-bicycles organised by the Autocycle Club de France was concluded last week, and the report of the judges is now eagerly awaited. Out of the twenty-eight competitors who left Bordeaux on the 25th inst., twenty-two reached Paris safely on the evening of the following day. As was mentioned last week, fifty-nine riders actually started in the event, so that over 50 per cent. failed to get through.

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Racing at Frankfort-am-Main.

In connection with the Gordon Bennett week the Frankfort Automobile Club is organising a motor race meeting to be held on the trotting track in Frankfort-am-Main on June 19th. There will be seven events, including a consumption test.

MAY 18th has been agreed to by the Local Government Board as the last day on which objections to the speed limit proposed by the Newport (Mon.) Town Council, in Commercial Street, High Street, Clarence Place, and across Newport Bridge, can be lodged.

CORNWALL is said to be full of visitors, and the Great Western Railway Company will run, on and from Monday, an augmented service of motor-cars between Helston Station, Mullion, and the Lizard, to promote the pleasure of excursionists in this district.

MESSRS. NYE AND COMPANY, LIMITED, have been registered with a capital of £5,000, to acquire the business carried on at the Regency Mews, Brighton, and to carry on the business of jobmasters, livery-stable keepers, repairers and proprietors of motor-cars, etc.

THE Pioneer Automobile Company, of San Francisco, has recently increased its capitalisation to 200,000 dollars, and has purchased the land on which the new building is situated. The company has also purchased the business of the Oldsmobile Company of Southern California, which embraces Los Angeles and all surrounding territory.

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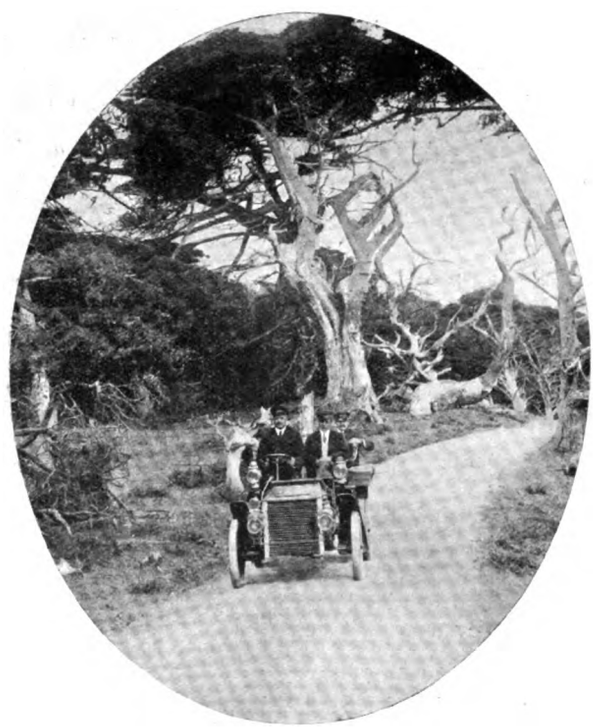
THE HIGH-TENSION IGNITION SYSTEM FOR PETROL MOTOR-CARS.

By J. W. Frings.

(*Continued from page* 194).

THIS secondary winding it will be seen is thus entirely distinct from the primary coil, and forms, through the high tension (thickly insulated) wire to the centre wire of the plug, and back through the body of the latter, the engine and frame of the vehicle, to the coil again, a complete circuit, broken only at the spark gap. Here, owing to its high potential (some thousands of volts) the discharge is enabled to bridge the gap through the air—a very different conducting medium, with inconceivably rapid alternations at the moment that the trembler on the contact breaker, or the armature on the coil, as the case may be, is making and breaking contact.

The "return" for the secondary circuit was, in the older type of coils, made through the external bands of brass seen on the De Dion coils, one of which was connected to the other end of the secondary wiring by a screw passing through the vulcanite casing; the brass bands themselves being pressed into more or less intimate contact with the frame of the vehicle by the metal



A White Steam Car in a Cypress Forest in California.

clips supporting the coil. With the later type of coils, in connection with which the frame of the vehicle is usually employed for a part of the "return" for the primary circuit, this idea is utilised to provide for the more efficient "return" of the secondary circuit also, by connecting—inside the coil—the secondary and primary windings together at one terminal, so that the wire from frame to coil answers the twofold purpose of conducting both the primary and secondary to that point.

There is a very useful electrical formula which runs $C = \frac{E}{R}$, which means that the current which passes is the quotient of the voltage divided by the ohms (resistance). Most coils are wound to give a resistance which passes half an ampere with a pressure of four volts, the resistance in this case being 8 ohms. From this it will be evident that to connect two accumulators in series, giving a pressure of 8 volts, as is sometimes done, would allow to pass double the current that the coil is intended to work with, and might possibly "burn it out" by breaking down the insulation. In this connection it will be well to make clear a point that is to most lay minds a particularly obscure one. The voltage of all cells, whatever their size may be, is always the same for similar couples or elements. Taking an accumulator as an example, the voltage of an accumulator of such a size that it might comfortably be accommodated in the waistcoat pocket would be the same as that of one with fifty times its plate area. The voltage is increased only by coupling in "series," *i.e.*, by presenting a continuous path of alternate elements, the voltage rising with each fresh addition to the chain by the amount of the voltage of the additional cell. On the other hand, the amount of current that a cell will "take" and "give" is proportionate to its plate area; the larger the cell the greater its capacity for holding and surrendering a charge. Thus, coupling two accumulators in parallel will not injuriously affect the working of the coil, but will extend the quantity of electricity which the battery will give to the sum of the ampere hours of both, and will therefore double the time during which the coil may be worked.

The Condenser.—This, as has been indicated in the definitions, has a most important function to perform. When a current is allowed to circulate, when a circuit is closed, a momentary induced E. M. F. is "created" in the circuit of the primary winding, which tends to retard the growth of the current. On the other hand, at the moment of breaking the circuit a momentary E. M. F. is induced which tends to maintain the current flow, and thus to produce excessive sparking at the contact breaker. It is then that the action of the condenser is seen. The latter is connected in the primary circuit as a shunt, or alternative path and reservoir, into which the momentarily induced current passes when the circuit is broken. This charge is given out when the circuit is closed again by the contact breaker, and thus the condenser helps the primary current at "make" and prevents sparking at "break," besides increasing the E. M. F. induced in the secondary coil. The capacity of the condenser for temporarily "holding" the charge and parting readily with it again is dependent primarily upon its area—size and number of sheets—and the efficiency of its insulation and perfection of its contacts with the primary windings. Inattention to either of these points in construction will result in wasteful expenditure of current from the accumulator, excessive sparking at the contact breaker and consequent pitting or burning of the contact points, and lastly, the most important defect of all, the induced E. M. F. in the secondary windings will fail to provide a discharge at the spark gap of sufficient intensity to fire the compressed gases. The condenser is usually to be found, in the cylindrically-shaped coils, wound around the body of the coil, outside the secondary windings, which are well insulated from it by a thick coating of a vitreous material—wax or shellac, etc. The complete coil is then slipped into its vulcanite case. Some coils allow for the withdrawal of the primary windings and core from the centre in a solid mass, and this, though a much more expensive form of construction, is greatly to be preferred to that in use with the cheaper types, where the secondary wire is wound upon the same bobbin, and is inseparable from it, except by unwinding layer by layer.

Coil Terminals.—In the older types of coil five and even six terminals were to be found—two for the primary circuit two for the condenser, and one or two for the secondary. By internal connections in the coil it is possible to do with but three, and this is the arrangement now usually adopted, even when the added complication of a trembler, or vibratory armature, on the coil itself is present. The connections for the three terminals should be fairly obvious, after what has been said. The two found at one end of the coil are the ends of the primary winding, to each of which is connected one end of the condenser. The single terminal found at the other end of the coil is for the high-tension (thickly insulated) "lead" to the sparking plug, the "return" in this case being through the engine and then *via* the primary "return"—which is also partially a so-called "earth," the frame of the vehicle—and thence, by internal connection, to its own terminal.

(*To be continued.*)

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SOME USEFUL NOTES.

THE arrival of a new car is generally a long-expected and, too frequently, long-delayed event, occasioning a thrill of excitement in the bosom of even the veteran motorist, which with the tyro is often accompanied by an amount of anxiety regarding the new-comer's constitution and treatment, not inaptly comparable with that of a mother on the advent of her "first."

IT is unlikely in these days than an absolute novice will receive his car without the opportunity for practical instruction of some sort, as some of us did in the early days of the movement, and this should be followed—if not, as it should be, accompanied—by a careful study of the use and function of every part of the mechanism. Where the owner is already familiar with some other type of car, special note should be taken of any important differences in the driving arrangements, as the general tendency to more or less uniformity in these makes small discrepancies more puzzling. Some that may be noted as existing in popular types are: reversal of brake and clutch pedals, so that the latter is actuated by the right foot; reversal of order of speeds; ditto of direction of the action of the accelerator, or of the throttle, while the introduction of the usual single lever for change speed and reverse has led to mistakes where the driver was habituated to a separate lever for reversing.

SPECIAL note should be taken of the position of every lubricator, grease-cup, and other oiling arrangements, remembering that each working part must be supplied with lubricant from somewhere. And here a caution may be advisable to those who, being used to ball-bearings, change to a car with plain ones, that the latter will not suffer neglect of lubrication as peaceably as the former.

AS regards a new car, the chief attention it requires is in this same matter of lubrication, which should be free and plentiful, with due consideration for the troubles induced by excessive supply to the cylinder. This usually causes rapid fouling of ignition points; but a new cylinder generally lets more oil past the piston at first than after a little running, so the supply should not be cut down too much from this symptom, unless persistent.

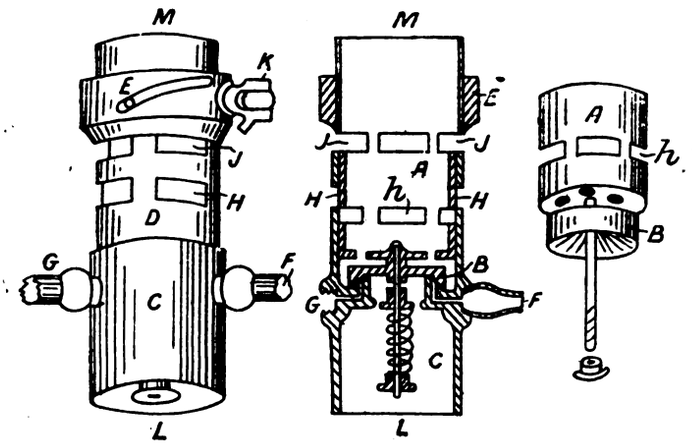
ALL important nuts and bolts should be scrutinised for looseness after a run, especially those supporting detached parts of the mechanism, such as the silencer, carburettor, piping, pump, &c., not of course omitting those of the steering and brakes. It is not always superfluous to verify the freedom of petrol, water, and lubricating oil pipes from obstructions, arising from dirt or waste left in the tanks, while we have known a car sent out with a stoppage in the radiator due to resin.

THE novice may find the following *resume* of operations useful in the starting of his car, it being impossible, of course, to include variations necessary with some types. First, fill the petrol tank, using a funnel with a strainer. Next, fill water tank and see that the tap at the bottom of the water system is closed. Fill all grease-boxes, if present, see that axle-boxes are lubricated, and that the gear-box is plentifully supplied with lubricant. For this a thin grease, or mixture of grease and oil, is best; if too thick the gear wheels cut a track in it without oiling themselves. The addition of a few ounces of good graphite is beneficial in most cases. Fill all drip or other lubricators with a good motor oil, not too thick to travel along the pipes, and see that the crank-case of the motor has its charge of the same, and that the steering-pivots and chains are also attended to. Turn on and adjust lubricators. Put on brake, and see that change-speed lever is in out-of-gear position. Also that tyres are pumped up hard. Turn starting handle to see that compression is good, then open petrol tap, switch on current, and start motor, adjusting mixture if necessary. In case of failure to start, see if petrol reaches the carburettor; if so, whether the inlet valve sticks; then seek for cause of failure in ignition. Do not try to start with the petrol tap, throttle, or the switch turned off; it has often been attempted, but seldom succeeds. Drop in your clutch—or its representative—gently, and try the brakes in the same manner.

THE "ECONOMIC" CARBURETTOR.

UNDER the name "Economic" Mr. James Gibson, of the Economic Electro Plating Company, of Edinburgh, has recently introduced a new carburettor, of which detailed illustrations are given herewith.

The device has a suction valve B similar to an ordinary inlet valve, which when raised opens the spraying hole for the liquid. Air is at the same time drawn in, a small vane being provided in the passage to give the mixture a circular movement.



Details of "Economic" Carburettor.

A Inner tube, with slots H.
B Valve controlling petrol and water inlets
C Bottom casing of carburettor.
D Top casing of carburettor.
E Band for regulating opening of slots J.
H Extra air inlet to mixture.
J Slots for admitting air into cylinder before mixture is taken in.
L Air inlet to Carburettor.
M Mixture outlet.

On the top of the valve is fixed a short tube open at both ends, and in which a series of slots *h* are pierced at one level. This tube is surrounded by an outer tube, in which similar slots H are made, the latter being, however, at such a level that when the valve B is on its seat no air can pass through. The moment the valve begins to lift, the holes *h* are opened, and the higher the speed of the engine the higher the lift, and consequently the more pure air drawn through these holes. The strength of the valve spring is so proportioned as to allow more air to enter at the high speeds in order to compensate for the richer mixture drawn in. This enables the engine to be furnished with the best mixture at all speeds, resulting, it is claimed, in the development of greater power and less heating of the cylinder. Another circular row of slots is cut in the outer tube at such a level that when the valve is on its seat the holes are completely open, allowing free access of air to the inside of the carburettor; the bottom of the slots coincide with the top of the inner tube, fixed so that as the valve lifts the holes are closed. A band E is placed round the outer tube, so fixed that it can be moved by hand or by the governor of the engine, so that the holes may be given any degree of opening, from full open to closed. The object of this arrangement is to do away with the usual throttle valve, the speed of the motor being controlled by the admission of more or less air through the holes J. The advantages claimed for this method of motor speed regulation over throttling the charge are much greater economy—compression being the same as when full power and speed are wanted—and the fact that the cylinder is kept much cooler. A small inlet similar to the one for supplying petrol, controlled by carburettor valve, is provided at G for introducing water into the cylinder. Mr. Gibson informs us that experiments have proved that in introducing a moderate amount of water after the engine has started an increase of power is obtained, and that the cylinder is kept considerably cooler.

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MOTOR-CYCLING NEWS.

SINCE we illustrated the "Rexette" in our issue of the 16th ult., the Rex Motor Manufacturing Company, Limited, have brought out an improved model, of which an illustration is given herewith. Its chief characteristics are a 5-h.p. water-cooled engine, two speeds, single chain transmission, a miniature car body in the place of the rear bucket seat on the old machine, and

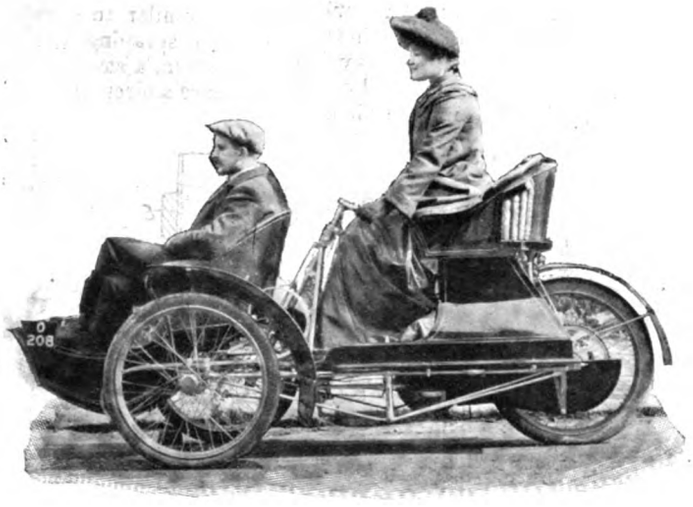


Fig. 1.—General View of the 5-h.p. Rexette.

a coach-built fore-carriage for a second passenger. The water-cooling is on the thermo-siphon system, a radiator being fitted behind the rear seat. The frame is of tubular construction, in which the motor is carried further back than in the old Rexette; it is concealed by an aluminium panelled body, having its base attached to a platform, carried by the frame. The speed gear box is enclosed in an extension of the engine crank case, and contains two spur wheels, A B mounted on the crank shaft F and continually in mesh with two pinions C D on the upper shaft G, the power being transmitted through one or other of the two pairs by jaw clutches, and thence through the friction

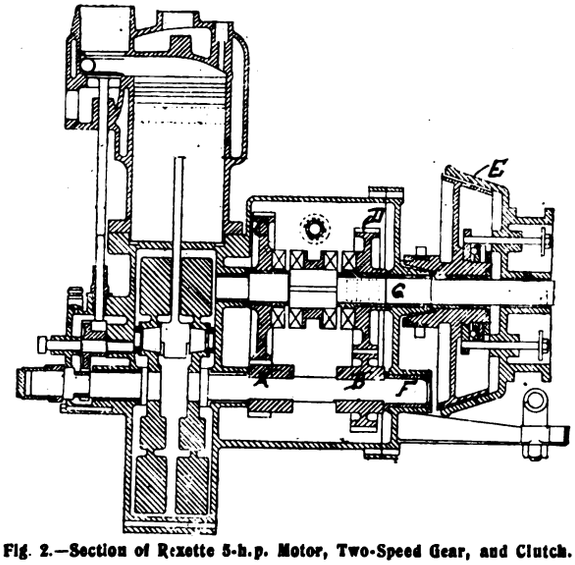


Fig. 2.—Section of Rexette 5-h.p. Motor, Two-Speed Gear, and Clutch.

Clutch E, and single chain drive to the rear wheel. We are informed that the new miniature car has been thoroughly tested and proved itself an excellent hill-climber.

◆ ◆ ◆

THE Motor Cycling Club is taking a plebiscite among its members on the following points. 1. What brake horse power do you recommend for a single-geared touring solo mount? 2. What form of transmission (give details, *e.g.*, 7-8 inch belt, spring sprocket, etc.) do you recommend to be used with the above? 3. Have you personally given the above combination an exhaustive trial? If so, on what make of machine?

◆ ◆ ◆

IN connection with the London to Edinburgh motor-cycle run, Mr. J. van Hooydonk will to-day (Saturday), take a party over the first portion of the route, viz., to Grantham. This part of the run will be performed mostly in the dark on the morning of the event, and as the road abounds with turnings, it is advisable for every competitor who possibly can to join in this preliminary trip, for the risk of losing the way in the dark is very great. A start will be made from the "Old Salisbury," Barnet, at 3 p.m., sleeping at Grantham, and returning to town on Sunday.

◆ ◆ ◆

ON Sunday Mr. E. Kennard, as Vice-President of the Motor-Cycling Club, entertained between 30 and 40 motor-cyclists at his hunting box in Leicestershire. When we consider that there were members who rode from distances as far apart as London and Liverpool, returning the same night, it speaks much for the reliability that has been attained by the lightest products of the new locomotion. In returning thanks for his health, which had been proposed by Riding Capt. Jackson, Mr. Kennard said in his motor house, mounted on his Napier, was a "Palmer" cord tyre which had run 500 miles without the slightest scratch or mark on it; that was proof of its powers of endurance. Mrs. Kennard, the well-known authoress, in a humorous speech, returned thanks for the way in which the toast of her health had been proposed. In brilliant weather, the return journey was commenced about 3 p.m, and we doubt not all safely "fetched up" at their respective destinations.

◆ ◆ ◆

HEREWITH we illustrate a new mechanical chain belt for motor-bicycles which has just been introduced by Messrs. Perry and Company, Limited, of Birmingham. The chain belt is, as



will be seen, constructed of steel links and leather pads. The leather pads are bound together by end plates, while the links are very flexible. The chain belt, which runs on standard pulleys, is claimed to be non-stretching and to be capable of being run loosely on the smallest pulley without fear of slipping, thus allowing the engine to develop its full power. It is also said to be unaffected by grease.

◆ ◆ ◆

THE annual meeting of the Motor Cycle Union of Ireland was held in Dublin on Friday last week. Mr. W. R. M'Taggart presided over a fair attendance of members, and the reports of the hon. secretary and the hon. treasurer were presented and adopted. The election of officers resulted as follows:—President, Mr. W. R. M'Taggart; vice-presidents, Messrs. J. B. Dunlop, sen., R. J. Mecredy, Hampden Shaw, and J. C. Percy; hon. secretary, Mr. C. G. Grey, 15, Marlborough Road, Dublin.

◆ ◆ ◆

A HUNDRED MILES reliability trial is to be held to-day (Saturday) by the Southern Motor Club. The maximum speed is to be 17 miles per hour, the route being from Purley to Nutley, *via* Caterham, Godstone, East Grinstead. Competitors will meet at Purley at one o'clock, and have their machines examined, the following parts being sealed by three judges:—(1) tool bag, (2) doors to tank, (3) make and break or wipe contact case, (4) pump, (5) float chamber. The start will be made at 1.30 p.m. prompt.

◆ ◆ ◆

THERE is nothing in the construction of a motor-cycle which cannot be readily comprehended, but a knowledge should be acquired before attempting a prolonged journey away from skilled help. As a rule, when one has acquired a knowledge of the functions of the various parts, and the mode of operation, a remedy will suggest itself should anything become temporarily deranged or fail to work in its normal manner.

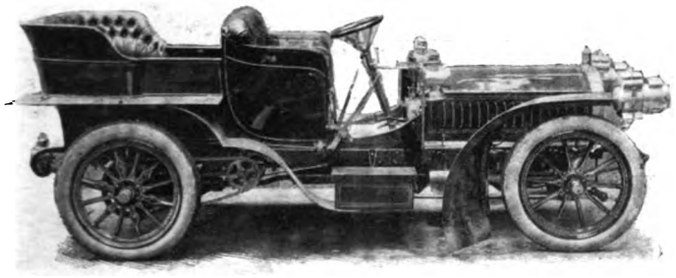
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HERE AND THERE.

THE headquarters of the Wolseley cars during the Eliminating Tests will be the Falcon Hotel, Douglas.

THE Hon. Charles Weld-Forester has ordered a 15-h.p. British-built Duryea car with side-entrance tonneau body.

MESSRS. S. BOWLEY AND SON notify us that they have reduced the price of their motor spirit one penny per gallon.



The 6-Cylinder 30-h.p. Napier, built to the order of Mr. Ernest Owers, a well-known member of the A.C.G.B.I. The body is rather different from that usually seen, and has been built to Mr. Owers' own design. The front is of the cabrio et type, and the back portion spreads gradually upwards and outwards, somewhat in the form of a tulip.

THE Scottish Motor Garages Company, Limited, have entered a 8-10-h.p. 2-cycle Vulcan car for the Glasgow-London run. It will be No. 31.

THE Northern Motor Company, of Belfast, have removed to 38, Chichester Street, where they have fitted up a well-equipped garage.

A MOTOR water cart has made its appearance in the streets of Folkestone, having been purchased by the Corporation for municipal purposes.

BY an amendment to the constitution of the Automobile Club of America the membership limit has been raised from four hundred to five hundred.

THE Albany Manufacturing Company, Limited, of Willesden Junction, have established a showroom and repairing depot at 93 and 94, Long Acre, W.C.

ON Sunday last a 12-h.p. Lanchester car succeeded in climbing the Great Orme's Head at Llandudno, thus repeating Mr. G. Higginbotham's recent performance on his 60-h.p. Mercedes.

AN international exhibition of sports is to be held at Scheveningen, Holland, from the 15th June to the 30th September next. The show will include a section devoted to automobiles.

ON Saturday last the Manchester Automobile Club had a week end run to Leasowe, which is situated on the Wirral Peninsula, making the Leasowe Castle Hydro their headquarters.

TWO 12-h.p. De Dion omnibuses, capable of seating eleven passengers each, and intended for a public service between Copenhagen and l'Amaque, have just arrived in the Danish capital.

MOTORISTS passing through Lichfield should give a call at Messrs. Jones and Company, of Talbot House, who have issued a handy road map of the district, together with a table of distances from Lichfield.

MESSRS. MACRAE AND DICK have added a department for the sale, hire, and repair of motor-cars in connection with their establishment in Inverness. They have also been appointed district agents for the Gladiator and Napier cars.

THE United Motor Industries, Limited, inform us that the Napier car which was lately driven 2,000 miles throughout England and Scotland was lubricated with their "D" oil, and that the "Castle" accumulators only were used on the car.

A SIX months' prospecting trip for precious metals by motor-car was begun in March by Messrs. Kelly and Smith McKay, who left Denver with a regular camping outfit and provisions for a tour in Colorado, Arizona and New Mexico.

THE U.S. Consul General at Cairo, in a recent report, states that the large agriculturists in Egypt are turning their attention to steam ploughs, and to any form of agricultural implement that can be used without cattle, and "are looking with much interest toward machines which are of the automobile type."

IN estimating the serviceability or probable life of any motor-car, the personal equation must be taken into account, just as it is in estimating the wearing qualities of apparel and other personal effects. A car will give one man good service for several years, while another might knock it to pieces in a month or two.

THE Massachusetts Automobile Club held a hill-climbing competition in Boston on the 19th ult. on a course one-fifth of a mile long on the Commonwealth Hill. Mr. H. P. Bowden, on a 60-h.p. Mercedes, and Mr. H. P. Hills, on a 40-h.p. Georges Richard, tied with 15 2-5 secs. for the first place. Mr. F. M. Marriott on a 6-h.p. Stanley steam car was second in 16 2-5 secs.

AT a meeting of the American National Association of Automobile Manufacturers, a resolution moved by Mr. R. D. Chapin, of the Olds Motor Works, opposing the Bill at present before the U.S. Congress, compelling the adoption of the metric system, was passed. The ground of objection was that a change in system would necessitate a complete upsetting of present standards, entailing great expense in new machinery and parts.

THE Wolseley Tool and Motor Car Company have sent us a photograph of one their 10-h.p. cars, which, when travelling at a good speed, side-slipped and charged a wall. The only damage suffered was that the front part of the frame and the radiators were pressed inwards for about five inches. The steering wheel was also bent, otherwise the car was quite uninjured, and, after a local smith had straightened the wheel, was able to continue on its journey. Even the damaged radiators were staunch, and on the day after the accident the car ran a hundred miles, to the works at Birmingham, where it was put right. The Wolseley Company point out that the stepped system of radiators used on their cars permit of repairs being made in a case like this very economically. Their position, too, protects the vital parts of the engine in case of collision.



Photo by] A Motor-Car Accident near Seaford. (See page 210.) [Wynter.

A WEEK of automobile and motor-bicycle races has been arranged to take place during the present month in Buenos-Ayres, Argentine Republic. A special prize has been offered by the city council, and the aggregate value of the prizes is reported to be over £1,000. The local agents for the Panhard, Mercedes, Fiat, de Dietrich, Mors, Darracq, Renault, and de Dion cars, and the Griffon, Peugeot, Werner, Adler, Humber and Iris motor-bicycles, are reported to have entered for the events.

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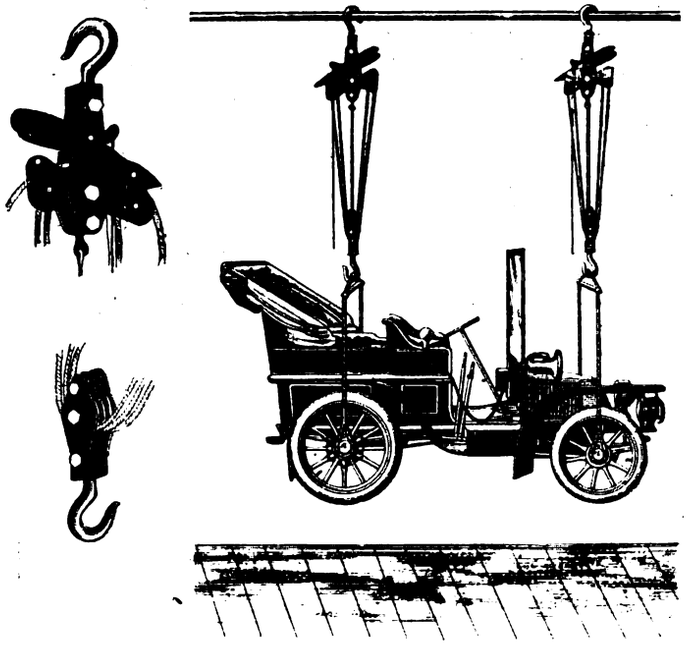
THE Swiss Automobile Club will hold a hill-climbing competition on Sunday next over a two kilometre course on the Cologny Hill, near Geneva.

ON Sunday last Baron de Caters made a number of attempts to establish a new record for the flying kilometre on his 90-h.p. Mercedes. The world's record stands at 23 3-5 sec., while de Caters' best was 24 2-5 sec.

FROM the White Steam Car Company comes a copy of the fifth issue of their Bulletin, which, among other matters, contains an interesting account of a trip on a White steam car through the Adirondacks. The White Company will send a copy of the Bulletin to anyone interested.

A LIST of their motor accessories and fittings comes from Messrs. H. and E. Friedenhain, of 67 and 68, Bunhill Row, London, E.C. This is well arranged, and a complete index facilitates reference to the accumulators, carburettors, densimeters, inlet valves, jacks, pumps, radiators, tool bags, voltmeters, and a hundred other things which the firm are stocking for the use of motorists.

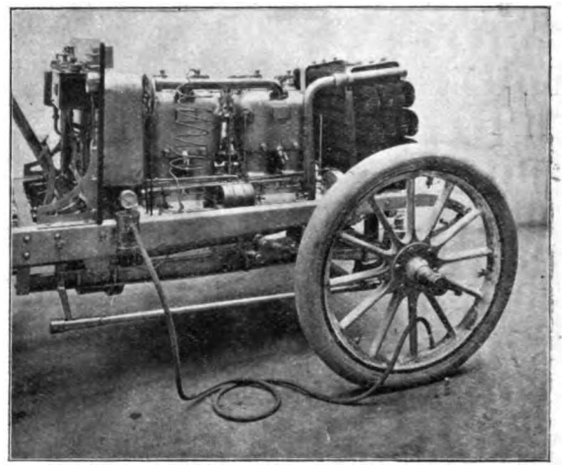
A FRENCH firm—Messrs. C. and E. Tourneur—has recently brought out a specially arranged pair of pulley blocks for lifting motor-cars off the ground, which should be found useful not only



by motor-car repairers, but by many motorists who have no inspection pit in connection with their motor house. The pulley blocks are of special construction, they being provided with a brake device, by means of which the car can be held at any desired height from the ground and let down gradually when desired. The accompanying sketches clearly illustrate the device, which is made in three sizes, to support cars weighing respectively up to 800 kilogs, 1,500 kilogs, and 3,500 kilogs.

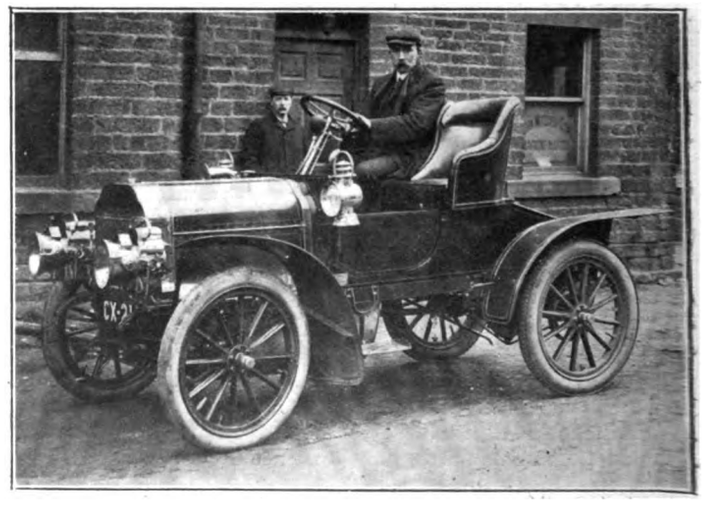
MESSRS. H. M. HOBSON, LIMITED, inform us that Messrs. Peugeot Freres sold over 4,000 motor-cycles last year, and according to their present booking they, having already disposed of 2,000, will sell at least 6,000 this year. In addition to this, they have sold over 2,000 cycle engines. Messrs. Hobson are sole agents in this country for the Peugeot motor-bicycles.

MESSRS. C. JARROTT AND LETTS, LIMITED, have acquired a licence from Messrs. Turcat, Mery and Company of the rights to manufacture the automatic tyre inflater described in our issue of the 16th January last for the British market. The apparatus itself, which has been named the "Pompeesi," was illustrated in the issue referred to, while the accompanying picture shows it fitted to a car. The attachment is simple, a connection nut being screwed into the cylinder. If ordinary sparking plugs are used, it can be screwed into the same orifice as that in which one of the sparking plugs is attached, and the sparking plug could then be screwed in at an elbow-joint of the fitting; thus the



motor would not require any alteration when the pump was required to be used. The force of the explosion in the cylinder is then conveyed through a small curled steel tube to a metal box, which can be affixed on to the dashboard or on to the side of the car. The whole attachment can be made within three minutes, and, when once affixed, need never be taken off, as all that is necessary to pump up a tyre is to unscrew a small fly nut in the side of the metal box above mentioned, screw in the rubber connection, connect with the tyre, and then start the engine, and the tyre will be pumped up hard in three minutes. It is thus possible to make use of the engine in the car and so save the motorist the hard work entailed in pumping up tyres. We may add that the "Pompeesi" was awarded the Gold Medal at the trials organised by the Automobile Club de France in December last. The time taken in the trials for the inflation of the tyre was from 2 min. 45 sec. to 3 min. 30 sec.

THE accompanying illustration shows a new type of two-seated Argyll 10-12-h.p. car which has become very popular in the Huddersfield district owing to their great hill climbing power. The photograph was taken just after the car had completed a non-stop run from Glasgow to Huddersfield. Mr. C. Mitchell, who drove the car, left the Hozier Company's works at 8.50 on the morning of the 14th ult. and arrived in Huddersfield at 6.50 p.m. the same day, completing the journey of 230 miles within 10 hours. Mr. Mitchell reports that it rained nearly all the way, and that he used exactly 8 gallons of petrol for the run, which works out



at about 28½ miles per gallon. We may add that Messrs. J. Mitchell and Sons, the Huddersfield agents for the Argyll cars, have already this year taken orders for 18 of these vehicles.

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CORRESPONDENCE.

LITTLE BIG CARS.

To the Editor of *The Motor-Car Journal.*

Sir,—Why do the many varieties of small two-seated cars all lack the charm of the big car as regards noiselessness and springiness? Many a man of moderate means would keep a small car if it was built more on the lines of its big brother, or rather sister. Most of the small two-seaters are not only very noisy but badly sprung, and their little engines seem as if they were always trying to knock themselves to pieces. Why cannot we have a small car to weigh about 8 cwt., with say a three-cylinder engine, better luggage carrying facilities, and, by no means least, ability to travel slowly on top gear? Nothing is more tedious than the continual change of speed necessary on small cars, whenever the country is at all up and down. What is wanted is not great speed on the level so much as good average speed. Surely a small car ought to be able to average 20 to 25 miles smoothly and noiselessly like a big car without continual speed-changing.

The constant speed-changing and vibration is what knocks small cars to pieces and renders the cost of upkeep far in excess of what it should be in proportion to its original cost and size, besides being largely responsible for accidents due to parts shaking loose.

We have silenced the big car and got her to run almost anywhere on her top gear. Why not do ditto for the small car?—Your truly,

Silence is Golden.

BRITISH CARS.

To the Editor of *The Motor-Car Journal.*

Sir,—I would like to add my testimony as to the value of our own native products. Three years ago I bought an M.M.C. car, although I was advised that there was not a decent English car on the market at the time. I thought last winter, that after all the miles I had travelled the engine and gear must require a thorough overhaul, but, on examination, the engineers to whom I sent the car stated that practically no signs of wear are apparent. (The largest part of their bill is for the inspection). The cost of upkeep has been exceedingly low and repairs have been practically nil. The car is very light on the tyres, and I presume this is due to good design and proper distribution of weight. The car is a good hill climber and has never failed me.—Yours truly,

W. Fountain.

DECAUVILLE CARS.

To the Editor of *The Motor-Car Journal.*

Sir,—I run a 10-h.p. Decauville car, and shall be pleased to give Mr. J. W. Hicks my experience of it, if he will let me know the particular points on which he desires information. This car has proved satisfactory during the five or six months I have had it, but I have not run it a thousand miles yet owing to bad weather, absence from home, and other causes.—Yours truly,

W. A. Woodley.

To the Editor of *The Motor-Car Journal.*

Sir,—In answer to Mr. J. W. Hicks' enquiry *re* the 10-h.p. Decauville car, I think that I am in a position to express an opinion. Two years ago I was a passenger on the first of these cars, when, on May 17th, 1902, I ran to Bexhill, and on that day had the only involuntary stop, due to the engineering work, that I have experienced; this was the small matter of a pin shearing in a lever boss. I now possess my second Decauville car—a 10-h.p.—and have never had the least trouble with it. I drive every day in the traffic of London, and the car is always ready for a 200-mile run should I wish to do such.

In addition to my own two cars, I have had considerable experience with two others, a 10-h.p. and a 20-h.p., and have found the same excellent qualities of engineering work and design throughout.—Yours truly,

Robert W. A. Brewer, A.M.I.C.E., A.M.I.M.E.

To the Editor of *The Motor-Car Journal.*

Sir,—I have been driving a 10-h.p. Decauville constantly for the last fifteen months, and during the whole of that time I have had only two little mishaps with the engine. The first time there were suddenly a short series of pops, so that I thought at first the mixture was wrong. Examination showed that the cotter had come out of the inlet valve of one cylinder and the valve had dropped, but, fortunately, had caused no damage. I suppose I had forgotten to put in the pin in replacing the cotter after taking out the valve. However, with a piece of wire (nipped from a wire fence at hand) I made a temporary repair and got home. On another occasion I had the tap knocked off the front of the radiators through the careless driving of another motorist, who ran me too close in trying to cross at right angles. I managed to pull my car round in time, so that no further damage was done. I plugged the pipe with a bit of wood and was able to proceed to a repairer's, three miles away, to have the tap soldered on. With these two exceptions I have had no trouble at all, although I have driven the car some hundreds of miles. The engine is not one of those that require constant adjustment, and it pulls well uphill. I can certainly recommend Mr. Hicks to buy a 10-h.p. Decauville, for I think it is quite as reliable as the makers claim. The one thing I do not like about it is having the clutch and brake pedals coupled, but a driver can easily have this altered if, like myself, he believes in using his engine as a brake downhill.—Yours truly,

Licence No. 208.

To the Editor of *The Motor-Car Journal.*

Sir,—In reply to Mr. J. W. Hicks, I have been using a Decauville 10-h.p. car almost exclusively for twenty months, covering between 13,000 and 14,000 miles. Beyond a broken wheel due to side-slipping into a wall, the only replacements have been due to two broken carriage springs, heavy loads over rough roads, and a worn-out second speed, after about 9,000 or 10,000 miles, which had apparently been insufficiently hardened. I have had no trouble on the road with the car, except an occasional puncture or dirty plug to change, and even these have been few and far between. Car is very dustless, due probably to the clearance and encased flywheel. Average about legal limit in fairly hilly country, and have done at least 25 per cent. more on French roads. I could not desire a more reliable car, and the wear in bearings seems very small indeed. Car is about to have her first thorough overhaul since I had her.—Yours truly,

R. W. Buttemer.

A TOWCESTER WARNING.

To the Editor of *The Motor-Car Journal.*

Sir,—Last week my car, which is a 12-h.p. Talbot, was being driven from London, through Towcester, to Burton-on-Trent. On reaching a point two miles outside Towcester, my chauffeur saw a policeman and a man with a bicycle standing together talking; the policeman held up his hand, and my chauffeur immediately stopped the car in its own length. The policeman informed my chauffeur that he was driving at the rate of fifty miles an hour. His name and address were taken, and he informed us that the individual with the bicycle could give expert evidence. He was then allowed to proceed on his journey to Burton-on-Trent. In due course a summons arrived. Knowing my chauffeur to be an experienced and most careful driver, I took the trouble to engage the services of Mr. Staplee Firth, who found that the Bench interrupted during examination and cross-examination to such a degree that he had to talk gently but firmly to them, which so surprised and nonplussed these noble gentlemen that the case proceeded, and he obtained a fair and uninterrupted hearing. I should most strongly advise those who may find themselves in the vicinity of Towcester, which is not seventy miles from London, and are stopped by an extremely ponderous and well-developed policeman, who is invariably attended by an anæmic looking gentleman with black hair, who practises the role of expert witness, to obtain the services of some London lawyer who is as well acquainted with motor law as Mr. T. W. Staplee Firth, and I have no doubt that they will find that they have spent not only an extremely amusing and interesting day, but they will have the satisfaction of knowing that the money disbursed has been done so profitably, for on this occasion the result was instrumental in disposing of a similar case, which followed this one, in the defendant's favour. The chief constable being thoroughly disgusted, promptly withdrew a third case which was of a similar character.—Yours truly,

C. E

TYRES AND CARBURETTORS.

To the Editor of *The Motor-Car Journal.*

Sir,—In reply to "Mack Siccar," the shutter on the air inlet of the carburettor is not much use without being able to regulate the air lever whilst driving. With 12-h.p. there is great economy and heat reduction to be obtained. My Longuemare is about the same size, and I can make the mixture too weak with the air lever half open. Perhaps the carburettor is flooding or the air lever become disconnected inside; if not, then either the spray cone or the choke tube is to blame. The Longuemare shutter swings either way, I believe, but mine lies on the bottom of the air inlet when closed, and just able to clear the choke tube when open. I cut a piece of sheet copper as though making a joint packing to fit between the carburettor and air inlet pipe, leaving enough material at the top, when cutting out the centre, to make half the hinge. If this is not clear to "Mack Siccar" I would send a sketch if the courtesy of the Editor would permit him to send his address.

In changing gears down more knack is required than going up, and one has to wait, or use brake, till the car is travelling at the lower rate of speed.—Yours truly,

Thomas Hallewell.

CORROSION OF TERMINAL.

To the Editor of *The Motor-Car Journal.*

Sir,—For some time past I have had a great deal of trouble in keeping the positive terminal of the accumulator on my motor-bicycle free from corrosion; it very rapidly assumes a green colour, and on the inside a crystal formation is seen. I shall be greatly obliged for any hints how to prevent the corrosion.—Yours truly,

Tympanum.

[Corrosion of the terminals is caused by one of two actions. It may be the result of the action of acid upon the metal of the terminal, or it may be caused by electrolytic action from the passage of a very small

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current of electricity between the two terminals. If caused by the first action it can be prevented by carefully cleaning the terminal with a weak solution of ammonia and water, and then with pure water. When quite clean cover the terminal with vaseline. If the corrosion arises from the second action it requires more care to entirely remove the trouble, and as "Tympanus" says that his positive terminal is the one giving trouble, electrolytic action is probably the cause. To prevent this, first clean the terminal in the same manner with ammonia and water, and cover it with vaseline. Also make a groove round the stem of the lead pillar on which the terminal is mounted, and fill this groove with vaseline. Then make certain that no passage of electric current is allowed to cross from one terminal to another by thoroughly drying the space between the two, and when quite dry put a dressing of vaseline on the surface between the terminals. To ensure success the old corrosive deposit should be entirely removed, clean very thoroughly with water after the ammonia, and anoint every part that is exposed with vaseline, except the surface on which the wires make contact.]

EMPLOYERS' VIEWS ON DRIVERS.

To the Editor of *The Motor-Car Journal*.

Sir,—A good deal has lately appeared in the press regarding motor-car drivers, or, to be more precise, I suppose I should say chauffeurs, and I should therefore like to take this opportunity of relating an experience which I trust may benefit those who are on the look-out for a competent man, and others who are over-anxious to leave their own particular calling to enter the motor industry, which, unfortunately, in most cases are accelerated by means of misleading advertisements. It was my lot some little time back to interview applicants in answer to an advertisement for a competent driver who was capable of doing all ordinary repairs, and it grieved me, when cross-questioning these young fellows, to think how they had been misguided, for in most cases they knew absolutely nothing of lathe work—in fact, the use of any tools whatsoever; of tube or magneto ignition they had never heard, and their knowledge generally on motoring matters could be described in no other way than woefully crude. The most serious part, to my mind, is that in most cases these young men possessed certificates wherein it told them they were quite proficient, and this innocently they appeared to believe. I also learnt in a great number of cases premiums, ranging from £5 and upwards, had been paid, and their total mechanical training had lasted from one to two months. Now I certainly think that something should be done to assist these misdirected persons, as the present system is tending to bring the whole trade into disrepute, for common sense tells us that a man should have had at least three years in a good workshop before he can even be termed useful.

I shall be pleased to hear the opinion of other owners on this subject. —Yours truly,

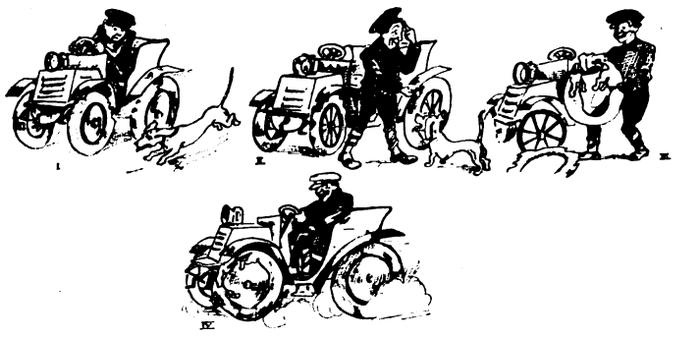
A. F. Setac.

To the Editor of *The Motor-Car Journal*.

Sir,—I have read the correspondence recently appearing with regard to motor-car drivers, etc., and, having just gone through an experience with a "thoroughly capable man," I should like to recount same for the benefit of your readers. I engaged a man who stated that he was thoroughly conversant with the Panhard car, and who furnished me with excellent testimonials, including one from a so-called "motor expert" in the trade. On his arrival I sent him out with one of my men for a trial, who, on their return, told me that he did not think him much good; but, being very reluctant to believe this, I sent him out for a further trial with my works manager. I was astounded to learn, on their return, that not only was the man incapable of driving even passably, but he was absolutely ignorant of the use of the reversing lever, the accelerator, or ignition lever. I, of course, dismissed him immediately.

Supposing this had been the case of a private owner, what might have occurred? The owner would doubtless have relied upon these testimonials he produced and engaged him—placing him in charge of a car worth, perhaps, hundreds of pounds. What would have been the result? Repairs, repairs, repairs, unsatisfactory running of the car, and another dissatisfied owner. This illustration shows how careful owners should be into whose hands they place their valuable cars if they wish to have satisfaction.—Yours truly,

Frank Morris.



THROTTLE GOVERNING.

To the Editor of *The Motor-Car Journal*.

Sir,—I should be glad of advice from any readers of the *Journal* with regard to a little trouble I am experiencing with the motor of my car. It is controlled by a governor working on a disc valve placed in the admission pipe. At present the running of the engine is extremely erratic, as the governor seems to come into action suddenly and cuts off the mixture from the motor, upon which, of course, it slows down and the valve is again opened. It has occurred to me that the governor needs adjusting. Perhaps someone who has experienced the same difficulty can give some useful information on the matter.—Yours truly,

J. L. Player.

QUERIES *re* PANHARD CAR.

To the Editor of *The Motor-Car Journal*.

Sir,—Can any of your readers enlighten me upon the following? I have just bought a new 7-h.p. Panhard. When driving same I get a knocking noise, which seems to come from the gear box. This noise appears on all four speeds and becomes worse if I use the accelerator, yet it immediately disappears if I slip the clutch a little, or if I am on a slight descent. Also what is the average mileage on a gallon of Pratt's petrol, and the best position to have the gas control when driving.—Yours truly,

7-h.p. Panhard.

THE VALUE OF A CERTIFICATE.

To the Editor of *The Motor-Car Journal*.

Sir,—Having followed the correspondence on drivers from the beginning of this controversy in your valuable journal, I am delighted to see at least one mechanic writing: a mechanic who knows his work will not write articles and ventilate his grievances in a newspaper. If he is certificated or not, a good worker always gets his price. "Mechanic" in your recent issue complains about the driving school certificated mechanic, but what does he know about them? Why doesn't he start a motor-driver union, and lay his complaint before the committee? They would be more capable of dealing with this question than the public in general is able to do. Besides, I think it is high time that such a society should be formed to look after the interest of the motor-car driver.—Yours truly,

Certificated.

ACETYLENE MOTORS.

To the Editor of *The Motor-Car Journal*.

Sir,—We hear less of acetylene now as a possible motor fuel than we did three or four years ago. At that time many experiments were being carried on both in Europe and the United States, with the object of utilizing it for power purposes; but the new agent was found very difficult to control. Motors of special construction would undoubtedly be necessary for acetylene, as the heat generated from its explosion is more intense than that produced by the combustion of the petrol mixture. This would necessitate additional complication, but I have entertained hopes that in time acetylene would prove a suitable fuel for vehicle motors, and have persistently scanned the current automobile literature for news of practical progress in this direction. Up to the present time, however, I have been unable to learn of any substantial evidence which could give stronger colour to that hope. Acetylene seems to be still much in futuro, while petrol as a motor fuel is a present fact.—Yours truly,

F. J. Spencer.

SPARKING PLUG POSITION.

To the Editor of *The Motor-Car Journal*.

Sir,—I have a four-cylinder motor in my car, all the valves of which are mechanically driven off a single cam shaft on one side of the motor. The sparking plugs are fitted horizontally in the sides of the valve chambers abreast of the inlet valves. Their position makes it inconvenient to get at some parts of the motor, and I have in mind changing them to the valve covers, which, of course, are immediately over the valves. I would very much like to know whether it is best to locate them over the inlet or the exhaust valves, and the reasons for the choice. —Yours truly,

Smithsonian.

[The best position for the sparking plugs, in the event of changing them from horizontal, would be over the inlet valves. The reason for this is, that there is always the possibility of some exhaust gases remaining in the locality of the exhaust valve which does not become mixed with the fresh incoming charge, and if the plug is placed over this firing is not so sharp as over the inlet valve, where the spark is in close contact with the incoming charge.]

Parchment for Joints.—A correspondent enquires for the names of firms supplying parchment for joints.

Terminal Connections.—Replying to C. H. Peake, the Herz terminals can be obtained from Messrs. Herz and Company, 55, Grand Street, New York.

Lost Glove.—A. E. writes that a fur-lined glove was dropped from a car travelling between Crawley and Handcross on Sunday last. Should any reader have picked it up, A.E. will be obliged by its being forwarded to our offices for transmission to the owner.

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CLUBS AND ASSOCIATIONS.

SOUTH LINCOLNSHIRE.

AN enjoyable meet took place at Boston on Thursday of last week in connection with the South Lincolnshire Motor Club. Although threatening clouds were visible, the weather remained fine and the automobilists who attended from a distance had a pleasant run. The members met at the Red Lion Hotel, whence they proceeded to the ancient market-place, a parade being held in front of the Ingram monument. Pedestrians manifested much interest in the parade, a large crowd assembling. Subsequently the members returned to the Red Lion Hotel, where they partook of tea. The following is a list of the ladies and gentlemen who attended the meet:—Dr. and Mrs. Crompton, Benington, 5-h.p. Baby Peugeot. Mr. F. Dennis, Kirton, 5-h.p. Baby Peugeot. Mr. S. G. Lovell, Stickney, 5-h.p. Wolseley. Mr. H. C. Johnson, 8-h.p. Peugeot. Mr., Mrs. and Miss Linnell, Market Deeping, 12-h.p. Wolseley. Mr. and Mrs. A. H. Holland, motor-tricycle. Mr. C. Holland and Miss Holland, 9-h.p. Peugeot. Dr. Mason, 5-h.p. Baby Peugeot. Dr. Miller (captain), Mrs. Miller and Miss Saul, Wrangle, 4½-h.p. De Dion. Mr. and the Misses Pilley, 6½-h.p. Peugeot. Mr. F. Richardson (secretary), Sibsey, 10-h.p. Wolseley. Dr. South, 5-h.p. Baby Peugeot. Dr. Wrinch, Phœnix motor-bicycle. Mr. F. Saul, Wrangle, motor-bicycle.

The next meet of the club takes place on Saturday, May 14th, at Market Deeping, when the members will be entertained by Mr. and Mrs. Linnell. It is hoped that there will be a good muster on this occasion.

Parliamentary candidate for the Gainsborough division) for a meet at Riseholme Hall, on July 16th, was accepted. It was also decided to accept the invitation of Sir Charles Seely, M.P., for a meet at Sherwood on July 23rd or August 6th, whichever was most convenient to Sir Charles. It was stated that the Lincoln members of the club were desirous of entertaining their fellow-members at Lincoln, and August 13th was fixed for the event. Mr. J. D. Sanders' invitation to entertain the club during the last fortnight in September was accepted, and in connection with this meet Mr. Sandars will organise a hill-climb, near Gainsborough. The date to meet the Sheffield Club at Ollerton, in the Dukeries, was fixed for July 2nd, and the hill-climbing competition at Market Rasen in connection with Mr. A. A. Padley's invitation for June 16th. A sub-committee was appointed to meet the members of the South Lincolnshire A.C. at Boston on May 12th, to endeavour to arrange an amalgamation of the organizations. It was stated that a circular was being sent round to the club members pointing out the care they have always had for considera'e driving, and expressing a hope that they would continue to use the roads with due consideration for the convenience and rights of other vehiclists.

Tea was provided for the motorists and their friends at the hotel between four and five o'clock, and very shortly afterwards the cars left for their various destinations.

Among those present were Capt. J. A. Cole, J.P. (chairman); Mr. E. Cragg, M.D. (hon. sec.); Major Ruston, J.P.; Capt. H. E., Mrs. and Mrs. A. Newsum, Lincoln; Mr. and Mrs. C. W. and Mr. W. R. Pennell; Mr. G. Lowe, M.D., Lincoln; Mr. G. E. and Miss Sandars; and Miss Beckwith; Mr. C. J. E. Parker, J.P., Capt. Lyall, Major

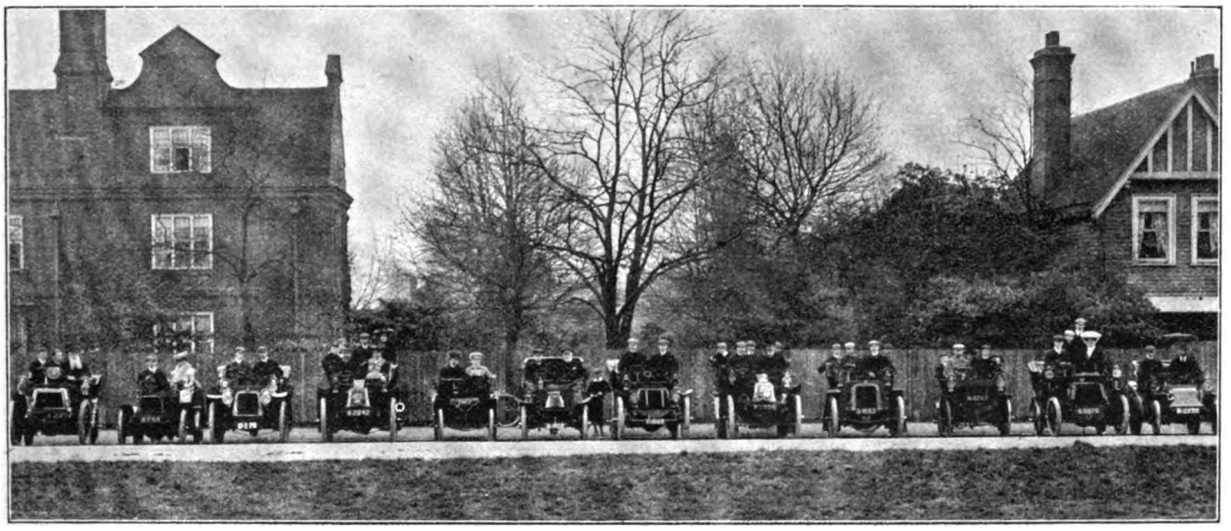


Photo by] The Meet of the Blackheath Automobile Club. (*See page* 209). *[E. P. Adams.*

LINCOLNSHIRE.

A DELIGHTFUL run in connection with this club was held last Saturday, when the members mustered in strong force at Brigg, a charming place with lovely scenery around it, on the edge of the wolds. It is a convenient centre for motorists, and those who attended the fixture were principally members residing in the northern part of the county. This was the third outing of the season, and fine weather again favoured the run. Some good hills (from which grand panoramic views were obtained) were encountered on the way, but they were not unsurmountable. The woods added considerably to the prettiness of the drive. Altogether, therefore, it was a very picturesque and enjoyable outing. The party made the Angel Hotel their headquarters, and much interest centred in the proceedings on account of the presence of some notable cars. For instance, Captain J. S. Ruston, of Lincoln, drove over on his 18-h.p. Mercedes, and Mr. J. D. Sandars, of North Sandsfield, and Mr. G. E. Sandars, of Scampton, each drove a Peugeot that won at the Southport speed trials last year, and which they afterwards acquired. Another interesting feature was a 20-h.p. Richardson, one of the highest powered cars, it is understood, the firm has yet introduced. Three 12-h.p. cars of the same make were also driven over by Lincoln motorists, viz., Captain Newsum, Mr. C. W. Pennell, and Mr. H. White. Captain J. A. Cole, J.P., of Roxholme Hall, brought the club's hon. sec., Dr. E. H. Cragg, of Pallingborough, on his 14-h.p. Durkopp, and other members were present from Gainsborough, Boston, Grantham, Market Rasen, and Sleaford, between twenty and thirty cars altogether putting in an appearance. The committee held a meeting after luncheon. Capt. Cole presided, and there was a representative attendance. The following were, briefly, the chief items of business which the meeting transacted. A sub-committee was formed to consider what steps could be taken with a view to assisting the movement for producing denatured alcohol for commercial purposes. The invitation of Mr. Algernon Moreing (the Goddard, Mr. J. W. Crooks, Mr. Lee, Mr. Meredith, Mr. G. W. Hanby, Mr. MacFarlane, Mr. Kiddell, Mr. C. Nelson (hon. solicitor), Rev. Wardle Hall, Mr. H. and Mr. T. W. Swaby, Mr. R. and Mr. W. Connell, Dr. Reckitt, Mr. J. D. and Miss Sandars, Mr. and Mrs. F. Jecock and Mr. P. E. Jecock, Mr. and Mrs. G. Garnett and Mr. Townsend, Dr. and Mrs. Sharp, Mr. H. and Mrs. G. Charlton-Jones Holton, Mr. Seagrave, Mr. and Mrs. C. H. Gilbert, Mr. N. Bell, and others.

HERTFORDSHIRE.

H.S.H. PRINCE LOUIS OF BATTENBERG has consented to become one of the vice-presidents of the Hertfordshire Automobile Club. The club held a successful run to Toddington, in Bedfordshire, on Saturday, April 30th. About twenty-five members and friends attended, the overcast condition of the sky keeping many away. The "Sow and Pigs" hostelry was the rendezvous, and after tea and chat the members strolled round the pretty gardens of the inn. A full programme of fixtures for the summer is being prepared by the committee.

WEST SURREY.

THE club were favoured with fine weather for their run on Saturday to meet the Reading A.C. at Odiham. Showers in the early afternoon had providentially laid the dust. Nine cars took part in the excursion carrying twenty-six members and friends, and the two clubs sat down to tea at the "George" some forty strong. The road *via* Farnham, though famous for its flints, which were loose and much in evidence, seems to have been responsible for only one puncture.

YORKSHIRE.

TO-DAY (Saturday), the Yorkshire Club is having a run to Cawthorne, where tea will be taken at the Spencer's Arms Hotel. On the 14th a visit will be paid to Bolton Woods, and a week-end tour is being arranged for Whitsuntide, with headquarters at the Bellsfield Hotel, Bowness.

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LEICESTERSHIRE.

On Saturday the Leicestershire Automobile Club had a run to Daventry. Ten cars and two motor-bicycles started from the Bell Hotel at Leicester, and the route was *via* Blaby, Lutterworth and Rugby. The old town of Rugby was awakened from its usual state of somnolence as the cars passed through. It was market day, and things were quite lively. From Rugby to Daventry the road is a splendid one, level nearly throughout, and with a good surface. Daventry was reached well under two hours, and all of the cars came in without having sustained mishap. To the surprise of the members—and their pleasure also—the president of the club, Mr. G. E. Mawbey, was found awaiting them at the Wheatsheaf Hotel. He had travelled right through from Syston. Among those who took tea were Mr. and Mrs. Mawbey, Mr. T. C. King, Messrs. Hargreaves, O. Wright, Herbert, A. H. Faulkner, Clarkson, Barron, W. Clements, T. S. Pettifor, Whitby, G. H. Wait, Woodward, Bentley, Tyler, J. McAlpin, C. Langmore, Thompson, and Allan McAlpin (hon. secretary). A start on the return journey was made shortly after six o'clock, the way being by the old Watling Street. Leicester was reached in good time, and the expedition was regarded in every way as having been a very successful one.

LETTERS OF IDENTIFICATION.

Below are the letters of identification for Irish counties and boroughs:—

COUNTIES.

Antrim	I.A.	Londonderry	I.W.
Armagh	I.B.	Longford	I.X.
Carlow	I.C.	Louth	I.Y.
Cavan	I.D.	Mayo	I.Z.
Clare	I.E.	Meath	A.I.
Cork	I.F.	Monaghan	B.I.
Donegal	I.H.	Queen's County	C.I.
Down	I.J.	Roscommon	D.I.
Dublin	I.K.	Sligo	E.I.
Fermanagh	I.L.	Tipperary, N. Riding	F.I.
Galway	I.M.	Tipperary, S. Riding	H.I.
Kerry	I.N.	Tyrone	J.I.
Kildare	I.O.	Waterford	K.I.
Kilkenny	I.P.	Westmeath	L.I.
King's County	I.R.	Wexford	M.I.
Leitrim	I.T.	Wicklow	N.I.
Limerick	I.U.		

BOROUGHS.

Belfast	O I.	Limerick	T.I.
Cork	P.I.	Londonderry	U.I.
Dublin	R.I.	Waterford	W.I.

CASES DISMISSED.

At the Loughborough Petty Sessions, Mr. Ellis, Shardlow, was summoned for driving a motor-car, at Castle Donington, at a speed dangerous to the public, having regard to the amount of traffic on the highway, or which might reasonably be expected to be on the highway, on March 17th. Mr. Ellis said on the day in question he had been to Ashby, and on the return journey he overtook a car whose occupants he did not know. At the time he passed the constable's house he had his engine throttled, and his side-brakes on, and was not going at a greater speed than six to eight miles an hour. While going down the hill at that speed the other car passed him, but not going at much greater speed. There was no racing with the cars in any way. Samuel Barratt, who was with the last witness, gave corroborative evidence. The Bench dismissed the case.

James Ludlow, of London; Arthur Gadsden, of Leamington; and Maurice Egerton, of London, were charged at Towcester on separate summonses with driving motor-cars to the danger of the public, at Foster's Booth, on April 18th.—Mr. T. Staplee-Firth appeared on behalf of Ludlow. The evidence of P.C. Packer was to the effect that defendant was travelling at a rate of fully 34 miles an hour, and that it was particularly dangerous because there was an auction sale near the road along which the car was travelling. The police officer held up his hand, and the driver immediately stopped—within six yards. A witness corroborated as to the speed, but disagreed with the constable as to the direction in which the car was proceeding, and it became evident that some mistake had been made, apparently the constable confusing the different cases. The magistrates dismissed the case, and after hearing the evidence against Gadsden, who was represented by Mr. A. J. Darnell, of Northampton, decided on a similar course with that case. On the application of the Deputy Chief Constable, the case against Egerton was withdrawn.

Mr. Maurice Hewlett, the novelist, was caught in the well-known police trap at Nether Wallop, near Andover. The case came on for hearing at the Andover Petty Sessions on Friday, the 29th April, Mr. Staplee Firth conducting the defence. Ultimately the Bench dismissed the case.

At Guildford, William du Cros, 14, Regent Street, was summoned for driving a light locomotive at a greater speed than was reasonable and proper, having regard to the traffic, in London Road, on April 17th. Mr. W. S. Turner said he should demand that the prosecution prove the Local Government Board Order. As a matter of fact, the Local Government Board did not have any regulation with reference to the speed, and he should ask the case be dismissed.—The magistrates' clerk joined issue on that point, citing the Order of 1896.—Mr. Turner, however, quoted from the Act and Order of 1903, which stated that the 1896 Order was repealed. In the 1903 Order there was no allusion to speed in towns.—The Chief Constable (Mr. Worlock) applied that the summons should be amended.—Mr. Turner objected.—The Magistrates' Clerk: He can have a new summons.—Mr. Turner again objected. His client having once been put in "jeopardy" could not again be summoned in respect of the same offence.—Mr. Worlock asked the magistrates not to dismiss the case on its merits, but on a technical point.—The magistrates, advised by their clerk, dismissed the case, but refused to make any statement as to a fresh summons being granted.

At the Portsmouth Police-court, in the Portsmouth Town Hall, Edward Doudney, of "St. Cecilia," the Retreat, Southsea, was summoned for driving a motor-car to the danger of the public in Castle road, Southsea, on April 16th.—Mr. A. T. Prickett (the Chief Constable) supported the information).—The defendant and Douglas Richard Clark, who was one of the occupants of the car, both denied that the car was travelling at a dangerous speed. Another witness saw the car in Castle Road just previously standing still near Hambrook Street. A motor engineer was the other occupant of the car, being there for the purpose of remedying the defective cylinder, and he explained that they were travelling on the second speed at the time, and it would be impossible to get more than twelve miles an hour out of it. The case was dismissed.

CONVICTIONS AGAINST MOTORISTS.

Southport	Dangerous speed.	10s., etc.
Truro	Furious driving.	10s., etc.
Reigate	Dangerous speed.	£3 3s., etc.*
Exeter	Dangerous speed.	£2, etc.
South Shields	Reckless driving.	£1, etc.
Taunton	Reckless driving.	£1, etc.
Edinburgh	No number.	£3, etc.
Loughborough	Dangerous speed.	£3.
Cardiff	Not producing licence.	20s., etc.
Canterbury	No light.	Costs only.
Woking	Driving to common danger.	£1.*
Wolverhampton	Driving to common danger.	£1.
Pollockshaws	No number.	£5.
Bingham	No number.	£1.

* Licence endorsed in addition to fine imposed.

POLICE TRAP.

All motorists who have occasion to travel on the Basingstoke road should look out for a police trap at Hook, some little distance the London side of Basingstoke. The trap in question is a quarter of a mile, and can be easily identified, as part of the measured distance is over a new railway bridge. A plain clothes sergeant and a constable in uniform work the trap, and the time is taken at each end by means of signals and two stop watches.

At a meeting of the Cycle Engineers' Institute last week it was unanimously agreed to change the title to the Automobile and Cycle Engineers' Institute. Mr. H. Austin, of the Wolseley Tool and Motor Car Company, Limited, has been elected president of the new body for next year.

TO CORRESPONDENTS.

All communications intended for insertion in this Journal or relating to Editorial matters should be addressed to The Editorial Department, Motor-Car Journal, *39 and 40, Shoe Lane, London, E.C., and must be written on one side of the paper only. Letters must in all cases be accompanied by the name and address of the writer, as no notice will be taken of anonymous communications.*

The Editors cannot undertake to return MSS. or drawings, although every effort will be made to do so in the case of rejected communications. Where such are regarded as of value, correspondents are requested to retain copies.

To insure insertion communications and contributions must be in the Editor's hands by Tuesday forenoon of the week in which the same are intended to appear. Disappointment may be caused by non compliance with this rule, and to avoid this earlier receipt, if possible, is necessary.

The Editors do not hold themselves responsible for the opinions expressed by their correspondents, or for statements and facts which do not appear in the editorial columns.

The Editors and Publishers beg also to state that they will accept no responsibility for unsolicited contributions, even if used, unless payment for same is directly specified in forwarding, and the terms arranged before publication.

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THE

Motor-Car Journal.

VOL. VI.] LONDON, SATURDAY, MAY 14, 1904. [No. 271.

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COMMENTS.

ELSEWHERE we have much to say concerning the Eliminating Contests which have been proceeding in the Isle of Man, and the description of a run around the course will be read with interest by those who follow the accounts that appear in the daily press, as well as the incidents of the event that we have gleaned from competitors and others for exclusive publication in our next issue. Read in conjunction with the telegraphic summary of the eventful day of Tuesday it will give our readers some idea of the difficulties encountered—difficulties which have been generally acknowledged, although somewhat exaggerated in many quarters.

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Manx Names.

NOW that the interest of British motorists is inclining towards the Isle of Man, many will be glad to have Mr. A. W. Moore's work on the surnames and place-names of the Isle of Man, published by Mr. Elliot Stock. Mr. Moore is the Speaker of the House of Keys, and has written largely and learnedly on the history and folk-lore of the island. His qualifications for his present task are undoubted, and the volume is not only filled with much information on Manx names in particular, but also gives a good insight into the history of the island.

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Our Identification Card.

THIS week every reader of the *Motor-Car Journal* will receive as a supplement a neat card of a size suitable for the pocket, the possession of which will enable him to obtain some idea of the place of origin of the cars that promenade the streets bearing letters which are mystic symbols—no more, even to other men on the car. We shall be glad to supply further copies to subscribers wishing to hand them to friends. Advertisers, too, will be given extra copies for distribution to clients, on making application to the Publisher of the *Journal*, 39–40, Shoe Lane, E.C. Prompt application for these supplies is necessary, as an early exhaustion of the first edition is anticipated.

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Why Not India?

SUCH is the conundrum propounded by a Calcutta contemporary in connection with the Eliminating Race for the British Gordon Bennett Cup team. India, in the cold weather, according to our journalistic confrere, offers an unrivalled field to the motorist. "The race in Ireland, after the most elaborate arrangements and precautions, was unsatisfactory. At given points on the course each machine had to pull up, thus necessitating an elaborate system of time-keeping, which does not commend itself to the ardent motorist. In the first place it would be no very difficult task to make even more elaborate arrangements than were made in Ireland for a big race. The country also lends itself to such a form of sport. One or even two hundred miles of the Grand Trunk Road could be placed in proper order, with the necessary patrol, which in Europe has proved so costly, on which a daily stream of motor-cars either practising for some race, or being tested with a view to their improvement, could career. For months on end there would be no fear of rain or sticky roads. The cost of carriage to India would not stand in the way of the wealthy patrons of the pastime, or of those large manufacturers who only need this opportunity to develop their trade. All these reasons, and many more, are to be found in favour of holding the race in India." The reasons may be excellent, but the motorists are not to be drawn in that way.

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Cost of Operation.

AMONG other well-known motorists who have responded to the suggestion that they should give our readers some idea of the cost of motor-car upkeep is Lord Edward Churchill, whose letter in our Correspondence columns will doubtless encourage others to state their experience for the benefit of the motoring fraternity. According to the statement, made with such regard to accuracy of detail that it becomes of real value, the gross running cost for a 14-h.p. car the first year was practically £90, from which the saving of railway fares has to be deducted, leaving a net running cost of £65. The car was run one day out of every three, the average daily run being twenty-five miles. This works out to 5d. per mile, and affords a useful basis of comparison of which we invite our readers to take advantage, and let us know the result.

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The King at Aldershot.

KING EDWARD, accompanied by the Duke of Connaught, paid a visit to Aldershot on Monday, to witness a series of tactical manœuvres carried out by the cavalry and artillery of the First Army Corps. They were received at Farnborough by General French and a number of staff officers, and the Royal party immediately proceeded in motor-cars along the Farnborough road to Cove Common, Aldershot. Throughout the day their car was preceded by two staff officers on motor-bicycles, each carrying a small Royal Standard at the handle-bars. The King and the new Inspector-General showed a keen interest in the manœuvres, and rushing along the dusty roads at a good speed, over Cove Common, across the Elmour Bridge, and backwards and forwards down the Farnborough road, witnessed the gradual development of the grand attack.

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The Automobile Club and Long Distance Runs.

AT a meeting of the Executive Committee of the A.C.G.B.I. a resolution was adopted to the effect that "a public statement be issued from the Automobile Club, pointing out that some recent long distance attempted non-stop runs had not been held under the auspices of the Automobile Club or under the observation of its officials, and that attention be called to the fact that the club is prepared to properly supervise such runs under regulations which are well known to the trade." It was also resolved that "if the name of the Club appears in public reports of non-stop or other road trials which are not held under the auspices of the Club, those concerned shall be liable to suspension from the right to take part in motor competitions in this kingdom and elsewhere."

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A Considerate Surveyor.

THE surveyor to the Kesteven (Lincolnshire) County Council, in a recent report to the Highways Committee, draws attention to the great necessity of some practical method of minimising the nuisance arising from dust during dry weather. The fact, he says, must be recognised that the introduction and general use of motor-cars must revolutionise the conditions and necessities of traffic, and will call for some alteration in the existing method of road making. He further states that he has made a constant study of this subject for some time, and has attended and inspected all experiments that he could possibly reach bearing on it, amongst them being the oiling of roads, the spreading of Westrumite, the tarring of the surface of roads, and the use of tarred macadam. For climatic reasons he does not regard the oiling of roads as of any practical use, while the cost of Westrumite is against its general adoption at present. The tarring of the surface of roads and tarred macadam are now almost past the experimental stage, and he proposes, therefore, with the approval of the committee, to continue to use them in small quantities, so as to ascertain, as far as possible, their adaptability to the needs of the county.

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Mr. Glidden and party leaving the Hotel Carlton, London, on Friday, the 6th inst., in their 24-h.p. Napier for Scotland, this being the 118th day's drive of their round-the-world trip.

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Considerate Drivers.

THE A.C.G.B.I. are adopting the policy of insisting on the considerate driving of cars in a way that will, we trust, prove a deterrent to those members of the Club, and they are not wholly unknown, who have often shown a disregard of the welfare of the movement by wanton driving in the most reckless fashion. It is rightly acknowledged that those in charge of high-powered cars are not the only sinners, but that many of the little vehicles are made objectionable on the road by the discourtesy of their drivers. Elsewhere we give the main paragraphs of a letter received on the subject from the A.C.G.B.I., and hope some speedy abatement of the nuisance it exposes may follow.

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An Objection to Tramways.

AMONG the witnesses last week before the Select Committee of the House of Commons which is considering the Bill dealing with the extension of the Hounslow tramway from Baker Bridge to Staines was the Hon. J. Scott-Montagu, M.P., who described the inconveniences arising from the tramways in the High Street, Brentford, where it was very difficult for the ordinary traffic to get through, and extremely difficult for motor-cars to pass tramcars going in the same direction. With granite in the tramway track and macadam at the sides, motor-cars would be very liable to side-slips. Wood over the entire road would be much preferable. The Committee found the preamble of the Bill proved in regard to the Staines extension, subject to the requirements of the Middlesex County Council in regard to width of road, drainage, wood-paving as agreed, and lighting at cross and lateral roads.

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Motor-Car Imports and Exports.

NO less than 559 foreign motor-cars were imported into this country during last month, their value being returned at £170,757. "Parts" were responsible for £31,742, bringing up the total imports for April to £202,499, as against £189,907 in the preceding month, and £153,955 in April, 1903. So far this year, that is to say for the first four months, the imports stand at £720,173, or roundly £100,000 more than in the same period of last year. Passing now to the exports of British automobile productions, the returns are somewhat disappointing, only 42 vehicles being shipped last month, these with the "parts" being valued at £20,391. For the four months ending with April the exports are, however, returned at £106,507, £18,000 more than in the corresponding four months of 1903.

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Regulations for Heavy Motor Vehicles.

ELSEWHERE in the present issue of the *Journal* we publish the recommendations made by the Departmental Committee appointed by the President of the Local Government Board in January last, "to inquire and report with regard to any regulations which should be made under section 6 of the Locomotives on Highways Act, 1896, and section 12 of the Motor Car Act, 1903, as respects any class of vehicle for the purpose of increasing the maximum weights of three tons and four tons, and with regard to any conditions as to the use and construction of the vehicles which should be made by any such regulations." The Committee express themselves fully satisfied in their report that the development of the heavier kinds of motor-car traffic is at present unduly restricted by the maximum unladen weights prescribed by section 1 of the Locomotives on Highways Act, 1896. In drawing up the new regulations, however, it was necessary to bear in mind the distinction between motor-omnibuses and other passenger vehicles, and motor-vans and lorries used for the carriage of goods only, the requirements of the two classes of traffic being manifestly different. The Committee had also to bear in mind that a special class of motor-car might have to be provided for military purposes, and that tyres constructed of metal must be placed in a different category from those constructed of a non-metallic resilient or elastic material such as rubber. As a rule the Committee have confined their recommendations to those provisions which seemed essential to protect the public and the roads, as they were anxious not to fetter unnecessarily a growing industry. It was suggested to the Committee that a regulation should be made allowing motor-vehicles manufactured in this country for export which do not comply with the regulations to be tested on the roads or to be driven to the port of embarkation. They think that local authorities might be authorized to permit the use of any road in their area for these purposes, subject to any conditions which they deem fit to impose.

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The Glasgow to London Trial.

ARRANGEMENTS are now well in hand for the Glasgow to London trial which the Western Section of the Scottish Automobile Club will hold on the 19th and 20th inst. The chairman and honorary secretary of the Section drove last week-end from Glasgow to London and back over the trial route in order to fix the various points at which the Observers' stages are to be completed and time recorded, and to make other necessary arrangements. A list of the thirty-one vehicles which have been entered for the event has already been given in the *Journal*. The programme which has been issued, and a copy of which has been sent us, is exceedingly complete. From it we learn that the start will take place from Glasgow at 5.30 a.m. on the 19th inst., the first day's journey being as far

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as Leeds, which will be left in the order of arrival at 6 a.m. on the 20th inst. On the first day there will be a fifty minutes' stop at Penrith, and one of equal duration at Stamford on the second day. There will be minimum times for the various stages in the schedule. Arrival at the end of a stage in advance of the minimum allowed will entail the loss of one mark for each minute of prior arrival. On the second day's journey a hill-climbing competition is included in the programme. This will be held on Woodcock Hill, Elstree, and will be made from a standing start.

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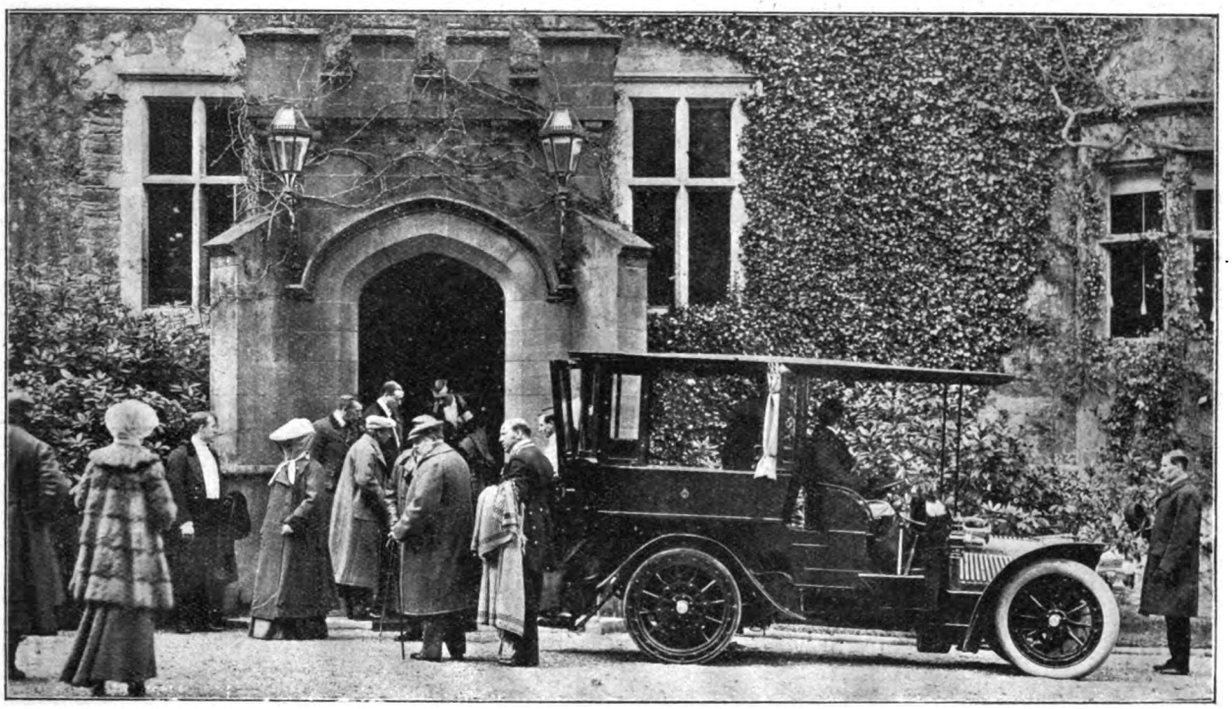
Restrictions in Forfarshire.

THE County Council of Forfarshire has followed the example of the Aberdeen County Road Board in setting itself against the recommendation of Mr. Graham Murray, the Secretary for Scotland. A special committee appointed in connection with the Motor Car Act submitted several recommendations to the Council at its meeting last week as to restrictions on certain roads for motor-car traffic. Mr. Alexander Lyell, Montrose, moved that, seeing the Secretary for Scotland was not desirous of the Council taking immediate action, they should delay the matter. What was required was uniformity of action as regards restrictions, and it would never do for different counties to have different recommendations. Mr. William Smith, Balzeordie, moved, however, that they approve of their Committee's report, and adopt its recommendations. He hoped the Council would never submit to be dictated to by the Scottish Office, the Secretary for Scotland, or any of his subordinates. A long discussion ensued, but in the end the reasonable resolution of Mr. Lyell was rejected, and that of Mr. Smith adopted.

A District Meet.

THE first meet of the members of the Yarmouth, Lowestoft, and Beccles district of the Norfolk Automobile Club was held at the Swan Hotel, Southwold, on Saturday afternoon, under very favourable conditions, the weather being all that could be desired, and the roads good. The following were among those present:—Mr. and Mrs. Williamson, Yarmouth; Mr. and Mrs. H. Chamberlin, Yarmouth; Mr. and Mrs. A. E. Lark, Yarmouth; Mr. and Mrs. E. W. Bayley, Lowestoft; Mr. Gilbert Morse, Lowestoft; Mr. and Mrs. T. P. Angell, Beccles; Mr. and Mrs. J. W. Brooke and Mr. and Mrs. Maudsley Brooke, Lowestoft; Mr. and Mrs. T. Bradley, Yarmouth. Twenty-five members and friends having partaken of an excellent tea provided by the manageress of the Swan Hotel, a homeward start was made at 5 p.m, the run and meet passing off very successfully, without mishap of any kind. The next meet will be at the Bridge Hotel, Potter Heigham, on the 2nd June.

THE KING'S VISIT TO IRELAND.



King Edward and the Royal Party preparing to leave Lismore Castle for an Automobile Trip to Shanbally Castle.

Photo by [*Lafayette, Dublin.*

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Postal Motor Deliveries.

IT is rumoured that the Great Western Railway Company has secured the contract for the carrying of the mails to the Lizard. Hitherto the mails have been carried by mail cart from Helston, and had to wait the arrival of the 'bus from Penryn, reaching the Lizard just before 10 a.m. Under the new arrangement the mails will be brought from Gwinear Road to Helston by train, and thence by motor to the Lizard, reaching the latter place about 8.45. There will be another mail

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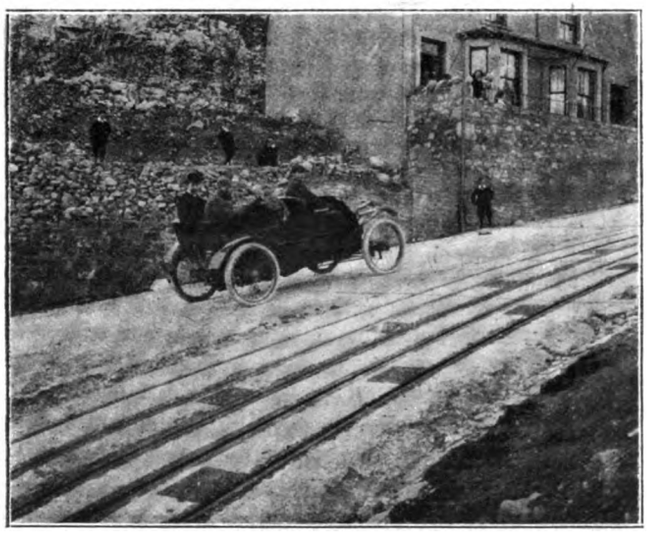
later in the day, thus giving two mails in and out. The new service, it is stated, will commence early next month, and proves that the enterprise of the provincial postmasters is greater than that of the central authorities in London.

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Dust.

With the advent of fine weather and undampened roads the dust nuisance again becomes a feature of ordinary touring that is both distressing and irritating. The local authorities should co-operate with motorists in seeking a remedy. For it is not wholly the fault of the motor-car. A sudden gust of wind will often throw the dust up like a cloud, and the motor-car can only be regarded as aggravating the matter. In no sense can it be held wholly responsible. Often have we urged that the subject is one for the consideration of road surveyors and those similarly engaged. Hence the pleasure with which we record the fact that the Godstone Urban Council is now giving a trial to one of the new materials with which it is suggested to keep the dust within bounds. The test will be a severe one, for motor-car traffic along the London road is continuous every day in the week, and the dust raising capabilities of automobiles cannot easily be beaten. The road to London continues through the district of the Godstone Rural Council, and the surveyor has secured permission to expend £10 upon experiments on the public highways. We shall be glad to hear of other local authorities similarly enterprising.

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A 12-h.p. Lanchester Car climbing the Great Orme's Head at Llandudno.

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A Useful Handbook.

The various motor-tyre companies have for long been noted for their enterprise, but in publishing "The Continental Handbook for Automobilists in Great Britain and Ireland" the Continental Caoutchouc and Guttapercha Company have easily beaten their record in this respect. The handbook is a work of reference which will be found almost indispensable by motorists, no pains have been spared to make it as complete as possible. After a table of contents, a preface, and a calendar, we find the proper hours for lighting lamps, and a comparative speed table. Then the full text of the several enactments relating to motor traffic in Great Britain and Ireland appears, also the Local Government Board Regulations under the Act of 1903. These are followed by the regulations as to the use and storage of petrol and the taxes on motor-cars. Then comes a clearly-written and well-illustrated treatise on "Clipper Continental tyres: How to Treat and How to Repair them," which extends to about fifty pages. The full membership roll of the Automobile Club is given, and excellent articles on How to Clothe while Touring," "Hints on Assurance," and "The Cleaning and Care of Cars." Another useful feature of the work is "The Automobilist's Gazetteer," which takes the form of an alphabetical list of towns in Great Britain and Ireland, and under the name of each town gives its county, railway stations, post office, telegraph office, telephone fee to London, and altitude above sea level, following with addresses of oil and petrol stores, repair shops, garages, doctors, and hotels. A telegraphic code for ordering Continental tyres and a list of motor manufacturers and agents are also given. The railway and steamer rates of the country, Customs regulations re cars for the Colonies and abroad, are other items dealt with, while in a pocket formed inside the back cover is a clearly-printed map of Great Britain and Ireland, showing routes numbered to correspond with the tours given in the text. We strongly recommend all motorists to procure a copy of the handbook, which extends to over 1,000 pages. It is being distributed free by the Continental Company, a small charge being, however, made to cover the cost of postage and packing.

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Harmony Disturbed.

The other day, at Dewsbury, a motor-car being driven by a London gentleman seems to have run into a brass band, with the result that the harmony of its performance was very much affected. Four musicians were seriously injured, and, in order to complete the tale of woe, the crowd seemed to have turned upon the driver of the misguided vehicle and inflicted such rough usage upon him that he reported the matter to the police. The friends of the injured bandsmen, after having taken them to the hospital, seem to have similarly reported the motorist to the legal authorities, and the result will probably be several summonses and appearances in the local police court. We cannot see any reason why the motor-car should have run into the Ravensthorpe Brass Band in this way, unless, being of Continental origin, it had an idea that British bands have no right in English towns.

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Unattended Horse.

We wish motorists would take action on the lines of that of Dr. Woodward, of Worksop, who has just caused a summons to be taken out against a carter who left his vehicle unattended on the high road, thereby causing an obstruction. The doctor was driving a motor-car towards Lindrick Common recently, and after sounding his horn on turning a corner saw a horse and cart standing unattended on the side of the road. He slowed down, but the animal turned round and bolted towards the car, which had to be swerved on to the grass to prevent an accident. The result of the case was that the defendant was fined half a crown; not sufficiently severe a sentence, it is true, but the conviction is useful as showing those in charge of horses that they cannot leave them unattended on the road with impunity. Had an accident really occurred, it would of course, have been attributed to the automobile.

In consequence of a report that the 10-h.p. Decauville is no longer obtainable, the Motor Car Company, Limited, ask us to state that this still remains one of their standard patterns.

At the meeting of the Bute County Council last week it was agreed, on the recommendation of the County Road Board, to prohibit motor-cars in Arran except on the ten-mile stretch between Brodick old pier and Whiting Bay, but it was agreed to allow motor-cycles on all Arran roads, the speed limit for both vehicles to be ten miles per hour.

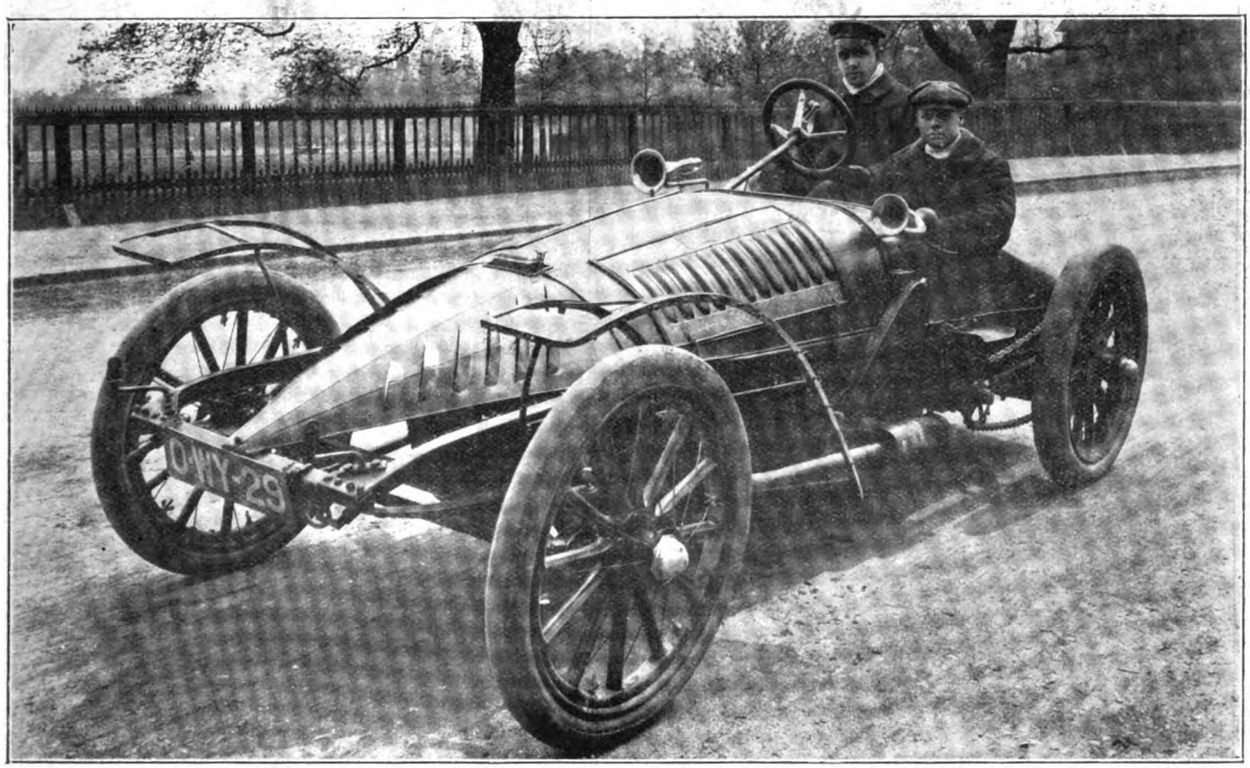
The directors of Messrs. Brown, Brothers, Limited, in their report for last year state that the profit, after making provision for depreciation, amounts to £27,070. Out of this the dividend on the preference shares, at the rate of 6 per cent. per annum to December 31st last, has been paid, and £1,525, being 10 per cent. on net profits, set aside. The directors having further provided a sum of £2,000 as a special reserve for depreciation of investments, recommend that a dividend at the rate of 6 per cent. per annum be paid on the ordinary shares, that a further sum of £3,000 be carried to the reserve fund, and the balance of £3,333 carried forward.

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Motoring in Manxland.

SATURDAY.

WE arrive—a weary, sickly group of persons passing through trial and tribulation to Douglas Harbour. The "Queen Victoria," the second largest boat on the Liverpool-Douglas service, makes her first trip of the season and encounters a rolling of the sea that gives us a sense of vibration never experienced on an automobile. It is a fine day. In the Mersey, the long trail of smoke from other steamers reminds motorists of those clouds of dust that arise by day and will not be lowered. But we get beyond the reach of the "teuf teuf," and the sound of the horns. Here is the great ocean; spray dashes over the sides of the vessel, for we travel where no police traps can be laid, and no magistrates would dare to convict.



Mr. C. Jarrett and his Mechanician, Bianchi, on the Wolseley Racer.

It is a goodly company of motorists, and a reunion of Northern, Midland and Southern friends takes place at the lunch hour. Throughout the trip, however, there is a feeling of uncertainty. Men start to play bridge in the cabin, they seek the solace of the vessel's side ere long. Conversation lacks vigour; even the ladies who, with caps and veils opening to rearward, indicate their motoring proclivities, seem disinclined to look ahead, and cast wistful glances waywardly. But few escape the contagion, and nearly all arrive at Douglas with a temporary hiatus.

What a relief to be on *terra firma* after such a vibration. Here is the Peveril, the headquarters of the A.C.G.B.I., next the Villiers, with its overflow of Piccadilly, then a succession of boarding houses and amusements sweeping round the bay to the Douglas Head Hotel, where Lt.-Col. Mayhew, Mr. S. F. Edge, Mr. and Mrs. Kennard, and a crowd of Napier enthusiasts have gathered. At the Falcon is the Wolseley headquarters, although Messrs. Austin, C. Jarrott and Campbell Muir rest in the daytime elsewhere. The Darracq champions, led by Capt. A. Rawlinson, are at the Peveril.

MISHAP TO A NAPIER.

There has been a little excitement this morning. Mr. Clifford Earp, who has been driving Napier cars a good many years, although this is his first appearance in a big race, has collided with a house—a very awkward obstruction to attack. In negotiating a corner near Douglas, the axle cap of the front wheel struck the house, with the result that the spokes were smashed and other damage done. Fortunately no one was hurt.

SUNDAY.

Although not allowed to take their racers on the course during Sunday, most of the competitors are toddling round to familiarise themselves with its corners and peculiarities. Driven by Mr. Austin, Mr. C. Jarrott, and Mr. C. Muir are passengers on a touring Wolseley, and Mr. J. W. Stocks is at the wheel of a car of about one-sixth the power of that he is to negotiate on Tuesday.

The "Douglas" has brought a host of officials. Colonel Holden, Major Lindsay Lloyd, Professor Vernon Boys, Mr. Basil Joy, and several others are discernible in the throng, which includes quite a score of large cameras, a motor-car or two and a spare wheel, for which two or three gentlemen in the waiting crowds are anxiously looking. This is the first time a steamer has landed passengers on the island on the Sabbath—and, as if to show their disapproval of the arrival, only a few Manxmen assemble on the pier. Here is a quiet little place, far away from the mad rush of cities and the gaieties of the river and the park. Unfortunately there is a dearth of news. No one seems to know anything. The multiplicity of departments adds to the difficulty of obtaining news, and we sigh for some official programme that is likely to be adhered to. During the day rumours as to differences between the Races Committee and the competitors have been flying about. These have culminated

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in a conference between the two, at which the drivers have presented a demand that the original intention of a race shall not be altered. There seems to be unanimity amongst the competitors with regard to their intention of racing, but we feel the Races Committee will suggest a compromise which will be accepted by the entrants as a good way out of the difficulty. For, truth to tell, no one likes the course as a racing track.

Up to date, forty-six cars of all kinds have arrived, and are finding quarters at Douglas and Ramsey. No other places seem to have been favoured by the motorists, who naturally regard Douglas as the centre of observation.

A DASH AROUND THE COURSE.

The course for the Eliminating Test is one to try men as well as cars; and strong nerves as well as good machines will have an important bearing on the result. Comparisons with the route of the race last year in Ireland are inevitable; they are also misleading, for it may at once be said that the two routes are as different as automobiles and donkey barrows. The Irish course was practically level, only a few ups and downs disturbing the contour of the road, but here mountains have to be scaled and descended. The Manx course is only a little more than half the length of that in the Emerald Isle. It has fewer long stretches and quite as many tricky corners that will quicken the pulses of the drivers and lower the speed of the cars. These are general impressions; but we will describe an actual run over the fifty-one miles and one furlong on a speedy vehicle, driven by one of the most popular of northern motorists, Mr. Leonard Williamson, of Southport.

It is Sunday morning—all Douglas is within doors, and only a few small boys give heed to our going from the Peveril Hotel to the Quarter Bridge, the beginning and near the finish of the race. It is 11.22 a.m. Mr. Williamson sets off for the first control at Ballasalla, eight miles away. The road is narrow, with tall hedges of gorse and green, reminding us of Mr. Hall Caine's description of the colours of the island as being "green and gold." A gentle rise and fall of the road, and we come to a veritable switchback for half a mile, and a further restriction of the roadway to not more than fourteen feet.

Still ascending, the first green flag is seen stretching across the road, and indicating that cautious driving is necessary for a quarter of a mile—at least. Mr. Williamson bears that flag in his mind's eye as his car—a 60-h.p. Mercedes, inclined to be fast—sweeps down hill and rounds a corner towards Richmond Hill. The first sharp turn encountered, the car begins to hasten, and uphill we shoot, where the long slope of Mount Murray takes us to a wider roadway, and amid scenery that becomes impressive.

Great hills rise to the right, their little farmsteads and yellow-lined fields showing up in the increasing glare of the sun—a cheerful feature of the landscape. But the road is the main consideration of those who swallow space as does the Mercedes, and from the distant mountain tops the eye travels to the hedgerows and the houses—peaceful, comfortable homes for the yeomen of this little kingdom.

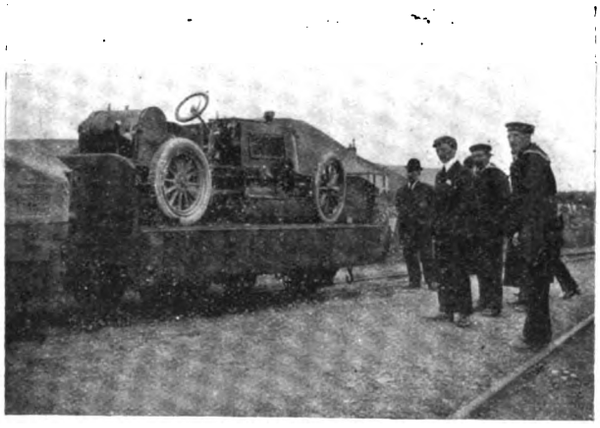
Here and there a falling roof or a decaying wall throws the mind back to Ireland, but prosperity reappears at the next corner, and Nature smiles upon a land where Want knows no place.

After the next curve on the road is a bit of the curly-wurly—one of those serpentine performances of the ancient road makers





Repairing one of the Darracqs after a Breakdown.



Lieut.-Col. Mayhew's "Napier," with Broken Axle, being conveyed to Douglas by Rail.
Photo by]



Practising on the Course near Ramsey before the Eliminating Test. [*Midwood, Ramsey.*

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who were ignorant of Euclid's definition of a straight line. "Are you there?" calls our passenger in the front as we rise to the occasion—the occasion being a bumpy ground that jolts us all two feet above the seat-level and calls to mind memories of the culverts on the Gordon Bennett course of last year. But there are not many of such lifts—for which we are thankful. Crossing the Balla Lona Bridge over the Santon Burn, with almost as sharp a twist as that which made Mageny a terrible name last year, a sharp run carries us to Ballasalla—a pleasant looking village, where caution marks the inhabitants, who rush to doors and close to walls as the car slackens to pass through. Only eleven minutes have passed since Quarter Bridge was left behind.

It is a nearly straight run of a mile and a half into Castletown

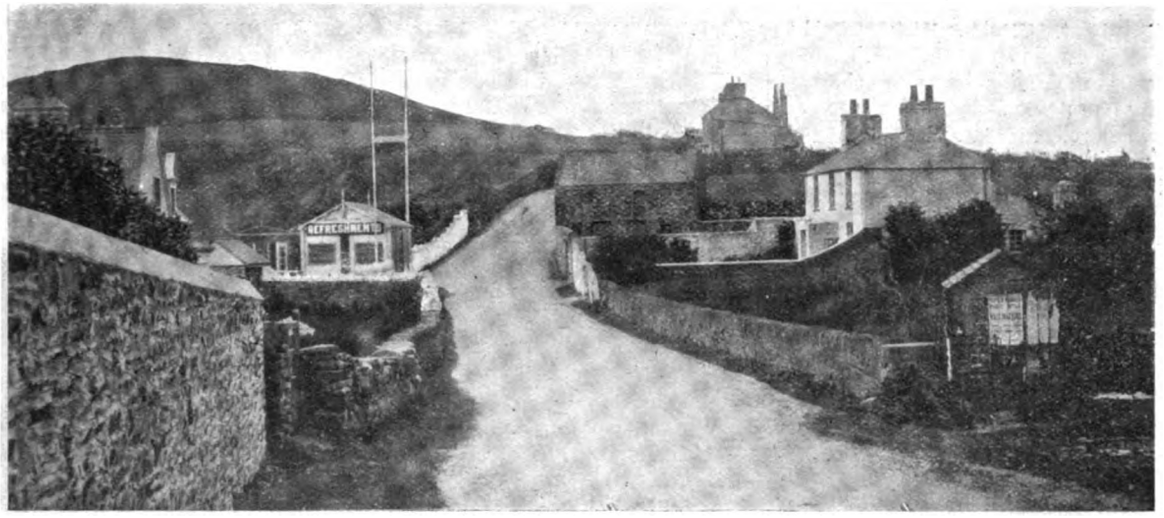


Photo by] The Spot selected for the Hill-climbing Test. [Midwood, Ramsey.



Photo by] The Loch Promenade, Douglas. The Scene of the Speed Trials on Thursday. [T. Keig, Douglas.

—over a bumpy road, unfit for invalids and persons of delicate constitutions. Approaching the ancient town a grand seascape is opened out, the waters of Castletown Bay sparkling in the light. The great square castle and finely-spired church are left behind at the control, which began at Ballasalla, as the track northward is followed somewhat parallel to the southern run until level with Rushen Abbey, and then there is a great dash northward for eighteen miles just beyond Ballaugh before an eastern turn is made to Ramsey.

Towards Foxdale the mountains are reached, and we rise above the area of cultivation. A churchyard is conspicuous between Castletown and Skybright, rendered all the more notable by the black, time-worn gravestones standing in strong contrast to the newly-whitewashed church. It has a strange effect—a study in black and white that will not detain the drivers in the race, unless they fail to negotiate the turn that follows—a curious sort of corner where four roads cross.

A deep dip after Athol Bridge is followed by a steep ascent, long and trying, all the way to Foxdale—just over seven miles from Castletown. We are now up on the hills and among the mountains. To the left South Barrule rises bleak and barren, and we get a glimpse of the picturesque. A straight run for a couples of miles gives Mr. Williamson a chance of chasing the wind, but a danger board is reached just before the next village. Many hay-strewn patches of road direct attention. Evidently the stones have not been properly rolled, the hay being a kind of substitute and reducing the sharpness of granite points; an improvement will doubtless be effected by the day of the race.

Foxdale is a mining village—almost imposing as villages go, with a great main street of tortuous course, along which we travel gingerly, for these roads turn at unexpected places, and corners are too frequent to be pleasant.

The scenery improves; on one side of the road great banks rise to the mountains, and on the other a rivulet and water-wheel combine to add effect to the scene. A quick rush across the Curragh—a mild affair compared with the great Irish heath—and Ballacraine is reached. Here the yellow gorse is most.

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profuse, tall hedges rising along a road on which the grass has stopped creeping towards the centre—apparently one result of recent motor traffic, if such a word can be applied to cars dashing along between daybreak and breakfast time, as has been the case since the English competitors arrived.

Here the main road to Peel is crossed, and we make for Kirk Michael, another rising stretch of eight miles. We are in a mountain range; Slien Reay, the Greeba Mountain, and Snaefell tower above all else, and into a narrowing road we ascend to breathe the fresh air of these upland heights. It is a cold, clear air—appetising, cheering and healthy. The car feels the exhilaration and gets into a faster stride as the lovely Glen Helen is passed and the turn from Glen na Malish is taken to Kirk Michael. There are some treacherous corners hereabouts; Craig Willie's Hill has a nasty turn at the bottom, and the highest point of the road, known as Cronk-y-Voddey, meaning the "Hill of the Dog," is an awkward gradient. Nearing Kirk Michael a grand panorama of sea and land is unfolded to the eye. In one corner of the landscape an old church adds variety to the scene.

We rush by like a whirlwind and would seem to be dashing on to the sea, which rolls in steady waves along the shore, the deep blue water lingering on the shining sand and appearing to crystallise it into precious metal. But seaward is not our course.

Ordinary people reach Ramsey by way of Sulby. Not so the racing motorists, who have to go across another Curragh—this one more nearly resembling the famous Irish space than does the minor affair near Ballacraine. In an easterly direction we travel along a fine, fast stretch, and as we near Ramsey are afforded another combination of land and water. Here is Ramsey Bay, with the English coast only thirty miles away, a little river, and a little shipping, a pleasant church, some fine shops, and a welcome hotel—the Mitre—at which we draw up, 36 miles and 7 furlongs from the start, at twenty minutes after noon—not fast travelling for a sixty that has done faster times; but the corners and the curves are not to be taken carelessly, and we would rather save our necks than break records.

Here is the fourth control, and only at this point throughout the circuit will the racers be allowed to take in supplies. Ramsey is pleasantly located, but, after seeing to the lubrication of man and motor we set forth again at twenty minutes to one on the most exciting part of the run. It is fourteen and a half miles to Douglas, Willaston Cross, the last of the controls being only one and a half miles from the latter town. The way is by a new mountain road crossing Snaefell—a road with a steep gradient, and with hairpin corners that should not be attempted by motorists in the days of their novitiate. We rise directly the

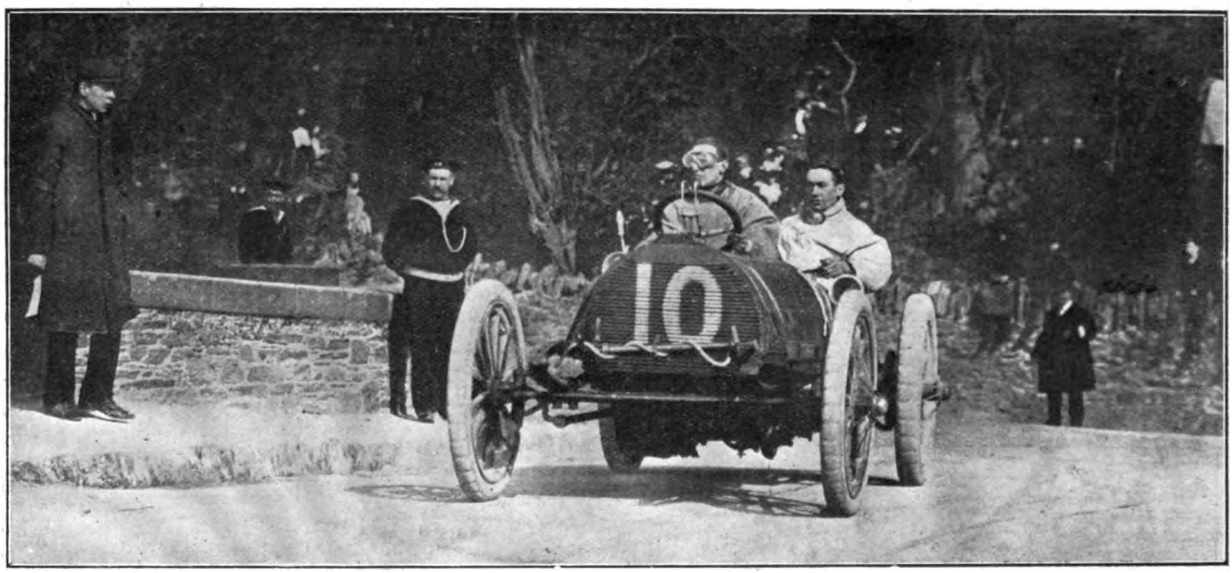


Photo by] **Mr. S. Girling, on the Wolseley, leaving the Quarter Bridge.** *[Campbell and Gray.*

We turn sharply to the right, holding to the car as though to steady its mad career, for the pace is quickening and the blood is up. Here verily is something of that rush of speed of which the late W. E. Henley wrote, and which can only be felt in all its keenness when motoring high among the mountains. There may be joy in speed on the level; but it is but a pale delight after the lurid luxury of an hour in the heights of Manxland. We throw dust—quite unintentionally—on the residence of the Bishop of Sodor and Man at Bishop's Court, and dash over a level crossing into Ballarigh, where a fine old church and a farmyard of quite modern dimensions are the centre of a group of pretty residences. The road opens out; so does the car, after rounding Ballarigh Corner, where those in the race will have to slow down. Beyond the old church—a really quaint building, deserving the adjective employed—the half-mile stretch of sound, level road will give a good chance of showing speed, of which there are too few on the whole course of over fifty miles.

Here Nature makes a bold display, primroses peeping among the grass-grown banks, on which tall trees of sycamore and beech and silver-grey ash rear their branches heavenward, giving a variety to the course which would be tantalising to the competitors but for the fact that their thoughts will be with the road—and the corners.

town is left, the serpentine character of the route being well photographed in last week's *Journal*. At first it is somewhat gradual—as the term goes, up among the mountains—then it is a sudden ascent followed by an equally sharp drop.

A quick turn at the bottom, with driver's hand strong on the wheel, and all ready to jump; the car takes it splendidly. We look around. It would have been a drop—a long drop—had nerve and will not been united to steel and iron at that point. This is no light task to be undertaken merely for the fun of the thing. It is a stern chase to avoid that precipice. We gave it a clear berth and breathed again.

And now there is the climb over North Barrule, eighteen hundred feet above the sea, which now comes in view on the left—a great expanse of water on the one hand and a barren, dreary waste of land on the other. For we are high above the limits of cultivation; only sheep graze here, jumping from boulder to boulder, and finding choice patches here and there where frowning rocks shelter the grass from the wild winds that blow from seaward.

Looking back, a glorious sight retreats from view. The ocean beyond Ramsey, the little town nestling at the end of a great plain, with fields divided by white walls and yellow gor-

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hedges, make up a view that is worth the worry of the voyage to Manxland with the horrors of a rolling sea.

Still we climb, and now Snaefell is conquered. Our car jibs at nothing, but takes the long climb as though but an incident in the day. Here is a terrible bit of road, and then over the level crossing of the electric railway we bump badly—as badly as over an Irish culvert. The descent is begun. Ahead is a plantation of pine trees. We avoid it at almost a right-angle turn, and then dash by glens in which sycamore and elm and beech give variety to the landscape. For the hillsides are bare, bleak and barren. But what is that? The road here, sixteen feet in width, shrinks at the end of a steep descent, and is grass grown. Is that the way? No turn to the right or the left can be seen. Mr. Williamson peers ahead. Ah! there is a turn—at right angles. Again he succeeds in taking it safely. We have a moment's glance at the six-foot way into which we might have squeezed the car and damaged our bodies.

It is such tricks as that which give danger to the course and makes some men quail. Just before Craig na Baa another glorious combination of sea and land is unfolded. Douglas Bay shines resplendent as the sun beats faintly upon its rippling bosom, while behind we give a glance at Snaefell, Monarch of Manx mountains. Between here and Douglas some awkward if not impossible corners have been widened by the local authorities, and, even now, they are difficult to negotiate, but we get into the stride for the last mile or two and are back in Douglas within half an hour, having run the course in an hour and twenty-eight minutes, running time. It is not an easy course; none of the corners can be taken at full speed, and those who neglect to use their head in the race will surely lose it. In some parts it is risky, in others dangerous—but the surface is good, the road clean of those overhanging trees which bothered the competitors in Ireland last year. Perhaps, after all, there may be reason in the Providence that has ordered the event to be more of a Reliability Trial than of a race—for, as one of the competitors has publicly declared, six times around that course would reduce a car to pieces.

MONDAY.

The weather is glorious. A bright sun, a smooth sea, a delightful atmosphere and hospitable natives provide a quartette of factors in the motorists' sense of enjoyment that are making the visit delightful. Two unfortunate incidents mar the excitement of the morning, for Lieut.-Colonel Mark Mayhew's car has skidded, rushing into a tree and breaking its front axle. Wires have gone to London, and all hope the damage may be repaired by morning, but doubts prevail. The Darracqs driven by the Frenchmen have gone into a ditch, but their damage is slight, and they appear at the weighing in at the Harbour, as does also the Napier, No. 14.

WEIGHING IN.

The weighing in is even more dreary than it was at Naas last year. Then the venue was a delightful market-place with officious policemen amusing everyone with their show of authority. To-day, in a darkly lighted coal shed at Douglas, eleven racing cars are being weighed, some standing along the quayside while their brethren are being scaled within. All the Napiers are easily within the limit; three Wolseleys are accepted; and then comes a wearying wait while the Darracqs are stripped of all superfluous parts to enable them to scale 65 lbs. less than they do.

Earl Russell has just distributed Press armlets which will pass the correspondents where ordinary members of the public will not be allowed. His lordship is the hon. Press Secretary, and the way in which the local reporters have pestered him for information on even the most minute points is entertaining.

Considerable interest is taken in the measuring of the vehicles, which works out as follows:—

		FT.	IN.
No.	1.—Mr. J. W. Stocks (Napier)	7	6¾
No.	2.—M. Edmond (Darracq)	8	4¼
No.	3.—Mr. John Hargreaves (Napier)	7	8¼
No.	4.—M. Hemery (Darracq)	—	—
No.	6.—Mr. Clifford Earp (Napier)	7	8¼
No.	7.—Mr. Campbell Muir (Wolseley)	9	0
No.	9.—Mr. S. F. Edge (Napier)	8	10
No.	10.—Mr. Sidney Girling (Wolseley)	8	7¾
No.	11.—Mr. A. Rawlinson (Darracq)	8	4
No.	12.—Mr. Charles Jarrott (Wolseley)	8	11
No.	14.—Lieut.-Colonel Mark Mayhew (Napier) ..	10	10¼

Nos. 5, 8 and 13 have not been apportioned.

THE RULES OF THE RACE.

Following the exciting conference of last evening comes some supplementary instructions to drivers, calculated to secure more speed tests, but, as we anticipated, giving way but slightly on the main point at issue, viz., whether the test was to be a mere trial or a race. A reference to the regulations published in last week's *Journal* shows that the main alterations are the following:—The course is being divided into sections and for each a scheduled time has been fixed, and no advantage will be gained by any competitor covering the section in less than the scheduled time, but if he take longer than the scheduled time the fact will be noted. Instead of two speed tests there will be three, viz., three miles straight, half mile on the flat, and 2¼ miles hill-climb. The new test of three miles will commence at the third milestone from Castletown.

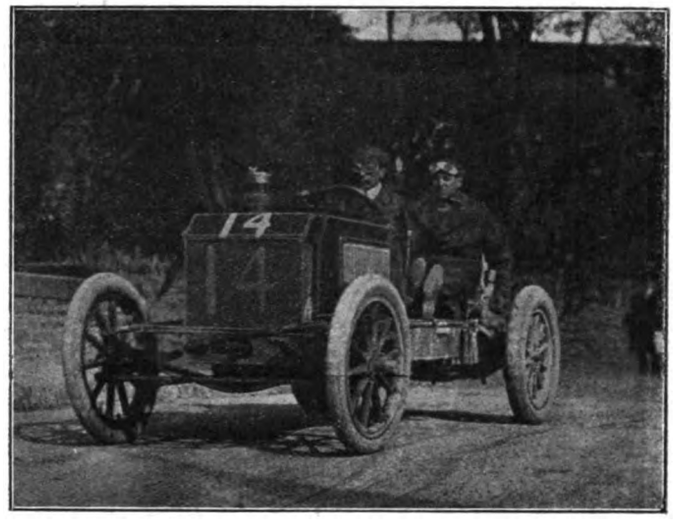


Photo by] Lieut-Col. Mayhew leaving Quarter Bridge. *[Campbell and Gray.*

There are now to be four sections, the scheduled time for covering them being:—

	Miles.	Furlongs.	Minutes.
Quarter Bride to Ballasalla	8	0	10
Castletown to Kirk Michael	16	0	22
Kirk Michael to Ramsey	11	2	15
Ramsey to Willaston Corner	13	0	18

THE ELIMINATING TEST.

(By Telegraph.)

Douglas, Tuesday, 8 a.m.

The scene at Quarter Bridge is an animated one. The rocket brigade have paraded, and elsewhere the Volunteers and the lifeboat crew have been requisitioned, while many of the sailors from H.M.S. "Spartan," which has been laying off the bay for some days, have come ashore to assist the special constables. The Corporation Grand Stand is well filled, and the crowded state of Douglas testifies to the interest in the event.

Tuesday, 10-30 a.m.

In glorious weather Major Lloyd starts Stocks away on his Napier car for the long run. He goes steadily away up the hill. Five minutes later, Hargreaves, also on a Napier, snorts off in jumpy style. Then follows Clifford Earp, whose Napier is

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fitted with Palmer tyres, and after him Campbell Muir on one of the Wolseleys; the latter makes the best start so far. Next to be dispatched is Mr. S. F. Edge, who has with him Mr. Cecil Edge as mechanician, both wearing blue caps. Girling on the Wolseley, who is the next to be dispatched, makes a good start. Jarrott, with the faithful Bianchi as mechanician, meets with a warm reception as he gets away with ease. Sensation! Where are the Darracqs? Hemery arrives late—the car, minus its bonnet, booming like a Gatling gun. Suddenly, and without warning, he shoots round the Quarter Bridge, and is away before the officials are ready; like a whirlwind, he dashes forward in a cloud of smoke, and is at Ballasalla in eight minutes, two minutes ahead of the scheduled time. Edmond on the second Darracq, who now appears and is officially started, romps up the hill after Hemery. It is now a quarter past ten. and Mr. Mark Mayhew arrives on his Napier and gets away nicely, Captain Rawlinson, on a Darracq, being the last to be dispatched.

RAMSEY, Tuesday, 1 p.m.

We are now at Ramsey, where fine weather is being experienced. We have just heard of mishaps to the Wolseley cars driven by Campbell Muir and Jarrott, but no confirmation of the accidents is as yet obtainable. It is a general holiday here, all the shops being closed, the town being almost as quiet as on a Sabbath day. There are very few visitors from England, the Bungalow at Snaefell being the point most favoured by spectators. Mayhew's Napier car was quickly fitted with a new axle, which arrived by this morning's boat. Only eight competitors are now left in the race, the drivers of the three Darracqs having abandoned. A new style of starting has been adopted on the present occasion by Major Lloyd, who waves a flag to Professor Boys, by whom a flag is dropped to effect the start. The new method, which is due to Major Lloyd, is a great improvement on last year's arrangement. Hemery's going was remarkably Gaelic—a glance at the road, a spurt forward, and away he went at a mad rush that nonplussed the starter and scattered the officials.

DOUGLAS, Tuesday, 8 p.m.

Ramsey is an important control; thither we journeyed after having seen the start at Douglas. On arrival we learned that Edmond had given up, he complaining that oil had splashed on his face until he could not see. After thus declaring his intention of abandoning, he subsequently went off again at a terrific speed; in fact, his pace up the hill from Ramsey was the fastest of all. Jarrott was delayed a long time owing to a damaged gear wheel, which, it is reported, was broken before the start. Hargreaves was also delayed, he having to stop to adjust the clutch and put on a new outer cover. Under Mr. Baisley's direction the Dunlop Company's men effected a very speedy fitting of the new tyre, this being done in five minutes, as compared with the twenty taken in putting a new tyre on Campbell Muir's car at Kirk Michael. Campbell Muir stopped at Ramsey owing to overheating, and the Wolseley space was instantly turned into an engineering shop to effect the necessary repairs. Three hours later he crossed Snaefell—his chances gone. Edge arrived, looking fit, and Jarrott met with a great reception, after a delay at Castletown, owing to a broken inlet valve. At Ramsey there was a great crowd of ladies, among them being Mrs. Mayhew, anxiously awaiting the appearance of her husband. Sir Hickman Bacon sported the Wolseley colours. The officials at Ramsey were Captain Skeffington Smyth and Mr. Claude Johnson. Girling came in, his car going regularly and well, and his chances were highly favoured. Hargreaves, who was the first to reach the control, made the best time in the second round—1 hour 16 minutes, Edge being 5 minutes lower. Jarrott and Stocks' time was 1 hour 28 minutes, and Earp's 1 hour 38 minutes. The tyres all seemed to be going well, the only difficulty experienced being from nails, which were rather plentiful on the roads. Girling had to repair a tyre on the second round, at the Quarter Bridge. Captain Rawlinson only drove 125 yards, when he had to give up owing to a broken cardan shaft.

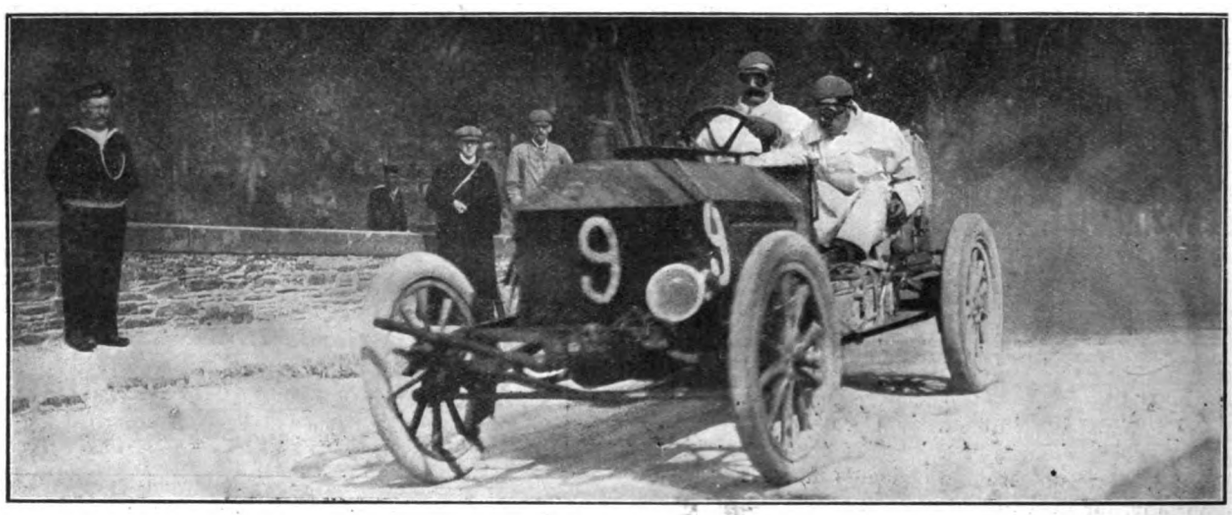


Photo by] **Mr. S. F. Edge leaving the Quarter Bridge.** *[Campbell and Gray.*

He also withdrew the other drivers of the Darracq cars—Hemery and Edmond—because of the brakes.

The chief officials were:—At Ballasalla, Mr. Ochs; Castletown, Mr. R. E. Phillips; Kirk Michael, Sir Arthur Arbuthnot and Sir W. Browning; Foxdale, Mr. M. O'Gorman. The inspection car for the Southern circuit was the 60-h.p. Mercedes, driven by Mr. G. Higginbotham, while Mr. Leonard Williamson drove his 60-h.p. Mercedes as the inspection car of the Northern circuit. Still a third 60-h.p. Mercedes, that of Mr. Kirk, was employed to announce the finish. Mr. Basil Joy accompanied Mr. Higginbotham on an inspection run round the course before the race.

No official times being available, all the figures are subject to revision. Those given in the following tables may, however, be regarded as approximately correct. The times at Quarter Bridge were as follows:—

	a.m.	a.m.	p.m.	p.m.	p.m.	p.m.	Gross running time. h. m.
Stocks ...	9.0 ...	10.38 ...	12.11 ...	1.40 ...	3.11 ...	4.45 ...	7 45
Hargreaves	9.5 ...	10.31 ...	12.35 ...	2.8 ...	3.45 ...	— ...	—
Earp.....	9.15 ...	10.42 ...	12.26 ...	2.2 ...	3.26 ...	4.47 ...	7 32
Muir	9.20 ...	4.15 ...	— ...	— ...	— ...	— ...	—
Edge	9.25 ...	10.46 ...	12.21 ...	1.45 ...	3.31 ...	5.20 ...	7 55
Girling... ..	9.30 ...	11.10 ...	12.50 ...	2.14 ...	3.50 ...	5.30 ...	8 0
Jarrott.....	9.35 ...	10.55 ...	12.45 ...	2.10 ...	4.10 ...	5.34 ...	7 59
Mayhew ...	10.0 ...	11.0 ...	12.14 ...	3.41 ...	— ...	— ...	—

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Muir started fourth, but was detained at Ramsey, while his car was repaired, and it was not until four o'clock that he crossed Snaefell, reaching the finish of the first round fifteen minutes later. His car travelled well, but he found the road very bumpy, and, like all the other drivers, had great difficulty in keeping his seat. At times it seemed as if all the four wheels of the car were off the road.

The times for the half mile tests were :—

Stocks	32⅘ seconds	Girling... ...	29⅘ seconds.
Hargreaves ...	26⅗ ,,	Jarrott... ...	27⅘ ,,
Earp	28⅗ ,,	Mayhew ...	25⅘ ,,
Edge	24⅗ ,,		

The above are the quicker of the two times taken.

Up at the Bungalow at Snaefell, 1,800 feet above the sea level, we made special notes of the times at which the competitors arrived on the different rounds. They were as follow :—

	a.m.	a.m.	p.m.	p.m.	p.m.
Stocks	10.24 ...	11.56 ...	1.27 ...	2.58 ...	4.44
Edmond	11.47 ...	— ..	— ...	— ...	—
		p.m.			
Hargreaves ...	10.18 ...	12.22 ...	1.55 ...	3.28 ...	—
Hemery.....	11.13 ...	— ...	— ...	— ...	—
Earp	10.28 ...	12.30 ...	1.47 ...	3.23 ...	4.45
	p.m.				
Muir	4.0 ...	— ...	— ...	— ...	—
	a.m.				
Edge	10 35 ...	12.15 ...	1.29 ...	3.17 ...	5.10
Girling	10.39 ...	12.39 ...	1.59 ...	3.32 ...	—
Jarrott	10.44 ...	12.33 ...	2.50 ...	3.56 ...	—
Mayhew	11.48 ...	1.40 ...	1.41 ...	— ...	—

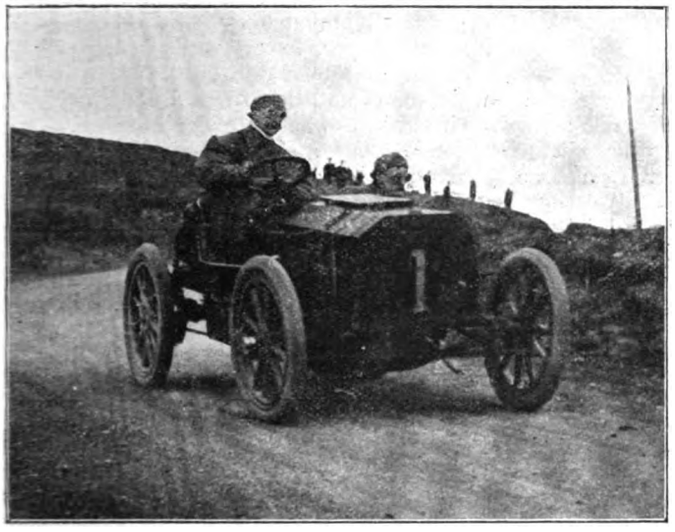


Photo by] Stocks on Snaefell Mountain. *[Campbell and Gray.*

The order of arrival at the Bungalow is interesting. Hargreaves, who started second, overtook Stocks before Ramsey was reached, and he arrived several minutes ahead of him at Snaefell. Earp, Edge, Girling, and Jarrott came next, the two Frenchmen following. Only seven of the competitors made a second round. Stocks regained his place, while Hargreaves, having taken over two hours owing to tyre troubles, fell into fourth place in the third circuit. Both the Wolseleys had started too late to hope to catch up the Napiers, but their consistent running was the feature of the contest. They kept fifth and sixth positions throughout the race—a tribute to the way in which they were handled, as well as to the cars, which behaved capitally. On the third round Edge gained on Earp and retained that position till the last round, when the firing of his petrol tank caused a long delay. The float punctured, and the friction set up by the brake caused sufficient heat to fire the petrol, which leaked. Mayhew held on gamely, but only made three circuits over the mountain road. On the fourth round one of the springs of his car broke at Castletown, from whence he returned to Quarter Bridge.

DOUGLAS, Tuesday, 8 p.m.

In the temporary motor house here four Napiers and two Wolseleys are now stored for the night, under the control of Mr. Burrows, who was also responsible for the work of "flagging" the course and measuring the speed sections—a laborious work excellently performed. Mayhew and Muir's cars have been sent to private garages, and the Darracqs have gone back to their shed on the pier.

DOUGLAS, Wednesday, 10 a.m.

No official times are or will be available until the Race Committee return to town. Great discontent exists in consequence, and complaints are universal at this treatment of the Press and the competitors. Jarrott had very bad luck. His first speed was unusable, and he started on second. He had to stop a long time at Ramsey to repair two punctures and to put in new inlet valve and sparking plug. The times for four circuits taken at Ramsey control were :—Stocks, 5 h. 7 min. ; Earp, 6 h. 2 min. ; Edge, 5 h. 7 min. ; and Jarrott, 5 h. 31 min.

The morning has opened gloriously for the Ramsey hill-climb, and yesterday's racers appear fit and well for the second event. Hemery and Edmond have returned to England, and it must be confessed no one is hurt at their disappearance from the scene of yesterday's contest.

THE HILL-CLIMBING TEST.

[BY TELEGRAPH.]

RAMSEY, Wednesday night.

A great assembly of motorists appeared at the luncheon hour at the Mitre Hotel, Ramsey, to-day, the company including Lord Raglan, the Governor of the Island. Several cars were drawn up in the Court House opp site, the space in front of the Hotel being roped off, to the amusement of the visitors. The hill at Port-E-Vullen where the climb is being held is situated in a most delightful locality. From the finishing point looking towards the beginning the lovely bay of Ramsey, nestling under a great hill, can be seen. At the back Snaefell looms grandly above the range of lesser mountains. The sun shines resplendently over the scene, a bustling wind having a cooling influence. The times are being taken over half a mile, including some awkward turns. Messrs. Sturmey, Straight, Woollen and Urry are the timekeepers.

The road is in fair condition, but towards the end of the course is somewhat worn, and at about twenty yards after the finish a dozen yards or so of loose stones threaten the tyres. After each contestant has a trial run three trips are taken, Stocks quietly coasting, the others, however, riding gamely. Some surprise is expressed at the absence of Jarrott. The three Darracqs are of course unexpected, and no one marks their absence. On the first of the timed runs Stocks seems very slow, Hargreaves being decidedly faster. Earp, who follows, warms to his work, but Edge provides the first real sensation, rushing up the hill in grand style—decidedly the best of the round. Girling, too, bends well to the machine, and Bianchi's crouching posture helps to distinguish Jarrott's car. On the second round Stocks again seems the slowest of the contingent, and Hargreaves is slower than on the first trip. Earp improves ; there is little difference among the others. At the end Earl Russell gives the official figures, which confirm the impressions already written, and provide quite a novelty, viz., the issue of official returns without demur. Until now, every difficulty has been placed in the way of the Press, but reasonable counsels have prevailed to-day, and the times for the half-mile are as follows :—First round, Stocks, 58 1-5 sec. ; Hargreaves, 50 2-5 sec. ; Earp, 44 2-5 sec. ; Edge, 38 2-5 sec. ; Girling, 44 1-5 sec. ; Jarrott, 47 2-5 sec. ; and Muir, 50 1-5 sec. Second round: Stocks, 57 1-5 sec. ; Hargreaves, 52 sec. ; Earp, 42 4-5 sec. ; Edge, 39 sec. ; Girling, 44 3-5 sec. ; Jarrott, 48 1-5 sec. ; and Muir, 51 2-5 sec.

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The times in the third round in the hill climb were:—Stocks, 55 1-5 secs.; Hargreaves, 51 secs.; Earp, 43 4-5 secs.; Edge, 39 4-5 secs.; Girling, 43 3-5 secs.; Jarrott, 51 3-5 secs.; Muir, 50 4-5 secs. Edge, Earp, Girling, and Muir rode uniformly well, Edge's 38 2-5 sec. being a good speed, considering the road. After the event the spectators went their way to the electric tramcars, where we saw a crowd for the first time this week. Looking at the results so far, great satisfaction is felt at the advance made by Girling in connection with big races. His lengthening experience is enabling him to hold his own with Edge and others of that calibre. Earp, too, has suddenly rushed into fame. Hitherto known only as a driver of Napiers, he has by his form to-day, as well as by his smart driving yesterday, proved his worth. Girling's mechanician is a draughtsman in the Wolseley works, and has ably seconded his driver's efforts. At the Bungalow yesterday a new subway under the electric tram line was cut to enable people to cross the course during the race. To-night the Governor and competitors dine with the A.C.G.B I. at Castle Mona Hotel. The fastest speeds on the half-mile between Ballaugh and Ramsey yesterday were made by Edge, the times for his five rounds being 21 1-5 secs., 24 4-5 secs., 23 1-5 secs., 25 secs., 24 1-5 secs. Jarrott, who will be in France on Sunday practising for the French races, had difficulty with his gears. Two hundred tyres were held in readiness for repairs on the day of the race—forty at each control. An unfortunate accident occurred on Wednesday after the hill-climbing contest; a 12-h.p. Wolseley car, acting as tender for the racing cars, in taking a corner about three miles from Ramsey, had one of its tyres torn off. The wheel collapsed, and the car turned turtle, throwing out the passengers. The driver had a miraculous escape. All the passengers were badly shaken, while one suffered contusion of the face; he was unconscious for a time, and was taken to the hospital. In Tuesday's race Jarrott covered the circuit in 1 h. 16 min.

MANXLAND ECHOES.

Altogether about sixty automobiles have been in the island, including half-a-dozen motor-bicycles, one ridden by a lady, whose appearance in the streets has been a cause of much discussion among the native women.

Automobilists and members of the House of Keys met at a dinner on Wednesday evening at the Castle Mona Hotel, Douglas.

The proclamation of the Act enabling the motor-car races to be held was an important event on Tynwald Hill. For the first time in the history of that ancient ceremony motor-cars were employed, the Lieut.-General being driven in Mr. J. W. Orde's car, and many motorists being present. The following is the text of the Act:—

SLATTYSYN RAAD MOOAR GREIEYN EDDRYM NUY CHEEAD YEIG AS KIARE (1904).

T'an Slattys shoh kiarail chur pooar jeh raceyn lesh greieyn eddrym.

Ta'n chiedoo ayrn harey dy vod Boayrd y Raad Mooar hirrey liorish oardyr hoilshaghey dy vod raad carjin erbee ve ymmydagh son raceyn lesh greieyn eddrym choud as un laa as nagh bee ny smoo ny ny three laaghyn ayns y vlein.

Oardyr dy cummal charailyn mychione lhiettallys jeh marchanys elley as son smaghtaghey jannoo siyr ayns boaylyn ta earroo mooar dy slieh.

Foddee yn Boayrd hirrey raanteenys dy eeck yn argid Baarit jeh lheid yn oardyr shen.

Ayrn kiare Slattys dy scuirr er y laa jerrinagh jeh yn vee jeh yn vlein nuy cheead yeig as kiare (1904).

Va'n coardail Recoil gys y Slattys shoh currit Liorish E Ard Ooashley ayns Coonseil, ec y Quaiyl yn Plaase Buckingham, er y hoghtoo laa as feed jeh yn threeoo vee jeh yn vlein, nuy cheead yeig as kiare (1904).

WHEN THE WAY IS WET.

THOUGH it is quite possible to drive an open car through the rain for hours, and for the driver, when properly clothed, to remain perfectly dry and comparatively comfortable, still there are not very many owners of open cars so enthusiastic to start out in a heavy downpour, even when thoroughly provided with rain-resisting garments. This is an argument in favour of covered cars; though by this is not meant cars with fixed roofs or detachable brougham bodies so much as vehicles provided with hoods and hinged screens. With a car thus fitted, it is possible to drive in the worst weather without discomfort. Not only are the occupants protected from the rain, but, as the sides of the car are open, they are able at the same time to enjoy fresh air.

There is nothing more invigorating than a drive on a pouring wet day with a car equipped in this manner, remarks a writer in the "Automobile Magazine," as the driver and his companion are completely protected, and are able to obtain the full benefit of a change of scene and the exhilaration of the air of the open country without exposure. There is a particular satisfaction, too, in being able to use the car when practically all other forms of outdoor amusement are impossible except under great discomfort. Of course, the glass front is not satisfactory when covered with rain at night; but in the daytime it is perfectly easy to see through it, and there are no objections to its use; while, even at night, spectacled drivers see as well driving behind a wet screen, if not better, than with rain-spattered spectacles. The wet, while it may obscure the screen to some extent, does not affect the focus; but every wearer of glasses is painfully aware of the fact that he is practically blinded by rain, owing to the drops which remain on his glasses altering focus to a painfully aberrating extent. So long as the mechanism of the car is properly protected it will come to no harm from a long drive in heavy rain; and even in the case of absolutely unprotected chains they are not hurt so long as they are kept well lubricated. If there is not an opportunity to clean them immediately after the drive, they should be plentifully oiled when the car is put away. This will prevent rust, and they can be attended to at leisure, when time and opportunity permit of doing so.

DURING the recent visit of the King to Dublin the roads in Phœnix Park and from Naas to Punchestown were sprinkled with Westrumite with satisfactory results.

THE French Automobile Club has decided to close the eliminating course in the Ardennes to racing cars after Monday next, in order to allow the necessary road rolling to be done.

THE first meeting of the Aero Club for the present season was held on Saturday last at the Crystal Palace, when a very successful ascent was made by the "Graphic." The balloon, in which were Mr. R. K. Micklethwaite, Mr. C. Matterson, and Mr. Percival Spencer, made an excellent trip, and landed at Appledore, in Kent.

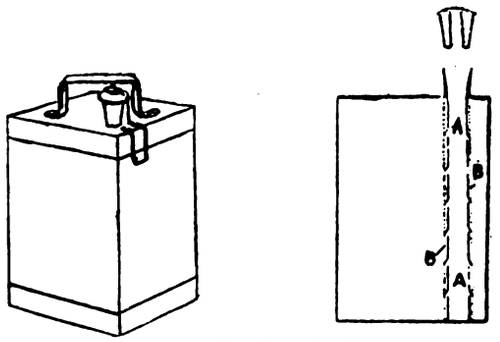
AT a meeting of the Northumberland County Council last week the County Surveyor, reporting on the traffic of motor vehicles, suggested that every road, to carry the traffic, must be provided with a foundation formed of material as hard as the road metal upon the surface, the vehicles should carry not exceeding six tons per axle, the diameter of the wheels should be increased, and the speed limit should be eight miles an hour. The width of the wheels should be not less than six inches.

UNITED MOTOR INDUSTRIES, LTD., have sent us a copy of a circular they have issued giving a number of useful hints as to the fixing and adjustment of the Cremorne petrol or paraffin automatic carburettor. for which they are the sole selling agents. The carburettor, which is stated to be giving very good results with paraffin in practical working, is made in three sizes, suitable respectively for 3, 7, and 15-h.p. single cylinder cars, the same sizes being suitable for 5, 12, and 24-h.p. double cylinder cars, and the latter two for 16 and 30-h.p. 4-cylinder vehicles.

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SAFETY WITH PETROL.

ON Thursday afternoon last week an interesting demonstration of a new safety petrol can, which the Non-explosive Safety Device Company, Limited, are introducing into this country, was given at the Cadogan Garage, Chelsea. The main principle of the invention is applicable to lamps, barrels, petrol cans and tanks, and everything in which spirit of an inflammable character is stored. Fig. 1 illustrates the arrangement as fitted to an ordinary two-gallon petrol car. A pipe A, pierced with holes, extends from the mouth to the



Figs. 1 and 2.—The Non-Explosible Petrol Case.

bottom of the can or barrel. Round the pipe A is a tube B of fine wire gauze. The idea adopted is that of the Davy miner's lamp, no flame being able to penetrate through the gauze to the petrol in the can and cause an explosion. Another feature of the patent is to be found in the cork or plug. The latter is hollow, and is closed by a brass cap, held in place by a solder which melts at a temperature of less than 70 degs. Celcius. Thus, should the building in which petrol in these cans was stored catch fire, the heat would melt the solder and loosen the cap, and so allow any gas generated from the petrol to pass away before it could ignite or cause the can to explode.

There is no doubt as to the effective nature of the protection thus afforded. A petrol can fitted with the invention was dipped



Fig. 3.—Testing a "Nonex" Drum filled with 10 gallons of Petrol.

in petrol, which was ignited. With flame all round, the can was successfully filled with spirit from another small can. The second demonstration was that of applying a light to a two gallon petrol tin fitted with the device, and to another without it, both being filled with hydrogen gas. In the first case the gas merely ignited and burnt slowly out, while in the second the can immediately burst with a loud report. Finally we had a display which seemed to conclusively prove that the company have a patent which is calculated to give safety to all vessels in which inflammable spirit is kept or stored. A ten gallon metal cask was reared on a light wooden structure, and filled with petrol, a quantity being also poured over the exterior. The plug having been applied, the wood was ignited. As the heat became more intense the spectators would not have been surprised to have heard an explosion; instead of that, however, the plug was merely blown into the air, falling within a few feet of the cask. The contents then flared up, the flame ascending in a candle light form. By the application of a cloth the fire was easily put out. There is no doubt that the application of the idea to petrol cans and tanks will materially add to the safety of the automobile without increasing the cost to any great extent. We are informed that the device can be fitted as well to the petrol tanks on motor-cars and cycles as to the ordinary two-gallon cans.

MOTOR-CYCLING NEWS.

THE Coventry Motor Cycle Club has just been formed by a number of enthusiastic motor-cyclists in the Midlands.

A SINGER motor-bicycle has made its way into East Griqualand, Africa. The owner, who is a member of the Government boring operation staff at Matatiele, writes that the machine has carried him through Kaffirland and East Griqualand, and that he is now using it on the border of Basutoland.

THE combined motor-cycle run to Great Yarmouth which is being organised for Saturday, the 28th inst., promises to be a great success, the following clubs having promised to support it:—Motor Cycling Club, Thames Valley Motor Club, Hertford Automobile Club, and the Peterborough Motor Club. The route proposed is as follows:—Meet at the Salisbury, High Barnet, 10 a.m., then via Hatfield, Hertford, Ware, Puckeridge, Barkway, Pampasford Station, Newmarket (lunch), Bury St. Edmunds, Harleston, Beccles, Great Yarmouth (Queen's Hotel). Returning on Sunday as follows:—Ipswich, Colchester, Chelmsford, Dunmow, Bishops Stortford, and Ware.

THE first round of an interesting motor-cycle trial organised by the Peterborough and District Motor Club took place on Thursday, the 5th inst. The course was from Peterborough to the top of Cross o'-Cliffe Hill, south of Lincoln, via Market Deeping, Folkingham, Sleaford, and main road to Lincoln, and returning to Peterborough the same way, the distance being 100 miles. The conditions of the run were that competitors should only be allowed to dismount at the turning point and for congested traffic. No adjustment to the machines, other than could be done while riding was permitted, and the speed limit did not average more than twenty miles an hour or less than twelve. Delightful weather favoured the event, and the roads were in splendid condition. There were fifteen entries and thirteen starters. Of the latter, seven completed the distance in accordance with the conditions and thus qualified for the second round. These were:—T. S. Rickman, 2½-h.p. Bradbury; P. Mays, 2¾-h.p. Vinco-Minerva, P. R. Heighton, 2¾-h.p. Vinco-Minerva; B. Gibson, 2¾-h.p. Vinco-Minerva; T. Woodhead, 2¾-h.p. Bat; B. C. Holmes, 3½-h.p. Vinco-Minerva; and E. A. V. Sturton, 2½-h.p. Vinco-Minerva. The other competitors failed to finish, chiefly on account of puncture troubles. The prizes offered in connection with the trial include a handsome silver cup to the first, gold medal to the second, and a silver medal with gold centre to the third. Certificates will also be awarded to those who complete the hundred miles non-stop.

THE municipal authorities of Grahamstown, South Africa, have issued a regulation to the effect that no person when travelling on horseback, or by vehicle of any description other than cycle, motor-car, or steam traction engine, upon any public street within the Municipality, not exceeding 30 feet in width, including the side walks, shall for a distance of at least 30 feet before entering, and for the same distance on leaving any street, travel at a speed greater than four miles an hour.

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CONTINENTAL NOTES.

The German Gordon Bennett Programme.

The German Automobile Club has issued the following programme for the Gordon Bennett week :—

Thursday, June 16th.—Weighing of racing cars. Evening reception at Kurhaus, Homburg.
Friday, June 17th.—Gordon Bennett Race.
Saturday, June 18th.—Touring excursion on the Gordon Bennett course. Evening dinner at the Kurhaus, Homburg.
Sunday, June 19th.—Race Meeting at Frankfurt-am-Main.
Monday, June 20th.—International Automobile Congress.
Tuesday, June 21st.—Competition for Appearance in the Kurpark. Flower Corso.

There has also been issued a programme of festivities at the Kurhaus in Homburg, from June 12th to 23rd. It includes concerts, theatrical performance, firework displays, and other fetes.

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Preparing the Course.

Operations are busily in hand at various points of the course in preparation for the great day which is rapidly approaching. As now decided, there will be "neutralisations" on the course at Mesingen, Weilburg, Limburg, Idstein, Konigstein, Oberursel and Homburg, equal altogether to 43 minutes. Thus for the four rounds there will be altogether three hours lost in these neutralisations. The German Wireless Telegraphy Co. is arranging to establish three wireless telegraph stations on the course—at Saalburg, Gratenwiesbach and Neuhof.

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The French Eliminating Test.

In France all attention is now centred on the eliminating contest for the French Gordon Bennett team, which is to be decided on the 20th inst. Many of the racers are now careering daily over the course in the Argonne. The Turcat-Mery cars, rated at 80-h.p., have been completed. On the level a speed equal to eighty-eight miles an hour is said to have been attained. The Hotchkiss racers have four-cylinder engines stated to develop 115-h.p. at a speed of 1,200 revolutions per minute. The cylinders are 175 mm. bore by 180 mm. stroke. The start has been fixed for five o'clock in the morning, "whatever be the weather." Although the race is expected to be over by 2 p.m., the result will probably not be known before 6 p.m. Seven official timekeepers have been appointed in connection with the tests, and a trial of the arrangements will be made on the course the day preceding the race. The neutralizations so far fixed are —Vouziers ten minutes, Le Chesne five minutes, Rethel ten minutes, and the Novy level crossing a stop of thirty seconds. No cars other than the racers will be allowed on the course. Of the twenty-nine cars in the test, twenty-two will be driven by Frenchmen, two by Belgians, and five by Englishmen, the latter being Messrs. H. Farman, Jarrott, Stead, Baron de Forest and A. Burton.

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The Order of Starting.

The following is the order in which the competitors will start :—

1. Gabriel (De Dietrich).
2. Baras (Darracq).
3. Hanriot (Bayard-Clement).
4. P. de Crawhez (Hotchkiss).
5. L. Thery (Georges Richard-Brasier).
6. Le Blon (Gardner-Serpollet).
7. Salleron (Mors).
8. H. Farman (Panhard).
9. Rigolly (Gobron-Brillié).
10. H. Rougier (Turcat-Mery).
11. Jarrott (De Dietrich).
12. Beconnais (Darracq).
13. Guders (Bayard-Clement).
14. Achille Fournier (Hotchkiss).
15. Caillois (Georges Richard-Brasier).
16. Chanliaud (Gardner-Serpollet).
17. A. Leger (Mors).
18. Teste (Panhard).
19. Duray (Gobron-Brillié).
20. De la Touloubre (Turcat-Mery).
21. Baron de Forest (De Dietrich).
22. Wagner (Darracq).
23. A. Clement (Bayard-Clement).
24. Amblard (Hotchkiss).
25. Stead (Georges Richard-Brasier).
26. Pelser (Gardner-Serpollet).
27. Lavergne (Mors).
28. Tart (Panhard).
29. Alexander Burton (Gobron-Brillié).

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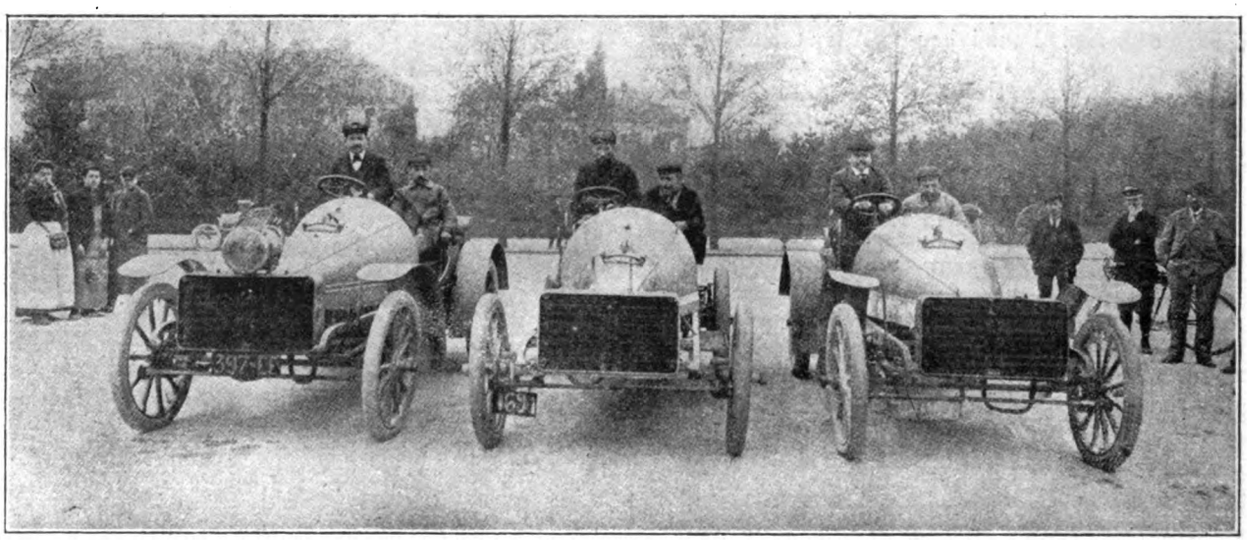
Mails by Motor-Car.

THE French Post Office authorities are inviting tenders for the conveyance of the mails between Messac and Carentoir (Ille-et-Vilaine) and between Redon and Guer (Morbihan) by motor-car.

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The Calais-Dover Motor-Boat Race.

As already mentioned in these notes, the Calais-Dover motor-boat race will be held on Monday, the 8th August, starting at 10 a.m. The race, which will be open to boats of all nationalities, of any size, and of any system of motive power, will be held under the rules of the Automobile Club de France, and at the same time a race will be held for the Recope Cup for boats using ordinary petroleum, and for the Quinones de Leon Cup for boats using denaturised alcohol. Entries must be received before the 15th July at the automobile clubs of the various countries. The entrance fee is 100 francs for boats up to 8 metres long, and 200 francs for boats of greater length. It should be noticed that under the regulations of the French club boats below eight metres must carry three life buoys and boats over eight metres four. Every person taking part in a race will have to wear a life belt, the boats must be unsinkable, and every boat up to twelve metres must carry an anchor weighing forty kilos with a length of chain of forty metres ; and above twelve metres, the anchor must weigh sixty kilos with sixty metres of chain. Side lights, a chart and compass must also be carried. Boats taking part in the race must be presented at Calais



The Three Serpollet Steam Cars which will compete in the French Eliminating Trials next week.

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on Thursday, 4th August, at latest, and from Thursday to Saturday may be subjected to runs out to sea. On Sunday, the 7th August, all the boats taking part in the race will be exhibited and boats which are not present will not be allowed to take part in the race.

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The 1905 Nice Week.

At a meeting of the Committee of the Nice Automobile Club last week it was decided to hold the 1905 Nice week from the 5th to the 19th February next.

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The Spa Week.

The Automobile Club of Spa has issued the following programme of the automobile meeting to be held from the 26th July to the 1st August next :—

Tuesday, July 26th.—Arrival and weighing of cars.
Wednesday, July 27th.—9 a.m., Spa-Malchamps Hill climb ; 2 p.m., one mile hill climb for the Spa Cup, standing start.
Thursday, July 28th.—9 a.m., start of 100 kilometre trial of motor-cycles.
Friday, July 29th.—10 a.m., start of 120 kilometre run for touring cars.
Saturday, July 30th.—10 a.m., start of motor-car balloon chase ; 4 p.m., opening of exhibition.
Monday, August 1st.—2 p.m., driving competition ; 6 p.m., distribution of prizes and banquet.

et d'Automobiles of Brussels is building two 100-h.p. Baudouin racing cars for this year's Circuit.

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Motor Wagons in Brussels.

It is reported that the large co-operative concern in Brussels known as "La Maison du Peuple" intends to adopt motor-lorries in place of its present horse-drawn vehicles

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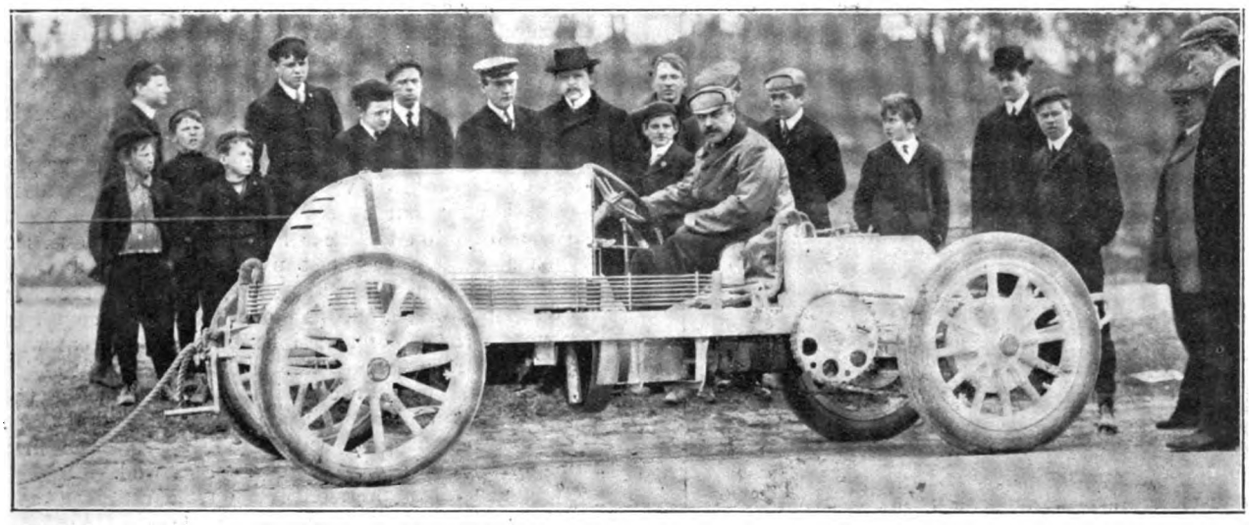
Speed Trials and Racing at Arras.

So far only four motor-cars and three cycles have been received for the speed trials and races to be held at Arras from the 25th to the 28th inst. The programme given in the *Journal* of the 30th ult. has been changed in so far that the five kilometre race is to be run off on the 26th inst. and the kilometre hill-climb on the 27th inst.

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The Touraine Touring Competition.

The touring competition which the Automobile Club of Touraine is holding this week has brought forward a fair number of competitors. The competition is over a total distance of about three hundred miles, and will be run in two days, that is to say, on the 13th and 14th inst., round about the city of Tours. The other days will be occupied with the weighing and the exhibiting of the cars. There will be one motor-cycle class and three categories of cars, namely : (1) Cars whose chassis cost not more than £240, (2) cars whose chassis cost between £240 and £680, (3) cars whose chassis cost more than £680.



Mr. H. P. Bowden's 60-h.p. Mercedes, which tied with a 40-h.p. Georges Richard for the first place in the recent Hill-Climbing Competition at Boston, U.S.A.

The Federation of French Automobile Clubs.

The movement to establish a federation of French automobile clubs, proposed by Prince d'Arenberg, is making good progress. Of the thirty provincial clubs in the country, twenty-two have agreed to join in the scheme.

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The French Carburettor Competition.

At the request of several of the competitors, the start of the carburettor tests which are being organised by the A.C.F. has been postponed from the 16th to the 24th inst. The chief object of the trials is to ascertain with different devices the power developed at various speeds and the consumption in litres per kilowatt hour. The trials will be made upon a Gillet-Forest single cylinder motor, running normally at 850 revolutions per minute, and the carburettors will be placed in three classes, those designed for a particular engine, those intended for a particular fuel, and thirdly those which claim to be adaptable without restriction in these respects.

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The Circuit des Ardennes.

The Automobile Club of Namur and Luxembourg has decided to erect a covered stand at Bastogne to enable its members and their friends to witness the Circuit des Ardennes race. It is announced that the Societe de Construction Mecanique

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A Military Motor-Cycle Relay Ride in France.

Following the example set by Austria, France is now to have a military motor-cycle relay ride, "L'Auto" having undertaken its organisation. A sealed despatch will be carried by ten motor-cycle riders from Brest to Belfort, a distance of about 1,000 kilometres. The riders, who will be ten in number, will follow the route given below :—Brest, Rennes, Laval, Alençon, Dreux, Paris, Meaux, Epernay, Rheims, Bar-le-Duc, Nancy, and Belfort. The course will be divided into ten sections, each about 100 kilometres long, and each rider when he arrives at the end of his section will hand over the despatch to another rider, until it is finally in the hands of the rider who will cover the section between Nancy and Belfort, the termination of the ride. It is hoped to have ten different makes of motor-cycles in the trial. One of the regulations is that the machines which are used must be of the ordinary touring type, and the weight must not exceed 110 lbs.

THE Board of Public Safety of Cleveland, O., U.S.A., is considering a proposal that several motor-bicycles be purchased for the use of the policemen who are seeking to suppress automobile scorchers.

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THE SIDE-SLIP TRIALS.

THE CONCLUDING TESTS.

THE last event in the Side-slip Trials took place on Saturday, at the Locomobile Garage, South Kensington, where a greasy track had been laid for the holding of the skidding tests. This consisted of a space about 15 ft. to 20 ft. wide and 35 ft. to 40 ft. long, in which the concrete floor had been covered with a mixture of Thames mud and soft soap, which after careful tests had been found the best lubricant obtainable, and, indeed, its anti-friction qualities left little to be desired. It had one small idiosyncrasy—namely, that it could only be satisfactorily spread by the human foot—suitably protected, of course—as brooms and squeegees simply rolled it up into lumps; and the proceedings were therefore diversified by step-dances from the secretary and other volunteers engaged in obliterating the traces left by each car, to prepare for the next.

The cars entered by the doors at one end, where an 88 ft. length had been marked off from the commencement of the track, by which their speed on entering the latter could be timed; while at the other end, and just in front of a small glazed compartment forming a clerk's office, was scattered a layer of gravel to facilitate turning or pulling up for those cars for which the grease was too much. About 10.15 the proceedings



A Car Starting on the Slippery Track.

Photo by] *[Argent Archer.*

were commenced by the running of the Club car over the trial patch, which proved sufficiently effective to make turning quite impossible till the car had reached the gravel at the further end. The cars were then sent over the grease in order, with instructions to make a sharp turn to the left when well in the middle of the patch; but during these tests, having no device to prevent skidding of the front wheels, the results were rather monotonously uniform. Each car steered to the left, but the front wheels failing to grip, continued its straight course till the front wheels struck the gravel at the end, and then came round sharply, the short interval between the front and hind wheels reaching the gravel giving little opportunity of seeing, at this stage, how far the back wheels travelled sideways.

The turn of the motor-bicycles came next, the Wilkinson-treaded machine coming along boldly, but the attempt to turn resulted in a "cropper," and a plucky remount for a second trial met with the same result. The Parsons followed, and escaped a fall, but only by making no attempt to turn. The Bates and the Empire then tried, but with no better success, the latter coming down heavily and bending one of his anti-skid legs. It was seen by this time that the course was too risky for bicycles, devices, which undoubtedly give additional security on ordinary bad roads, being utterly useless on such grease as this.

After this came alternate stopping, reversing, and turning tests, the turns being taken somewhat slower. No. 1.—Butler, pulled up moderately well, skidding somewhat, but did not get round the turn till reaching the gravel. No. 2.—Cavendish, was, of course, not helped in pulling up by his device—a mechanical one—and skidded fairly straight to the gravel. No. 3.—Hunt, behaved in much the same way, as did also No. 5—Rourke; the latter doing a worse side-slip when pulling up, and all three spinning their wheels more or less in starting, stopping and reversing, as was only to be expected with plain tyres. No. 6.—Nicholson, created a diversion by failing to pull up, and colliding with the small glazed office before mentioned. No. 7.—Vivian, came up slowly, and spun its wheels round vigorously in reversing and starting, failing also to turn without the assistance of the gravel, skidding considerably. No. 8.—Williamson, stopped rather better, but spun its wheels somewhat in starting, and skidded to the gravel before turning. No. 11.—Sainsbury, was not much assisted in stopping by its device. It took the turn rather better by turning early and not too fast, but skidded nevertheless. No. 12.—L'Empereur, stopped and started remarkably well, but having the device on the back only, could not turn better than before. It did not, however, skid sideways in turning. No. 14.—Parsons, also pulled up, reversed, and started well, but turned no better for the same reason. No. 15.—Billet, did well, though not quite so well as the last two, and also could not quite manage to turn on the grease.

A further series of tests was then made with the Billet, L'Empereur, Parsons, and Wilkinson devices, in which one or more of the front wheels of the cars employed was armed with a non skid, with the result that the first really successful turns on the grease were made, the Parsons, with all four wheels armed, leading off with a turn of about fourteen-feet radius at a fair pace, right on the greasy patch, the front wheels gripping well, and the rear skidding very little. The L'Empereur tried next, and not having four covers available, put one on the off front, and the other on the near hind wheel. With this the turn was managed at a very fast pace, coming round well, with a considerable, but not unmanageable, side-slip of the rear wheels. The Wolseley-Wilkinson, with one tread on front and two on back wheels, came round all right, but with a great wag of her tail. The Parsons was next tried with one front and one back wheel armed, and turned with little slip, while the Billet had two trials under the same conditions, skidding straight before getting a grip with front wheels the first time; then, at a slower pace, taking the turn well.

The general impression left on the observer, at least as regards cars, is that while most of the devices are distinctly protective under ordinary bad road conditions, the only ones that give security under the very worst circumstances (which must include somewhat reckless driving) are those of the type of the L'Empereur and Parsons, and, to a less degree, the Billet, and, perhaps, the Wilkinson, if not too much worn; but for this they must be on all four wheels. If on back wheels only, pulling up on grease is facilitated, but not turning if surface is too bad for front wheels to grip; this, however, is not often the case with ordinary care. There are many other considerations, though, such as cost, upkeep, ease of attachment, and wear on tyres, that prevent one's choice being decided by this conclusion alone, and the final verdict, in which all the various factors are taken into account, will be awaited with interest.

MANY alterations are in hand for the quicker dispatch of the business connected with the Metropolitan Police. Orders have recently been given for several new motor-cars for the district superintendents, in place of the horse and dogcart now in use. Already there are six cars at Scotland Yard for use on urgent business.

IN fining a motorist for driving his car to the danger of the public at Surbiton, the chairman of the Kingston-on-Thames county justices (Mr. W. Y. Cockburn) said "It appears to those living in this neighbourhood that motorists are trying to drive horse traffic off the roads, and endeavouring to monopolise them, irrespective of the inconvenience they may cause."

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HERE AND THERE.

TUESDAY last was a Bank Holiday in the Isle of Man.

MRS. ROBERT LOUIS STEVENSON, the widow of the famous novelist, has purchased a White steam car.

APPLICATION has been made to the Secretary for Scotland for the prohibition of motor-cars on the roads of Arran, N.B.

THE Locomobile Company of Great Britain, Limited, inform us that they have just received one of the latest pattern Spyker cars, for which they are now the British agents.

THE Iowa Senate has passed the bill requiring the registration of motor-cars with the Secretary of State and fixing the speed limit at 20 miles per hour in the open country, 10 miles in crowded cities, and 15 miles in towns and villages.

THE Stern-Sonneborn Oil Company have made arrangements whereby any motor-car owner can have a supply of their Motor Sternoline lubricant for racing cars. This will be delivered carriage paid without extra charge to any address in Germany, France, or Belgium during the forthcoming motor-races.

THE Mercedes Hotel has just been opened in the Rue de Presbourg, Paris.

MESSRS. CARLESS, CAPEL, AND LEONARD notify us that they have reduced the price of the standard petrol 1d. per gallon.

THE committee of the Western Section of the Scottish Automobile Club have received consent from the road authorities of the Upper Ward Committee of the Renfrewshire County Council to conduct experiments with oil, Westrumite, and other substances on roads in the vicinity of Glasgow.

THE Acme Motor Company, Limited, has been registered with a capital of £1,000 to acquire the business carried on by Mr. G. E. Pearce at 4, Belle Vue Road, Wandsworth Common, S.W., as the Acme Motor Company, and to carry on the business of manufacturers of and dealers in motors and motor-cycles, etc.

THE Corporation of London have made application to the Local Government Board for a regulation putting in force within the City the provisions of Sub-section 1 of Section 9 of the Motor Car Act, 1903, limiting the speed of motor-cars in their district to ten miles an hour. Objections may be sent to the Local Government Board up to the 16th inst.



The Motor-Cycling Club's Run to Market Harborough. Mr. E. Kennard meeting the Members at Newport Pagnell.

THE Committee of the Yorkshire Automobile Club are preparing to make arrangements for garage in the various towns in the country, and to this end are desirous of information, applications and recommendations respecting various garages, so that a full list may be made out for the convenience of motorists.

THE Great Western Railway Company is credited with the intention of starting a motor-car service between Saltash and Callington. The other day a trial trip was run between the two places to obtain some idea as to the time-table that will be required, and it is hoped that a regular service will be inaugurated at the beginning of June.

MESSRS. J. H. BUTCHER AND CO., who make a speciality of transfer printing, have just issued a new series of transfers suitable for identification marks for motor-cars and cycles, which should prove useful to motor agents. The transfers are made up in sheets containing complete sets of the alphabet, and a range of figures from 0 to 9, together with a number of duplicate letters and hyphens. They are printed in white to regulation size, so that any mark can be quickly made up from the sheet and applied to a panel of the car.

AT a meeting of the Racing Board of the American Automobile Association held on the 18th ult. a resolution was adopted reinstating Barney Oldfield, who was disqualified for taking part in unsanctioned competitions, the reinstatement to be preceded by the payment of a fine of £20. The fine was promptly paid, and Oldfield is again eligible for races.

AS mentioned in a recent issue, the Great North of Scotland Railway Company has started a public service of motor-omnibuses between Ballater and Braemar. The journey occupies an hour and a half. At present two services per day are being run in each direction. The vehicles are 16-h.p. Milnes-Daimlers with seating accommodation for sixteen inside passengers.

VOGT ENGINES, LIMITED, has been registered with a capital of £240,000 to acquire all the assets and undertaking of Vogt Motors, Limited, to turn to account the letters patent, inventions, rights, and interest of the said company, and to carry on in the United Kingdom or elsewhere the business of manufacturers of motors, traction and other engines, cycles, and carriages of all kinds. The registered office is at 56, Cannon Street, E.C.

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THE London Fire Brigade has a first-aid motor appliance in active service.

AT a meeting of the Richmond Corporation on Tuesday it was resolved to ask the Board of Works to limit the speed of motor-cars in Richmond Park to ten miles an hour.

THE latest anti-skidding and puncture proof band for motor tyres to attract attention is the Durandal, of which an illustration is given herewith, and for which M. H. Cintrat, of Paris, has secured the British agency. It consists of a rubber band, the internal diameter of which is equal to that of the outside of the



cover it is to protect. To the band are attached a series of straps terminating in steel pieces which grip the rim of the tyre, as illustrated. The band itself is provided on the tread with a series of steel studs. The Durandal band is claimed to be most effective, both as to its anti-skidding and non-puncturing qualities.

THE Rapid Motor Vehicle Company, Limited, has been registered with a capital of £100 to carry on the business of manufacturers of and dealers in all kinds of motor and other carriages, cycles, &c.

THE question of the excessive speed of motor-cars in Hythe was again discussed by the Town Council last week. It was urged by several of the members that a speed limit should be fixed, and it was decided to communicate with the County Council to this effect.

THE eleven racing cars entered by the various English makers for the Isle of Man Eliminating Trials for the right to represent Great Britain in the Gordon Bennett Race, and valued at £40,000, were insured with The Car and General Insurance Corporation, Limited, by the A.C.G.B.I. against fire for the above amount whilst in their possession.

IT is recommended that any British competitors proposing to enter for any of the events in the Calais-Dover motor-boat race in August next should secure an official certificate as to the size of the motor before it is finally put on board. This certificate, which will be accepted by the French Club, may be obtained on application to the official measurer of the A.C.G.B.I., Mr. J. A. Smith, of 47, Leadenhall Street, E.C.

AN injunction prohibiting the municipal authorities of Chicago from interfering with Mr. J. V. Edgerton, "or any other automobile owners similarly situated," has been issued by Judge Hanecy. The granting of the petition has a sweeping effect, as it allows disregard of the automobile ordinances by the 2,500 other owners and operators of motor-cars who may seek to take advantage of the writ. Both numbering and licensing ordinances are to be held in abeyance.

ON Friday, last week, Mr. George Iden, late works manager of the Motor Manufacturing Company, was the recipient of a presentation in the form of a handsome writing table and a framed photo of the offices and works staff. The presentation was made by Mr. B. K. Field, the present works manager, on behalf of the staff and employees. In additional proof of the high esteem in which Mr. Iden was held, quite 200 employees were present to wish him success in his future undertaking. Mr. Iden spoke of the many successes the M.M.C. cars had achieved during the six years he had been connected with the company, and also as to the gradual development of the motor industry.

A CINEMATOGRAPH film of the Pedrail engine in motion (the traction engine with feet, which has already been illustrated in the *Journal*) is now on view daily at the Polytechnic Institution, Regent Street, W., with "Our Navy."

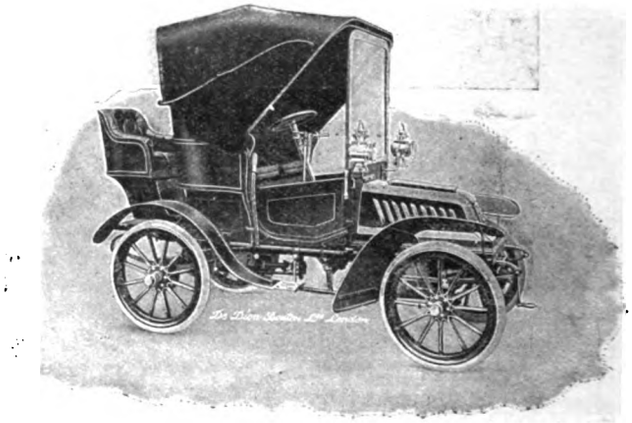
THE West Riding authorities are proposing to purchase a motor-car, at a cost of £1,000, for their surveyor. It is said the use of one will enable him to keep a more constant and efficient control over the roads and bridges.

A 500 kilometre speed trial, with standing start and stopping finish, was held on Sunday last by the Antwerp Automobile Club, the winner being M. Elscamp, who on a "Metallurgique" car covered the distance in 55 secs.

THE Chief Constable of Eastbourne has submitted to the Watch Committee a schedule of roads in which it is suggested the Local Government Board should be asked to make regulations imposing a ten mile limit. At the meeting of the committee last week it was, however, decided "that the application to the Local Government Board to make the necessary regulations be deferred until the effect of the notice boards requesting motorists to drive slowly has been ascertained.

MESSRS. LOWE, BEVAN AND CO., Birmingham, have recently placed on the market two new special fittings for motor-cars. One consists of an ingenious arrangement for dust screens; the fitting is self-locking, the window is carried into the roof by slotted grooves on each side of the window frame. At the top of the grooves are cranked arms, and at the upper end of the crank is inserted a slot. The pins travelling in the side grooves are carried into these slots, and springs situated at the end of rods carrying the window force the pegs into the slots, and make a most secure fixing of the window in the roof. The arrangement is a very complete one, and well worth the attention of motor body builders who are fitting up cars with dust screens. The second production referred to is a new Cape cart hood fixing. In this, instead of the usual flat metal slats which are attached to the hoop sticks, oval tubes are employed. We may add that these fittings can be supplied alone or the Cape hood complete ready for fixing on to a car.

THE great advantage of motor-cars to doctors cannot be overestimated, as, apart from the question of economy, they overcome all possibility of delay in time of emergency. One of the most commendable features of the automobile is its readiness to respond to immediate action. Oftentimes the loss of a few



minutes would jeopardise the life of a patient, but with ready means at hand to start without delay at high speed the saving of time would be of incalculable benefit to the suffering one. That the utility of the motor-vehicle is being realised by doctors is evident from a perusal of the pamphlet entitled "Motor-Carriages for Medical Men" which has been issued by Messrs. De Dion Bouton, Ltd., and of which a copy has been sent us. The booklet gives in a collected form the experiences of a number of doctors with motor-cars, and a list of over 60 members of the medical profession who are using De Dion cars in their practice.

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CORRESPONDENCE.

INCONSIDERATE DRIVING.

To the Editor of *The Motor-Car Journal*.

Sir,—The Committee of the Automobile Club have decided on measures in the carrying out of which they desire the co-operation of the public. The Committee are appealing to all drivers of motor vehicles to drive with consideration for other users of the highway, and are urging members of the Automobile Club to set an example by so driving their automobiles as to inconvenience as little as possible the public generally. The Committee of the Club feel sure that the members of the Club generally do not desire that any automobilist who may persist in driving his motor vehicle inconsiderately should be, or remain, a member of the Club. They therefore wish it to be understood that the Committee of the Club are resolutely setting their face against motor-cars being driven, not only at high speeds to the danger of the public, but also to the annoyance of other users of the highways of the United Kingdom, and deprecate the use thereon of cars intended to be driven at excessive speeds.

The Committee also realise that motor vehicles of low power are at times driven very improperly.

The public are provided by the Legislature with effective measures for bringing to justice drivers of motor vehicles which are driven at excessive speeds, or to the danger of the public, and it is therefore not necessary for the Club to invite the co-operation of the public in connection with these punishable offences.

The Committee, however, invite the public to draw attention (by letter addressed to the Club Secretary, Automobile Club, 119, Piccadilly, London, W., to flagrant offences by motor drivers against the laws of etiquette and good feeling which are well understood and generally observed by all classes of road users, and to such conduct as may, by causing unnecessary vexation and inconvenience to the public, prejudice the best interests of automobilism in this kingdom. If the offender be a member of the Automobile Club, he will be dealt with under Rule 63, which many require his resignation.

If the offender be not a member of the Automobile Club of Great Britain and Ireland, but be a member of an affiliated Club the complaint will be passed on to the Committee of that Club.—Yours truly,

H. C. L. Holden,
Chairman of the A.C.G.B.I. Club Committee.

STEAM CARS.

To the Editor of *The Motor-Car Journal*.

Sir,—Reading in one of the daily papers of a book bearing the title "English and American Steam Carriages and Traction Engines," in which Mr. William Fletcher states, being a firm believer of steam as a motive power for carriages, that every steam carriage which passes along the streets "justifies the confidence placed in it; and unless the objectionable features of the petrol carriage can be removed, it is bound to be driven from the road to give place to the less objectionable rival, the steam driven carriage of the day." I think a good many people can endorse what he says to be perfectly correct. I am more than surprised to think that English engineers have not given more attention to steam. I am aware there are several making steam carriages, but some I have seen are too heavy and clumsy looking, and much too complicated. The only steam carriage I know of as near perfection is the White, but to my mind it has two faults: first, the price is too exorbitant; second, it should be made to burn paraffin. I think there is a great demand for a good steam car not to exceed 15 cwt., and at a reasonable price.—Yours truly,

Lancelot.

BRAKES AND TYRES.

To the Editor of *The Motor-Car Journal*.

Sir,—Will any of your readers kindly advise me how I can make the foot brake of my 6-h.p. De Dion (engine at back of car) more powerful. At present it scarcely acts at all, the oil, I am told, from the gear case getting on to same.

With reference to the Cambridge Autocar Company's letter in your issue of the 23rd ult. may I ask how the straps are fastened on, whether at the sides or across the inside of the cover; also how many would be required for a cover 700 by 85?—Yours truly,

Brake.

VARYING VALVE LIFT.

To the Editor of *The Motor-Car Journal*.

Sir,—I notice in the *Journal* of the 30th ult. a letter from "A. 2708," in which reference is made to our car, criticising the method of valve lift as described by you in a previous issue. I would like to draw the attention of your correspondent, and others who write in a similar strain, to the very able remarks of Mr. Dougald Clerk, also in the same issue, where he says "in many cases motors deviate somewhat from their understood requirements, generally not from ignorance on the part of the designers, but from some stern practical necessity." As the designer of the Utile car, I would like to point out that everthing has a reason for its construction; and what would, perhaps, appear at first sight somewhat out of place is not so when it is considered that our main object is to attain an essentially simple car. A motor-car must be considered as a whole, and certain details essential to our vehicle are quite out of place on another. Many parts have to be considered from different points of view, which do not occur to the casual observer, not only from a mechanical standpoint but also commercial, which affects the manufacturer and the purchaser. We do not claim to attain anything extraordinary with our car, but what we certainly do attain is a very fair result with a very small number of parts, and plenty of power in proportion to the weight, which means efficiency and minimum wear and tear.

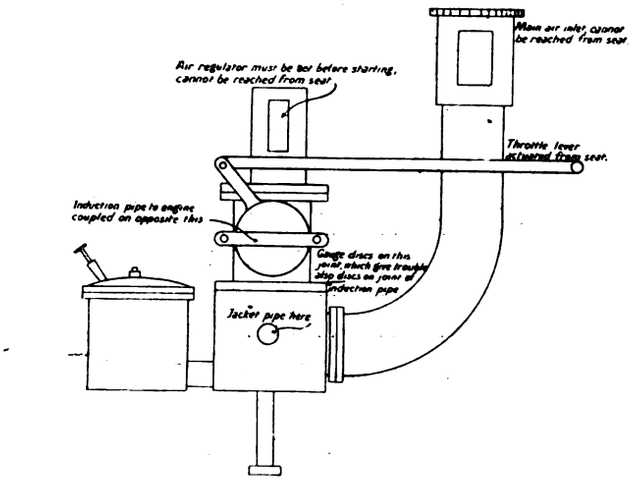
The exhaust control under discussion is a very effectual and simple method of controlling a comparatively large cylinder and obtaining a very steady and expansive pressure when running light, owing to the cushioning action of the remaining products of combustion; in addition to which, ignition is very certain, compression being maintained. As to overheating, this I can say we have never experienced, as our valves give no trouble whatever, having a large water jacket and ample radiator. A temperature below that at which our engine works would be detrimental to its efficiency.—Yours truly,

P. G. Tacchi.

CARBURETTOR CONTROL.

To the Editor of *The Motor-Car Journal*.

Sir,—We have a Daimler car with two cylinder 9-h.p. Napier engine, the Longuemare carburettor of which is giving trouble in starting the engine. The motor will run all right for, say, a minute, then slows and stops; by manipulating the small air regulator it can be kept running until it is warmed up, when it goes well enough. At first I set this down to insufficient petrol, but found later on, taking the carburettor to pieces immediately after one of these stops, that the gauze discs between the engine pipe and the carburettor were solid with water. On wiping the water off and replacing, the engine would start readily enough, but stop in a minute, if left alone, through the same cause. The engine will not work until everything inside the bonnet is extremely hot—it will hardly work at all with the bonnet off. This water, I would say, is caused by condensation due to the rapid evaporation of the petrol. Is there any way of overcoming this nuisance, as it is



annoying to have to stand by and nurse the engine every time a start is made, especially when there is a crowd around?

The water cooling arrangement is simply a tank under the car and circulation by pump, and the water boils sometimes on a five-mile run; this is another nuisance. Would fitting a radiator in front of the bonnet have the effect of curing this? I would like to go thirty or forty miles without changing water. I enclose a sketch of carburettor. I omitted to say that the branch pipe off the exhaust to the carburettor jacket is quite free, as it gets warm, and can be felt blowing through. I should be glad if you or any reader could give a hint as to how the above faults could be remedied.—Yours truly,

Cycle Mechanic.

[In answer to "Cycle Mechanic's" query *re* carburettor trouble, we should strongly advise extending the main air pipe, so as to come in close connection with the exhaust pipe, in order to draw in hot air, which will most probably remedy the trouble of water on the gauze. But before doing this there would be no harm in trying the engine with the gauze removed, as the latter sometimes tends to act as a throttle, and numerous cars are daily running without the gauze.

Failing either of these giving the desired result, we should be inclined to think that the carburettor is too small for the size of engine. With regard to the water circulation, "Cycle Mechanic" would undoubtedly find the benefit of a radiator on the front of the car, and if a thoroughly efficient one be got the car would have no difficulty in running perhaps daily for a week without the water reqniring to be replenished.]

MOTOR VANS FOR TRINIDAD.

To the Editor of *The Motor-Car Journal*.

Sir,—Could you put me in the way to get detailed information concerning motor-vans? I contemplate running one as a tentative measure

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in connection with one of our railway termini (at Trinidad). My idea is to have a van that can do a good twelve miles loaded, and the body so constructed that we can pack a load of ten to twelve passengers when we are not taking produce, *i.e.*, one trip we could run passengers and light luggage, and the next take up freight. The vehicle should have two removable benches running lengthways, and should be roughly constructed, no regard being paid to upholstery of any kind. As this would be an entirely new departure in our present methods of transport, I would like to ascertain whether any similar idea is being carried out in any of our tropical dependencies, and whether we would experience any technical difficulties in the working and upkeep of the machinery. I would like also to know which, for our climate and general conditions, is thought the best system of propulsion, steam, electricity (we have a power station), or petrol, etc. A rough idea of the cost of a car of the capacity mentioned would be useful to know. If you have any illustrations or literature that would assist us to determine, I would feel obliged if you would mail them on.—Yours truly,

H. D. FADELLE.

[We shall be glad to forward any lists of suitable vehicles sent us to our correspondent.—ED. *M.C.J.*]

COST OF OPERATION.

TO THE EDITOR OF *The Motor-Car Journal.*

SIR,—I see in the *Journal* you ask for the cost of operating cars. I therefore send mine, as it may interest your readers. I have omitted the first cost together with interest on same and depreciation, as that is the same for everyone. I have put a share of mechanic's wages, as I have two cars, etc., and I am my own driver. With regard to "Less railway fares saved," I have only put down those journeys which I should have had to have taken in any case. If the car continues as well as it has done during the first year, I shall have every reason to be pleased with it.—Yours truly,

EDWARD S. CHURCHILL.

14-h.p. Daimler car. First year's cost, etc., including tyres and spare parts :—

	£	s.	d.	
Insurance	13	4	0	
Licence	2	2	0	
Registration...	1	0	0	
Driver's licence	0	5	0	
Estimated share of mechanic ...	30	0	0	
Cost of petrol	16	2	4	229 galls. ·076 per mile.
Repairs to tyres (Collier's) ...	23	17	7	About 2d. per mile.
Repairs to car	1	7	3	
Lubricating oil	1	6	3	
Total	89	4	5	
Less railway fares saved	23	17	5	
Running cost	65	7	0	5·2 pence per mile.

Number of days car has been used, 124; miles run, 3,004; average run, 25 miles per day.

DECAUVILLE CARS.

TO THE EDITOR OF *The Motor-Car Journal.*

SIR,—Replying to Mr. J. W. Hicks' enquiry in the *Journal* of the 30th ult. re Decauville 10-h.p. cars, I beg to inform him I have been driving a car of this type for the past two years. It has never given me a moment's trouble, and I believe I am right in stating there are several improvements on the present 10-h.p. car. I was so pleased with the 10-h.p. that I purchased last year a 20 h.p. Decauville. They are both in my possession at the present time, and I am not at all inclined to part with either.

I do not pretend they are so fast as some other cars, but thirty miles an hour for the 10-h.p. and over fifty for the 20-h.p. is not bad.—Yours truly,

E. H. SMITH. (MAJOR.)

A PROPOSED INSTITUTION OF AUTOMOBILE ENGINEERS.

TO THE EDITOR OF *The Motor-Car Journal.*

SIR,—Some months ago you were kind enough to notice in your columns a circular which I was then placing before a considerable number of automobile engineers and other followers of the automobile movement. This circular sought opinions and criticisms as to certain suggestions dealing with (*i*) a proposed institution of automobile engineers, and (*ii*) a proposed scheme of automobile engineering education.

Out of a large number of replies received, some ninety per cent. were of a favourable nature; these, moreover, were remarkably unanimous upon the following points, viz. :—(*i*) That an institution of automobile engineers, following approximately the lines of the existing engineering institutions, should be formed. (*ii*) That the question of automobile engineering education should be postponed for the consideration of the Institution of Automobile Engineers, when formed. (*iii*) That only persons actually engaged in the designing and constructing of automobile machinery and vehicles should be eligible as members, (associate members, etc.) of the Institution; but that other persons connected with or interested in the construction, employment, etc., of automobiles, should be eligible as (say) associates of the Institution. (*iv*) That reports of meetings, contents of original papers discussed at meetings, and any other literary matter relating to the transactions of the Institution should be printed and distributed, free of charge, among the members, associates, etc., of the Institution. (*v*) That the Institution should consider the question of organising a testing department, for the purpose of conducting various official tests of automobile machinery and vehicles and of issuing certificates of the results obtained. This department would bear much the same relation to automobilism as Lloyd's does to shipping. (*vi*) That the Institution of Automobile Engineers should confine its attention to the strictly technical aspects of automobilism.

My friend Mr. T. M. Cairns has since carried out a similar "canvass" in Scotland, with much the same result. We propose to call a meeting in London, at an early date, for the purpose of submitting for discussion a scheme drawn up on the above lines. While desiring that such meeting should be as representative as possible, we find it very difficult to communicate directly with more than a limited number of automobilists. If, therefore, you could find a place for this (I fear lengthy) letter in your correspondence columns, it would be of very great assistance.—Yours truly,

JOHN F. MARSHALL, M.A.

ACETYLENE MOTORS.

TO THE EDITOR OF *The Motor-Car Journal.*

SIR,—Like your correspondent Mr. F. J. Spencer, I also have been anxious to learn whether acetylene gas could not be used as engine fuel. Noticing an article in one of the motor journals some months ago, I wrote to the French inventor, who has only just sent me his reply. Translating the same the reply would be as follows :—

"As you say in your letter, the burnt gas is odourless, vibration is practically nil, starting is instantaneous, and with the gas no breakdowns need be feared, as no carburettor is used, because the gas reaches the motor in a finished state. Instead of the carburettor there is a mixer of air and gas with accurate 'dosage.' I have made numerous experiments with a Buchet bicycle of 1¾-h.p. The consumption was one kilogram of carbide per 100 kilometres. The carbide is not in cartridges, but the commercial product in fifty to sixty millimetre pieces. The generator is automatic, more power is developed than with petrol, and the valves foul less."

The inventor refers to the advantage that lighting can also be had from the same source and that he is making similar experiments with another motor. He is anxious to develop the invention on this side of the Channel, and I shall gladly place anyone sufficiently interested into communication with the inventor.—Yours truly,

L. W. K. TRUBRIDGE.

THE MOTOR-VAN PARADE.

TO THE EDITOR OF *The Motor-Car Journal.*

SIR,—In your article on the above in the last issue of the *Journal* it will probably strike some of your readers as strange that, although you mention two Milnes-Daimler vehicles belonging to the Midland Railway Company, these are not included in the list of those for which prizes have been awarded. These two lorries were not, however, eligible to enter for the competition proper, as they had only just been handed over by the makers.—Yours truly,

HY. FOWLER.

CARS FOR DEVONSHIRE.

TO THE EDITOR OF *The Motor-Car Journal.*

SIR,—I purchased some little time since a 6½-h.p. Darracq to carry four, but found the car not suitable for this hilly country, viz., North Devon. Doubtless among your vast number of readers some could advise what make of car is suitable, the hills in some instances being one in seven. I require to take four occasionally, and want to provide for such. I want a simple car that can be easily learnt by a person of ordinary intelligence, smallest cost, that is reliable, speed not to exceed twenty to twenty-five miles per hour, and, as roads are not extra grand, would solid tyres be preferable?—Yours truly,

WOULD-BE MOTORIST.

TORPOINT FERRY AND MOTOR-CARS.

TO THE EDITOR OF *The Motor-Car Journal.*

SIR,—I have lately had occasion to take my motor-car across by the Torpoint steam ferry. My car is a small two-seated one, the total weight being 7 cwt., and the wheel base about six feet. For this I am charged half-a-crown. Out of curiosity, the other Saturday, when crossing, I asked the driver of a large covered wagon drawn by two horses, which was also crossing, what they charged him, and what weight he had. The driver told me he had two tons in his wagon, and was charged half-a-crown. I do not know on what basis the ferry company make their charges, but it seems to me most absurd that one vehicle which occupies about a quarter of the space of another - and weighs only 7 cwt. against nearly three tons should be charged the same. I can only conclude that the ferry company are under the usual absurd impression that a man who owns a motor-car must be rolling in wealth, and therefore well able to pay any charge, but perhaps it might

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be well for them to remember there are other means of crossing the border into Cornwall besides the Torpoint steam ferry.—Yours truly,

LIGHT CAR.

PETROL IN READING.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—On Sunday, the 1st inst., I endeavoured to obtain petrol in Reading, and was finally told that I could get it at the shop kept by Collins opposite the Barracks, "agent for petrol in Reading." Mr. Collins will not supply petrol on Sundays "under any circumstances whatever." Motorists please note. In consequence of my inability to purchase petrol in Reading I was compelled to buy some at a small roadside "pub." The can was marked B, and was not sealed, and the petrol gave me an infinite amount of trouble. Here let me express my sincere thanks to the owner of a large Mercedes who kindly stopped to try and help me when my engine was at rest between Chippenham and Colne, on Tuesday, all for the want of a drop of Carless.—Yours truly,

A 391.

QUERIES *re* PANHARD CARS.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—In reply to "7-h.p. Panhard," may I be allowed to state that I experienced the same kind of thing with a Panhard car, and on looking for the cause of the trouble I found the bolts of the crank-chamber right on the last threads. On tightening up these bolts I experienced no further discomfort. Hoping this will prove useful to "7-h.p."—Yours truly,

PANHARD.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—In reference to "7-h.p. Panhard's" letter in the last issue of the *Journal*, if one cylinder were misfiring, it would cause a knocking which would sound in the gear box, but if this is not the cause I should advise returning the car to the makers for remedy, as, the car being new, this ought not to be.

The best position for the gas control can only be found by experience with the car, as almost every automobile has its own peculiarities, and even two cars of the same power and size, by the same maker, will not, as a rule, run with the levers in identical positions.—Yours truly,

H. J. T.

MOTORING PROGRESS IN SOUTH AFRICA.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—I enclose a cutting from "Erocott's Penny Mail," published in Grahamstown, to show you that our city fathers are not as bad as most of your English ones. You will see that they have actually put on a speed limit to horse traffic, and have excepted motor-cars.

Here in Grahamstown we are getting on slowly with the motor movement. Three Oldsmobiles, two Stars and one Clement. In a week or two we expect a couple more little Stars, and I am, I hope, getting out my third Star, a four-cylinder one. Our roads are fearful, surface bad and gradients stiff, and yet, in spite of all, the motor-car is the correct means of getting about. I have done my entire practice for twelve months now on my two cars, a small two-seated 7-h.p. and a four-seated 10-h.p., and, as my medical work has often taken me out thirty-five miles, it is no inconsiderable saving in time, and I find it cheaper than horses. "Good luck to the motors," say I.—Yours truly,

G. G.

WHEEL v. TILLER STEERING.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—A couple of years ago wheel steering had made such advances in public favour that predictions were freely advanced that it would within a very short time become universal. That prediction has not been fulfilled, of course. Lever and tiller steering are still with us, and to all appearance there is not the slightest probability of its falling into disuse. At the same time wheel steering has made decided progress. No maker has turned from wheel to lever steering, while many have forsaken the lever and tiller for the wheel. Popular favour is possessed by or assumed for the wheel, but it will scarcely be denied that just as the wheel is the natural method of steering to be used on some cars, so the lever or tiller is the equally logical accompaniment of others. The choice should be made, not in obedience to the dictates of fashion, but in consequence of known peculiarities of cars and the adaptability of wheel or lever steering to them. The big car, equally with the speed car, demands the steadiness and reliability that come with the adoption of the wheel. But the superior claims of the lever, with its quickness and ease of manipulation, are quite as indisputable. It would be interesting to have the opinions of those motorists who have given both systems of steering devices a practical trial.—Yours truly,

TILLERLEVE.



A Breakdown in Early Motoring Days.

BOYER CARS.—Replying to Mr. P. White, full particulars of these cars can be obtained from Messrs. Boyer and Company, 64, Avenue de la Grande Armée, Paris.

CARBURETTOR TROUBLES.—Major E. H. Smith, of Arundel House, Wednesbury, writes:—"*Re* the letter on page 200 of the *Journal* for the 30th ult., I have just accomplished the very thing with my Longuemare carburettor 'Mack Siccar' requires, and if he will put himself in communication with me, I will willingly assist him in both his queries."

ACCUMULATOR CHARGING SET.—Replying to Mr. J. Darby, jun., the address of Messrs. Everett, Edgcumbe and Company is 151 and 152, Great Saffron Hill, London, E.C.

TERMINAL CONNECTIONS.—In connection with our reply to Mr. C. H. Peake last week, Messrs. G. T. Ritchie and Company, of Gray's Inn Road, W.C., ask us to mention that they have the Herz terminals in stock.

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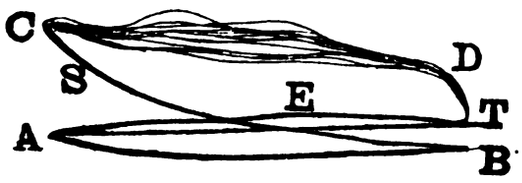
THE INDICATOR DIAGRAM OF A HIGH-SPEED PETROL MOTOR.*

By Prof. H. D. Callendar, M.A., F.R.S.

The object of this paper is to describe the method adopted for obtaining high-speed indicator diagrams, and to show how the indicator may be utilised in the study of the theory of the motor, and as a guide to its practical improvement. The motor employed in the experiments is a Clement-Garrard, with 60 mm. bore and 70 mm. stroke. The cylinder capacity is 198 c.c., and the clearance volume approximately 60 c.c. The valves are on the top of the cylinder, and a fan is arranged on the flywheel to deliver a blast on the exhaust valve side, which is necessary to prevent the valve being injured when the engine is run continuously for a long time on the stand. The inlet valve is automatic, and is provided with an arrangement for varying the tension of the spring for experimental purposes while the engine is running.

The indicator used is a Hospitalier-Carpentier manograph, with certain modifications necessary for high-speed work. It is connected directly to the cylinder by a short steel tube, 5 mm. bore, in place of the long fine copper tube usually employed. The pressure acts on a thin steel disc, the movements of which are communicated to a large pivoted mirror, which is tilted upwards through an angle proportional to the pressure acting on the disc. The movement of the mirror is observed or recorded by a ray of light reflected on to a screen or photographic plate. In order to record the pressure at each point of the stroke in the form of a continuous curve or diagram, the mirror is simultaneously tilted from side to side by a little crank revolving in time with the fly-wheel, so that the spot of light reflected from the mirror moves horizontally in time with the motion of the piston in the cylinder. Owing to the high speed the spot of light is seen as a continuous curve, which is readily measured or photographed.

Simple diagram.—The relation of the indicator diagram to the cycle of operations taking place in the cylinder of the motor will be readily understood by reference to a simple diagram. The straight horizontal line, A T, which the spot of light describes when the pressure is atmospheric on both sides of the steel disc of the indicator, is called the atmospheric line. When the piston is at the top of the exhaust stroke, the spot of light is at A, and the pressure in the cylinder is practically atmospheric. As the piston moves outwards on the suction stroke, the spot of light describes the line A B. This falls considerably below the atmospheric line at high speeds, showing a negative or suction pressure (required to draw the charge into the cylinder) of more than half an atmosphere. At B the piston turns and begins to compress the charge. As the charge is compressed, the pressure rises, as shown by the curve B C, reaching a maximum (in this case of 47 lb. per square inch) at C, when the piston has again reached the top of its stroke. Shortly before this, at the point S, the spark occurs in the cylinder and fires the charge. The spark itself can be photographed on the plate by using a spark gap in the focus of the mirror. Although the explosion pressure takes less than a hundredth of a second to develop, even with a very weak mixture, as in this diagram, the piston has already reached the middle of its outward stroke, at the high speed of 2,400 revolutions per minute, before the combustion is complete. The pressure is never quite the same in successive explosions at this speed, so that the explosion lines do not exactly coincide. The exposure of the photograph in this case lasted three-quarters of a second, and includes fifteen successive explosions. At the point D on the diagram, the exhaust valve opens near the end of the stroke, and the pressure in the cylinder rapidly falls to the atmospheric, before the piston has had time to turn. During the exhaust stroke, from T back to A, the piston is pushing the remainder of the exhaust gases out of the cylinder, and the pressure in consequence rises a little above the atmospheric line at E.



Revs. 2430. Light.

The work done by the motor depends on the average excess of pressure in the explosion stroke C D over that in the compression stroke C B. This is called the mean effective pressure, and when multiplied by the area of the piston and by the length of stroke (*i.e.*, by the cylinder capacity) gives the gross work done per explosion. This is reduced to foot-pounds, multiplied by the number of explosions per minute, and divided by 33,000 to get the gross indicated horse power. The work done by the piston against back-pressure and suction during the pumping strokes, T E A and A B, may be also ascertained from the diagram, and deducted so as to obtain the net indicated power; but it is in some respects more convenient to include these necessary losses with mechanical losses such as piston and bearing friction.

The diagram illustrated herewith was taken with the engine running light on the stand, the gas supply being throttled by reducing the lift of the inlet valve, so that the explosion pressure was comparatively weak. As the throttle is opened, and the engine is made to do work on the brake, the explosion pressure is much greater, the pressure rises steeply at C, and the area of the diagram, which is proportional to the work done per explosion, is greatly increased. On the other hand, if the spark is retarded so as not to take place till after the piston has turned the corner at C, the pressure does not begin to rise till late in the stroke, and the engine runs comparatively slowly.

The nominal brake horse power of a motor is generally estimated from the cylinder capacity and speed, or measured by a brake acting on the flywheel. Given a complete motor-cycle, with the engine already fitted in position, it is more convenient and satisfactory to measure the brake horse power by applying a brake to the tyre of the road wheel. This is easily done if the brake is cooled by water circulation, and the tyre lubricated with glycerine. The brake horse-power so determined includes transmission losses in the belt or chains and bearings, and gives the power actually available for propelling the machine.

The principal defect of the air-cooled motor is that, if it is run at full power continuously, the cylinder rapidly becomes too hot for efficient lubrication, the motor loses power from excessive friction, and refuses to go when power is most wanted, as in hill-climbing on a low gear. To run such a motor at full power it is necessary to employ artificial methods of cooling. For moderate sizes air-cooling by a fan is preferable to water cooling, as it is much lighter and less likely to cause trouble. Another reason of the falling off in power when the cylinder is very hot is that the incoming charge is heated and expands, so that less mixture is drawn into the cylinder. The compression pressure is also higher, owing to the gas receiving heat from the hot walls of the cylinder during the compression stroke.

The commonest of all defects is imperfect or variable ignition from a weak spark or a dirty plug. This is shown, especially at high speeds, by sluggish rise of pressure and great irregularity in successive explosions, even if the spark is not so bad as to cause misfires. Leakage is a fruitful source of loss of power, but is easily detected by testing the compression. A leak shows itself on the indicator diagram as a loop at the end of the compression stroke if the spark is retarded, coupled with a rapid fall of pressure during expansion. The commonest leaks occur at the sparking plug or the exhaust valve. A leaky plug gets overheated by the hot gases, and soon misfires or cracks. A leaky exhaust valve gets badly burnt.

Back-pressure, due to insufficient exhaust lift or to a throttled silencer, does not produce very serious loss of power directly unless the throttling is excessive. Indirectly its results are more serious by overheating the engine. The gain of power due to omitting the silencer is generally due mainly to the fact that the rapid escape of the exhaust keeps the engine much cooler.

Errors of timing the valves rarely occur unless the engine has been taken to pieces and re-assembled with insufficient knowledge. When running slow, the exhaust valve should close slightly before the end of the stroke. The diagram shows that there is, as would be expected, a slight lag in closing at high speeds. It is difficult to get the engine to run at all if the timing is wrong by so much as a tenth of a revolution.

The proper adjustment of the strength of the valve springs is a matter which generally receives careful attention at the hands of the makers. Troubles are often occasioned by the springs becoming weakened by overheating or otherwise. If the exhaust spring is too weak to keep the valve closed against the suction, burnt gases are drawn back, and the charge is weakened. This is especially liable to occur with a stiff inlet spring, and makes the engine weak at high speeds. The defect is readily detected by the indicator by holding up the inlet valve so that it cannot open, and driving the engine by pedalling or otherwise. The exhaust spring should be strong enough to hold the valve closed against the atmospheric pressure. A useful auxiliary method of governing or regulating the speed is to employ a spring exhaust lifter, the effect of which is not actually to open the exhaust valve, but to diminish the effective strength of the spring. This does not heat the cylinder like throttling the exhaust, but weakens the mixture by suction leakage.

With an automatic inlet valve the strength of the spring is a most important consideration. If the spring is very weak, the suction pressure is diminished, and a larger charge is drawn into the cylinder, giving more power at low speeds, which is useful for hill climbing. But at high speeds a weak spring does not close sufficiently quickly and steadily to retain the charge, and the diagrams show unsteadiness and loss of compression. A stiff spring is suitable for high speeds, but it throttles the gas too much for hill climbing. The only satisfactory solution is to fit an arrangement for varying the tension of the spring, which may easily be designed to serve also in place of a throttle valve.

Speaking generally, the diagrams indicate that loss of power at high speed is due rather to diminished charge than to back pressure. A good deal of the suction loss is due to the carburettor, and could not be cured by fitting a mechanical inlet valve. Some suction loss is probably necessary to secure a good mixture at high speeds, as the time of mixing is so short; but any devices for getting more mixture into the

* Abstract of Paper read before the Auto-Cycle Club, at the Royal College of Science, South Kensington, on Wednesday, May 4th.

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cylinder would evidently be futile, unless at the same time effective provision were made for cooling the cylinder. In any case, the thermal or fuel efficiency would be lowered owing to the higher explosion temperature.

HEAVY MOTOR-CAR REGULATIONS.

THE President of the Local Government Board laid upon the table of the House of Commons on Friday last week the report of the Departmental Committee on motor-cars. The committee, which consisted of Mr. Henry Hobhouse, M.P. (chairman), Sir William Arrol, M.P., Mr. H. C. Monro, C.B., Mr. H. H. Law, Mr. G. F. Deacon, C.E., and Mr. H. Graham Harris, was requested "to enquire and report with regard to any regulations which should be made under Section 6 of the Locomotives on Highways Act, 1896, and Section 12 of the Motor Car Act, 1903, as respects any class of vehicle, for the purpose of increasing the maximum weights of three and four tons mentioned in Section 1 of the former Act, and with regard to any conditions as to the use and construction of the vehicles which should be made by any such regulations. The committee held thirteen meetings and examined twenty-eight witnesses, including representatives of county councils and municipal corporations, the Automobile Club, officials of railway and omnibus companies, motor manufacturers and traders, and the Roads Improvement Association.

The following is the text of the Committee's recommendations:—

(1) That the maximum weight of three tons and four tons for unladen motor-cars mentioned in section 1 of the Locomotives on Highways Act, 1896, shall be increased to five tons and six and a half tons respectively.

(2) That the total gross weight on any one axle of a motor-car when laden shall not exceed eight tons.

(3) That every motor-car which exceeds two tons in weight unladen shall be marked conspicuously on its right or off side with (*a*) the weight of the car unladen, and (*b*) the gross weight to be carried on each axle when laden.

(4) That these weights shall be certified, when the motor-car is registered, by an officer of the registering authority who has seen the vehicle weighed when unladen, and each axle of the vehicle weighed, when laden, that the motor-car shall not be registered without this certificate, and that the weight so certified shall be entered in the register for motor-cars.

(5) That any motor-car registered as being over the unladen weight of two tons before the issue of new regulations shall be liable to be weighed and re-registered, but without any further charge by the registering authority.

(6) That every "trailer" (*i.e.*, a vehicle intended to be drawn by a motor-car) shall be conspicuously marked on its right or off-side with its weight unladen, and, if such weight exceeds one ton, with the gross weight to be carried on each axle when laden. The gross weight to be carried on any one axle of the trailer shall not exceed four tons.

(7) (*a*) That in the case of metal tires the width of the tyre of every wheel of a motor-car exceeding two tons in weight unladen shall be regulated as follows:—If the wheel is three feet in diameter the width of the tyre shall be not less than half an inch for every seven and a half cwt., or fraction of seven and a half cwt., of the certified gross weight to be carried on the axle to which the wheel is attached. If the wheel exceeds three feet in diameter the foregoing rule shall apply with a proportionate increase above the seven and a half cwt. in the ratio of one cwt. for every twelve inches increase in the diameter of the wheel. If the wheel is less than three feet in diameter the foregoing rule shall apply with a proportionate decrease below the seven and a half cwt. in the ratio of two cwt. for every twelve inches decrease in the diameter of the wheel. Provided always that the width of tyre shall in no case be less than five inches. (*b*) That in the case of a motor-car exceeding two tons in weight unladen, and in the case of a trailer exceeding one ton in weight unladen, the diameter of any wheel having a metal tyre shall not be less than two feet. (*c*) For the purpose of the above measurements the diameter shall be the extreme diameter of the wheel measured from the outside of any tyre or other portion of the wheel which will come into contact with the ground.

(8) That the width of the tyres of a trailer exceeding one ton in weight unladen and having metal tyres shall be regarded in the same way as the tyres of a motor-car, gross weights marked on the vehicle being substituted for certified gross weights.

(9) That metal tyres shall be smooth and flat, provided that the tyres may be either solid or constructed with diagonal cross plates having parallel spaces between the plates so arranged that any straight line drawn across the width of the tyre parallel with the axle shall be in contact with metal for at least seven-eighths of the total width of the tyre. The above requirements shall not prevent the bevelling of the edge of the tyre for not more than one-tenth of its width on either side. [We consider that there would be an advantage in having the edge of the tyre slightly curved, so as to avoid a cutting edge on the road surface.]

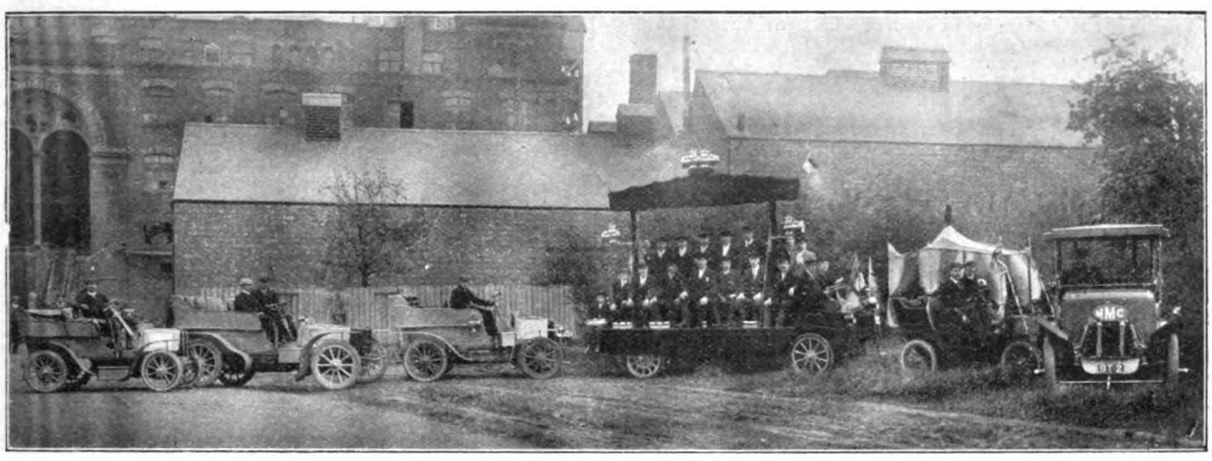
(10) That the maximum speed of a motor-car shall be regulated as follows:—(*a*) In the case of a motor-car having its wheels fitted with metal tyres the speed shall not exceed—(*i*) eight miles an hour when the certified gross weight on any axle exceeds three tons, and does not exceed six tons; (*ii*) five miles an hour when the certified gross weight on any axle exceeds six tons, or when the weight of the vehicle unladen is three tons, or over three tons and a trailer is used. (*b*) In the case of a motor-car having its wheels fitted with non-metallic resilient tyres the speed shall not exceed twelve miles an hour when the certified gross weight on any axle exceeds three tons and does not exceed six tons.

(11) That the width of a motor-car of, or exceeding, three tons in weight unladen, or of a trailer drawn by such car, shall not exceed seven feet six inches between its extreme projecting points.

(12) That the officer of any highway authority shall have power to require the driver of a motor-car exceeding two tons in weight unladen, which may be within a quarter of a mile of a weighing machine, to proceed thither for the purpose of weighing the motor-car or trailer with the load it is carrying in such a manner as to ascertain the weight upon each axle. If the weight on any axle thus ascertained exceeds the weight marked on the vehicle in respect of that axle, the driver or person responsible for the load shall be deemed to have committed an offence against the regulations.

(13) That no motor omnibus or other passenger motor vehicle of or exceeding three tons in weight unladen shall be used to draw a trailer.

(14) That every motor-car of, or exceeding, three tons in weight unladen, and every trailer shall be constructed with springs on each axle.



The Fleet of M.M.C. Cars which took part in the Lifeboat procession at Coventry on Saturday last.

CLUBS AND ASSOCIATIONS.

SHEFFIELD AND DISTRICT.

THE annual hill-climbing competition for the challenge cups presented by Mr. Harvey Foster (at present held by Messrs. H. Cooper and W. H. Brown) will again take place on Padley Wood Hill, that for motor-cycles on June 4th, commencing at 2.30 p.m.; and for cars on June 18th, commencing at 2.30 p.m. Entries for the cycle competition must be sent in on or before the 21st inst., and for the car trial before the 28th inst. The start will be on Padley Wood Hill, near the Maynard Arms Hotel, and the finish near Fox House Inn, and all vehicles will be allowed a flying start. Cars and cycles must be driven by the owners, and be their *bona fide* property at the time of entering their names. An Observer will accompany each car, and each cycle will be followed by an

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Observer on another vehic'e. Passengers may be carried, but they must not dismount during the competition, and the car with its load will be weighed the same day. Cycles and their riders will also be weighed.

SCOTTISH.

TROON was the rendezvous of the western section of the Scottish Automobile Club on Saturday last, and the informal meet consisted of about two dozen cars. The day was fine and the famous links in front of the hotel were crowded with golfers. It was the day of the Spring Meeting, and a number of motorists who are members of the Golf Club took the opportunity of a round of the green. The presence in the hotel of many well-known ladies engaged in the championship meetings at present being held on the Ayrshire Golf courses lent an added interest to the afternoon.

SOUTH AFRICA.

THE second annual dinner of the Automobile Club of South Africa was held in Cape Town on the 11th ult., when Mr. A. T. Hennessy, the president, occupied the chair. After the usual loyal toasts were honoured, Colonel Crewe, replying to the toast of "Our Guests," given by Mr. D. P. de Villier Graaf, the Vice-chairman of the Club, related some amusing anecdotes in connection with the election campaign which had recently taken place. Sir L. Mitchell followed with "The A.C. of South Africa," which he proposed in very humorous terms, and specially congratulated the A.C.G.B.I. for the good work which they had done in the interests of automobilism. The President, in responding, was very emphatic in regard to due consideration being given in Africa by automobilists to other users of the road, and mentioned that the club had asked the local authorities to particularly deal with any automobilists transgressing the usual rules of courtesy on the road. The club were establishing a system of hotel accommodation under special arrangements throughout the country. The final toast, prior to the usual vote of thanks to the chairman, was "The A.C.G.B.I.," to which Mr. Rudyard Kipling responded. Opening with some characteristic humorous remarks on the previous speeches, he in similar strain said that he wished to protest against the statement of some of the gentlemen that motoring was in its infancy. He knew the child. He did not say that he was present at its birth, but he helped to nurse the rickety thing along. The men that deserved a statue, the men that deserved the consideration, the love and affection, and reverence of their fellow men, were the men—"maniacs" they used to call them—who years ago laid their right shoulders to the wheel and pushed the whole thing along.

MIDLAND.

THE members of the Midland Automobile Club have been invited by their president, Mr. J. Broughton Dugdale, to visit his residence at Wroxall Abbey to-day. An open hill-climbing competition will take place at Sun Rising Hill on July 23rd, on the main road between Stratford and Banbury, under the same conditions as last year. An inter-club hill-climb is down on the fixture list for September.

A POINT FOR DEALERS.

AT the South Western Police Court, a few days ago, Wm. May, of Clapham, appeared to an adjourned summons for fraudulently allowing to be used by Ernest Sullivan a mark for identifying a motor-tricycle. His brother John was summoned for that, as a dealer, he failed to keep a record of the distinguishing number annexed to the identification plates of the tricycle; and Ernest Sullivan was summoned for driving a motor-tricycle which was not registered. It appeared that a dealer's plate was wrongly used, the defendant not knowing that it could not be used for hiring purposes. He had a record, but not for private use of motors, which was the case on this occasion. Mr. Fenwick fined each 20s., or 14 days' hard labour.

CASES DISMISSED.

SHERIFF FYFE disposed of an interesting case last week in the Glasgow Small Debt Court, when James Parker, Callander, sued John Hunter, Downanhill, Glasgow, for £10 in respect of the loss of a bull terrier dog, which was run over and killed by defender's motor-car. In giving judgment for defender, the Sheriff said that the speed of ten miles an hour at which the car was going was not excessive, and that the driver was justified in holding on his course, seeing that the dog was presumably nimble and able to take care of itself.

A CASE of considerable importance to motorists has just been decided in the Paisley Sheriff Court by Sheriff-Substitute Lyell. The action was brought by Mr. John Melville, the proprietor of a brickworks at Brora, Sutherlandshire, against the Mo-Car Syndicate, Limited, Paisley. The pursuer sought damages in respect of a collision which took place between one of his horses and one of the Arrol-Johnston cars. The facts of the case, briefly, were that a 12-h.p. Arrol-Johnston car was being driven northwards on the left hand side of the road between Golspie and Helmsdale by one of the defenders' drivers, when the foremost of two horses which were drawing a bogie belonging to the pursuer commenced to cross the road immediately in front of the car from left to right. The result was that the horse and car came in contact, but only after the latter had been almost pulled up. The main road at this point is crossed by a tramway line leading from the pursuer's works to the railway station, and it was along this line that the horses and bogies were proceeding. The pursuer's case was, (1) that the car was being driven at an excessive speed, over thirty miles an hour; (2) that the driver was not keeping a proper lookout; and (3), that he failed to draw up though he had ample time to do so. In support of his averment as to the speed of the car, the pursuer adduced the evidence of several witnesses. One of these stated that the car was going at thirty-five miles an hour, but at the same time he said, in cross-examination, that the car took a minute to travel a distance of a hundred yards, which, of course, is equal to about 3½ miles an hour! Another witness made the even more extraordinary statement that in the time the horse walked from the centre of the road to the side the car travelled from a point fifty yards distant and collided with the horse! As the horse would traverse the distance in 3·88 of a minute the car would require to have travelled the fifty yards at fifty miles an hour. This result, however flattering it may be to the makers of the car, is of course a *reductio ad absurdum*. The defenders' side of the question was that they were travelling at about twelve miles an hour; that they were keeping a proper lookout, but were unable to see the horse until it appeared on the road owing to the foliage on the roadside; and that the pursuer's driver was not at the horse's head. They further stated, and substantiated the fact by the evidence of the occupants of the car, that the horse appeared when they were about six yards from the opening and that the driver brought the car almost to a standstill within that distance. It was also proved that the car could not possibly have been going at more than fourteen miles an hour. It was successfully argued for the defenders that the wild statements of the pursuer's witnesses as to the speed of the car could not be relied on, and that as the pursuer was using the road for a private purpose and not in the ordinary way, his servants should not have crossed it without first ascertaining whether or not any vehicle was approaching, the roads existing primarily for the benefit of those travelling along them, whether on foot, or horseback, or in vehicles.

His Lordship has assoilzied the defenders with expenses, and it is to be hoped that his decision will have a deterrent effect upon the indiscriminate raising of actions of damages. The pursuer, who had twenty-eight days in which to appeal, has now acquiesced in the judgment.

JOSEPH BARBERRI was summoned before the Southampton Borough Bench for having driven a motor-car at a speed which was dangerous to the public, in Above Bar Street, on April 29th. P.C. Lucy gave evidence to the effect that the defendant was proceeding at a fast pace. When approaching witness, defendant slowed down; after passing him he put on speed and went at a pace which witness estimated at sixteen miles an hour. The defence was that a mistake had been made, and that the car spoken of was not the car driven by the defendant. Mr. Lamport said he was instructed by the defendant's employer, Sir William Pearce, Bart., who gave the defendant the character of being a most reliable driver. Defendant went into the witness-box and declared that he never drove furiously on this occasion. The magistrates gave defendant the benefit of the doubt on the question of identity and dismissed the summons.

CONVICTIONS AGAINST MOTORISTS.

Place.	Summoned for	Fine.
Kingston.....	Driving to common danger	£5.*
,, ...	,, ,,	£3 14s.
,, ...	No tail light and failing to produce licence	£3 4s.
Croydon	Driving to common danger	£5 and costs.
South Western P. C., London	No driving licence	£1 and costs.
Bristol	Driving to common danger	20s., etc.
,, ...	,, ,,	£2 and costs.
Stirling	No light	5s. and costs.
Brynmawr	Not giving audible warning of approach	20s.
Woking	Driving to common danger	20s.*
Andover	,, ,,	£2 and costs.
Middlesbrough ...	,, ,,	20s. and costs.
Sale	,, ,,	£2 and costs.
Birkenhead.....	No driving licence	Costs.
Lichfield	Number plate not distinguishable	Costs.
Folkestone	Rear number plate not illuminated	10s. and costs.
Whitehaven	Furious driving	£5.
Weedon	Driving to common danger	£2 and costs.
Cambridge	Rear number obscured	20s.
,, ,, ...	No number in front	10s.
,, ,, ...	Not producing licence	20s.
,, ,, ...	Number plates on motor-bicycle and trailer not corresponding	£4.
Bury St. Edmunds	Driving to common danger	21s. and costs.*
Edgware	Not having a proper identification plate	£2 and costs.

* License endorsed in addition to fine.

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THE

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COMMENTS.

ONE result of the motor-car week in Manxland should be to give a fillip to the industry. The surface of the roads is extremely good, and although the many sharp corners may test drivers just as the steep hills will try cars, there are opportunities for motoring that should be taken advantage of by the local gentry. We heard of several medical and legal gentlemen who took their first automobile trip last week, and doubtless Mr. J. R. Corlett, of Douglas, has already persuaded some of the residents into becoming motorists. During the week he accommodated no less than twenty-four motor-bicycles in his establishment on the Promenade, and also found similar provision for several cars that were taken to the island by English motorists.

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The Lincolnshire Clubs.

A CONFERENCE between delegates from the Lincolnshire Automobile Club and the South Lincolnshire Motor Club was held at the Red Lion, Boston, on Thursday of last week to discuss the future relations of the two organisations to each other. Despite reports to the contrary, the South Lincolnshire Motor Club determined to maintain their independence, and, we understand, declined to form any amalgamation with the Lincolnshire Automobile Club. It was, however, unanimously resolved that where the cause of automobilism and where cases of motor politics were concerned the two clubs should act together by means of a joint committee formed of an equal number of members from both clubs. It is sincerely to be hoped that the relations between the two clubs will now become more cordial, and that, grievances having been well discussed, both parties will "bury the hatchet" and work for the common cause. With the enormous increase of motor traffic in Lincolnshire (the second largest county in England) there is surely room for two clubs, especially if they are prepared to work in harmony when occasion requires.

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Motor-Boat Trial.

FROM the technical secretary of the A.C.G.B.I. come the rules for the reliability trial for motor-boats fitted with internal combustion engines, which is arranged to be held in Southampton water on July 26th and 27th of the present year. The object of the trial is to prove that boats propelled by internal combustion engines can be depended upon for continuous and reliable runs, and the regulations provide that the boats must be fitted with effective silencers and carry sufficient fuel to last for the whole of the twenty hours' run. The route will consist of an approximately rectangular course, each competitor being required to run round for a period of ten hours each day. There will be five classes, and unless ten entries are received by the 11th prox. the committee reserve to themselves the right to abandon the trials. The winner in each class will be the boat with the highest number of marks, this being arrived at by its possession of the qualities of reliability, speed, safety, and economy, as well as its general condition after the trial. Mr. Basil Joy will be pleased to forward to any intending competitor a copy of the complete rules.

London Traffic.

MANY and varied were the suggestions made at the meeting of the Surveyors Institution during the adjourned discussion on Mr. Thomas Blashill's paper on "London Streets and London Traffic." The general opinion was that the laying out of new main thoroughfares was so costly that it would be unlikely to be undertaken; indeed, the figures relating to such schemes were so staggering that one speaker expressed surprise that the advocates of them had not at once suggested moving London bodily twenty or thirty miles away and beginning afresh. What was wanted was more direct routes, which could be obtained by widening existing streets at comparatively small cost. Tram lines in crowded thoroughfares were condemned and the alternative suggested was the more flexible motor traffic on roads with a smooth, easily repairable, thin surface on a permanent foundation or bed. Mr. Blashill's opinion was that slow traffic would, save in very exceptional cases, be quite done away with; it would be better, cheaper, and easier to take the heaviest loads at a quick pace, and then all the traffic would proceed together. An important point in the removal of obstacles was the organisation of work done to the surface of the road, and Mr. Howard Martin suggested a central licensing authority; there would be no improvement if it were left in the hands of the borough councils, who, in the matter of breaking up the roads, were the worst offenders.

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Club Repairers.

MANY of the provincial clubs are becoming of real utility to their members, and some of the smaller organisations particularly have shown great enterprise in their early development. The East Surrey Club, which has its headquarters at the White Hart Hotel, Reigate, has just appointed an official repairer, whose charges will be subject to the arbitration of the club, and who will be expected to give members the first call on his services. His appointment is to be held for one year, and is subject to the approval of the annual general meeting. Driving will also be taught to members, who will have the opportunity of storing cars at his place. This is an important development for a local club to undertake, and will doubtless suggest a practical notion to some other provincial associations of motorists.

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Cars and Consumption.

ACCORDING to Dr. Blanchet, of Lyons, motoring is an absolute cure for consumption. He says that to cover 100 miles a day in an open automobile would be an effective remedy for the tuberculous cough of consumptive patients, for it produces at the same time that healthy sleep and appetite conducive to their good state of health. In an article in the "British Medical Journal" he says that after an attack of influenza in 1898 he suffered from pleurisy and gradually declined in health, until two years later he had to give up work practically altogether. By the open air treatment he was partially restored. He did not quite regain his usual health until he had bought a motor-car, in which he drove twice a day about fifty miles. The result was that he lost his cough, recovered his appetite, and steadily regained his health. This experience is identical with that of the late Sir Henry Thompson, and we

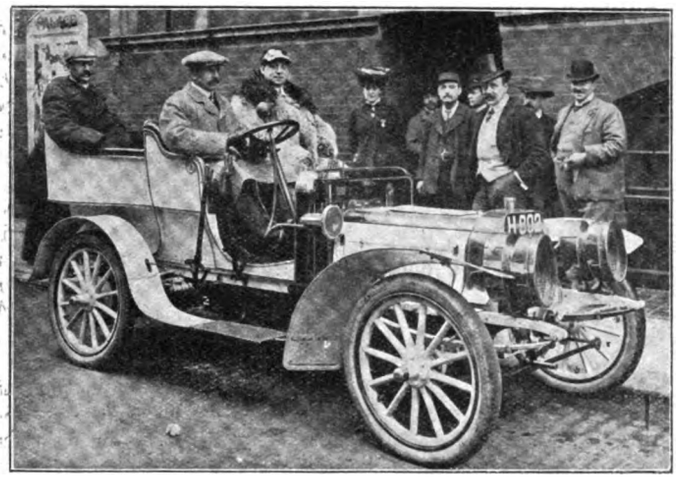
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would suggest that, in connection with open air sanatoria and other institutions now being introduced in this country, the provision of a motor-car should be made to assist the effectual remedy of consumptive patients.

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Professionals and the Car.

THE motor-car is now being pressed into service for the rapid conveyance of theatrical parties from one town to another. The accompanying illustration shows Mr. Montague Atkinson leaving the Palace Theatre, London, W., on Wednesday morning last week, with Mr. Arthur Roberts and



two other artistes, on his 20-h.p. Spyker car. The start was made at 10.30 a.m., and Bexhill reached at two o'clock, in time for lunch, after which Mr. Arthur Roberts and party gave an entertainment at the Kursaal. The return journey was commenced at a quarter to five, the Palace Theatre being reached just as the clock was striking eight. Both runs were non-stop, except for half an hour's rest at East Grinstead on both the outward and return trips.

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The Endorsement of Licences.

VARIOUS are the methods of police magistrates, whose want of uniformity in judgment is becoming something akin to a scandal. At West Ham, the other day, a motor-cyclist who had left his licence at home was fined, and his licence was endorsed. It was an error of carelessness that might well have been met by the fine, or, perhaps, the payment of costs. But to endorse the licence, thus branding the driver as in the same category as those who drive recklessly, is manifestly unfair. Such decisions as these tend to bring disrespect to the law, and to make motorists often feel something of the pangs of martyr souls. This question of the endorsement of licences is an important one, and we trust one of the many organisations connected with automobilism will give the matter earnest consideration, with a view to securing some revision of these magisterial judgments.

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Unequal Sentences.

ANOTHER aspect of the same subject is presented in the way that some magistrates deal with drivers of vicious animals. At the Clerkenwell Police-court evidence has been given as to the running away of two horses attached to a brewer's dray. They dashed along a crowded street and collided with an omnibus, knocking down one of the horses drawing the vehicle. In the course of their wild career they threw down two other omnibus horses, turned over a milk cart, injuring the horse attached thereto, and finally became wedged between a couple of tram-cars near the Euston Road. Such antics were a source of serious danger to other users of the roadway, and yet the driver was only fined £2—for being drunk. On the same day, at the Kingston Court, a motorist was fined £10, and his licence endorsed. His offence was that of driving a car at a speed of thirty-one miles an hour. No real danger was apparent to those on the roadway, and yet he was mulcted in penalties to the extent of five times as much as the fine imposed on a drunken driver who injured several horses and narrowly escaped injuring human beings.

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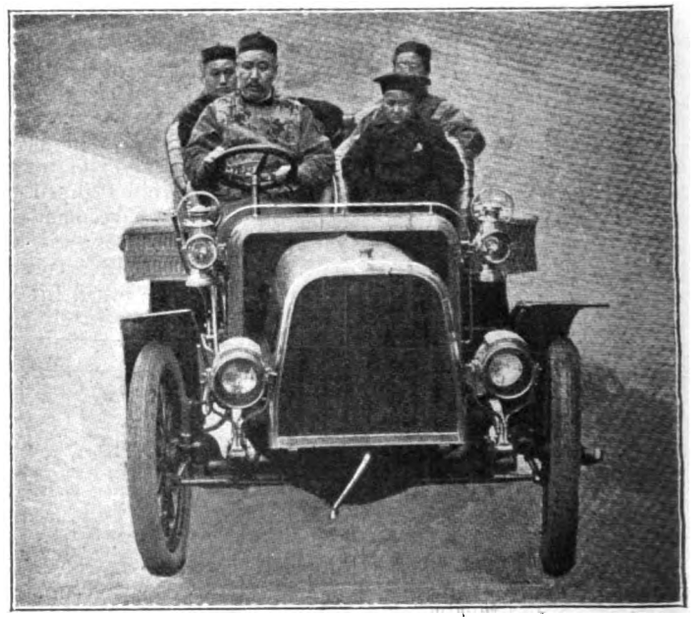
Motor-Car Services.

SEVERAL new public motor-car services are about to be inaugurated, and that between Modbury and Plymouth, due to the enterprise of the South Hams Motor Carriers, Limited, is expected to start on Whit Monday. We hear, too, of several garages which are opening for the holidays, and shall be glad if motoring readers, who have experience of these new places during the next few days, will inform us of the way in which they cater for cars and men. The publication of such information will be of service to the many drivers who may be expected to be upon the road during the coming summer, and who are entirely at the mercy of those who claim to possess not only accommodation for cars, but also the facilities for repairs, which are too often found to be wanting.

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Diplomatic Motoring.

THE extent to which motoring has been taken up by the various diplomats attached to the foreign legations at Washington, U.S.A., is a strong token of the universal popularity of the new means of locomotion. Practically every country in the world is represented at Washington, in the person of its duly-accredited officials, and that these many men from many lands, typifying as they do the customs and traditions of widely differing and even of variously civilised populations, should so unanimously approve the modern motor-car, constitutes a striking commentary upon the force of progress as opposed to ancient institutions. The most surprising feature of automobile use in Washington is, states the New York "Motor," the vogue it has



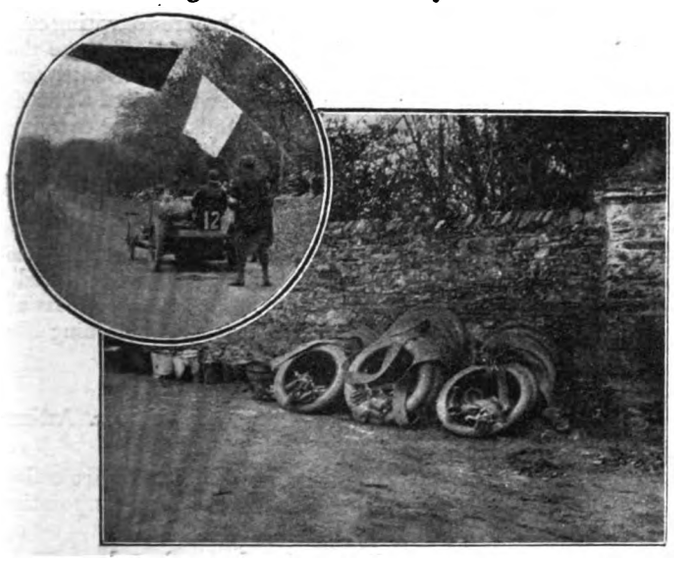
Chentung Liang-Cheng, the Chinese Ambassador to the United States, at the Wheel of his Car.

attained among the Orientals. That the motor-vehicle should find favour with the Ministers from France and Germany is not to be wondered at, for those countries were pioneers in the new development, and motoring was widely popular in Europe almost before it was heard of in America. But that the Ministers from Korea and Japan, and the Chinese Ambassador and his secretary, should be found literally in the van of civilisation, not only to the point of riding in, but even to the extent of driving their own motor-cars, is altogether an unprecedented renunciation of Oriental conservatism.

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Motor-Cars in Richmond Park.

AT the last meeting of the Richmond Town Council the General Purposes Committee reported that they had had under consideration the question of motor-cars in Richmond Park. They were communicating with the Councils of Kingston and Barnes with a view to approaching H.M. Office of Works on the subject. Alderman Burt said he had seen a gentleman at the Office of Works, and gained some idea of the rules and regulations on this subject to be laid before



The Isle of Man Trials.—The Start at Quarter Bridge.—Spare Tyres at the Starting Point.

Parliament. He thought that some regulation as to the speed of motor-cars in Richmond Park would be welcome, as they were often a great nuisance and a great danger. He proposed:—"That in the opinion of the Richmond Corporation the speed limit in the Park should be ten miles an hour." This was a good speed for anything else, and the Park was a place for rest, recreation and quiet. If motorists wanted to go at a great speed they should travel outside the Park. Councillor Hilditch seconded, and complained that instead of fresh air in the Park, pedestrians were compelled to inhale burnt petroleum. Councillor Morgan thought they should cultivate a broader spirit of "live and let live." The motor-cars had come to stay, and he considered that Parliament had placed sufficient restrictions upon them, without that Council taking any steps. Councillor Chancellor and Councillor Carless agreed that the Council should do what they could to curb the extravagant conduct of motor-car drivers. Councillor Ward said the dust inside the Park was very distressing to invalids and all who desired rest and quiet. Councillor Gibb contended that the limit of speed would not affect the points which had been raised by various speakers. The motion was carried with only one dissentient.

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Motoring by Moonlight.

BOMBAY motorists have found a pleasant sensation in climbing the Ghauts on their cars by moonlight. This makes material calls on the nerve and resource of the drivers, and is a task not to be too lightly undertaken. Recently two cars made the ascent in company, one being driven by the secretary of the Gaekwar of Baroda, the other by Mr. Turner Laing. The two cars started practically simultaneously from Bombay and Bandora at 11.30 p.m., and arrived within a few minutes of each other at the rendezvous at Coorla crossing at midnight. After a run at a very exhilarating pace, the foot of the Ghauts was reached about 4 a.m. The roads between Bombay and Panwell and Khandalla and Poona are such as should tempt the most diffident of motorists, while the remainder are not so bad as to deter even a mild enthusiast.

An Indian Mountain Climb.

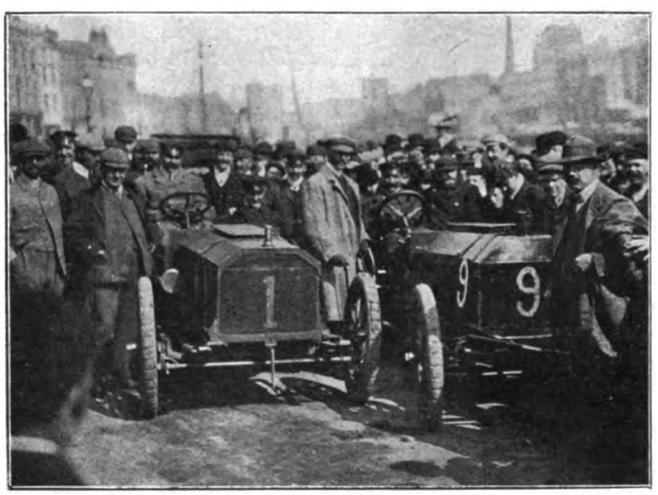
EXCEPT that the little De Dion cars had occasionally to be relieved of some of their passengers to enable them to get over specially steep bits of the road, the rest of the climb was achieved without incident other than a halt at the reversing station. At Khandalla the good folk on their way to early morning service appeared somewhat scandalised at the fleeting vision of seven begrimed and bemasked individuals "pip-pipping" through the country on the Sabbath morn and covering their Sunday clothes with dust; but, with propects of a bath, breakfast, and a sleep only forty miles ahead, these seven individuals were unperturbed. A cloud of locusts caused some annoyance, but at 8.15 a.m. the car which had practically been leading from the start rolled gracefully up to the Connaught Hotel and was followed a few minutes after by the Gaekwar's car, which had had to slow up to allow an argumentative quadruped to decide whether to get out of its way or not. After a day's halt at Poona the motorists parted, the Gaekwar's car taking the road to Mahableshwar in company with an Argyll car recruited at the Connaught Hotel, Mr. Laing's car returning to Bombay. From the bottom of the Ghauts on to Bombay the trip was uneventful, and was made practically without stop except at Thana.

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The Future.

BEFORE the Institution of Engineers and Shipbuilders in Glasgow, Mr. A. Govan, of the Hozier Company, has been giving a paper on motor-cars, in which he said that the improvements of the future would lie along the line of acceleration of speed and reduction of weight. Prejudice against automobilists did not exist in the minds of the rising generation, and this was a good point in favour of the early popularisation of the car. One of the best hopes for the future was the fact that all users were displaying a passionate interest in automobiles. He referred to the fact that at the present time upwards of 1,000,000 workmen were engaged in France, directly and indirectly, on the production of motor-cars, and looked forward to the early development of this country along almost equally wide and prosperous lines.

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The Isle of Man Trials. The Scene at the Weighing-in at Douglas Harbour. *Photo by* [*Mr. E. Kennard.*

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Motorists and Dogs.

IN giving judgment in a case at Glasgow last week where a motorist was sued in respect of the loss of a dog which was run over and killed by a motor-car, the sheriff made some interesting remarks on the subject of how to deal with dogs on the road. In the first place he pointed out that the principle

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which makes the owner of a moving object liable for damage done to a fixed inanimate object does not apply where one moving object does damage to another moving object. More especially is that principle inapplicable where the injured moving object is such an animal as a dog which was permitted to gambol all over the roadway. As between drivers themselves, the obligations for avoiding accident are mutual. Each party has a well recognised duty towards the other, and each is entitled to assume intelligence on the part of the other, and to act in reliance upon the other doing his part. But there is no reciprocal duty in the case of animals. He was, of course, far from saying that it is not the duty of a driver to try to avoid running down animals; but what his duty may be is not a question of circumstances. He did not know that this duty had ever been defined, and the circumstances may so vary that no hard and fast rule can be promulgated. Probably, a rough and ready definition may be that when a driver sees in the road on the front of him some large slow-moving animal, such as a cow, he must calculate its probable movements and try to avoid it by slackening speed, or even by stopping; but that when the animal in front of him is a small and nimble one, such as a dog, whose movements cannot for a moment be relied upon, the driver was justified in holding his course, relying on the nimbleness of the dog to keep clear. In other words, he thought a person who takes a dog unled upon a public road accepts the risk of the traffic, and relies upon his dog being able to look after itself.

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Reckless Drivers.

THE drivers having had their say, owners of vehicles seem to be coming forward with their opinions on those they have to employ, and the letters we now publish will probably provoke others to give their views and experiences. The amateur motorists are largely at the mercy of those they employ, and it must be a galling experience to engage a man and then discover he is not only incompetent but that his presence at the wheel is a positive danger. From such men as these motorists should be protected; hence the reason why some sort of certificate has been suggested as a kind of guarantee. But, if such diplomas are to be worth the paper on which they are printed, they must be given by some recognised authority. And if they would maintain the credit of their calling drivers will have to cease taking out their employers' cars without permission. This is more generally done than is known, and, curiously enough, many of the accidents that have happened of late have been in connection with cars thus surreptitiously used.

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The Amenities of the Road.

REALLY cyclists must have regard to the courtesies of the road, and now that the touring season is opening seems a proper time to emphasize the point. On the Brighton road a day or two ago we were travelling on a Mercedes car. In front was a cyclist who persisted in keeping to the centre of the roadway, and, despite the blowing of the horn and the protestations of the driver, played the part of the dog in the manger with an obstinacy that was quite unaccountable. It has been often urged that moving traffic should be required to get out of the way of more rapidly moving vehicles, and, wherever possible, motorists should do what they can to influence public opinion in the direction of making such a rule obligatory.

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Enterprise in Ceylon.

WHILST the British postal authorities are apparently playing with the question of automobilism, those of Ceylon seem to be going thoroughly into the matter, and the Postmaster-General of that island is putting all the facilities he can in the way of those seeking to experiment. At the present time the roads of the island are being thoroughly examined, and we understand some of them are being prepared by the local authorities with a view to rendering them suitable for improved means of transit. When that has been done, the local postal authorities will consider the adoption of the automobile for mail service. In the meantime it might be well for manufacturers of vehicles suitable for the purpose, to send particulars of their special designs to the Postmaster-General at Colombo.

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Motor Roundabouts.

THE accelerated speed which is becoming habitual with a good many people, owing to the example of the motor-car, has affected even the roundabouts of the old country fair. Messrs. Savage Bros., of King's Lynn, who are devoting considerable attention to motor-vehicles for heavy traffic, are the leading firm who make this particular form of popular entertainment, and we hear with interest that they have adapted a pair of 2½-h.p. petrol motors to a motor-bicycle roundabout for carrying twenty-four persons. In late years the ordinary pedal bicycle running on the roundabout has been extremely popular at pleasure fairs, but it necessitates the pedalling, which was not so wholly popular with the public. Now, however, with the two motors fitted to the one roundabout, the public is saved some exertion, for which it is always thankful, although gratitude is not always shown. The experiment has been so successful that already the machine thus equipped has run something like 17,000 miles.

AT the moment of going to press we learn that Mr. Arthur Earp has left the hospital at Douglas.

THE President of the Local Government Board is deferring final decision upon the application of the Dover Corporation until he has further experience of similar applications.

THE Right Hon. Lord Alington has been elected president of the recently-formed Dorset Automobile Club. The Rev. Ernest D. Benison, of Farrs, Wimborne, is the hon. sec.

COMPLAINT has been made that tacks and nails have been scattered on the course in the Ardennes selected for the French eliminating trials. Several drivers who have gone over the course have had four or five punctures in a day.

THE Fiat cars which will represent Italy in the Cup race have been out on the road for some days, and are reported to have attained a speed of over eighty miles an hour. The cars will be driven by Signors Storero, Lancia, and Cagno.

AT a meeting of the Races Committee of the Automobile Club, under the presidency of Mr. Alfred Bird, on Wednesday, it was decided to adhere to the original selection of Messrs. Edge, Girling, and Jarrott as the British team in the Gordon Bennett race.

BLACKPOOL, Southport, and Berwick-on-Tweed are to be regarded by the Local Government Board as county boroughs. At present Numbers only are being assigned at these places. At Blackpool Mr. W. E. Moss has been assigned No. 1, with no letter.

THE Kent County Council has refused to accede to the request of the Hythe Town Conncil to apply to the Local Government Board for a regulation limiting the speed of motor-cars in the borough to ten miles an hour, the minimum allowed by the Act.

ON the House of Commons going into Committee of Supply to consider the vote for the Post Office Service, Lord Stanley said that the motor-car services employed by the Post Office had not been particularly successful with the exception of the Milnes-Daimler car running between London and Epping, which was doing most excellent work.

AT Bisley, on Tuesday, a demonstration was held under the auspices of some officers of the Army Medical Corps and several well-known firms, in which the automobile was utilised to advantage. Two Ivel motors were brought into requisi ion, one driving an ice-making machine, the other being surrounded with armour plate, which subsequently formed a target to demonstrate its effectiveness in war.

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Motoring in Manxland.

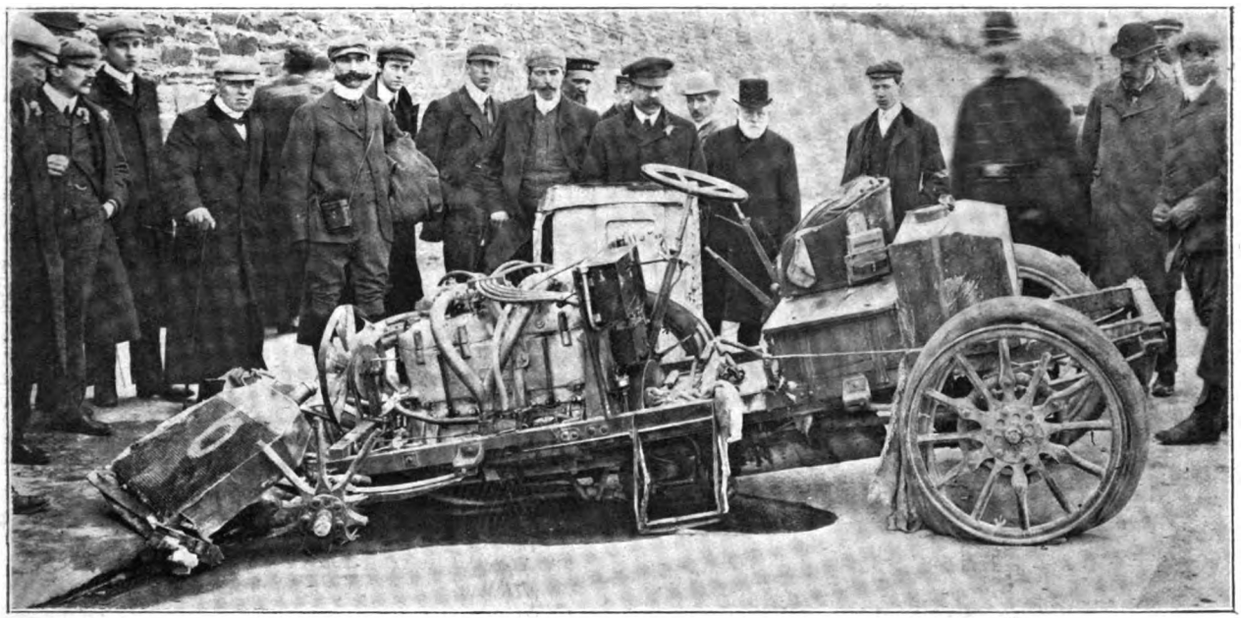


Photo by] Mr. Clifford Earp's Napier after the Accident at Douglas. *[Argent Archer.*

LAST week our account of the motoring events in the Isle of Man concluded with a report of the hill climbing competition from Port-E-Vullin to Maughold on the Wednesday. We were also able to include a report of the unfortunate mishap to a touring Wolseley, which occurred owing to the collapse of a wheel when turning one of the sharp corners with which Manxland abounds. In thus reporting fully the proceedings of the 11th inst. we were able to add the latest possible information to the greater doings of the preceding day, and outdistance our friendly rivals on the motor-press to that extent. Although the events of Thursday last have been already reported in the general press, some account must be given here, more especially as the accident at the end of the afternoon eclipsed the proceedings of the earlier part of the day.

Speed Test at Douglas.

The third factor in determining the trio to represent Great Britain in the Gordon Bennett contest was supposed to be a speed test along the Promenade at Douglas. So strenuous, however, had been the struggle on Tuesday that it was generally agreed there was no real reason for such an addition to the programme, and it was generally understood that the inclusion of a kilometre test on the Promenade was intended as a compensation to the people of the island whose roads had been closed earlier in the week. This view was strengthened when it transpired that the original time of starting was altered to meet the times advertised by the insular railway companies in connection with their cheap excursions.

Shortly after three o'clock, the Promenade had an animated appearance, thousands of people lining the sea wall, a row of seats being their main restraint. The way in which the men formed the outer rows, those nearest the track being women and children, was testimony to the kindly nature of the Manxmen as well as their instinct of curiosity. At each end of the road barriers had been erected opening inward to allow of the passage of the tramcars to the latest moment for beginning the programme. These seemed too near the start and end of the kilometre, and we subsequently learned that the one at the conclusion of the run was removed to allow the cars to stop without risk.

Major Lloyd was starter; the electrical timing apparatus was as conspicuous and useless as usual; and everything presaged success as the competitors drew up in order:—Messrs. Stocks, Hargreaves, Earp, Muir, Edge, Girling, Jarrott, and Rawlinson. They were sent off, one at a time, for a preliminary spin over the kilometre, which had an awkward turn at the further end and was marked along the centre with tramlines that made the track anything but a suitable one. All the competitors having had a preliminary canter, they returned in Indian file for the first try, which resulted in two of the Napiers making the first and second best times. Then they came back to the starting point in a cluster. The spectators cheered; there was something of a spectacle in the sight of these great cars rushing along together, booming like artillery all the while. Mr. Girling did better on the second try than the first time, and Mr. J. Hargreaves also quickened his pace, the result of the two tests being as follows:—

	1st Try. secs.	2nd Try. secs.
S. F. Edge (Napier)	39	39
C. Earp (Napier)	42	42⅜
S. Girling (Wolseley)	44⅛	43
C. Jarrott (Wolseley)	45⅜	45⅜
A. Rawlinson (Darracq)	46⅗	48⅜
C. Muir (Wolseley)	47	47
J. W. Stocks (Napier)	47⅛	48⅛
J. Hargreaves (Napier)	49⅜	47⅜

The acceleration test, taken in the second round over two hundred measured yards, from a standing start, resulted as follows:—

Stocks—18⅗th secs.
Hargreaves—18⅛ secs.
Earp—15 secs.
Campbell Muir—18⅜ secs.
Edge—15 secs.
Girling—17⅛ secs.
Jarrott—17⅜ secs.
Rawlinson—18 secs.

The Accident to Earp.

It was then that the terrible event occurred which led to the abandonment of the contest—it had been intended to have had three runs. On the return it was seen that the drivers were not satisfied with the single file order of running. There was little

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doubt that, contrary to all intentions of the officials, racing was being indulged in. As they passed by those of us who were standing on the starting line it was apparent that a collision might easily take place, or a dash for the barrier result in scores of spectators being mown down. Neither contingency occurred, but Mr. Earp, realising all too late the speed he was travelling, put his brakes on as hard as possible. He skidded at least sixty yards and then dashed into the wall, being thrown to the ground. The bonnet was projected a distance of a dozen feet to the right, Mr. Campbell Muir, whose car was behind the broken Napier, getting the impression that it was rent in twain. Having made indentations in the wall the vehicle was jerked thirty feet to the left, stopping at the kerbstone as shown in the illustration. The mechanician, Arthur Earp, a brother of the driver, was hurled another twenty feet, and lay unconscious. Within a few seconds he appeared as though in a pool of blood, and, in great agony, was removed to the hospital with his brother and a spectator, whose injuries proved less severe. The car looked a wreck, and the event led to a dispersal of the crowd, whose orderly and silent departure showed how deep had been the impression left by the sad accident. Various surmises have been made as to the cause of the accident, and the supposition that the driver of No. 6 dashed into the wall to



Messrs. H. Austin and C. Jarrett Conferring in Ramsey Control.
Photo by [*T. H. Medwood.*

avoid the people at the other end of the barrier seems a possible one. But had the barrier been made at a greater distance the mishap would not have occurred—a sufficient warning to the organisers of future speed contests to leave sufficient room in which competitors may stop, and also to prevent racing against the rules and regulations. Discipline is as necessary on a motor track as on the review field.

Mr. Clifford Earp has since been able to give his version of the accident. When returning to take up his position for the third test run he says he put his side brakes on very hard with a view to stopping the car. The application of the brakes caused the wheels to lock, and the car skidded. To correct the skidding he attempted to take off the brakes; but, owing to some defect, he was unable to do so, and the car crashed into the wall. Just before the tests he had a slight accident with a part of the brake gear, and he had remedied this with wire, but it failed to withstand the strain. It is a curious coincidence that this was the car upon which Mr. Jarrott met with his accident in last year's Gordon Bennett race in Ireland, and that it has twice since been in accidents.

Latest news from Douglas is to the effect that Mr. Clifford Earp has been discharged from the hospital, and that his brother will only be detained a few days longer.

THE WINNING TEAM.

Late on Thursday afternoon the results of the tests were announced as follows:—

Mr. S. F. Edge (Napier), 1st.
Mr. S. Girling (Wolseley), 2nd.
Mr. C. Jarrott (Wolseley), 3rd.

Messrs. Stocks and Hargreaves were announced as the reserves,



Mr. Clifford Earp on Snaefell.
Photo by [*R. O. Ryan.*

and the judges added the comment that Mr. C. Earp would have been given second place but for the mishap at the close of the trials.

MR. EDGE'S PROTEST.

When the result was posted in the Peveril Hotel at Douglas, conversation was quickly monopolised by the decision of the committee to omit Mr. Earp from the trio of international competitors. No one grudged Mr. Jarrott his place, for his sportsmanlike character and his splendid driving have made him a favourite in such matters. But ere the doctors had completely diagnosed the condition of the injured men, or anyone had made an official inspection of the car, the driver of number 6 was disqualified. This appeared like panic legislation, and



Overhauling Mr. Campbell Muir's Wolseley in Ramsey Control.

was generally denounced as such. We had been assured earlier in the week by the Hon. Press Secretary that the results would be unobtainable until all the officials were back in London, and yet, within two hours of the stoppage of the last event, the selection committee had misplaced the second best competitor because of his mishap. The rumours as to a possible protest soon materialised into actual fact, and Mr. S. F. Edge's letter to the A.C.G.B.I., written on Monday, contains the following statement:—"The trials

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were, I understood, held for the purpose of finding out the three best drivers and cars in combination to represent England in the Gordon Bennett race, and the finding of the committee is that a Napier car, No. 9, driven by myself, is the best combination, and No. 6, driven by Mr. Clifford Earp, second best. This being the case, I fail utterly to see how any subsequent question affects the point at issue, providing Mr. Earp and his car are



At the Bungalow on Snaefell.

Photo by] [*R. C. Ryan.*

able to race at Homburg on June 17th, and until the committee have satisfied themselves that he will be unable to do this, my contention is that they are entitled to be second in the British team. Mr. Earp's car will be on the road again in perfect condition in a few days, and he himself ready to drive it. There is no doubt that your committee are now aware that the accident to him and his car is comparatively slight. I trust that your committee will give the most serious consideration to my protest, as Great Britain will have quite hard enough battle to fight without its second best competitor being eliminated through what appears to be a panic decision which was come to a very short time after Mr. Earp's accident, when the most incorrect reports in regard to his accident were current; and I contend, Sir, that if it is the intention of the Races Committee that the proved best British cars should represent Britain, then Mr. Earp must be included, as he is entitled to by his performance, as the committee themselves admit." Mr. Edge is now awaiting a reply to his communication.

The Palmer Tyres.

As we mentioned last week, there was considerable surprise at Quarter Bridge when it was seen that Earp's car was fitted with Palmer cord tyres, and motorists naturally followed their career with interest. They behaved splendidly, and the fact that the Napier thus equipped made such fast times both in the hill-climb and in the speed test was significant. During the arduous eight hours' trial the driver evidently felt the utmost confidence in his tyres, which elicited warm praise as they continued their circuits without damage or apparent wear. Their behaviour on such an important occasion is all the more noteworthy as they were ordinary selections from stock, and were not specially made for racing.

The Darracq Disappointment.

Mr. A. Rawlinson, upon whom the hopes of the Darracq "stable" depended after Hemery's and Edmond's wild starts, had cruel luck, and it was fortunate for him that the mishap that put him out of the race a hundred yards from the start did not occur when rounding a corner. His determined efforts throughout were worthy a better result, and much sympathy has been expressed by motoring friends that he had not the opportunity of making a good show. A few minutes before the hour of starting he had trouble with his petrol, and in stripping the cars to get them within the required weight much had to be jeopardised.

The Policy Towards the Press.

As the trials progressed the attitude of the Club towards the Press improved. Little was done to facilitate the work of the special correspondents, and it was quite by accident that we learned of the appointment of Earl Russell as Press Secretary. But the appointment did not carry knowledge with it, and his lordship had frequently to confess that he was unable to give the Press what the public desired to know. The result was that on the eventful day we were left to our own resources in order to secure some idea of the performances of the various cars. By timing at Quarter Bridge, at Ramsey, and on Snaefell mountain we were able to check the times as obtained unofficially by the Press representatives, and thus gave the table of times published in our last issue. The fact that they were thus circumvented was not lost upon the judges, who must have experienced a shock when, on the occasion of the Ramsey hill climb, the timekeepers, who were stationed at the top of the hill, with a courtesy that was refreshing, allowed us to have the times of the arrival of the cars. Equal courtesy was found at the bottom of the hill, and by a simple process of subtraction the results recorded in the *Journal* last week were obtained. Seeing that secrecy was impossible, the times were then given out by the Press Secretary. On the following day the Club officials did what they ought to have done in connection with each event, viz., made written announcement of the results of the speed test. Fortunately, the weather was charming, and the island delightful—two ample compensations for the difficulties that had to be encountered in supplying the public with news of what was transpiring in the Isle of Man.

The Lord Chief Justice, Mr. Justice Wills and Mr. Justice Kennedy have delivered a unanimous judgment in Mr. Clifford's case, where he was convicted for driving a motor car under Clause one of the Motor-Car Act, 1903, at Loughborough. There was a unanimous judgment ordering the conviction to be quashed. Mr. Horace Avory, K.C., and Mr. Moresby White (instructed by Messrs. Firth and Co.) appeared for Mr. Clifford.



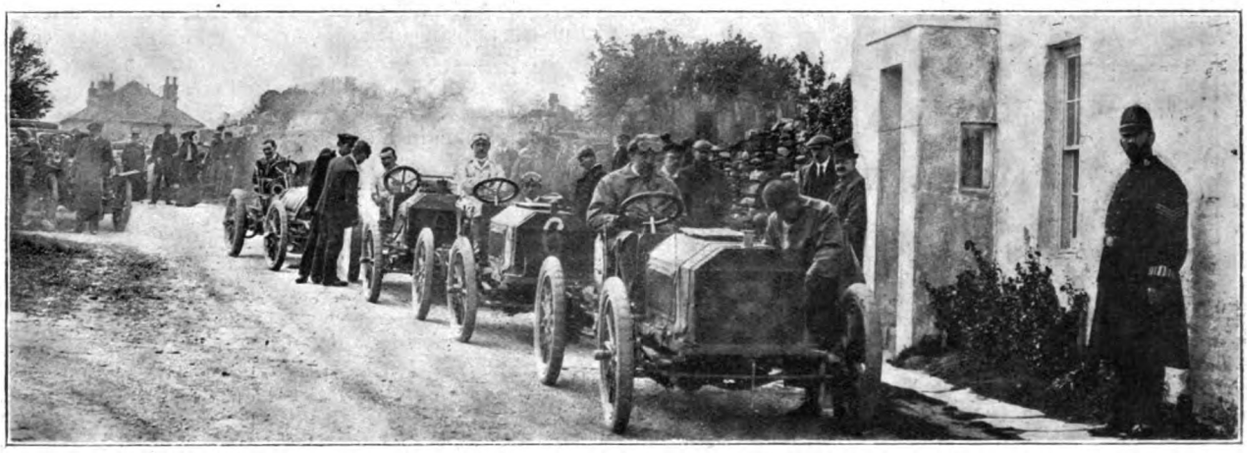
The Starting Point of the Hill Climb near Ramsey.

Photo by] [*Argent Archer.*

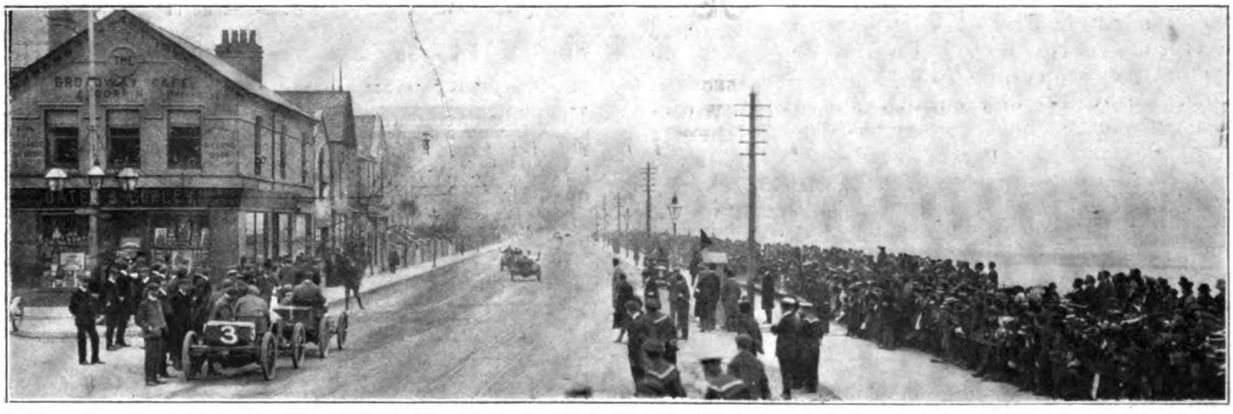
A quarterly 100 miles non-stop trial of the A.C.G.B.I. was held on Friday of last week, a 18-h.p. 4-cylinder 4-seated Siddeley car, being the only entry. The quantity of petroleum spirit used on the journey was 4 gallons 3qt 1pt. 10oz. Quantity of water used on journey—1 gallon 12oz. The average cost of fuel per mile at 1s. 3d. per gallon was equvalent to ·47d. A speed up to the legal-limit was obtained and the car climbed Dashwood and Aston Hills in good style.

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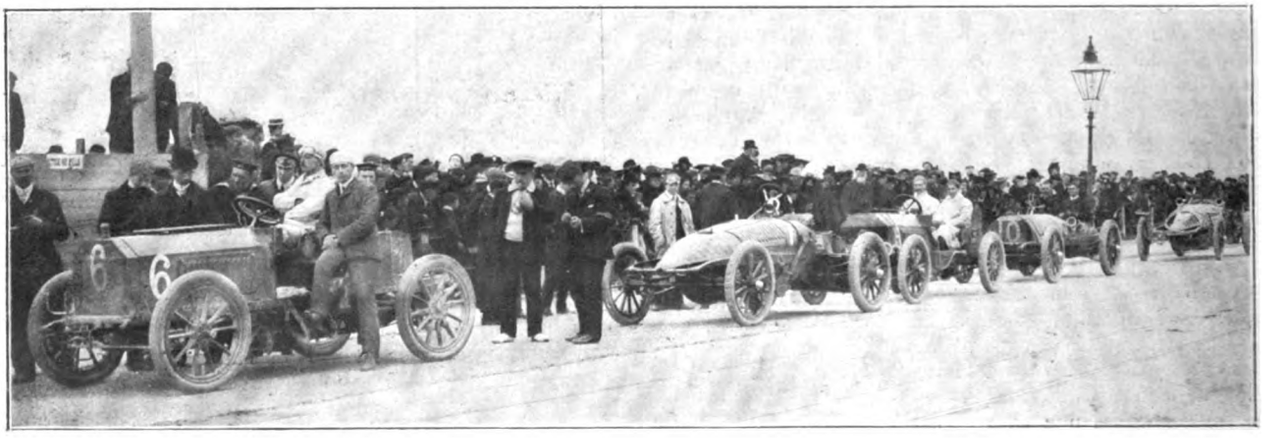
THE ELIMINATING TESTS IN THE ISLE OF MAN.



Lining Up for the Hill Climb at Port-E-Vullen.



The Speed Trials on Douglas Promenade.



Photos by] Ready for the Speed Trials. *[Argent Archer.*

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GLASGOW TO LONDON.

ON Thursday of this week the Reliability Trials from Glasgow to London, organised by the western section of the Scottish Automobile Club, commenced. About thirty vehicles started from St. Vincent Street, Glasgow, at 5.30 a.m., and journeyed southward *via* Douglas Mill, Beattock, Gretna Green, Penrith, Kendal, Kirkby Lonsdale, Skipton and Ilkley to Leeds, the minimum time allowed for all classes being 11 hours 54 minutes, the maximum for class A being 19 hours 9 minutes, and for B, C, and D 14 hours 18 minutes.

On Friday, the 20th inst., the start from Leeds is announced for six o'clock from the Queen's Hotel. A halt will be made at Stamford for luncheon, when engines may be stopped. At Woodcock Hill, Elstree, there will be a hill-climbing contest from a standing start. The route will be *via* Doncaster, Newark, Grantham, Stamford, Biggleswade, Hitchin, St. Albans, Elstree, Barnet and London. All the cars will be allowed a minimum time of 11 hours for the journey; those in class A a maximum of nearly 18 hours, and in classes B, C, and D of 13 hours 12 minutes.

As already announced, the principle underlying the rules is that the trial is one of reliability and not of speed, and the times fixed have been allotted with due regard to the legal limit of speed as well as the nature of the roads in the towns and villages to be traversed, and the reasonable requirements of the public.

Mr. R. J. Smith, the Secretary of the Scottish Club, is acting as honorary secretary of the trials, and the way in which he has arranged all preliminaries leads to the anticipation that the test will prove a really satisfactory one.

To learn the route and just to see what their 8½-h.p. Humber car would do, the makers sent it up to Glasgow on Saturday morning by train, and ran it through from Glasgow on Sunday. They started at 5 a.m. from the Scottish city and reached Beeston at 8.30 the same night. With the exception of three punctures and short stops for meals *en route*, the car had practically a non-stop run, never touching any parts of the car from start to finish.

THE report of the Bedford Highways Committee shows that fifty-six motor-cars and 174 motor-cycles have been registered and 290 drivers' licences have been granted in that county.

THE Crosby Motor and Engineering Company, Limited, has been registered with a capital of £2,000 to carry on the business of makers and dealers in motors, etc. Mr. S. F. Wall is the first managing director.

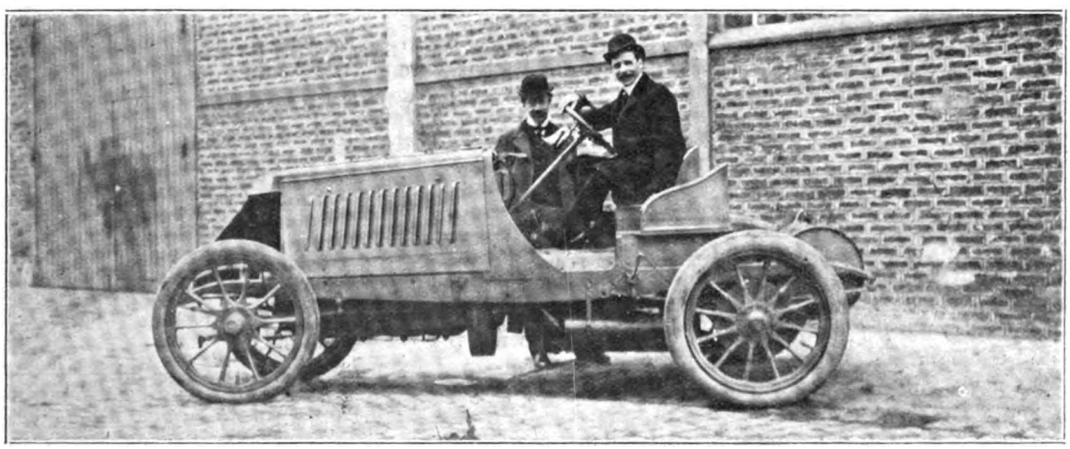
AT the next meeting of the Highways Committee of the Surrey County Council the question of supporting a petition to the London and South-Western Railway Company, asking them to inaugurate a service of motor-omnibuses between Farnham and Haslemere, will be considered.

GORDON BENNETT RACE NOTES.

THE following is a copy of a letter which has been forwarded by the German Automobile Club to the A.C.G.B.I.:—"We beg to draw attention to the fact that the approval of the authorities for the Gordon Bennett race to be held on the road between Saalburg, Weilburg, Limburg, Idstein, Oberursel, and Saalburg, only applies to the race course; and that, therefore, the necessary precautions for the avoidance of accidents—especially with regard to the barricading of roads—can only be taken on the actual day of the race. Accordingly, the competitors should only make use of the course beforehand while conforming strictly to the police regulations. We ask you to point out that accidents which might happen during the preparatory training on the course might not only incur the withdrawal of permission to drive over the course, but might also cause the authorities to forbid any subsequent races to be held on public roads. Accordingly, it is absolutely necessary, in the interests of automobilism, to remind competitors and others that they should exercise very great caution when driving over the course.

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As already mentioned in the *Journal*, all cars entering Germany for the Gordon Bennett Race will have to bear a specially designed metal plate, bearing a registered number and the letters "G. B." The German Automobile Club has forwarded to the A.C.G.B.I. a supply of these plaques for the use of British automobilists who intend visiting Germany with their cars to witness the race. The price of the plaques is fixed at 1s. 6d. each, and as it is essential for all motor-vehicles entering the country to be provided with a plaque, the German Club has requested the A.C.G.B.I. to distribute them at the price stated, to non-members as well as to members. Before a plaque can be issued, however, it is necessary, under any circumstances, for the owner to apply to the Club Secretary for a special form, which must be filled up and signed. The German police have received instructions to render every possible assistance to owners of cars bearing the special plaques, which can only be supplied up to the 20th inst., when a list of those to whom plaques have been distributed must be sent to the German Club.



Mr. Henry Farman on his Panhard Racer.

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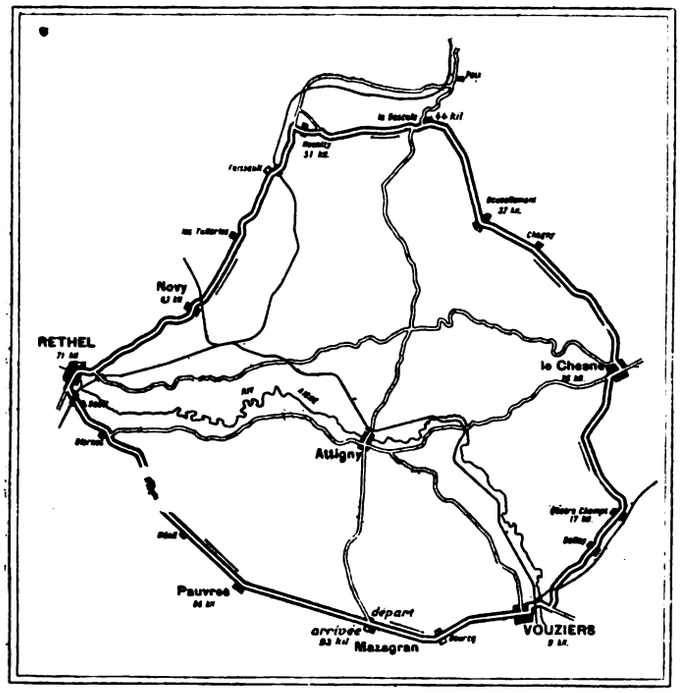
THE Gordon Bennett International Race Committee has decided that the competitors shall be despatched at seven minute intervals. The result of the race will be known on the evening of the race, but will not be officially announced until the banquet at Homburg on the 18th June. The day of the Cup race is to be a general holiday in the districts passed through, by order of the Kaiser.

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NO news is as yet available with regard to the cars for the Austrian team. They are to be driven by Messrs. Warden, Werner, and Braun. The two first named are now in Vienna, awaiting the completion of the racers.

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No definite information is available with regard to the American team for the Cup race. According to the last mail the Hewitt and Sampson entries had been withdrawn, that of the Peerless Company only remaining out of the original list. The new competitors are the Bullet No. 2 of the Winton Company and a car built by Mr. W. Christie, of New York. The latter is president of the Christie Ironworks, and is known as the inventor of the mechanism used in revolving the turrets on American battleships. The racing car he has entered is of original con-



The Course for the French Eliminating Trials.

struction, the motor being in the extreme front of the vehicle and the drive being direct on to the front wheels. The car competed in the recent speed trials on the Ormond Beach, Florida, and, considering the fact that its machinery was new and that it was its first trial, it performed very creditably. Although rated at but 30-h.p. it made two successive official mile trials in 1 min. 1 1-5 sec. and 1 min., while in a ten-mile invitation race the distance was covered in 9 min. 35 sec.

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SOME mystery surrounds the method by which the A.C.A. will select the team. On the 4th inst. a deputation from the Racing Committee of the A.C.A. left New York for Cleveland to inspect the Winton Bullet and the Peerless car, and to subject them to speed trials in order that their fitness or otherwise for the trying ordeal may be demonstrated. An opinion is being freely expressed in motoring circles in New York in favour of the A.C.A. not sending a team to represent the United States in the big race unless the tests prove beyond doubt that the candidates can go the distance and stand the strain, not only of continuous high speed, but of the many stops and fresh starts the German course will entail.

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FOLLOWING his reinstatement by the American Automobile Association comes the announcement that Barney Oldfield has again been engaged by the Winton Motor Carriage Company, and that it is probable he will drive the Bullet No. 2 in the international race, if the vehicle is accepted as one of the American team.

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BY the time these notes are read the great Eliminating Race to select three cars for the French team for the Gordon Bennett race out of the twenty-nine vehicles that have been specially built will be in full swing, the start being fixed for 5 a.m. on Friday, the 20th inst. The route has already been given in the *Journal*, but the following table of distances may be interesting. The course has, it may be added, to be covered six times.

	Intermediate distance. Kil.	Total distance. Kil.
Mazagran		
Vouziers (n)	9½	9½
Le Chesne (n)	16⅝	25⅛
Cretes de Neuvizy	26 1/16	51 3/16
Novy Chevrieres (n)	10⅜	62 5/16
Rethel (n)	10 3/16	72⅝
Mazagran	21	93⅝

N. Neutralisation.

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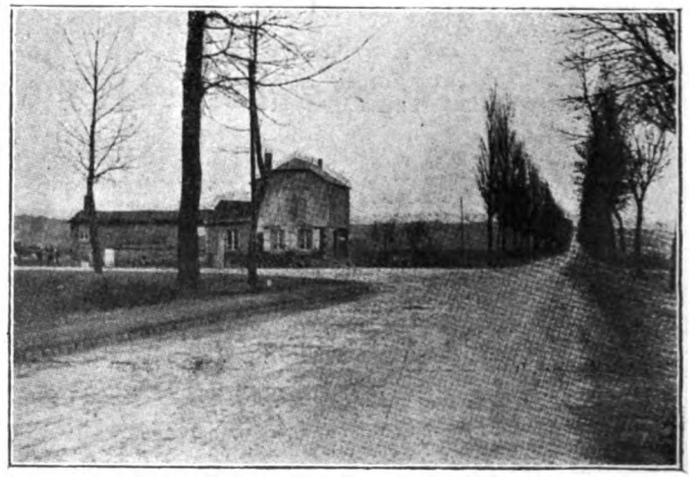
EVERY precaution is being taken to prevent accidents, but, to meet any emergency, six ambulance stations are being established along the course, while no less than 5,000 soldiers have been detailed for duty to keep the roads clear. Over thirty tons of Westrumite has been used in sprinkling the route in order to lay the dust as much as possible. The French Government has established telegraph and telephone offices at Mazagran.

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THE new Panhard racers somewhat resemble, in outward appearance, a racing yacht, the body being much larger in front than at the stern. The water tank is placed in front of the dash board instead of at the rear. The leather clutch has been abandoned for one of the metal to metal type of much smaller dimensions and working in an oil bath supplied from the engine crank chamber. The drivers will be seated very low down, and practically hidden, as in last year's Mors. The motor develops 20-h.p. more than last year's Panhard racer—that is to say, it gives 100-h.p. at 800 revolutions. The stroke is the same as previously, but the bore has been increased to equal the stroke. The ignition is by Eisemann magneto, but to facilitate starting two accumulators have been coupled and branched on to the magneto cam. The change speed gear gives four speeds forward and a reverse with direct drive on the fourth. As has already been stated in the *Journal*, the transmission is by cardan shaft on to a live axle.

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THE illustration on page 259 shows Mr. Henry Farman on the Panhard he will drive in Friday's race. In the course of an interview with him he informed us that he is very pleased with the car, which he considers one of the best ever built by the Panhard Co. The car gives an average speed of 30 to 40 kilometres more per hour than that of last year; it takes hills splendidly, and altogether he has no fault whatever to find



A Right Angle Turn near Vouziers, on the French Eliminating Course.

with it. Mr. Farman is no novice at motor-racing, and prior to his appearance on the car was a very successful cycle racer. His first automobile success was the winning of the Pau 150 kilometre race in February, 1901, on which occasion he drove a 2-cylinder Darracq at an average speed of 60 kilometres an hour. Since then he has participated in the Paris-Berlin Race in 1901, Paris-Vienna 1902, and Paris-Madrid and the Gordon Bennett race in Ireland in 1903.

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THE "CREMORNE" STEAM CAR.

WE are this week able to give some particulars of the new steam car built by the Cremorne Motor Manufacturing Company, and which made its *debut* at the recent Show at the Agricultural Hall. The vehicle has been designed to meet the demand for a smooth running, reliable car, using paraffin oil as fuel, and shod with solid tyres.

The boiler is located in the fore part of a channel steel frame; it is of the ordinary fire-tube type with seamless steel shell, which in this large size has been found in actual practice to be economical, durable, and to require little attention, besides being a quick steam raiser, and holding a big reserve of power always at command for hill-climbing. It has a heating surface of 110 square feet and is tested up to a pressure of 750 pounds per square inch, and is fitted with a two-headed safely valve. The steam, on issuing from the boiler, is passed through a drying and superheating coil on its way to the engine; thus no condensation of the steam takes place in the cylinder, and full use is made of the heat in the burnt gases. The burner used is the Cremorne Company's well-known type; it is of simple construction, with an absence of wearing parts, and is claimed not to smoke, smell, fire back or clog up, although using ordinary paraffin or lamp oil. The fire is started by means of methylated spirit, and it is claimed that from 250 to 300 pounds pressure of steam can be obtained within ten minutes of lighting up. It is provided with an automatic controller which regulates the burner flame indirectly in proportion to the steam pressure, thus maintaining a normal and constant head of steam. When a steam pressure of 250 pounds is reached the fire is automatically shut down.

The tanks containing both the water and the oil are enclosed, and provided with baffle plates to prevent surging and splashing when the car is in motion. A strainer is placed in a convenient position on both the water and oil pipes to ensure the collection of all dirt and foreign matter; it is designed so that each can be cleaned and replaced within three minutes. The water is pumped from the tank, through its strainer and the feed heater, into the boiler, unless the bye pass is open, when it is returned direct back to the tank. The oil is pumped from its tank through a strainer into a pressure tank, which feeds the burner with oil under pressure; a relief valve is fitted which opens when the pressure in the tank reaches a predetermined amount, the oil being then returned to the tank.

The engine consists of four single-acting cylinders, $3\frac{1}{4}$ in. bore by 5 in. stroke, developing 25-h.p.; the cylinders are cast in pairs, a single valve operating each pair, and one eccentric operating both valves. The gear used allows of a variable cut off, and, therefore, variable expansion, this being obtained at the will of the driver. From this it will be seen that the engine is of simple construction, as well as economical and efficient. There are no glands to work loose and to require packing continually. One lever controls the speed and the operations of starting, reversing and stopping. The water, oil and return water pumps

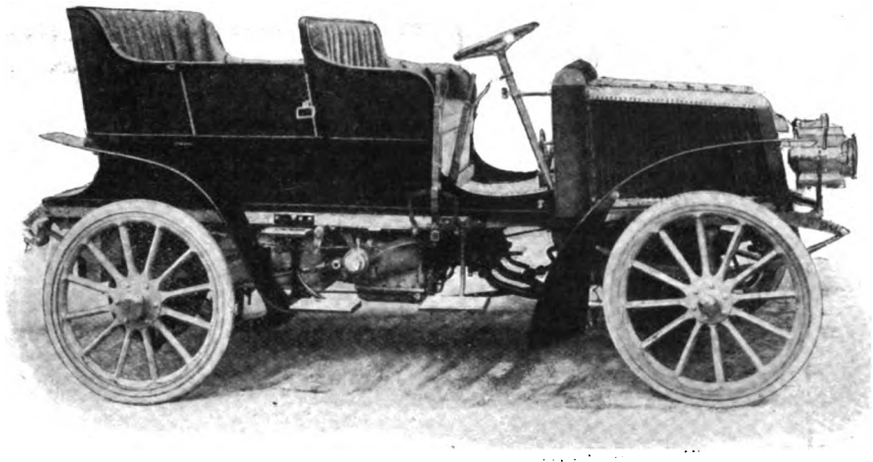


Fig. 1.—General View of the Cremorne Steam Car.

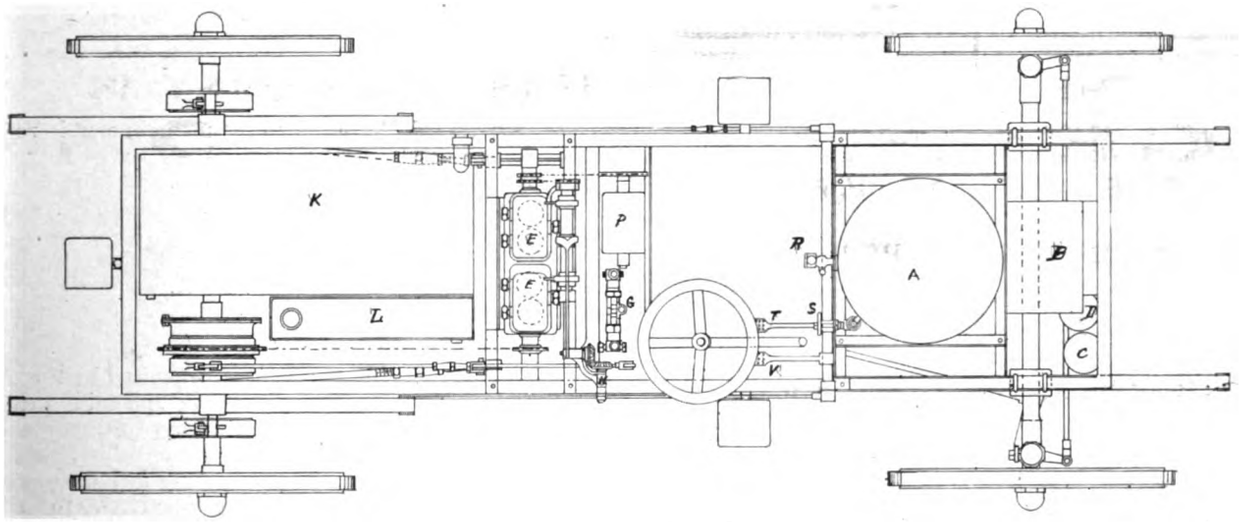
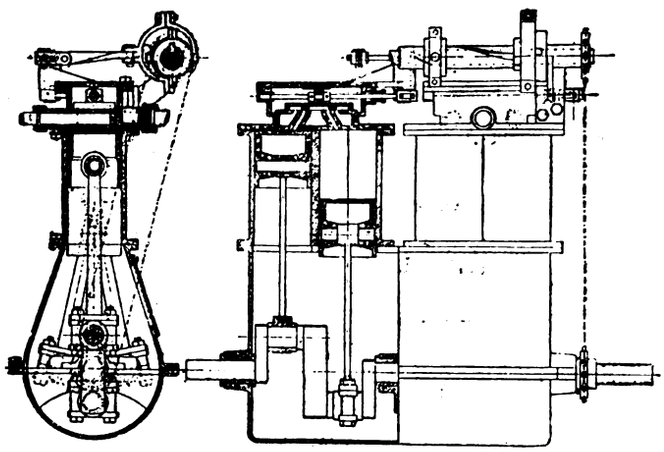


Fig. 2.—Plan of Cremorne Steam Car.

A.—Boiler.
B.—Feed Heater.
C.—Oil Separator.
D.—Steam Separator and Filter.
E.—Engine.
G.—Hand Pumps.
H.—Bevel Gear for operating sleeve on valve gear of engine.
K.—Water Tank.
L.—Oil Tank.
P.—The three enclosed pumps driven by engine
R.—Water Gauge.
S.—Main Throttle.
T.—Foot Throttle.
V.—Foot Brake Lever.

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are driven by the engine, being enclosed together in an oil and dust-proof casing. The pumps' valves, however, are situated conveniently for inspection at all times. A positive and mechanical lubricator is provided for the valve chests and cylinders, this discharging a minute portion of lubricant continuously into the steam pipe, the method of operation providing for an increased amount of lubricant on starting and for hill-climbing. The drive from the engine shaft is by a single chain on to the back axle, on which a differential gear of the spur wheel type is mounted. The exhaust from the engine passes through, firstly, a separator, which takes from it any oil that it has brought with it from the engine. It then passes through the feed heater, giving up a great proportion of its remaining heat to the feed water on its way to the boiler. After passing through the condensers, where it is condensed back into water, it passes through another separator, where any steam still uncondensed escapes, the water being pumped by the return water pump back into the tank, passing on its way through a filter, which thoroughly cleanses it. When the engine is running at 600 revolutions per minute, the car can attain a speed of twenty miles per hour. A clutch is fitted to the sprocket on the engine so that the latter may be run for a few minutes before starting out on a journey. Coming now to the control of the vehicle; upon the dashboard in front of the driver are the steam pressure, oil pressure, and water level gauges and the main steam throttle valve. At his right hand are the reverse lever, the hand brake and the water bye-pass valve. In front of him is the inclined steering wheel, to which the horn is attached. His right foot rests upon the brake pedal and the left foot upon the auxiliary steam throttle valve, by which the speed of the car can be instantly and momentarily controlled.



Figs. 3 and 4.—Part Sectional Front and Side Elevations of the Cremorne Steam Car.

The reverse lever controls the speed of the car. This, however, is only within limits, as it operates by varying the cut off in the cylinders; so, in practice, when the reverse lever has been placed in the notch to keep the car at a speed of say between ten and fifteen miles per hour the speed of the vehicle is then controlled by the left foot, which slows the car down for traffic, for passing obstructions, for cross roads, or for corners, until it is desired to alter the speed of the car to say five to eight miles per hour, or perhaps twenty-five to thirty miles per hour, when the reverse lever is again brought into action. In practice, the reverse lever is but rarely used, the driver controlling the speed of the car entirely with his left foot.

Solid rubber tyres with wood wheels of the artillery type are used, but a smooth motion is ensured by the use of extra long and heavy double springs and a long wheel base. The axles, springs, and wheels are of specially strong construction to withstand road shocks, no attempt having been made to cut down the weight of these members. The brakes are of the metal to metal type, and act equally efficiently whether the car is running backwards or forwards. Three are provided, one on each rear road wheel, and one on the differential. The engine itself can, of course, at any time be used as a brake. The steering is irreversible, and means of adjustment are provided to take up any wear. The fuel tank has a capacity of 15 gallons, while 28 gallons of water can be carried, these quantities being sufficient for a run of 100 miles. Fig. 1 shows a side entrance double phaeton to which a detachable brougham top can be fitted. The *chassis* of the car weighs 18 cwt.; it is also made slightly heavier when intended to receive a van body capable of carrying up to two tons.

MOTOR-CYCLING NEWS.

No less than seventy entries have been received for the Motor-Cycling Club's run to Edinburgh, the start of which is fixed for 10 p.m. on Friday, the 20th inst.

THE annual motor-racing and cycling meeting of the Midland Cycling and Athletic Club was held on Saturday at the Aston Villa grounds. The feature of the afternoon was the motor-bicycle racing. T. A. Tessier, on a Bat, covered the five miles in 7 min. 22 2-5 sec., and E. R. Collier, on a Matchless, won the two miles race with a time of 2 min. 47 2-5 sec.

FROM Messrs. Brown Bros., Limited, comes a copy of the booklet on the Brown motor-bicycle they have recently issued. It gives a very full description of the machine, the various parts being clearly illustrated, and, in order to further assist users of these motor-cycles, the function of each part is fully explained. The illustrations include large size views of the engine and diagrams showing attachment of Longuemare carburetter, wiring, etc.

THE Southern Motor Club's one hundred mile reliability trial has resulted in the first prize (a silver cup) being won by H. C. Bygrave (2¾-h.p. Crypto), and the second by C. Pattison (3½-h.p. Phœnix). Messrs. May and Larkin also made non-stop runs. The next events organised by the club will be a garden party at the Glyn Arms Hotel, Ewell, on June 20th, and a launch party on Sunday, July 17th, to Marlow.

THE awards have now been made known in regard to the recent Paris-Bordeaux-Paris motor-bicycle reliability trial organised by the Auto-Cycle Club de France. Gold medals have been awarded to the following competing machines:—Bruneau (2), Lurquin-Coudert (2), Werner (2), Minerva (2), Lamaudiere (2), Bonnet (1), Knap (2), Cavelier (1), Stimula (1), Carreau (1), F. N. (1), Alcyon (1), Clement (1). The Doue machine secures a silver medal, while the Boudiot, Van Altena, La Foudre and Gladiator receive honourable mention.

THE hill-climbing competition organised by the Auto-Cycle Club was held on Saturday last in splendid weather. The hill selected, which was on one of the bye-roads beyond Northaw, off the Great North Road, in Hertfordshire, has a length of about 750 yards, the gradients including stretches of 1 in 8 and 1 in 12. The competitors, to the number of about thirty, assembled at Barnet, where the machines were carefully weighed. The competition was confined to touring machines, fully equipped, with the tanks filled with oil and petrol. The machines were classified under four heads, namely:—Class 1: Motor-cycles having a cylinder capacity not exceeding 70 by 70. Class 2: Up to 76 by 76. Class 3: Up to 80 by 80. Class 4: Fore-carriages, side-carriages and trailers, carrying two passengers. Competitors were allowed to pedal up to the starting line only. Only three machines failed to get up the hill, and it was noteworthy that the three fore-carriages made very good times. The committee of the club met afterwards at Barnet and inspected the fastest machines in each class, in order to ascertain that they fully complied with the stipulation that they should be standard touring machines, fully equipped for the road. As there were a few doubtful points which the judges will be called upon to settle, the announcement of the awards was held over.

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THE HIGH-TENSION IGNITION SYSTEM FOR PETROL MOTOR-CARS.

By J. W. Frings.

(*Continued from page* 218).

The Contact Breaker.—There are three important varieties of contact breaker—the trembler, the positive make and break, and the wipe, the latter form being that now most generally in use. Its function is to provide a means whereby the flow in the primary circuit, and the high-tension discharge in consequence, may be restricted to the moment when it is desired to produce the ignition spark. This piece of mechanism is frequently, but quite erroneously, referred to as a commutator, an organ of a dynamo, the specific uses of which are to collect, and to rectify the direction of, the generated current. A positive make and break gives, by induction, a single discharge of reversed direction in the secondary circuit, the intensity of which depends upon the rapidity with which the break is made, but it has been found that a series of rapid makes and breaks, giving a continuous alternating discharge through the secondary coil, occasions a larger and hotter spark—really a stream of sparks—at the plug, and ensures ignition with greater certainty even if the mixture of gases be of a less explosive character. To achieve this result a steel blade of fine temper, with platinum contact points, platinum being used on account of its practical infusibility, was caused to vibrate rapidly for the fraction of a second when the current was allowed to pass, by using a disc cam with a segment removed, which for seven-eighths of the period prevented the contact of the points. When contact was made by the cam permitting the tongue to fall into the notch, the spring of the blade gave the necessary trembling movement for the rapid make and break. To maintain a good result it was always necessary to have a very fine adjustment of the blade, a matter of difficulty, as the platinum points pitted and scored, and the blade itself, from the constant hammering, lost some of its temper. Further objections to this type of mechanical trembler were that the wear of the involved parts altered the adjustments, and oil from the crank case frequently prevented the points making sufficiently good contact. In the wipe contact the cam is replaced by a circular disc, and the trembling blade by a stout spring blade which firmly presses on the disc during the whole of the revolution. A segment of the disc is a conductor and in metallic contact with the spindle on which it revolves, this providing the "return" for the circuit. The blade, by pressing on the disc, keeps it clean and free from oil, and the contact is sufficiently long to allow the electrical trembler on the coil ample time for a great number of makes and breaks, in addition to which it has the great advantage of requiring no adjustment whatever.

The Coil Trembler.—The fact that the core of the induction coil becomes a powerful electro-magnet at the moment that the current is passing has already been alluded to. This is taken advantage of by constructing the trembler as an armature—a piece of soft iron subjected to the action of a magnetic field to produce mechanical motion in the following manner. The connections of the primary circuit are so made that the path through which it must complete its circuit includes a steel spring, to which the iron armature is attached. At the moment that contact is made on the disc the platinum points on the trembler are also in contact, and permit the current to flow, but simultaneously with its flow the core becomes magnetised and attracts the armature. The armature responds to the magnetic attraction, which is greater than that of the spring which holds it in contact. As it moves in obedience to the magnetism it breaks the circuit. Immediately the magnetic attraction ceases, with the cessation of the current, and the spring forces the armature back into contact, only to be immediately re-attracted by the core. A stop piece is provided to limit the movement of the armature to a useful range, and an additional spring is attached to the armature mechanism to assist its return and accelerate the speed at which it works. A stout bridge over the armature carries a milled-headed screw which constitutes one of the contact points, and permits an extremely sensitive adjustment, which, when used in conjunction with a good coil, containing an efficient condenser, requires practically no attention.

The Sparking Plug.—This is a very familiar item of the ignition system, and as its uses have been referred to it will not be necessary to do more than point out some features which a good plug should possess. The body should be so designed as to give ample insulation both longitudinally and transversely. The insulating material should be capable of withstanding great heat and a moderate amount of ill-usage. The nuts to secure the wire—for preference there should be two—should be a good fit without being so tight as to prevent ready removal. The central wire, the conductor, might with advantage be much stouter than is usually the case, and the gap should be capable of simple, certain and efficient adjustment. I have found that a second and even third pole, providing alternative paths for the discharge, produces better results than the single pole plug; the fire area being greater, a more rapid combustion is obtained and the initial pressure on the piston is enhanced. Insufficient external longitudinal insulation is responsible, especially in damp weather, and in motor-cycles—where the plugs are very much exposed—for short circuiting and consequent misfiring, the damp air or the film of moisture on the porcelain providing a path of less resistance than the internal spark gap.

The Wiring.—Both high and low tension wiring should be well insulated, more especially where the frame of the vehicle or machine is used as part of the circuit, for a bare wire here, in the primary conductor, would almost inevitably result in damage to the accumulator by discharging it without the resistance of the coil, and in the case of the high tension wiring, a poorly insulated, or chafed wire, which for neatness of appearance is generally clipped close to the framing, will afford a "short" and so cause misfiring.

The Interruptor.—This is merely a means of conveniently breaking the circuit when the motor is not in use for a considerable period, while the switch is, of course, used for momentary breaks in running the engine. There are several types of switch, the latest and most convenient being that operated by the preliminary movement of applying the brake in a motor-cycle. On a car, the engine is usually kept running during stoppages for short periods, and the switch only used to break the circuit when it is desired to cease running the engine.

The Duke of Connaught and his two daughters were seen on a six-cylinder Napier car on the Surrey roads on Sunday.

Sir Francis and Lady Jeune went a-motoring on Sunday on a Talbot car driven by Mr. Oliver Stanton.

To the end of April last 265 British-made motor-cycles had this year been exported from this country, their value together with those of "parts" amounting to £12,220.

Copies of the photos taken by Mr. E. Kennard at the Eliminating Trials in the Isle of Man last week can be obtained from the Stereoscopic Company, of 108, Regent Street, London, W.

Messrs. Atkinson and Griffin are opening the Westmorland Garage at 58, Highgate, Kendal, for the Whitsun holidays. They will have accommodation for ten cars, and will also supply petrol and accessories.

The stoppage of Mr. Edge's car in the eight hours' trial in Manxland last week, owing to the firing of the petrol tank by the exhaust, did not exceed two minutes, this being the official timing in the Foxdale control. It is a pity that these official times were not issued to the Press, thus giving correspondents an opportunity of correcting general impressions.

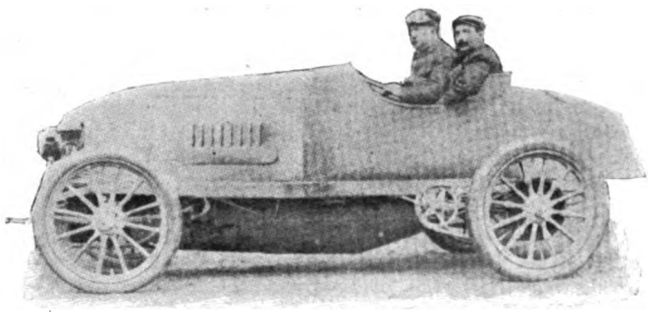
Extensive premises have been acquired by the Brighton and Sussex Moor and Carriage Works at the rear of and immediately adjoining the Grand Hotel and plans have been prepared for the erection of a glass covered Public Garage nearly 70 feet square, or about 5,000 square feet area. Private lock-up storage will also be provided and the whole will be capable of accommodating, without inconvenience, 70 to 80 cars. Provision is also made for ample workshops, with five inspection pits, and a large open yard; the whole being easy of access from the road.

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CONTINENTAL NOTES.

Hill Climbing near Vienna.

The annual hill climb on the Exelberg, organised by the Austrian Automobile Club, was held on the 8th inst. The length of the course was 4 1-5 kilometres, and this was covered by Hieronymous on a Spitz car with 60-h.p. Mercedes motor in 4 minutes 29 2-5 seconds, he thus not only being first in the heavy car class but making the best time of the day. Fritz Opel was first in the voiturette class, climbing the hill on an Opel-Darracq car in 4 minutes 46 4-5 seconds. In the motor-cycles (under 50 kilog.) class, Nikodem on a Puch secured the first



M. Léger on his Mors Racer.

place in 4 minutes 57 1-5 seconds, while Wondrich on a Laurin-Klement headed the heavy motor-cycle category, his time being 7 minutes 38 3-5 seconds.

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Motor Traction in Denmark.

A commission appointed by the Danish Minister of Public Works is visiting London and Paris with a view of inquiring into the question of employing motor-wagons in place of the horse-drawn vehicles at present used at the ports in Denmark.

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Track Racing at Frankfort.

In connection with the Gordon Bennett week the Frankfort Automobile Club is organising a race meeting to be held on the Oberforsthaus trotting track, at Frankfort-am-Main, on the 19th, June. One lap of the track is equal to one mile, that is 1,609 metres. The following is the programme of the races. 1.—Motor-cycles; open to amateurs; the machines must be started by pedalling and without assistance from anybody; distance, three miles. 2.—Alcohol competition; open to alcohol-driven cars weighing 400 kilos and over, up to 15-h-p.; to be driven by professionals; besides the driver an adult passenger must ride in the car; distance five miles. 3.—Light cars weighing 400 kilos and over, with one or two-cylinder motors up to 14-h.p. inclusive; open to amateurs; besides the driver, an adult passenger must be carried; distance five miles. 4.—Alcohol competition; large alcohol driven cars weighing over 650 kilos, up to 40-h.p.; open to amateurs; besides the driver a passenger must ride in the car; distance ten miles. 5.—Heavy cars, weighing over 600 kilos, up to 24-h.p. inclusive; open to amateurs; besides the driver, a passenger must be carried; distance, eight miles. 6.—Touring cars over 1,000 kilos, up to 30-h p. inclusive, with complete touring carosserie, for four persons; open to amateurs; besides the driver, a passenger must ride in the car; distance ten miles. 7.—The Peter Cup race, cars weighing over 600 kilos, up to 60-h.p. inclusive: open to amateurs; besides the driver, a passenger must be carried, distance ten miles. Herr Poege at present holds the cup, which must be won twice in succession by the same driver on a German track before it finally lapses into his possession. June 1st is the latest date for entries for the events, full particulars of which can be obtained from the secretary of the Frankfurter Automobil Club, Frankfort-am-Main.

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Electric Postal Vans in Paris.

The postal authorities in Paris have adopted a light electric motor-van for the carriage of mails from the post offices to the railway stations. The cars are designed to attain a speed of twelve miles an hour, as compared with the eight miles of the horse-drawn vehicles. The first vehicle, which was constructed by Messrs Mildé and Co., was subjected to a trial a few days ago. It has a carrying capacity of about 12 cwts., while the battery of 44 cells will enable the vehicle to travel about twenty-five miles on one charge. It is stated that fifteen of the vans are shortly to be put into service.

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An Austrian Motor Volunteer Corps.

It was announced some time ago that a movement had been inaugurated by the Austrian Automobile Club to organise a Motor Volunteer Corps on the lines of that existing in England. A scheme was drawn up by a commission consisting of members of the A.C.A., the Austrian Motor-Cycle Union, and the Austrian War Office, and this has now received the approval of the Minister of War. It is expected that the new corps will make its debut in the manœuvres in Southern Bohemia in September next, in which ten cars and about twelve motor-cycles are expected to take part.

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Another Motor-Bicycle Competition.

The "Cote d'Azur Sportive," of Nice, is organising a "criterium" of touring motor-bicycles to be held at the end of the present month. The course will be about 150 kilometres long, starting at Nice and finishing at Cannes. Points will be awarded for (1) regularity of running, (2) consumption of spirit, (3) speed in kilometre trial, (4) hill-climbing capability, and (5) facility of starting and stopping.

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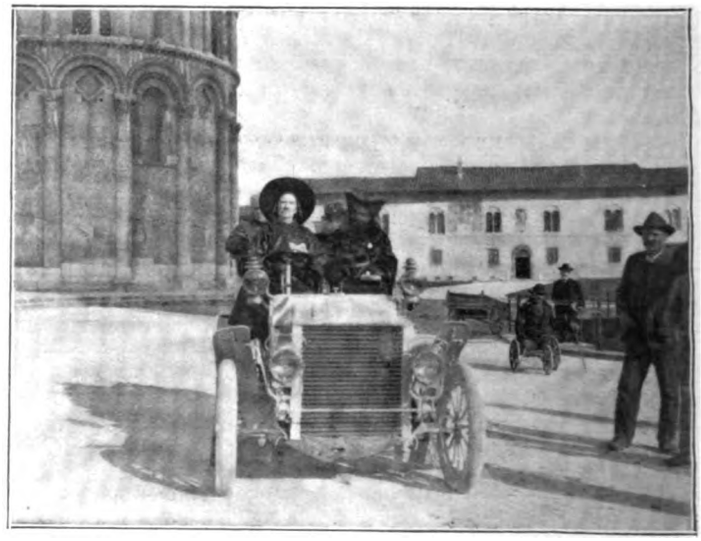
The Nice Automobile Club House and Garage Burnt Down.

On of the largest fires ever known at Nice occurred early on Sunday morning last in the garage of the Automobile Club, a huge circular building on the Boulevard Gambetta and Promenade des Anglais, which was formerly a panorama and skating rink. The building was completely gutted, and forty cars are reported to have been destroyed, including those of the Duke of Leuchtenberg and Prince Soltykoff. The damage is estimated at upwards of £40,000.

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A De Dion Excursion in England.

Last year Messrs. De Dion, Bouton, and Co. organised an interesting excursion to the Rhine districts for motorists



A White Steam Car at the foot of the Leaning Tower at Pisa, Italy. Seated in the Car is the "Official Beggar" of the Town.

using De Dion cars. For 1904, arrangements are in hand to organise a similar tour in England. The following is the preliminary programme which has been prepared.

July 10th.—Leave Paris for Calais.
July 11th.—Cars leave Calais on special steamer for Dover.

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July 12th.—Departure of motorists at 1 a.m. for Dover, and run to Tunbridge Wells.
July 13th.—Run from Tunbridge Wells to Portsmouth.
July 14.—Visit to the Isle of Wight.
July 15.—Portsmouth to Bournemouth *via* Andover and Salisbury.
July 16.—Bournemouth to Torquay.
July 17.—Torquay to Plymouth.
July 18 and 19.—Runs into Cornwall from Plymouth.
July 20.—Run to Barnstaple.
July 21.—Barnstaple to Bristol.
July 22.—Bristol to Oxford.
July 23.—Oxford to London *via* Windsor.
July 24 and 25.—London.
July 26.—Return to France.

The tour will altogether extend to about 750 miles.

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A Military Motor-cycle Relay Race in France.

Good progress is being made with the organisation of the military motor-cycle relay ride from Brest to Belfort, a distance of about 1,000 kilometres, which is to be held in the latter half of July. At a meeting last week it was decided that there should be eleven relays, each of which is to be undertaken by a different type of machine. The various stages and the machines allotted thereto are shown below.

Stage.	Distance.	Machine.
Brest-Louargat	101 kilometres.	F.N.
Louargat-Broons	92 ,,	Alcyon.
Broons-Vétré	90 ,,	La Française.
Vitré-Pre-en-Paille ...	100 ,,	Werner.
Pré-en-Paille-Tillieres ...	110 ,,	Gladiator.
Tillieres-Paris	105 ,,	Clement.
Paris-Chateau-Thierry ...	99 ,,	Griffon.
Chateau-Thierry-Couvrot	108 ,,	Lurquin-Coudert.
Couvrot-Jouy	110 ,,	Georgia Knap.
Jouy-Arches	112 ,,	Cottereau.
Arches-Belfort	99 ,,	Peugeot.

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Trials of Commercial Vehicles in France.

The Technical Committee of the A.C.F. has now published the rules for the trials of commercial vehicles, which are to be held from August 22nd to September 2nd next over a course of about 1,000 kiloms., in the North of France. The trials will comprise four tests—(1) for industrial vehicles, which will be subdivided into tests for (a) passenger service and delivery vans and (b) motor vans and wagons; (2) for electrical touring vehicles and delivery vans; (3) for speed and distance recording devices, which will be attached to the judges' cars; (4) for tyre protecting devices. In the first section will be comprised omnibuses capable of carrying ten passengers with luggage, delivery vans with a load capacity of at least 750 kilos., wagons with a load capacity of at least one ton, and road trains capable of carrying at least twenty passengers, or a load of 2½ tons. The entry fee for each vehicle is 300f., and entries will be received up to August 15th. The Trials will include a fuel consumption test, before the start, which will be made on the level on good roads over a distance of 50 kiloms. for vehicles in the first class, and 30 kiloms. for those in the second category, road trials of about 900 kiloms. for vehicles in the first, and about 650 kiloms. for those in the second class; one or several exhibitions of the vehicles, lasting a day each, in the towns through which the routes for the trials pass; a fuel consumption trial at the close of the road tests similar to that before the start. A jury nominated by the Technical Committee of the A.C.F. will supervise the trials, and will note the regularity of running, fuel consumption, and repairs, which can be made by means of outfits carried on the vehicles themselves, or through the ordinary resources of the country traversed. At each of the nightly stopping places the competing vehicles will be stored under supervision.

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Baron de Caters' new World's Record.

On Sunday last, on the Ostend-Nieuport road, Baron de Caters made another attempt to lower the world's record for the flying kilometre on his 90-h.p. Mercedes, and succeeded in setting up new figures. Timed by Messrs. de Beukelaer and Rotsaert he covered the kilometre in 23 seconds dead, equal to a speed of almost ninety-eight miles per hour. The previous record, 23 3-5 sec., was made by Rigolly on a Gobron-Brillié.

HERE AND THERE.

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On Saturday the Burnley and District Automobile Club had a run to Settle.

The Westrumite Company announces that it has now secured orders for its dust-laying solution from nine cities, thirty boroughs, forty-one urban district councils, eight municipalities, and nine metropolitan boroughs.

Dr. O. H. White, of Helsby, near Warrington, is introducing a new sparking plug, of which illustrations are given herewith, Fig. 1 showing a general view and Fig. 2 a section of the complete plug, while Figs. 3 and 4 show the details, from which it will be seen that the spark occurs across the end of the central rod and a point forming part of dome-shaped shell. The advantages claimed

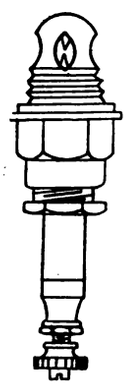


Fig. 1.

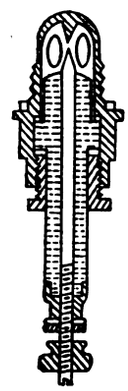


Fig. 2.

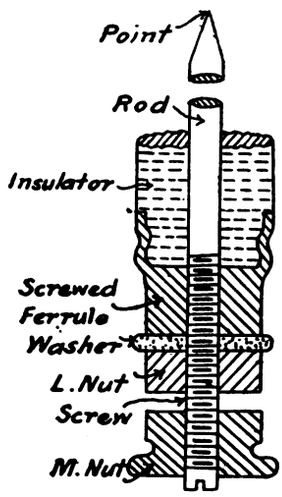


Fig. 3.

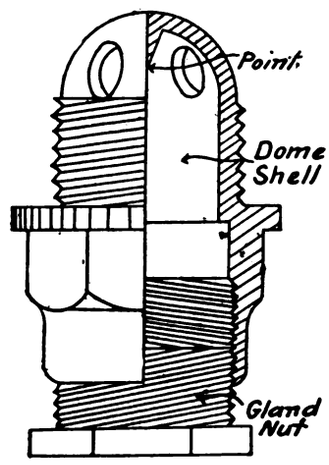


Fig. 4.

for the new plug, which is known as the "Dome," are that it is less liable than the ordinary type to get sooted up, and is easily cleaned by a feather or brush; the points are not affected by vibration and are mechanically protected from injury, while the parts are all adjustable and may be renewed and replaced if necessary.

Quite an invasion of motor-cars is taking place in Ceylon. Mr. R. Davidson, of Colombo, has just imported a 10-h.p. Beaufort car. Mr. R. J. Farquharson, a well-known sportsman, has received a 5-h.p. Humberette. Mr. Ernest Hamilton, of the Dolosbage and Yakdessa Company, is also expecting a 6½ h.p. motor-car from England shortly.

The fortunes of the Cleveland Motor Company, which was formed in Cleveland, U.S.A., last autumn to exploit the automobile inventions of Mr. E. J. Pennington, are at a low ebb, the concern having gone into bankruptcy. The company proposed to manufacture several inventions of Mr. Pennington which it was claimed would revolutionise the automobile industry.

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WE hear that an automobile club is in course of formation at Westcliff-on-Sea.

MESSRS. FRISWELL, LIMITED, are now issuing a weekly auction catalogue.

WE learn that the E.I.C. sparking plugs were used on the Napier, Wolseley and Darracq cars in the Eliminating Trials in the Isle of Man last week.

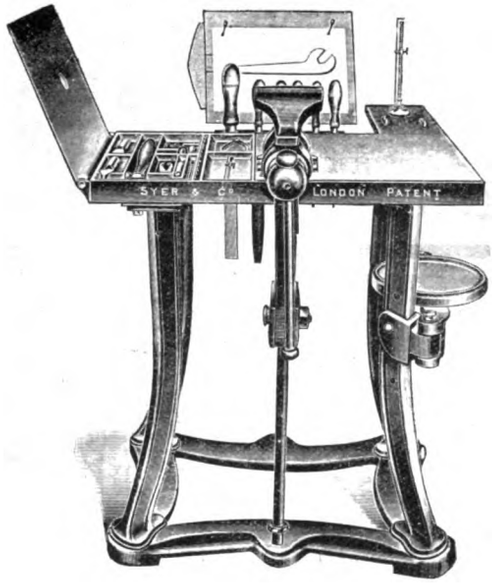
THE exports of automobiles and parts from the United States during March last were valued at £33,880, as compared with £18,723 in the same month last year.

MR. C. GUY, who is opening premises at 16, West Street, Reigate, has been appointed official repairer to the East Surrey Automobile Club.

DESPITE unfavourable weather no less than 217 motor vehicles took part in the May Day automobile parade held in New York by the Automobile Club of America on the 30th ult.

SO far twenty-nine entries have been received for the Circuit des Ardennes, which is to be held on the 25th July. No less than six Darracqs will compete in the event.

THE accompanying illustration shows a vice bench which has lately been brought out by Messrs. T. Syer and Co., and which should prove a useful addition to the equipment of the motor-house of those motorists who like to undertake small repairs themselves. As will be seen, it is a small engineers' bench



complete in itself. One half of the table is plain while the other is provided with compartments to hold a range of tools. A file rack is also provided. The illustration shows the bench with a drawing board, as arranged for student's use, and also with a small surface plate with two small V blocks.

THE Motor Castings Company, of Gray's Inn Road, W.C., are bringing out a 4¼-h.p. motor specially designed for launch work. It is being supplied with a two-bladed propellor to suit a boat of sixteen feet in length.

THE Bristol Motor Company, Limited, has been registered with a capital of £15,000 to acquire the business now carried on at 4 and 5, Redcross Street, and 18, Victoria Street, Bristol, as the Bristol Motor Company.

HARTFORD, Conn., claims to be the first American city to do away with horses and substitute automobiles for police department service. The motor-car equipment, which was installed three years since, now comprises an electric patrol wagon and electric ambulance. The Chief of Police of Hartford states that these vehicles have entirely superseded two horse-drawn patrols, a horse ambulance and a prison van.

THE 1904 edition of the Great Eastern Railway Company's Tourist Guide to the Continent has made its appearance. Among its fresh features are particulars of new tours in the Tyrol, in North Germany and in Norway, Denmark and Sweden, *via* the Royal Mail—Harwich-Hook of Holland route; of tours in the Luther country, and Thuringian and Hartz Mountains; with a series of Continental maps, and a chapter, "Dull Useful Information," giving particulars of the cost of Continental travel.

MESSRS. PANHARD AND LEVASSOR have recently issued from their London branch a booklet, a copy of which should be

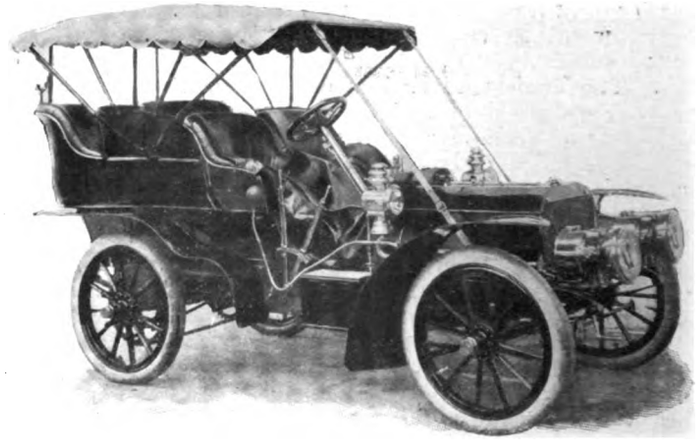


A 16-20-h.p Argyll Saloon car with side entrance. The vehicle is fitted with a folding down seat between the doors, capable of very comfortably carrying four people inside.

in the hands of all users of Panhard cars. It consists of a price list of spare parts for these cars, ranging from any particular nut up to new cylinders. To assist the motorist in ascertaining the part he requires, illustrations of the majority are given, while, as each has a number allotted to it, it is only necessary to mention this when ordering. Altogether the list is a most useful production.

FROM the Coventry Motor Fittings Company comes their price list for the season, in which special attention is called to the C. M. F. honeycomb radiator, in which a grooved tube, designed to give the maximum cooling surface, has been introduced. A spiral radiator on the thermo-syphon system is also illustrated in this well-arranged catalogue. In the section devoted to lubricators are some good types, including an automatic water pressure lubricator, known as type E. Tanks, bonnets, float feeds, and other accessories also find a place in the list.

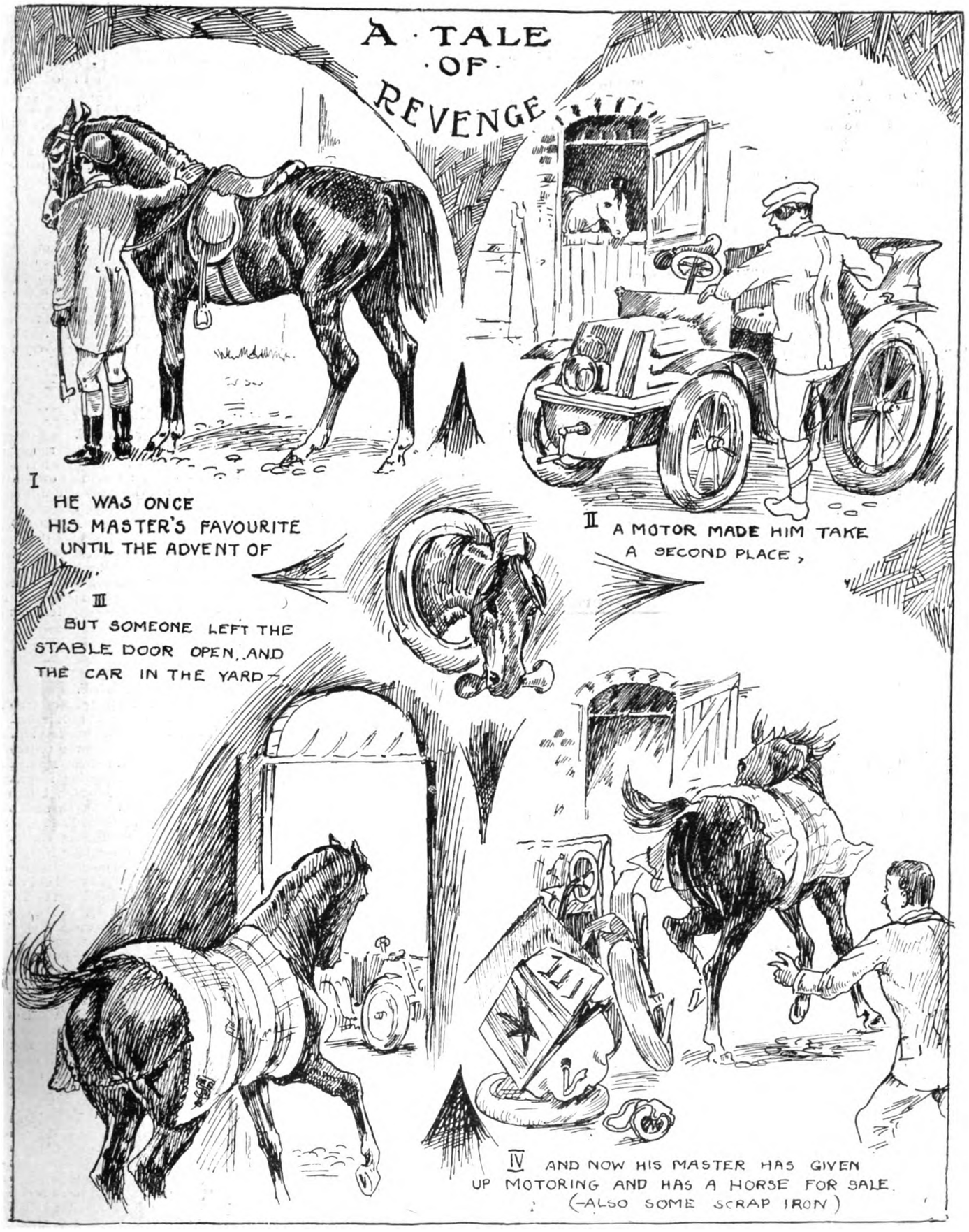
THE other day we had an opportunity of going over the Cadogan Garage which has been established in Sidney Street, Chelsea, by the Wilkinson Sword Company, Limited. The garage is most complete, as, in addition to accommodation for about



The above illustration depicts one of the first completed 15-20-h.p. 4-cylinder Brooke cars. The vehicle, which has proved most satisfactory in its trials on the road, is fitted with an elaborate Roi des Belges Body and Cape Cart Hood.

sixty cars, an electrically-operated repairing plant has been installed, while there are no less than five inspection pits available. A large addition to the garage is at present being prepared, in which it is intended to erect lock-up compartments sufficient to accommodate close upon forty private cars. We may add that the garage is open day and night.

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CORRESPONDENCE.

STEAM CARS.

To the Editor of *The Motor-Car Journal.*

Sir,—In answer to the letter of "Lancelot" in the *Journal* of the 14th inst., in which he expresses his astonishment that English engineers have not given more attention to steam, let me call his attention to one English steam car, the Turner-Miesse, which seems to embody all the good points which he asks for in his letter. It is simple, easy to manage, burns paraffin, and certainly is not expensive as compared with petrol cars. Moreover, it is absolutely reliable, and takes any ordinary hill at the same pace as the flat, and I have yet to meet the hill which my car will not take at a good pace in the hilly county in which I reside.

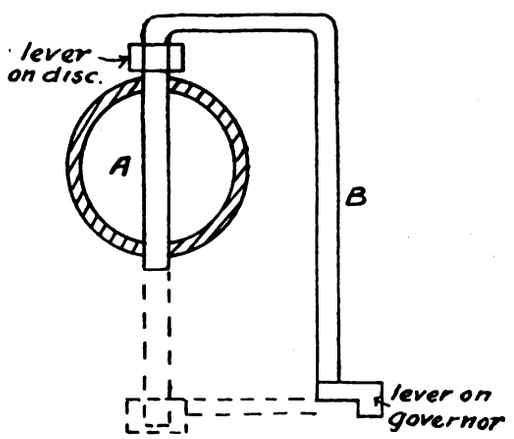
The White is an American car, and, in my judgment, too automatic, and, as your correspondent says, burns petrol (of itself a bad point), and the burner in those I have seen is noisy. The Miesse in my hands, which are not, as yet, those of an expert, costs about ½d. per mile, as near as I have been able to calculate. It seems to me that the Miesse is the car for your other correspondent, "Would-be Motorist." My car is a 6-h.p. and climbs—indeed runs—away up any hill in my district.—Yours truly,

E. H. O. Sankey.

THROTTLE GOVERNING.

To the Editor of *The Motor-Car Journal.*

Sir,—Referring to Mr. J. L. Player's letter in the *Journal* for the 7th inst., I may say that some time ago I had some difficulty with the governor of a 6½-h.p. Aster engine. The governor acted on a disc valve in the inlet pipe; the engine used to run very erratic, but I found that this was not due to the governor, but to the bad principle of connecting the small lever on the governor to the lever on the valve, a small sketch



A. Disc Valve.—Section through Inlet Pipe.
B. Rod connecting the lever from governor rod to lever on disc valve.

of which I enclose. The drawing also shows the alteration made to remedy the trouble. I found, when the engine was working, that the rod B used to sway about in any direction, so in place of this the spindle carrying the disc valve was lengthened downwards as shown dotted, and connected by a short straight lever. This I have found to work very satisfactorily, giving no trouble.—Yours truly,

T. H. J.

DUST SCREENS.

To the Editor of *The Motor-Car Journal.*

Sir,—I am desirous of having a dust screen for the back of tonneau of my car—8-h.p. M.M.C.

The one I have seen and like—"Patent Collapsible"—is four guineas, which seems rather too much to pay. Perhaps you or some of your readers might know of an effective but inexpensive arrangement which would answer the purpose.—Yours truly,

A 184.

CHARGING ACCUMULATORS.

To the Editor of *The Motor-Car Journal.*

Sir,—We have an electric lighting plant in our works from which I should like to be able to charge my 15 ampere-hour ignition accumulator. The installation consists of 150 lamps of 16-c.p. at 100 volts continuous current. The lamps are grouped in sets of ten, *i.e.*, one switch controls ten lamps, and we also have at intervals wall sockets for connecting up extra lamps as required. Should I be safe in taking current from one of these wall sockets to charge my accumulator? Any information you or any readers of the *Journal* can given me on the subject will be greatly appreciated.—Yours truly,

Rallentare.

[It is an easy matter to charge a 15 ampere-hour accumulator from a 100 volt installation, but on no account should the attempt be made to do so from a wall socket, as this would result in connecting 100 volts on to the accumulator, which would probably destroy it in a few moments. All that is necessary is to obtain what is known as a charging adaptor from an electrical firm, and use this from one of the electric lights. A charging adaptor is simply an ordinary lamp holder with a flexible cord attached to it in such a manner that one can charge an accumulator in series with an incandescent lamp. The lamp should beremoved from one of the pendant fittings (inserting the charging adaptor in its place, which it is made to fit), the lamp being put into the holder which is provided on the adaptor. A flexible cord is fixed in the holder, and after testing the two ends of this with pole-finding paper to ascertain which is the + wire, the accumulator should be connected up, taking care to connect the wire from the adaptor to the terminal of the accumulator. The accumulator is charged by the current passing through the lamp and then through the accumulator, the lamp acting as a resistance and preventing too much current flowing through the accumulator.]

MOTOR-CAR INSURANCE.

To the Editor of *The Motor-Car Journal.*

Sir,—I should like a few lines to tell other motorists how well I have been treated by the General Accident Assurance Corporation of Perth. In May of last year I insured a 9-h.p. car. In September I sold the car and bought a 12-h.p. In March of this year I had an accident with the 12-h.p. car, and not having notified the insurance company of the change, I thought they might not pay. I am very pleased to inform you that they paid up without the least hesitation or trouble. Bearing in mind the change of car and that the latter vehicle was very much speedier, etc., I think they acted very liberally.—Yours truly,

Well Satisfied.

THERMO-SYPHON WATER CIRCULATION.

To the Editor of *The Motor-Car Journal.*

Sir,—I would like to ask a few questions as to the thermo-syphon system of water circulation in petrol cars. How is the syphon principle applied to circulate the water in an automobile; that is, how are the water tank and radiating coils located so that this principle will work? Has heat got much to do with its working?—Yours truly,

Petrolius.

[The thermo-syphon system of water circulation is simply the natural circulation. The tanks and radiator are fixed above the level of the cylinder head with the return pipes below the water level. The supply is taken from the bottom of the radiator, or the tank, into the cylinder, and kept circulating by the heat, the hot water passing upward into the top of the radiator; in fact, it may be said that the system depends entirely on the heat for its operation.]

CHAUFFEUR OR DRIVER.

To the Editor of *The Motor-Car Journal.*

Sir,—I append a paragraph which I cut from the pages of a daily paper this week, and which I would like to comment upon, as it is distinctly a gross libel on our profession. It is as follows:—"London is vulgarised by the hundreds of chauffeurs whose Sunday out includes the conveyance on their masters' cars of hordes of hooligans of both sexes. Dressed like tramps, with short black pipes in their mouths, shouting and singing comic songs, these parties invade the West End generally, bringing a most unsavoury odium on the motor-car and all its works and uses." Now, Sir, I beg to state that the gentleman who wrote that had never seen what he describes; the chauffeurs have been accused of a few things, but never, that I know of, of being common, or hooligans smoking black pipes, or dressed like tramps, for as a rule they are much more high-toned, etc., than men in any other profession, and as to the "hooligans of both sexes," it is simply absurd, as when the chauffeur picks up a girl to favour with a ride he always chooses the smartest one he can find, and the whole turn-out is, nine cases out of ten, a smarter and better dressed one than when the owner and his family are on board. Of course, I am not defending chauffeurs who go out "on their own," as the saying is, but I do say they are not open to the insulting abuse of this gentleman of being common and hooliganish, and I think we deserve an apology.

Now, *re* a letter in a recent issue of the *Journal re* the name of chauffeur. Why not? I ask; in France we can use English names for English sports such as yachting and football, etc., without losing any sleep over it, so why not keep the French names for a French sport in England? I guess soon some of our insular Englishmen will be objecting to us Americans calling our language "English" and make us call it "United States," as I have heard done before now at home, and a good thing too; tit for tat.

Now, Sir, if you will grant me yet a little more space I would like to say a word on the question of drivers. The best man on a car is not a "certified" man, valet or otherwise, nor a man who has spent his life at the bench; but a man who has knocked around in all branches of engineering, electrical included, and whenever he gets up against a snag his varied experience in all lines will enable him to get over it; and there are plenty such around. Now, if a man buys a motor-car he wants it available at any hour of the day or night, and sure he wants the chauffeur as well. Let him pay a chauffeur a good wage, and treat him as a man and not a sort of emancipated slave, and in most cases the man will act as if the car were his own, study it and his employer, and get best results, both for his employer and himself, because there are some men still left who can see more

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than an inch in front of their nose. Why a man of the type I say deserves his wage is, because he can get it at any one branch of knowledge in which he ought to be proficient before having charge of a valuable automobile.—Yours truly,

CHAUFFEUR.

PROPOSED ALTERATION OF BOILER.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—I should be greatly obliged if some of your readers would give me some advice as to a Locomobile steam car. I thought of changing the present boiler to one of the flash type, to burn paraffin, if same would be beneficial. At the present time I burn petrol and consume on good roads, with four up, one gallon for nine miles, and require about twenty gallons of water per thirteen miles. What would be the consumption of water and paraffin with a flash boiler, also would the power be as great and as safe ?—Yours truly,

OXON.

PROPOSED SERVICE IN ABERDEENSHIRE.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—Kindly allow me, through the medium of your valuable *Journal*, to draw the attention of those in authority to the great need that exists for the introduction of a service of motor-cars to ply between Gartly Station and Rhynie, Lumsden, Toll of Mossat, and Strathdon, Aberdeenshire. At present there exists no adequate means of conveyance between these places. From my long connection with and intimate knowledge of the route and the districts enumerated, I am confident that if a suitable service of motor-cars could be introduced and run to suit the principal morning and afternoon trains running to and from Aberdeen and Huntly, etc., in a very short time a considerable volume of traffic, both in passengers and light goods, could be secured.—Yours truly,

M.

CHARGING ACCUMULATORS FROM A DYNAMO.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—I notice with pleasure that you are answering queries with regard to the charging of accumulators, and therefore venture to write you on the subject. I have a dynamo generating current at 100 volts, and have got my two wires (having ascertained which is + and —). How many candle-power must I have in the one circuit to charge my four-volt accumulator, which, according to instruction, should be charged at the rate of one ampere for ten hours ?—Yours truly.

F. J. TINSLEY.

[To charge a 4-volt accumulator which requires one ampere for the charging rate, it will be necessary to put two 16 c.p. lamps in the circuit. At 100 volt pressure a 16 c.p. lamp takes ·6 amperes, and therefore two of these will give a trifle over one ampere when the 4-volt accumulator is in circuit. If 16 c.p. lamps are not available, three lamps of 8 c.p. will do; these take about 4 amperes each; or if it is preferable to charge for a long time at a slow rate, two 8 c.p. lamps will be sufficient.]

NUMBERING ALL VEHICLES.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—I am sending you some paragraphs, as they may interest your readers, showing the different treatment to motorists and drivers of horse drawn vehicles. I think the Automobile Club would be doing a good thing to get an Act passed for carmen to be licensed and the carts to have number plates similar to those on motor-cars. Driving along a country road after dusk one meets carts on the wrong side of the road with no lights and the drivers asleep. If one has not powerful lamps and good judgment there is a collision; a summons follows for reckless driving, the motorist has to pay the piper, while the carman goes on his way rejoicing.—Yours truly,

M. ROBERTS.

QUERIES *RE* MARSHALL CAR.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—I have bought a second-hand (represented as) car of this make, 1902 pattern, but am sorry to say I have not got what I expected. It was advertised as "run 1,200 miles," and I bought it on this understanding and statement; but finding, on tyres getting dry, that they showed a good deal of wear, I made inquiry, and found car was third hand, and had been run 2,000 miles before the seller got it. The covers are Collier's, three of which and the spare (valued 2s. 6d.) are in a very bad state and giving way in long slits next the rim, and I fear ready to burst up any day. I gather that car has run certainly 3,000 miles, and surely covers should not be in such a state with so little wear. As I shall be obliged to get new tyres soon unless I can sell car altogether, I should be glad to have the experiences of others on the subject.

The car is a bad one to drive, and I cannot run it on top speed on the roads in my district; it "picks up" so badly, and cannot do anything of an up-gradient on top gear, and as the roads are always twisting and twining up hill and down hill, I have to crawl on the second, which is a funeral speed only fit for an old woman. It has struck me that lowering the top speed might improve matters, and I wrote the makers. They say they can easily reduce the speed to 25 miles, but they do not say it would actually alter the running, nor did they state cost of same. I wrote them further, but have had no answer, although it is now a good many days ago. People told me it was much better to go in for English-built cars, as there was then no trouble in getting repairs done and obtaining spare parts; some dealers even advertise in this strain, but so far I have not found it to be the case. If you know where to send to abroad you will get spare parts in a few days' time, as they will be in stock; but how many English firms can produce a price list of spare parts, and how many stock such ? I don't know one. I shall be glad of any information on the Collier tyres, and also as to improving the running of the "Marshall."—Yours truly,

AMATEUR.

SOLDERING ALUMINIUM.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—Could you tell me of any method by which I can solder or make fast a crack in aluminium ? It is in the base chamber of my motor. I should be glad if you could tell me of any substance with which aluminium can be soldered. Is it at all possible for it to be softened by heat and the crack made up ?—Yours truly,

EDWARD T. WOOD.

[A new solder for aluminium is invented almost weekly, to judge by the numerous recipes appearing in technical journals, but we do not know of any satisfactory one. The usual defect in them is that the joint, sound at first, gradually disintegrates. One of the best formulæ is: tin, 56 parts; lead, 7 parts; zinc, 14 parts; and phosphor tin, 28 parts. It is necessary to use a scratch brush through the melted solder to remove the obstinate film of oxide on the aluminium, and an "automatic" soldering bolt; one of those with a self-contained benzine blow-lamp in the handle, is useful on account of the high conductivity for heat of aluminium. In the case, however, of a cracked base chamber, the best thing would be to rivet a plate over the crack, inside if there is clearance for it, and caulk it outside, if crack is not too wide, with hammer and punch, carefully applied. If the crack is anywhere where mechanical strength is necessary, as we have occasionally seen in the extensions of crank-chamber to carry pump, gear-wheels, or the like, nothing but a bolted or riveted repair is possible.]

BRAKES AND TYRES.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—Replying to "Brake's" letter in your last issue, the best brake and the most reliable consists of a steel band with transverse pieces of brass about half-inch wide riveted on the inside of the band. The oil from gear box or any part of the car has no effect on a brake of this type, as it is immediately burnt off when the brake is in use.

Referring to the latter part of letter *re* tyres, these covers have the straps sewn inside the cover, and there should be one pair of straps for every spoke to make the job a success. This adaptation of old covers is quite a success, and makes punctures almost an impossibility, and very considerably reduces the upkeep of a motor-car.—Yours truly,

THE CAMBRIDGE AUTOCAR CO., LTD.

A DOCTOR'S EXPERIENCE.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—The first few months of ownership of a motor-car, when one is paying for experience, is the most expensive period. After that, not only is the cost of operation reduced, but depreciation also becomes less, because of proper handling. Most of my troubles were due to lack of knowledge rather than to apparent recklessness of driving, and I find that there is much less breakage and strain and the car requires much less repairing and adjusting of parts now than it did during the first few months I owned it.

I have not yet been able to dispense with horses, as I have never been able to fully trust the car. It has broken down and been laid up for minor troubles at different times, which have put it out of use for a number of days. It is like a horse, in that it is ready for business most of the time; yet, while it can easily do the work of three or four horses, a single car will not take the place of two or three horses. If one of your horses is sick, the others can do the work. With the motor-car the same rule must, I think, hold. The physician who decides to use the automobile exclusively must own two machines, so that one will always be in perfect condition. I see in this proposition not only the greatest economy but the greatest degree of comfort, for, with a competent man in the motor-house, only one car is used at a time, and the cost of maintenance is no greater than if one vehicle only were used. Add to this the fact that your two cars will do the work of many horses, yet when they are not in use they are not "eating their heads off," do not require to be exercised and do not add to a man's work. I formerly kept four horses. I now keep two horses and the car for winter's work, and I used but one horse and the car during five months last summer. I mean in another year to own a second car of the same type, and then I shall dispense with horses entirely.

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With hay-motors I was always on the road, as I have never found a horse that could stand more than fifteen miles of travel per day on the average, and keep in good condition. With the motor-car I have not been obliged to count the miles and have been enabled to cover my entire practice, which usually took me the greater part of the day, in the forenoon. For the busy practitioner the possession of one or two cars under the conditions above indicated will serve the purposes of a conserver of his energy, a saver of his valuable time, an indicator that he is abreast of the times, and will give him the necessary leisure for reading, so difficult to obtain where "hay motors" only are used.—Yours truly,

PROVINCIAL DOCTOR.

THE CARE OF CARS.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—There is all the difference in the world between a well kept car and one which has no regard paid to its appearance. A horse-drawn carriage gets nothing like such hard usage as an automobile, yet it is looked after with an exceeding care, with the object that its outward appearance—its finish, in short—is rarely disreputable and is frequently most creditable. The other day I asked a certain motorist whose car is noted for its well kept appearance for the recipe. He replied:—"The reason why the car looks so well is that I never have a mechanician rubbing it down with oily rags. You see, I know their little ways, and cleaning down with greasy rags will ruin the very best carriage work in a very short time." There is more truth in this than is generally admitted. Paint and varnish are not imperishable. Applied with the utmost care and skill, and subjected to only a minimum of severe weather conditions, they frequently deteriorate deplorably, and are kept bright and glossy only by exceeding care. But the user of a motor-car frequently proceeds on the assumption that no use—scarcely any abuse—is too severe for an automobile. If he looks after the vitals of the car—the engine, transmission, ignition, etc.—he feels that he has done his full duty. The motor-car has not only mud and dust to contend with; in its internal economy oil plays an important part—oil and grease of divers kinds for lubricating, petrol for propulsion—in generous proportions. Ingredients of this kind are life to the metal parts, but death to wood and rubber. A divorce, complete and absolute, should be declared between them, as only in this way can the lustre and longevity of the parts mentioned be maintained.—Yours truly,

LUSTRE.

THE MOTOR-CAR ACT.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—The following facts illustrative of the absurdity of the new motor-car regulations will be of interest to many of your readers. Having a contract for the delivery of newspapers on Saturdays throughout London and the suburbs, it will easily be understood the constant stoppings at the various newsagents entail a considerable strain on the car. It is therefore necessary to try any car it is proposed to use for this object to ensure an expeditious and satisfactory delivery. For this purpose a car was tried on the 30th ult. and the trade numbers allotted by the County Council used, resulting in two convictions and two fines, really for the same offence, at the South Western Police Court, one against the driver for using an unregistered motor-car, and whose licence was endorsed to this effect, and the other against myself, as secretary of the Great Central Garage Company, Limited, for unlawfully using an identification mark, and although I was in Paris at the time the offence was committed, my driving licence has also been endorsed with the particulars of the conviction.

As you are aware, a number of endorsements may prevent my obtaining a renewal of a driving licence or it may be taken away altogether without my ever having driven a car at all. Surely a ridiculous anomaly!—Yours truly,

ROBERT NUTSEY.

PARSONS ANTI-SKID CHAINS.—"W. M." writes:—"I shall be glad if someone will tell me if a "Parsons Chain," or other removable anti-skid arrangement, on one driving wheel only of a car will prevent slipping on greasy hills, and this without straining any part of the machinery?"

PETROL IN READING.—Mr. A. H. Harms, of 113, Caversham, Reading, writes that his depot is always open, and that he keeps a stock of charged accumulators, petrol and oil in stock at nominal prices. The Iverna Motor Company, of Abbey Street, Reading, also write to say they are always open on Sundays for the supply of petrol, repairs, and sundries. Their shop is situated in the centre of the town on the main road.

THE LADIES' AUTOMOBILE CLUB.—Replying to Miss E. M. MacGregor, full particulars as to membership of the Ladies' Automobile Club can be obtained by applying to the secretary at Claridge's Hotel, Brook Street, London, W.

TYRE FOUND.—A motor tyre has been found near Huntingdon. Application by the owner should be sent to the Police Station, Huntingdon.

SOME SHORT TRIPS.

BELOW we give some suggested runs of about fifty miles out and home from some of the leading centres of motoring interest. These can be varied according to circumstances; they are only intended to suggest short runs of interest; and we shall be glad to hear from readers able to give alternative routes or propose suitable trips.

FROM SOUTH LONDON.

From Elephant and Castle to Brixton (2½), Streatham (2½), Croydon (4), Coulsdon (4¾), Mersham (3¾), Reigate (3¼), Betchworth (3), Dorking (3), Leatherhead (4¾), Epsom (4), Ewell (1½), Morden (3½), Merton (2), Balham (2¾), Clapham (1½), Elephant and Castle (2¾); distance, 49½ miles.

FROM SOUTH-WEST LONDON.

From Clapham Junction Station to Wandsworth (1), Putney (1), Richmond (5¾), Twickenham (1½), Sunbury Common (4½), Staines (4½) Chertsey (3), Byfleet (4¼), Cobham Street (2½), Esher (3½), Ditton (2½), Kingston (1¾), Wandsworth (6¼), Clapham Junction (2); distance, 41¾ miles.

FROM SOUTH-EAST LONDON.

From New Cross to Lewisham (2), Eltham (2¾), Sidcup (3½), Swanley (3¾), Farningham (2¼), Kingsdown (3¾), Wrotham (2¾), Ightham (2½), Seal (3½), Riverhead (2½), Westerham (4¾), Cudham (4¾), Keston (3½), Bromley (3½), Lewisham (4¾), New Cross (2); total distance, 52 miles.

FROM NORTH LONDON.

From Highgate Archway to "Tally Ho" (3½), Barnet (3½), South Mimms (3¼), London Colney (3), St Albans (3½), Hatfield (5½), Cuffegreen (3¾), Hertford (3½), Hoddesdon (4½), Broxbourne (1½), Cheshunt (3½), Waltham Cross (1), Enfield (3¾), Winchmore Hill (1½), Palmer's Green (1½), Wood Green (1½), Hornsey (2½), Highgate Archway (1¾); distance, 50½ miles.

FROM NORTH-WEST LONDON.

Marble Arch to Kilburn (2¼), Cricklewood (1¾), Edgware (4½), Stanmore (2), Bushey (2¾), Watford (1¾), Rickmansworth (3½), Chorley Wood (2), Amersham (6), Beaconsfield (5), Gerrard's Cross (4½) Uxbridge (4), Hayes (3½), Hanwell (3¾), Ealing (1½), Acton (1½), Shepherd's Bush (2½), Marble Arch (2½); total distance, 54¾ miles.

FROM NORTH-EAST LONDON.

Hackney Station to Clapton (1), Leyton (1½), Walthamstow (1½), Chingford (2¾), Sewardstone (2½), Waltham Abbey (2¾), "Wake Arms" (3¾), Epping (2½), Ongar (6), Stanford Rivers (2), Abridge (5½), Chigwell (2¾), Woodford Bridge (1½), Wanstead (2¾), Leytonstone (½), Leyton (1½), Hackney Station (2½); total distance, 42¾ miles.

FROM BIRMINGHAM.

G.P.O. to Smallheath (2½), Yardley (1½), Elmdon (3½), Stonebridge (2½), Kenilworth (8½), Leamington (4½), Warwick (2½), Harton (2½), Wroxall (3½), Knowle (5), Solihull (2¾), Olton (2½), Greet (2½), G.P.O., (2¾); total distance, 46½ miles.

FROM IPSWICH.

To Copdock (4), East Bergholt (5¾), Manningtree (3), Tendring (6¾), Weeley (2), Little Clacton (3), Clacton-on-Sea (3½), Great Holland (5), Kirby (2), Beaumont (4), Great Oakley (3), Ramsey (3½), Harwich (3½), Felixstowe Pier (1½), Walton (2½), Trimley (1½), Ipswich (8¾); total distance, 62¾ miles.

FROM BRISTOL.

To Keynsham (5), Saltford (2¾), Bath (4¾), Batheaston (2½), Box (3½), Pickwick (3), Chippenham (4), Yarton Keynell (4), Burton (4½), Acton Turville (1½), Tormarton (3), Codrington (3), Downend (5½), Eastville (3), Bristol (1½); total distance, 50¾ miles.

FROM SHEFFIELD.

To Lidgate (2½), Ashopton (8¾), Bamford (2½), Hathersage (2¾) Grindleford Bridge (2¾), Calver (2½), Baslow (2), Chatsworth (2½), Baslow (2½), "Peacock Inn" (5), Totley (1¾), Beauchief Abbey (1½), Sheffield (4½); total distance, 40¾ miles.

FROM NOTTINGHAM.

To Woodthorpe (2½), Newstead Abbey (5), Mansfield (7½), Church Warsop (5½), Cuckney (1¾) Welbeck Abbey (3), Worksop (3), Sudly (5¾), Ollerton (3), Wellow (1½), Eakring (3), Kirklington (3) Southwell (3½), Thurgarton (3¾), Lowdham (3), Burton Joyce (2½), Colwick (3¾), Nottingham (3); total distance, 62¾ miles.

FROM MANCHESTER.

To Withington (4), Cheadle (3), Handforth (3), Wilmslow (2½), Alderley (1½), Jodrell (7½), Holmes Chapel (3½), Cranage (1), Knutsford (7), Mere Corner (2½), Altrincham (5), Sale (3), Stretford (1¾), Manchester (3½); total distance, 48½ miles.

FROM LEEDS.

To Moortown (2), Harewood (5½), Pannal (5), Harrogate (2½), "Little Wonder" (1), Blubberhouses (8), Bolton Bridge (7), Addingham (3), Ilkley (3), Otley (6), Bramhope (3), Leeds (7½); total distance, 54½ miles.

FROM LIVERPOOL.

Birkenhead to Newferry (2), Eastham (3¾), Rackford (5½), Chester (3½), Saltney (1¾), Hawarden (4¾), Queensferry (1½), Hinderton (7½), Parkgate (2), Neswall (3), Thurstaston (2), West Kirby (3), Hoylake (1½), Moreton (3½), Bidston (1½), Birkenhead (3½); distance, 51½ miles.

FROM NEWCASTLE.

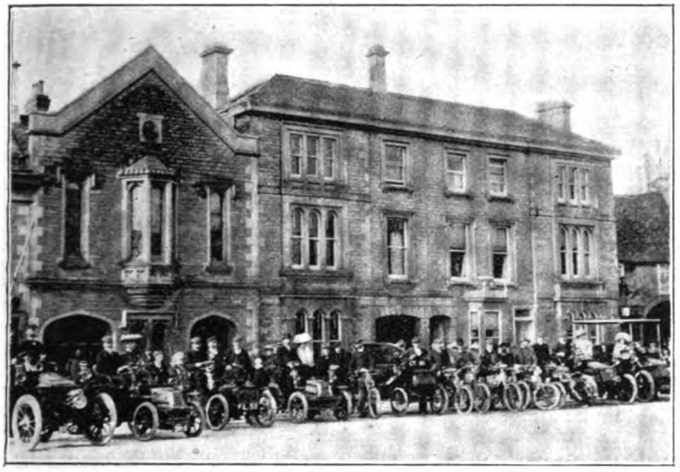
To East Denton (3½) Walbottle (1¾), Heddon (2½) Harlow Hill (3½), Matfen Piers (2¾), Matfen (2), Stamfordham (3½), Black Heddon (3½), Belsay Castle (2), Bolam (3), Meldon (2½), Milford (5), Morpeth (2), Stannington (4½), Seaton Burn (3¾), Gosforth (4), Newcastle (2½); total distance, 57½ miles.

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CLUBS AND ASSOCIATIONS.

WEST SURREY.

MEMBERS and friends of the West Surrey Automobile Club met at the Hautboy, Ockham, on Saturday, for tea. Among those present were Major Matson, Messrs. Crothers, Praschkauer, Ponsford, Pullman, Vogan, and Buttemer. Several members were reduced to their smaller cars on account of an epidemic of annual overhauls, and the appearance of the Hon. Sec. and his wife on an 1897 Benz gave rise to much mirth. As a result of the efforts of the Club, the road entering Guildford has been treated with Westrumite, and further trials on the other side of the town are being arranged for.



The Meet of the South Lincolnshire Club at Fron Hall, Market Deeping.

LINCOLNSHIRE.

THE members of this club had another very successful meet on Thursday, the 12th inst., when the Red Lion, Boston, was the rendezvous. The club has been singularly fortunate this year as far as the weather is concerned, for every run has been favoured with pleasant sunshine and excellent roads. Amongst the motorists present were Messrs. C. W. Pennell (Lincoln), H. S. White (Lincoln), C. Nelson (Lincoln), Capt. Gleed, J.P. (Donington), W. A. Tomlinson (Sleaford), G. Godson (Asgarby), Rev. R. H. Sampson (East Keal), Rev. M. Watkins (Croft), Leslie Pogson (Sleaford), Dr. White (Swineshead), Dr. Benson (Market Deeping) J. H. Carter (Market Deeping), F. Richardson (Sibsey), Dr. Crompton (Benington), Dr. Miller (Wrangle). Dr. Reckett, C. Holland, and some of the other Boston members were also present.

MANCHESTER.

ON Saturday last the Manchester Club run was to old Moreton Hall, and was attended by twenty-two cars, which brought so many members and their friends that the capacity of the dining room was severely taxed. Very great interest was taken in the picturesque old hall, which is situated at the extreme corner of Cheshire off the highway between Congleton and the Potteries, the lofty hill of Mow Cop being its conspicuous landmark. It is a perfect specimen of a half-timbered manor house and is a beautiful example of the Tudor and Jacobean period. Seen from the highway its projecting upper storeys and quaint windows, its gabled roof, and ivyclad chimneys and its walls chequered in black and white, make a charming picture, and cameras were very much in evidence. Before leaving a number of photographs were taken of the cars arranged in a semi-circle by the side of the hall.

LEICESTER.

THE members of the Leicester Automobile Club had their third run of the season on Saturday, when Oakham was visited, the route being by Billesdon and Uppingham. There were fifteen cars and two motor-bicycles, and the spin was a most enjoyable one. Oakham was reached about five o'clock, and tea was provided at the Crown Hotel, thirty-seven being present. Mr. King presided in the absence of the president, Mr. G. E. Mawbey, who, however, was not forgotten, as a telegram was sent to him conveying all kinds of good wishes. A communication was received from Colonel Powell, Melton Mowbray, who requested the club to call upon him on the return journey. After a stroll round the quiet old town a start for home was made at seven o'clock. Melton was reached in good time, and the cars drew up at the residence of Colonel Powell, whose hospitality was enhanced by vivid descriptions of the motor trials in the Isle of Man, from whence he had just returned. Another halt was made at Syston, on the invitation of Mr. Harding. Leicester was reached about 9.30, after a capital run, none of the cars having experienced the slightest mishap. It was a most pleasant outing, the weather being all that could be desired throughout, and every member of the party was in the merriest mood. Those who took part in the run were Mr. T. C. King, the Hon. Charles Douglas, Mr. Orson Wright, Mr. J. F. Johnson, Mr. Harding, Mr. E. S. Harding, Mr. and Mrs. Victor Oliver, Miss Evans, Mr. Earp, Mrs. and Miss Peberdy, Mr. R. E. Parker, Mr. F. O. Robinson, Mr. and Mrs. Barron, Master M. Barron, Miss Talbot, Mr. Doran, Dr. McAllister-Hewlings, Mr. J. McAlpin, Mr. Perkins, Mr. Gilbert, Mrs. Wherry, Mr. H. V. Oliver, Mr. and Mrs. Whilby, Mr. E. H. Herbert, Mr. Clerk, Mr. Thomas, Mr. Binns, Mr. S. Longmore, Mr. Thompson, Mr. Harris, Mr. Gerard, Mr. L. Pierpoint, Mr. Haynes, and Mr. A. McAlpin (hon. secretary).

MIDLAND.

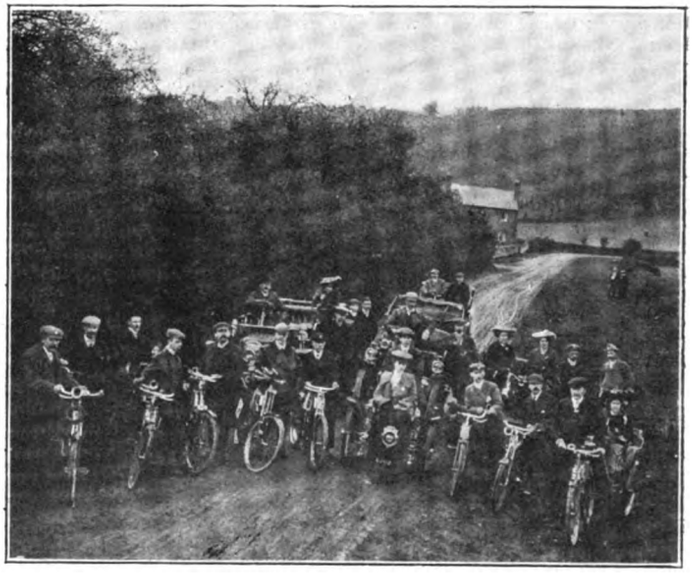
ABOUT forty members and friends of the Midland A.C. visited the residence of Mr. J. Broughton Dugdale, at Wroxall Abbey, Warwickshire, last Saturday. Tea was partaken of at 5 o'clock, after which most of the members strolled round the grounds, gardens, and other places of interest. Mr. Dugdale personally conducted a small party over his private engineering shop, which is fitted on up-to-date lines and in which he takes a keen interest. The old abbey, park and grounds ranks as one of the finest places in the kingdom.

HEREFORDSHIRE.

THE roads were in such a bad state on May 10th, owing to the rain, that the Herefordshire A.C. decided to postpone the hill-climbing contest for motor-cycles until June 21st, when it will be held at 3 p.m., on Dinmore Hill. The Club, however, ran to the hill, and eight motor-bicyclists essayed the climb. Several accidents were narrowly avoided, but Mr. A. W. Marriott was not fortunate enough to save himself from a bad spill off his Griffon, as it was rounding the curve near the top. He luckily was only slightly bruised. The Club fixtures for June 4th, July 2nd, August 6th, and September 3rd are cancelled; but the Club will run to Sufton Court on July 12th to lunch with their president, Mr. J. T. Hereford.

SOUTH LINCOLNSHIRE.

A VERY successful meet of the South Lincolnshire Motor Club was held at Market Deeping on Saturday, and a good number of cars assembled in the Market Place. The members and friends were kindly entertained by Mr. and Mrs. G. Linnell to a sumptuous tea in the Town Hall, and the building was prettily decorated, and a splendid spread was provided. The following cars and cycles were present, namely:—Mr. Alfred Smith, Thrapston, 7½-h.p. Wolseley; Mr. Arthur Green, Spalding, Baby Peugeot; Captain Strangways, Deeping St. James, 3½-h.p. Enfield Quad; Dr. Husband, Crowland, 8-h.p. Wolseley; Rev. F. Taylor, Boston, 4½-h.p. Benz; Mr. Mayes, Bourne, 6½-h.p. Humberette; Dr. and Mrs. Miller, Wrangle, Baby Peugeot; Mr. F. Richardson, Sibsey, 10-h.p. Wolseley; Mr. T. O. Mawby, Spalding, 3-h.p. motor-cycle; Dr. Croxford, Peterborough, Humberette; Mr. W. White, Spalding, Bradbury motor-cycle; Mr. H. White, Spalding, Centaur motor-cycle; Dr. A. J. Stiles, Spalding, Excelsior motor-cycle; Rev. S. W. Skene, Deeping St. James' 2½-h.p. Vinco cycle; Mr. G. Linnell, Market Deeping, 10-h.p. Wolseley; Dr. Stanton, Deeping, 1½-h.p. Royal George; Mr. Carter, 1½-h.p. Royal George; Dr. and Mrs. Crompton, Benington, Baby Peugeot; Dr. Wrinch, Boston, Phœnix motor-cycle, and others. The weather



The Meet of the Hertfordshire Automobile Club at Dinmore Hill.
Photo by [*Mr. Quintin Miller.*

was fine, the affair was well organised, and the courtesy and kindness of Mr. and Mrs. Linnell added greatly to the pleasure of the gathering.

The next meet of the club will take place on Whit Monday, the destination being Woodhall Spa.

BERKSHIRE.

FIELD MARSHAL EARL ROBERTS, V.C., K.P., etc., who resides at Ascot, has accepted the invitation of the committee to become the hon.

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president of the Berkshire Automobile Club. The fixtures for the remainder of the season are as follows:—June 8th.—At Ockwells Manor, Maidenhead, by invitation of Mr. E. A. Barry. June 25th.—At Beenham Grange, Beenham, by invitation of the hon. sec., Lt.-Col. W. Waring. July 13th.—At Holme Park, Sonning, Reading, by invitation of Capt. E. F. Rhodes. July 30th.—At St. Ann's Hill, Chertsey, by invitation of Mr. J. F. Ochs. September 14th.—At Inglewood House, Hungerford, by invitation of Mr. H. J. Walmesley.

IRISH MOTOR-CYCLE UNION.

A VERY enjoyable afternoon's sport was provided by the speed trials of the Irish Motor-Cycle Union on Saturday, when the motor-bicycle competitions under their auspices took place on the Velvet Strand at Portmarnock. The beach at Portmarnock, running along by the residence of Mr. John Jameson and the links of the Portmarnock Golf Club, is an ideal place for such a competition, as there is a perfect stretch of about a mile, and a less perfect one of twice that distance. The Irish Automobile Club may have to go there to hold its speed trials in August, as the authorities are reluctant to again allow permission to race in the Phœnix Park. There were three classes on Saturday, viz., machines under 120 pounds, machines under 150 pounds, and machines of unlimited weight. The races were run over a distance of a mile from a standing start, and the times given below, the fastest being equal to 35·29 miles per hour, speak eloquently for the suitability of the beach for motor racing, for, it must be remembered, the machines were ordinary roadster bicycles fitted with guards, brakes, silencers, etc., and roadster tyres, and the races were run against a fairly strong wind.

Class A, under 120 lbs., First Heat, J. C. Drury, Dublin, Triumph, 66 by 70, 1; Rev. W. Ireton, Belfast, Riley, 2; time 1 min. 52 4-5 secs. Second heat, W. B. Martin, Dublin, F.N., 64 by 72, 1; L. P. Oswald Sealy, Dublin, Brown, 2; time 1 min. 49 secs. Final, Martin, 1; Drury, 2; time of winner, 53 secs.

Class B. (under 150 lbs.), C. B. Franklin, F.N., 70 by 80, 1; R. W. Stevens, Phœnix (2); time, 1 min. 42 sec.

Class C. (unlimited as to weight) Final: C. B. Franklin, 1; R. W. Ireton, 2. Time 1 min. 45 sec.

ACTION OVER A MOTOR-CAR.

A SHERIFF'S Court was held at the Leeds Town Hall last week, when the Under-Sheriff of Yorkshire (Mr. Edwin Gray) and a jury were occupied with the assessing of damages in an action brought by Mr. Francis Sowden, of Ferncliffe, Clayton, against the Central Auto-Car Agency, Tottenham Court Road, London, for breach of contract in reference to the sale of a motor-car. Mr. Harold Newell, who appeared for the plaintiff, stated that the plaintiff was owner of a 9-h.p. Clement car, which he wished to dispose of for a more powerful car. He entered into negotiations with the defendants, who agreed to supply him with a 12-h.p. Sunbeam car for £510, of which he was to pay £255 in cash, the balance being represented by the Clement car, which was to be taken in part payment. Subsequently the Clement car was fetched by the defendants' representative, but the Sunbeam car was not sent as agreed to. Plaintiff made application for it but unsuccessfully, and eventually he had to buy another car, which cost him £476 13s. The plaintiff lost, therefore, the sum of £220 13s., and this was the amount which he claimed as damages. Evidence having been given as to the negotiations and agreements, the jury awarded the plaintiff the damages which he claimed.

UNLICENSED MOTOR-CAR.

AT Birkenhead County Magistrates' Court, Mr. Carlton Thompson was summoned for neglecting to take out a licence for his motor-car. Defendant admitted the offence but pleaded that he had applied for a licence some hours before the police stopped him, but did not receive it for four days. The Chairman said they would dismiss the case on payment of costs.

CASES DISMISSED.

AT Dewsbury two charges against motorists have been dismissed. Mr. Claude Jubb (Batley) was charged with driving his vehicle to the danger of the public, and Mrs. Martha J. Tolson with neglecting to use her "hooter," in consequence of which, it was alleged, a factory operative named Annie Ledgard was knocked down and injured. Both charges were denied and the defences sustained.

THE Hon. Claude Hay, M.P., appeared at the City Summons Court, on Tuesday, to answer a summons for interrupting the free passage of pedestrians in St. Paul's Churchyard. Mr. Hay, it was alleged, drove his motor-car on the wrong side of the "island" in leaving the churchyard for Cheapside, with the result that several people had narrow escapes from being run over. The magistrate dismissed the summons, remarking that had it been for driving on the wrong side of the road there would have been a conviction.

AT Christchurch, Charles Pooss, of the Triangle, Bournemouth, was summoned for having driven a motor-car in a reckless manner and to the danger of the public through the borough of Christchurch on April 1st.—At a former Court it was alleged that P.C. Boyd had, on the occasion of serving a previous summons, said to Mr. Pooss, "I will have you again soon." Supt. Payne thereupon applied for an adjournment to enable him to call evidence to disprove that statement, and P.C. Sumner was now called. He stated that he was in company with P.C. Boyd when a summons was served upon the defendant in respect to a charge of having driven a motor-car furiously. To the best of his recollection the following conversation took place. P.C. Boyd said, "I have got a summons for you, Mr. Pooss." Pooss said, "You are very smart," and Boyd retorted, "Yes, we are paid to be smart." For the defence, Mr. Bone urged the Bench to dismiss the case, pointing out that they were asked, on the evidence of a police officer which was totally uncorroborated, and in a case in which corroboration could have been brought, to convict a motor-car driver of a serious offence. The Bench dismissed the case, but they desired to say, said the Chairman, that the constable had acted thoroughly honestly and openly in the matter.

MOTORISTS v. HORSE DRIVERS.

AT Hailsham, Philip Luck, jun., was summoned for leaving a horse and cart unattended in Willingdon. Mr. J. B. Campion Coles was the prosecutor. He deposed that he and his son were driving through Willingdon Street on a motor-car. Defendant's cart was standing at a narrow part of the road, unattended, and as Mr. Coles stopped his car to allow another car coming in the opposite direction to pass, defendant's horse swerved out into the road and nearly caused a serious accident. A man ran up "from behind somewhere" and took charge of the horse, but for quite five minutes the horse was left unattended. The wheel of the van was chained. Mr. J. J. Hissey, Trewin Towers, Eastbourne, the driver of the other motor-car, stated that he was driving through Willingdon, and going very slowly, when the horse suddenly swerved right across his path. As far as he could see the cart was quite unattended. Mr. Luck, in defence, said his horse was a very quiet one, and the car ran into it and dragged it round. The wheel was chained, and the animal was fastened by the head. The Bench fined defendant £1 and 7s. costs, or fourteen days in default.

AT Horncastle, Tom Fenson and Jesse Brown, waggoners, were charged with neglecting to pull to the left side of the road and so allow the free passage of a motor-car, belonging to Dr. E. B. Reckitt, of Boston, at Tattershall, on the 13th April. The evidence of Dr. Reckitt and his driver was to the effect that the defendants took no notice whatever of the motor-horn. Two of them tried to get out of the way, but the third made no attempt to do so, and the car collided with a gravel heap and was smashed. The magistrates expressed their opinion that the defendants had no time to get out of the way, and there was no evidence that they refused to do so when called upon. The case was dismissed.

CONVICTIONS AGAINST MOTORISTS.

Place.	Summoned for	Fine.
West Ham	Failing to produce licence	£2, etc.*
,, ...	Driving without licence	£2.
Marlboro' Street, London, W.	Reckless driving	£20 or 3 months.
Epsom	Driving to common danger	£5, etc.
Woking	,, ,,	20s.*
Truro	Furious driving	10s., etc.
Huddersfield	Reckless driving	10s., etc.*
Epsom	Driving to common danger	£3, etc.
Kingston...	,, ,,	£5.
Accrington	Driving motor-cycles dangerously	5s., etc.
Birkenhead.....	No light to rear number	5s., etc.
Liverpool.....	Furious driving	£5, etc.*
Oxford.....	Dangerous driving	£1, etc.
,, ...	Not producing licence	5s., etc.
,, ...	Number plate not according to regulations	1s.
Daventry	No rear light	10s., etc.
Dewsbury	Furious driving	£10, etc.
Horsham.....	No licence	5s., etc.
Brierley Hill	Negligent driving	35s., etc.*
Accrington	Exceeding legal limit	5s.
Stockport	Furious driving	10s., etc.
Llandudno	,, ,,	£5, etc.
Southport	,, ,,	£2.
London, Marlborough Street		
Lambeth	,, ,,	£10.
	Refusing to stop when accident occurred	£10, etc.

* Licence endorsed in addition to fine.

POLICE TRAP.

THE Andover County Bench had a batch of motorists before them the other day on charges of driving at a speed dangerous to the public. The offences all occurred on the Andover to Salisbury main road, at a point where it passes through the village of Nether Wallop, and where there are cross-roads leading from the direction of Grateley to Broughton. A number of motorists have already been trapped there by the police.

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THE

Motor-Car Journal

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COMMENTS.



THE Motor Union has just been successful in obtaining the first High Court decision in favour of motorists, in connection with criminal proceedings, that has been given since the passing of the Act of 1896. The case, which came before the Court of King's Bench, composed of the Lord Chief Justice, Mr. Justice Wills and Mr. Justice Kennedy, was that in which Mr. Clifford, jun., of Loughborough, had been granted a *nil nisi* which obtained against the Loughborough justices for a *certiorari* to quash a conviction by the applicant by them under Section 1 of the Motor Car Act. The conviction was worded as follows:—"That on a public highway there situate he drove a motor-car at a speed or in a manner which was dangerous to the public, having regard to all the circumstances of the case, including the nature, condition, and use of the highway, and to the amount of traffic which actually was at the time or which could reasonably be expected to be on the highway." The summons to appear before the magistrates was worded in the same way, and the rule was obtained on the ground that the conviction was bad for duplicity as charging more than one distinct offence on a single summons.

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Success of the Motor Union.

As already announced in these columns the Lord Chief Justice gave judgment for the motorist. He said it was impossible to contend that the only offence mentioned in the section was that of driving at a speed dangerous to the public, for it was obvious that there was also the offence of driving in a manner dangerous to the public. The magistrates, therefore, had not to consider the two things together but ought to have considered whether the defendant was driving in a manner dangerous to the public apart from the question of speed. The conviction therefore could not stand. Mr. Justice Wills and Mr. Justice Kennedy having given judgment to the same effect the rule was accordingly made absolute and the conviction quashed.

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The British Team.

THE Races Committee of the Automobile Club have issued a communication in which they say that the statement appended to the Races Committee's award, viz., "But for the mishap to the car No. 6 driven by Mr. Clifford Earp it would have taken second place in the team selected," was published with the award as a recognition of the previous performances of this car and its driver during the trials. There was nothing in the statement to warrant the assumption which has been made that there was any wide difference between the performances of car No. 6 driven by Mr. Earp and car No. 12 driven by Mr. Jarrott. After the conclusion of the trial on Thursday the committee had to decide which of the cars and drivers then before them were best suited to represent the Club in the race. The committee throughout had regarded the driver and the car as a unit, which could not be separated after the selection trials. They therefore formed their judgment on the results of the trials and the condition of the cars and drivers on the Thursday evening, and did not feel justified in entering into speculation as to what might be their condition at a subsequent date.

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Railways and Motor-Cars.

AMONG railways the Great Eastern Company has always shown an enterprising spirit, and it is freely rumoured along its system that, should the motor-car service recently inaugurated between Southwold and Lowestoft be successful, another service will be run at Clacton-on-Sea. This is a popular resort, and although the country round about is somewhat dreary, there are a few pleasant drives—one to Walton and another to St. Osyth, in which latter direction, it is thought, a motor-car service is likely to be started. It should pay and prosper.

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The Burton Meet.

THE Manchester Automobile Club, which is organising the united club run to Buxton, has now definitely fixed the date for Saturday, the 11th prox. It is to behoped that the gathering at the Empire Hotel there will be a fully representative one so far as northern motorists are concerned. Already most of the leading clubmen have promised to attend, and the collection of cars that will assemble in the pleasant Derbyshire resort will be fully representative of all the leading types, thus giving an added interest to the event.

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S.I.

SOME correspondence has reached us with regard to the Identification Mark S.I. which has been seen about London of late. So many readers appear to have seen this number and to have noticed its omission from our Identification Card that it may be of interest to recall the passage in the Circular of the Local Government Board to county councils issued in November last, according to which "it has been arranged that no use shall be made by English and Welsh registering authorities of the letters G., I., S., V., or Z, the letters G., S. and V. being intended to be distinctive of Scottish, and the letters I. and Z. of Irish authorities." The two letters S.I. cannot therefore properly occur in the same index mark.

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Trial for Small Cars.

THE question of a trial for small cars for 1904 has been further considered by the expert and technical committee of the Automobile Club, and the secretary has been instructed to insert a rule in the classification clause which would exclude quadricycles and similar machines from taking part in the Trials. The classification will be as follows:—Class 1—Not exceeding £125; Class 2—Exceeding £125 and not exceeding £150; Class 3—Exceeding £150 and not exceeding £175; Class 4—Exceeding £175 and not exceeding £200. Entries will only be accepted from manufacturers or their nominees. No manufacturer will be allowed to enter more than two cars, which, unless there is more than twenty per cent. difference in cylinder capacity, shall then be run as a team. Certificates will only be awarded to those cars which actually receive a

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prize, but it is left to the discretion of the judges to award an "honourable mention" to those cars which they may think worthy of it. The fundamental feature of the trials will be non-stop runs, and these should consist of, say, six non-stop runs of 100 miles each, or twelve non-stop runs of 50 miles each, to be carried out in six days, and these runs should be performed at a minimum average speed of twelve miles an hour for all except in Class 1, in which the average speed might be ten miles an hour

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Dr. Fitzgerald, of Grahamstown, South Africa, crossing a river.

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Motoring in South Africa.

One of the South African readers of the *Journal*, Dr. Fitzgerald, of Grahamstown, has sent us two interesting photographs, which we reproduce herewith. The doctor writes that "the photographs were taken on a trip that I and three friends took the other day down Belmont Valley on my 10-h.p. Star car. We went about fourteen miles, and in the course of the trip we crossed the Kowrie River near its source seven times. Some of the gradients were 1 in 4 and 1 in 5, on which we never shed our passengers once. One picture shows the first drift across the Kowrie River, and the other a group of Kaffirs round the Star. The trip was done without any trouble, and throughout the whole fourteen miles we were unable to even put in the top speed, as the roads are fiendish, the surface bad, and never level."

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Motor Maintenance.

Mr. E. Shriver Reese, president of the Automobile Club of Cleveland, U.S.A., than whom there is no more enthusiastic motorist, says:—"The expense of operating a motor-car is of little consequence in proportion to mileage. I have never heard anyone make complaint on this score. The expense of maintenance and repair depends largely on the driver and the care of the vehicle. A careful driver who owns a good machine, and takes proper care of it, will have no cause for grievance as to repairs. The popular idea as to the cost for necessary repairs being excessive is largely due to the conditions that formerly existed, when many of us, who were among the early purchasers, were practically trying out the experimental work and designs of the manufacturers. This condition no longer exists. Any of the prominent cars now on the market can be relied upon for substantial and satisfactory service, according to their type. There will, of course, continue to be improvements, but the inducement to an owner to make a change in the future will be because the improvements are desirable and not because they are necessary. The cost of maintenance for my three cars during 1903 was £62, including tyre renewals and the general overhauling of one of the older vehicles. If only half the care is given to a good motor-car that is usually given to a good horse, an intending purchaser need not, in these days, feel deterred by any idea that the expense of maintenance would be excessive or unreasonable."

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Motors for Ministers.

It appears, from an article in the "Christian World," that the complaint of "Mondayishness"—a common failing with ministers—can be greatly relieved by motoring. A parson who has become a very ardent motor-cyclist writes enthusiastically of the joys of whirling through space at the rate of many miles an hour, and has even ventured to give his clerical brethren some good technical advice. There is no doubt that a short spin on any form of automobile is a capital awakener of the nerves of men, and that ministers as well as doctors will find health of body as well as economy of time in the use of the motor.

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Children and Cars.

During the Glasgow to London run of the Scottish Club last week, much interest was shown in the automobiles by small children along the line of route. Nearly all appeared to have paper and pencil, and to be recording the numbers of the cars. Curiously enough, we have since received an envelope enclosing lists of scores of motor-car identification marks.

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Dr. Fitzgerald visiting the Kaffirs on his 10-h.p. Star car.

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[Motor-Car Regulations in the Transvaal.

The Transvaal Government have recently approved by-laws which not only regulate purely road traffic, but enforce certain requirements as to the construction of motor-cars. They must, for instance, be mounted on adequate springs; unless motor-cycles, they must be capable of being worked both forwards and backwards; they must be provided with at least two independent brakes. Cars must not exceed 6½ feet in width. Should petroleum or other inflammable liquid

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be used to produce power for a motor, such inflammable liquid must be kept in vessels containing not more than twenty gallons each, and no vehicle is to be allowed to carry more than two.

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Traders' Marks.] TRADERS must exercise considerable care with reference to their identification marks, and not allow them to be indiscriminately used by anybody, or even to be allowed on cars which are likely to be taken out without permission by their employees. As a general rule it may be taken for certain that most of the inconsiderate driving of which complaint is made is by men who are using cars which do not belong to them. Another point as to which traders should exercise much discretion is as to making a record of cars out on trial. Two cases have just been heard where neglect to do this immediately the car was sent out has been followed by fines.

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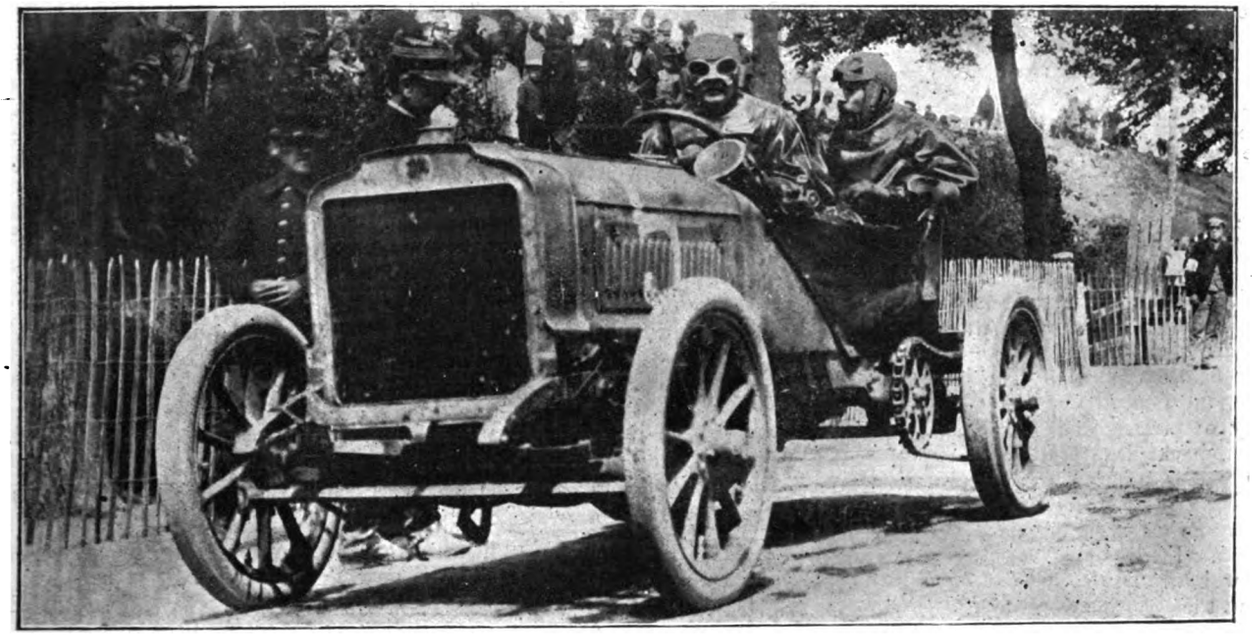
Hampshire and the Act. THE special Committee of the Hants County Council as to the Motor Car Act, 1903, submitted a report in which they stated that 116 parishes had applied for the erection of about 350 sign-posts denoting dangerous corners, cross-roads, and precipitous places, and the committee recommended that a sum of £100 should be provided by the Council for the purpose of any cases which, in the opinion of the county surveyor, were urgent. Up to the 1st May the number of motor cars registered in the county was 616, and 873 licences had been issued to drivers. Mr. E. P. King caused some amusement by moving as an amendment that no sign-post be erected except on the recommendation of a coroner's jury. The amendment, however, found no seconder, and the recommendation was agreed to.

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Automobilism in South Wales. THE committee of the South Wales and Monmouthshire Automobile Club, in their annual report, state that they have been successful in inducing Mr. S. Andrews to reduce the toll on motor-cars passing through the gates on the Penarth road from 1s. to 6d. The state of the roads in various parts of South Wales has received much attention from the committee. The consideration given to the matter by the Glamorgan County Council had been much appreciated, and it was hoped to receive similar assistance from the Breconshire Council. The committee ask for reports from members who experience inconsiderate treatment on the road, desiring to make an example of some of the persons who display prejudice against motor-cars. The committee regret that they have not yet been successful in finding premises in Cardiff suitable for a club garage. The accounts show a balance in hand of £58.

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In New Zealand. A MEETING of the Automobile Association of New Zealand was recently held at Canterbury, Mr. J. S. Atkinson being in the chair. With reference to the efforts of the Association to have the Waipara Bridge planked, in order that it should be available for automobile traffic, letters were received from the League of New Zealand Wheelmen, the Canterbury Centre of the League, and the Christchurch Cycling and Motor Club, promising co-operation. In response to a letter from the secretary asking the Mayor what were his ideas in regard to opening up Hagley Park for automobilists the following letter was received from the Town Clerk:—"In compliance with your request, I am directed by his Worship the Mayor to inform you that, personally, he feels that carriage traffic should not be allowed in the Park, and considers that if automobiles were permitted to enter the Park, it would encourage those persons, if any, who wish to open it to ordinary traffic." A committee was appointed to deal further with the subject and also to arrange for the appointment of a paid secretary. Evidently the organisation of the automobile movement in the Colonies is proceeding rapidly.



Thery—the Winner of the Race—on his Georges Richard-Brasier Car.

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The Agitation for Alcohol. LIEUTENANT W. G. WINDHAM has been lecturing under the auspices of the Junior Institution of Engineers, at the Westminster Palace Hotel, on the "Running of Motor-cars and Cycles," in the course of which he laid stress upon the undeniable usefulness of the motor, and remarked that in the development of reliability and perfection serious considerations are the continuation of the supply of rubber and petrol, or of an adequate substitute for them. He impressed upon his audience the importance of every attention and encouragement being given to the motor-car industry, and in this respect he thought our Government might well take a lesson from our neighbours in France. The French Government is doing everything

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possible to enrich their country by the sale and use of the motor-car and to produce home-grown alcohol for industrial purposes. Only 2 per cent. of the world's output of petroleum is suitable for the distillation of motor spirit. "This means," said the lecturer, "that at any moment the petrol output might be cornered or the supply might run short." Last year, for instance, at the time of the military manœuvres, when only a few hundred gallons of motor spirit were ordered, the price went up 50 per cent., and in some places petrol could not be had at all. "Why," asked Lieutenant Windham, "should we be at the mercy of other countries when we can ourselves well grow what is required for the production of alcohol and render ourselves independent of the foreign oil supply?"

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The French Eliminating Trials.

THE result of the great race in the Ardennes last week has occasioned the greatest surprise in French motoring circles. Rigolly and his Gobron-Brillie were the first favourites before the race, and it was fully expected that Panhards would be well to the front with at least one vehicle. The Mors Company have of course competed in the Gordon Bennett Race before, but the Georges Richard-Brasier and Turcat-Mery cars will make their *debut* in the great international event at Germany next month. It is noteworthy that the successful vehicles are all of the chain-driven type.

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Mr. Jarrott's Views of the Race.

AS we go to press we have received a letter from Mr. Jarrott, from which we take the following:—"You will probably have observed from the results of the French Eliminating Trials that one of the two cars entered by Messrs. Turcat-Mery, the designers of the De Dietrich cars, gained third place in the French team, and that the fourth place and first reserve was gained on a De Dietrich driven by Gabriel. The Turcat-Mery and the De Dietrich cars are identical in every respect; the Turcat-Merys were finished two or three weeks ago and thus were probably tried before the race. The De Dietrich's were, on the other hand, only finished the week before, and there was no opportunity of proper trials being made, so that the success of Gabriel is remarkable. The latter would probably have been in a much better position were it not for the fact of his water tank breaking and delaying him considerably. My own trouble was in the same direction, my water tank giving way after the second round. In the endeavour to keep everything down to the prescribed weight the tanks were made somewhat lighter than was safe and the performances of the cars suffered accordingly."

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Easter in Australia.

THE most ambitious motor tour yet attempted in Australia was concluded when the Automobile Club of Victoria returned to Melbourne after its Easter trip through the western district of Victoria. The trip practically started from Geelong on the Friday, though the majority of the tourists left the club rooms on Thursday afternoon. Those who had cars drove to Geelong, and those mounted on motor-bicycles mostly went across by boat. However they went, and all the tourists, to the number of forty-one, foregathered in Geelong on Thursday night. The vehicles included two Decauvilles, six Humberettes, two De Dions and an Argyll. The first night of the tour proper was spent at Camperdown, and on Saturday morning, at 9.30, the journey was resumed, and all that day the tourists swept on under idyllic conditions. Hamilton was reached by dusk, and the motorists were entertained at a social given in their honour by the Mayor of the town. An early start was made from Hamilton on Sunday morning, for the longest day's journey of the tour had to be faced, a run of 120 miles to Ballarat. The last stage of the trip lay between Ballarat and Melbourne, a distance of sixty-eight miles. Ballarat was left at 10.45 a.m., and, after a glorious run over the Pentland Ranges, Ballan and refreshments were reached. Then, with stoppages at Bacchus Marsh and Keilor, the journey to Melbourne was resumed, and at 6.30 that evening the club-rooms were reached. There the tourists felicitated themselves. Most of the trouble on the road was caused through the water tanks and radiators on the light machines leaking, whilst on the heavy machines there were tyre troubles to be encountered. In neither the light nor the heavy cars, however, did the mechanism give the slightest trouble. Petrol depots were established along the road by Mr. H. James. At Geelong the party took along forty gallons of petrol, sixty at Camperdown, eighty at Hamilton, and sixty at Ballarat, and this took them comfortably back to Melbourne.

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Guides.

MR. T. THROUP, of Bradford, has brought out a new edition of his motorists' guide to the North of England, and also a companion volume entitled the "North Wales Cyclists' and Motorists' Guide." Both are well illustrated, while each contains a selection of routes admirably devised for the saving of time and temper of those who travel quickly by road. There are many charming districts in both parts of Britain made accessible by the advent of the motor-car, and to these Mr. Throup's books are capital companions.

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Hill Climbs.

THERE will be a plethora of hill-climbing competitions this season, and already the A.C.G.B.I. have approved of such contests being organised by the West Surrey, the Midland, the Lincolnshire and the Derby automobile clubs, on condition that the consent of the local authorities should be obtained and no inconvenience caused to the public. These events naturally arouse considerable interest in the districts in which they are held and do much to maintain the enthusiasm of members in their respective clubs.

MR. BALFOUR crossed from Dover to Calais on Monday for a motor tour in France.

AN automobile club has been formed at Stockton, with Mr. Leonard Ropner, J.P., as chairman.

MR. D. T. CALLOW, of Castletown, Isle of Man, has become a motorist since the Eliminating Trial in that island.

THE directors of the Car and General Insurance Corporation, Limited, have now extended their policies to cover the owner and the paid driver against accidental injury sustained when examining or standing by the insured car.

THE Committee of the Royal Horse Show have made arrangements for motor-cars to be admitted to the show ground on the occasion of their annual show to be held in the Old Deer Park, Richmond, on the 10th and 11th prox., at a charge of 10s. each car and 1s. each occupant. An enclosure will be reserved for motor-cars.

THE 12-h.p. Richardson car in the Glasgow-London run went from the works at Saxilby to Glasgow, starting at 4 a.m. on the 15th inst., and reaching Glasgow at 6.45 p.m., without any punctures or any stops for meals. The sole stops were two to buy petrol and once to speak to Mr. Belcher on his 8½-h.p Humber. The last 112 miles was absolutely non-stop.

COLONEL W. J. BOSWORTH'S latest acquisition is a 14-h.p. Clement car. After exhaustive trials he has come to the conclusion that light cars of this type are the most suitable for his special work, namely, the instruction of officers in field sketching and reconnaissance. As an instance of the value of motor-cars for this particular kind of military work, it may be mentioned that recently a party of officers, leaving Cedar Court, Roehampton, in three cars, had a run of fifteen miles, sketched three square miles of country, and returned to Roehampton, the time occupied from start to finish being just over three hours.

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The French Gordon Bennett Eliminating Trials.

PREPARING FOR THE EVENT.

MAZAGRAN, Thursday, May 19.

ONLY a few hours separate us from the start of the great event of the French motor-racing season—the Eliminating Trials for the team of three cars and drivers to represent France in the Gordon Bennett race in Germany next month. The course for the contest is entirely in the Department of the Ardennes, and passes through one of the most sparsely populated parts of France. Mazagran, where the start is to take place, will be vainly sought even on ordnance survey maps, as it consists in normal times of one farm and one *estaminet* at the crossing of the roads from Chalons to Meziéres and from Rethel to Vouziers. The two last-named places are the only towns of any importance on the route. To-day Mazagran is temporarily turned into a small town, bustling with active officials and noisy with the sound of the exhaust of the racing cars already on the scene. The circuit, originally some twenty-five miles longer, has, in order to steer clear of a cluster of villages, been reduced to fifty-eight miles. Over this distance three miles and one-sixth will be "neutralised," where the road passes through Rethel and Vouziers and two villages, Le Chesne and Novy, the total time allowed for travelling over these portions of the circuit being 26 min. The net length of the course is thus reduced to 54 5–6 miles. In order to cover a distance nearly equivalent to the minimum required for the Gordon Bennett Cup, the cars will have to travel six times round the circuit. The total distance will, therefore, be 348 miles gross and 329 miles net. The test differs materially from that of the British cars in the Isle of Man, the French Club relying on a contest affording as far as possible a duplicate of the conditions of the actual race. Paris has almost emptied itself of motorists, special and excursion trains bringing thousands to Attigny, Vouziers, Rethel, and other places on the course. The hotels and inns for twenty miles round Mazagran are crowded, and many visitors have been compelled to seek quarters in farms, while others are arranging to camp out in the open air. All imaginable precautions have been taken to prevent accidents to spectators. The road in all the villages has been fenced off, and will be kept all along by troops. No one except the timekeepers will be allowed on the course. The road has been sprinkled with Westrumite to lay the dust. At each of the neutralisations a corps of twenty-five military cyclists will be at the disposal of the timekeepers in piloting the cars, while a small special train is being kept in readiness at Attigny to convey the injured to the hospital at Rheims in case of accident.



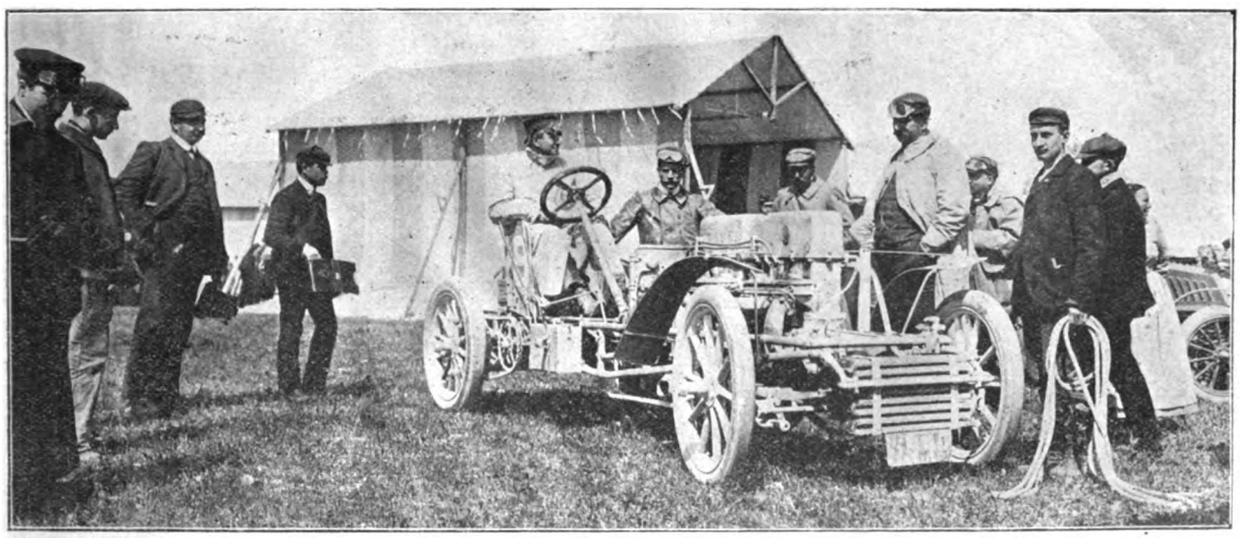
Thery—the Winner of the Race.

The weighing-in took place to-day, and, strange to relate, there was not a single forfeiture, the whole of the twenty-nine cars putting in an appearance. An extra 7 kilogs. over the 1,000 kilogs. was allowed for the cars having magneto ignition. After being scaled, attention was centred by the authorities on the condition of the brakes.

THE RACE.

MAZAGRAN, Friday, May 20.

There was little rest for anyone last night. Ere the cocks began to herald the dawn of the eventful day, all around the course there were signs of activity rarely if ever seen in this part of France. The soldiers gradually took up their positions, and at 4 a.m. the course was finally closed, except to the racing cars. Baron de Crawhez (No. 4, Hotchkiss), was the first to appear at the starting-point, where at ten minutes to five all the competitors were lined up for the great event. A few changes took place at the last moment in the order of starting, the correct one being indicated in the table on page 278, which also shows the weight of the cars, the type of inlet valve, the ignition, the wheel base, and the wheel gauge of the competing vehicles. There was not a single forfeit—all the twenty-nine cars left in their due order, punctually to the second, commencing with Baron de Forest on his De Dietrich at five a.m. The others were sent off at two-minute intervals, Burton (Gobron-Brillié) being the last to get away at 5.56 a.m. Among the sensations of the start was the wild jump given by Salleron's car, the other Mors racers going off with the same



Burton, on the Gobron-Brillie, at the Weighing-in.

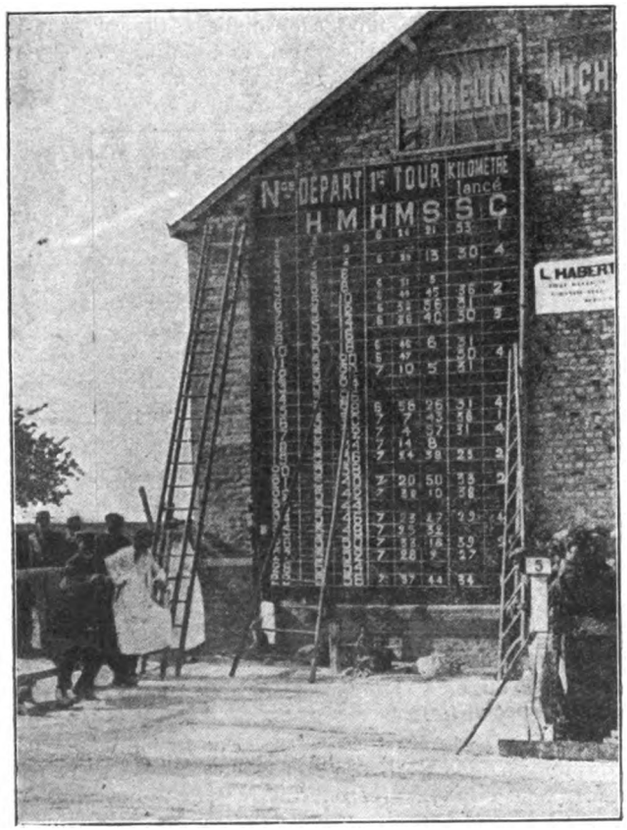
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THE COMPETITORS AND THEIR CARS.

No.	Driver.	Car.	Weight empty.	Inlet Valves	Ignition.	Transmission.	Wheel Base.	Wheel Gauge.
1.	Baron de Forest...	De Dietrich	900 kilog.	Automatic.	Magneto.	Two chains.	2 m. 72	1 m. 40
2.	Baras	Darracq	1,004 „	M.O.V.	Double.	Cardan.	2 m. 50	1 m. 30
3.	A. Clement	Clement-Bayard ...	980 „	„	Accumulators.	Cardan.	2 m. 45	1 m. 45
4.	P. De Crawhez ...	Hotchkiss	1,004 „	Automatic.	Magneto.	Two chains.	3 m.	1 m. 45
5.	L. Thery	Richard-Brasier ...	972 „	M.O.V.	Magneto.	Two chains.	2 m. 60	1 m. 25
6.	Le Blon	Serpollet	991 „	„	—	Central chain.	2 m. 80	1 m. 40
7.	Salleron	Mors	1,000 „	Automatic.	Magneto.	Two chains.	2 m. 60	1 m. 45
8.	H. Farman	Panhard	1,003 „	M.O.V.	High tension magneto.	Cardan.	2 m. 50	1 m. 40
9.	Rigolly	Gobron-Brillié	998 „	„	Accumulators.	Two chains.	2 m. 80	1 m. 40
10.	H. Rougier	Turcat-Mery.....	950 „	Automatic.	Magneto.	Two chains.	2 m. 72	1 m. 40
11.	Gabriel.....	De Dietrich	990 „	„	Magneto.	Two chains.	2 m. 72	1 m. 40
12.	Beconnais	Darracq	1,004 „	M.O.V.	Double.	Cardan.	2 m. 50	1 m. 30
13.	Hanriot	Clement Bayard ...	1 004 „	„	Magneto.	Two chains.	2 m. 45	1 m. 45
14.	A. Fournier...	Hotchkiss	990 „	Automatic.	Magneto.	Two chains.	3 m.	1 m. 45
15.	Caillois.....	Richard-Brasier ...	971 „	M.O.V.	Magneto.	Two chains.	2 m. 60	1 m. 25
16.	Chanliaud	Serpollet	990 „	„	—	Central chain.	2 m. 80	1 m. 40
17.	A. Leger	Mors	1,003 „	Automatic.	Magneto.	Two chains.	2 m. 60	1 m. 45
18.	Teste	Panhard.....	1,000 „	M.O.V.	High tension magneto.	Cardan.	2 m. 50	1 m. 40
19.	Duray	Gobron-Brillié	990 „	„	Accumulators.	Two chains.	3 m.	1 m. 36
20.	De la Touloubre	Turcat-Mery.....	1,004 „	Automatic.	Magneto.	Two chains.	2 m. 72	1 m. 40
21.	Chas. Jarrott.....	De Dietrich	984 „	„	Magneto.	Two chains.	2 m. 72	1 m. 40
22.	Wagner	Darracq	1,004 „	M.O.V.	Double.	Cardan.	2 m. 50	1 m. 30
23.	Guders	Clement-Bayard ...	1,000 „	„	Magneto.	Two chains.	3 m.	1 m. 45
24.	Amblard	Hotchkiss	1,004 „	Automatic.	Magneto.	Two chains.	3 m.	1 m. 45
25.	Stead	Richard-Brasier ...	980 „	M.O.V.	Magneto.	Two chains.	2 m. 60	1 m. 25
26.	Pelser	Serpollet	990 „	„	—	Central chain.	2 m. 80	1 m. 40
27.	Lavergne	Mors	1,000 „	Automatic.	Magneto.	Two chains.	2 m. 60	1 m. 45
28.	Tart	Panhard.....	990 „	M.O.V.	High tension magneto.	Cardan.	2 m. 50	1 m. 40
29.	Alex. Burton	Gobron-Brillié	990 „	„	Accumulators.	Two chains.	3 m.	1 m. 36

alacrity. The Gobron-Brilliés were literally mere skeletons, displaying all their interior workings, one of the drivers, Duray, to be in harmony with his machine, going off gaily without the trace of a wrap. The Darracqs made a deafening noise at the start, which scared all the onlookers, even judges and officials.

News of the racers was now eagerly awaited. The wireless telegraphy installation worked very well at first, but broke down as the morning wore on. The first round knocked out Baras, (No. 2, Darracq) due to a broken wheel, Rigolly (No. 9, Gobron-Brillié) owing to a leaky radiator, A. Fournier (No. 14, Hotchkiss) and Hanriot (No. 13, Clement-Bayard). Fournier spilled over the level crossing at the bottom of a steep gradient at Saulce-Mondin, one of the dangerous points of the course. His car overturned completely, but both he and his mechanician escaped miraculously without a scratch. De la Touloubre (No. 20, Turcat-Mery), Baron de Crawhez (No. 4, Hotchkiss), and Guders (No. 23, Clement-Bayard), were also delayed on the first round. The cars which were going best at this early stage were No. 3, the Clement-Bayard, driven by Clement, Jun., No. 5, the Georges Richard-Brasier, driven by Thery, Salleron's Mors, H. Farman's Panhard and Rougier's Turcat-Mery. The times at which the various competitors completed the first round are shown below :—



The record-board at Mazagran, giving the hour of departure, the time of completing the circuit, and the speed over the last flying kilometre.

First Round.

Order of Starting.	Driver.	a.m.	Order of Starting.	Driver.	a.m.
1.	De Forest	6.26	21.	Jarrott	7.21
3.	A. Clément	6.28	24.	Amblard	7.24
5.	Théry	6.31	19.	Duray	7.25
7.	Salleron	6.33	25.	Stead	7.28
8.	Farman	6.37	27.	Lavergne.....	7.29
6.	Le Blon	6.45	26.	Pelser	7.33
10.	Rougier	6.46	29.	Burton	7.38
11.	Gabriel.....	6.48	22.	Wagner	7.39
15.	Caillois.....	6.56	28.	Tart	8.15
17.	Léger	7.5	20.	De la Touloubre ...	8.59
16.	Chanliaud	7.8	4.	De Crawhez	9.45
12.	Béconnais	7.10	23.	Guders	10.40
18.	Teste.....	7.15			

It was in the second round that Thery (No. 5, Georges Richard-Brasier) ran into first place, a position he retained to the end. Baron de Forest (No. 1, De Dietrich) fell back to the third place. Farman (No. 8, Panhard), gained slightly on Salleron (No. 7, Mors). Among those who gave up in the second circuit were Chanliaud (No. 16, Serpollet), owing to a broken front axle. Wagner (No. 22, Darracq), Guders (No. 23, Clement Bayard), Tart (No. 28, Panhard) and Burton (No. 29, Gobron-Brillié). The latter's stoppage was due to a leak in the water-jacket, causing water to get into the cylinder.

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SECOND ROUND.

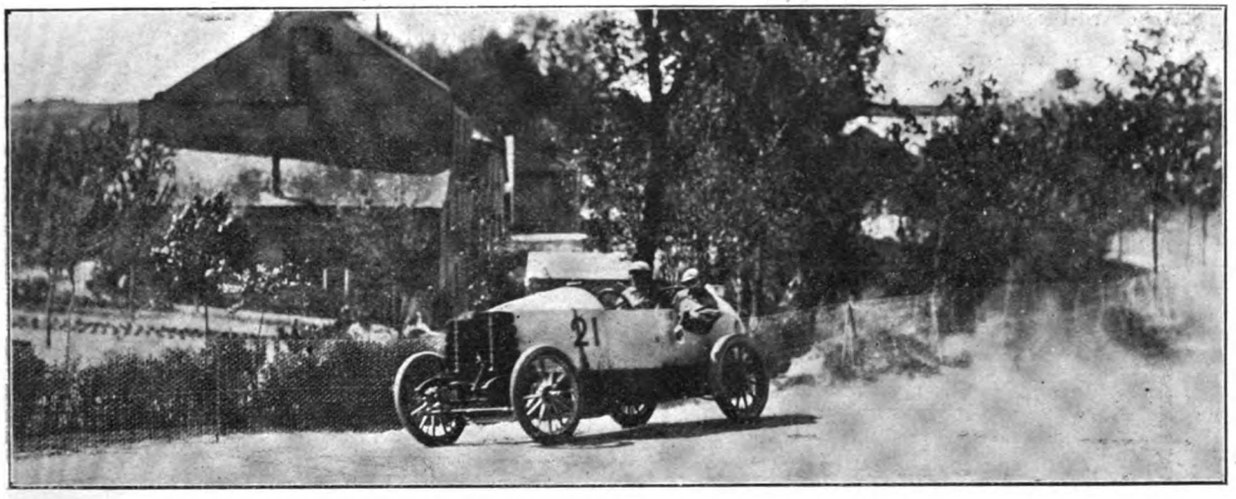
Order of Starting.	Driver.	a.m.
5.	Théry	7.50
3.	A. Clement	7.51
1.	De Forest	7.56
8.	Farman	7.57
7.	Salleron	8.2
11.	Gabriel	8.8
10.	Rougier	8.13
6.	Le Blon	8.19
17.	Léger	8.28
15.	Caillois	8.38
18.	Teste	8.47
21.	Jarrott	8.52
24.	Amblard	8.55
12.	Béconnais	9 0
25.	Stead	9 6
27.	Lavergne	9.6
26.	Pelzer	9.33
19.	Duray	10.13
20.	De la Touloubre	10.49
4.	De Crawhez	11.20

In the third round Farman, Gabriel and Salleron passed Clement, Jun., De Forest, too, falling further to the rear. Le Blon (No. 6, Serpollet) was going well, and had managed to retain his position. De la Touloubre (No. 2, Turcat-Mery) again experienced trouble, as also did Leger (No. 17, Mors), he occupying nearly six hours in completing the third circuit, in which Baron de Crawhez' Hotchkiss car, No. 4, was upset, the steering gear being damaged and the mechanician slightly injured in the head. In this round Duray, No. 19, also abandoned, putting the Gobron-Brillié entirely out of court. Lavergne (No. 26, Mors) also gave up.

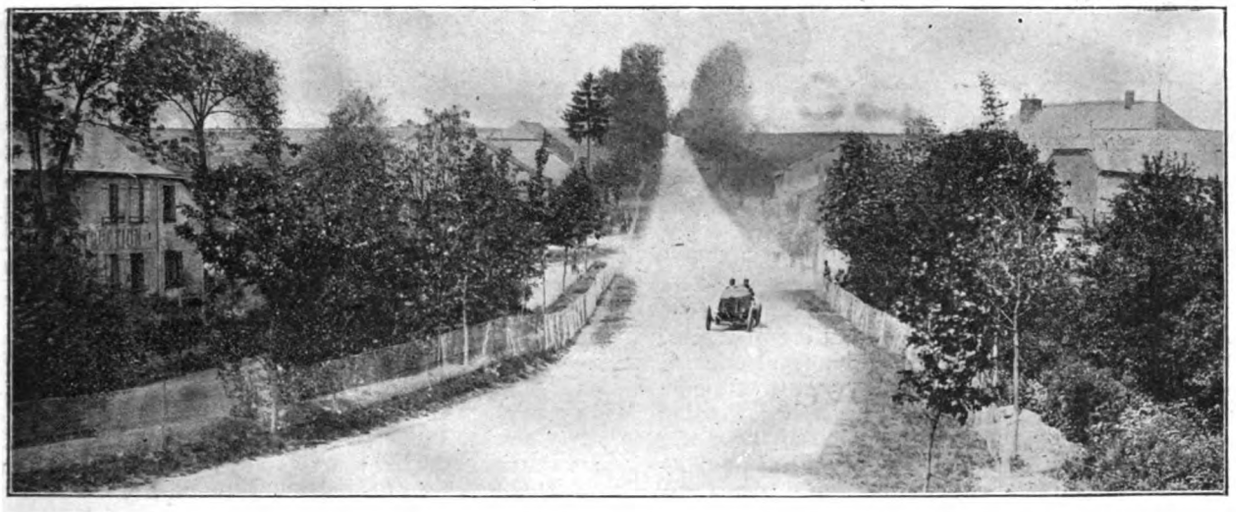
THIRD ROUND.

Order of Starting.	Driver.	a.m.
5.	Théry	9.6
8.	Farman	9.21
11.	Gabriel	9.34
7.	Salleron	9.35
3.	Clément	9.39
10.	Rougier	9.40
1.	De Forest	9.45
6.	Le Blon	9.54
15.	Caillois	9.58
24.	Amblard	10.21
18.	Teste	10.25
21.	Jarrott	10.42
12.	Béconnais	10.6
25.	Stead	10.51
26.	Pelser	11.11
20	De la Touloubre	12.25
17.	Léger	2.15

The fourth circuit was a very disastrous one, only twelve out of the twenty-nine competitors finishing it. Théry still kept his lead, with Salleron close behind, the latter having got ahead of Gabriel and Farman. Clement, Jun., too, had a bad time, his fourth round occupying nearly three hours. Those who were forced to abandon in this circuit were:—De Forest (No. 1, De Dietrich), Beconnais (No. 12, Darracq), Leger (No. 17, Mors), De la Touloubre (No. 20, Turcat-Mery), and Amblard (No. 24, Hotchkiss). The worst accident of the day happened to the latter; the rear axle of his car broke while he was going at full speed in passing over a *caniveau*. The vehicle dashed into two tall poplars, turned a series of somersaults over a distance of 300 yards, and eventually smashed itself to pieces. Strangely enough, neither Amblard nor his mechanician were seriously injured. The latter's foot was broken and Amblard had several teeth knocked out and his face cut. Baron Henri de Rothschild's motor ambulance did good service, speed-



Jarrott (De Dietrich) Taking the Bend at Biernes.



Rougier (Turcat-Mery) at Biernes.

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ing to scenes of accidents, but only one man, Amblard's mechanician, was sufficiently badly hurt to be obliged to use it.

FOURTH ROUND.

Order of Starting.	Driver.	a.m.	Order of Starting.	Driver.	a.m.
5.	Thery	10.32	15.	Caillois	11.30
7.	Salleron	10.59	18.	Teste	11.54
11.	Gabriel	11.9	21.	Jarrott	12.10
10.	Rougier	11.11	25.	Stead	12.20
8.	Farman	11.23	3.	Clement	12.26
6.	Le Blon	11.29	26.	Pelser	12.58

In the fifth circuit Thery and Salleron passed first and second, with Rougier (No. 10, Turcat-Mery) in the third place, owing to Gabriel (No. 11, De Dietrich), having to stop to make some repairs. Clement, Jun., did well in this round, getting back to eighth position, passing Teste, Jarrott, and Stead (No. 25, Georges Richard-Brasier), the latter giving up owing to a leaky tank.

FIFTH ROUND.

Order of Starting.	Driver.	a.m.	Order of Starting.	Driver.	p.m.
5.	Thery	11.55	6.	Le Blon	1.8
		p.m.	15.	Caillois	1.16
7.	Salleron	12.28	3.	Clément	1.51
10.	Rougier	12.36	18.	Teste	2.4
11.	Gabriel	12.45	21.	Jarrott	2.14
8.	Farman	12.55	26.	Pelser	2.36

The last round of the race was entered upon about midday, and brought with it no change in the first four positions. Farman, however, fell back, owing to overheating troubles, from the fifth to the seventh position. Out of the twenty-nine starters only ten finished before 5 p.m. Although the "weeding out" was thus fairly heavy, it must not be forgotten that many of the competitors who had to stop for small repairs and adjustments gave up when they saw they had no chance to secure a place in the classification. The Panhard cars, which made a good impression, suffered seriously from overheating of the engine.

FINAL ROUND.

Order of Starting.	Driver.	p.m.	Order of Starting.	Driver.	p.m.
5.	Thery	1.22	15.	Caillois	2.56
7.	Salleron	1.56	8.	Farman	3.13
10.	Rougier	2.6	3.	Clement	3.24
11.	Gabriel	2.25	18.	Teste	3.35
6.	Le Blon	2.35	26.	Pelser	—

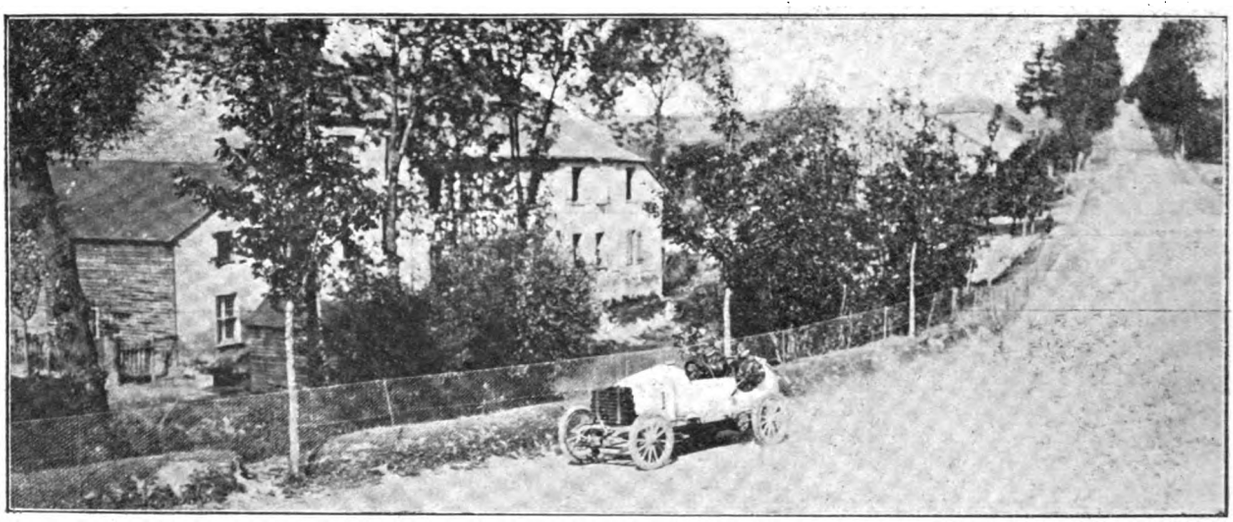
Some time elapsed ere the definite classification and net times of those who finished was announced. The figures given out by the Sporting Commission of the A.C.F. are shown below:—

		H.	M.	S.
1.	THERY (Georges Richard-Brasier)	5	20	28
2.	SALLERON (Mors)	5	40	2
3.	ROUGIER (Turcat-Mery)	5	45	5 2-5
4.	GABRIEL (De Dietrich)	5	48	5 4-5
5.	LE BLON (Serpollet)	6	13	32
6.	CAILLOIS (Georges Richard-Brasier)	6	21	27 1-5
7.	TESTE (Panhard)	6	40	23 4-5
8.	H. FARMAN (Panhard)	6	51	0
9.	PELSER (Serpollet)	7	0	27 3-5
10.	A. CLEMENT (Clement-Bayard)	7	11	53 4-5

The result has created the greatest surprise. Thery, the winner, received a magnificent ovation, and had to be rescued, with his car, from the frenzied delight of the throng who saw the finish. As will be seen, he won easily; his gross time for the 348 miles gross was 7 hrs. 48 min., and, neutralisations being deducted, he covered the 329 miles net in 5 hrs. 20 min. Thery's average speed works out at 99·4 kilometres per hour; Salleron's, 93·8 kilometres; Rougier's, 92·6 kilometres; Gabriel's, 91 kilometres; and Le Blon's at 85 kilometres. The fastest time over the measured kilometre at Mazagran was made by Duray (Gobron-Brillie) in the first round—26 2-5 secs. Thery's times over the same were 30 secs., 31 1-5 secs., 30 2-5 secs., 31 2-5 secs., and 31 1-5 secs. Salleron's ranged from 30 sec. to 33 secs., Rougier's from 29 3-5 secs. to 35 secs., and Jarrott's from 33 2-5 secs. to 41 4-5 secs.

PARIS, Saturday, May 21.

It is estimated that no fewer than 300,000 people watched the contest from one point of the course or another, and it is a striking testimony to the excellent arrangements that no accidents to the public have been reported. After the race was over there was a rush for the conveyances to the railway station at Attigny, while those at Rethel and Vouziers were equally busy.



Baron de Forest (De Dietrich) Taking the Bend at Biernes.

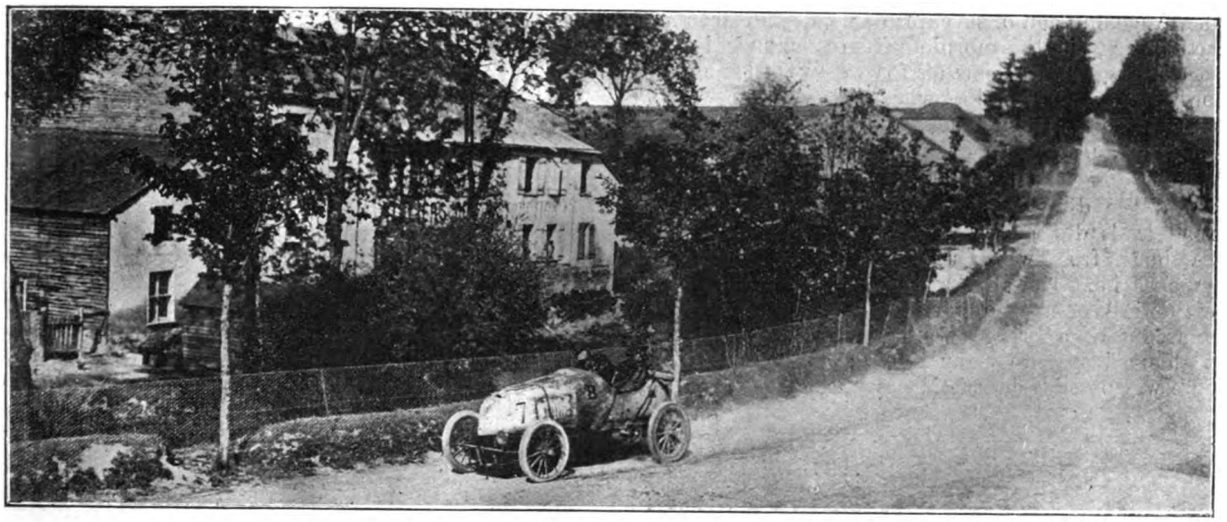
In what can only be described as the wild stampede of motor-cars back to the capital it hardly came as a surprise when a number of accidents were reported. Only one really serious accident occurred, and that was near Chateau Thierry, at midnight. A party was driving rapidly to Paris, when the car ran on to a heap of stones on the roadway, jumped off against a tree, and turned a somersault. Two persons in the vehicle were injured. Several other mishaps, in none of which, fortunately, were there any worse injuries to persons than cuts and bruises, occurred to motorists driving home from the race.

WE regret to learn of the death of M. H. P. Dechamps, the well-known Belgian constructor of motor-cars.

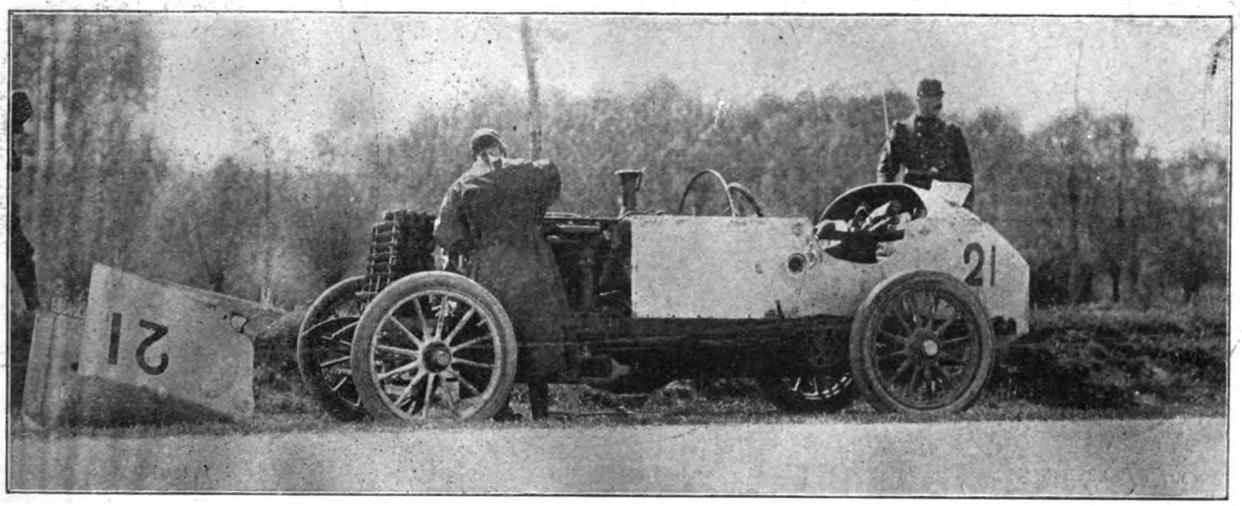
THE first German handbook to the 1904 Gordon Bennett race to reach us is that published by the Frankfurter Reklame Gesellschaft, of Frankfort-am-Main. It gives a brief *resume* of the preceding Cup races and a guide to the Taunus course. The same firm is also issuing a series of Gordon Bennett pictorial post-cards

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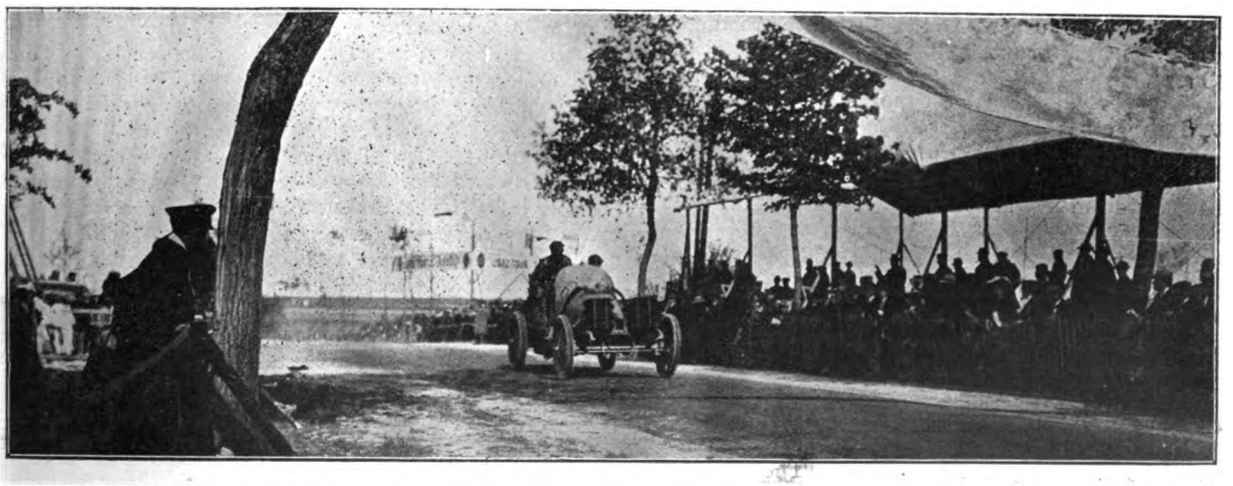
THE FRENCH ELIMINATING TRIALS.



Salleron (Mors) Taking the Bend at Biernes.



Jarrott (De Dietrich) Stopped for Adjustments.



Le Blon (Serpollet) Passing Through a Control

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GORDON BENNETT RACE NOTES.

ALTHOUGH all the preparations for the Cup Race in Germany are nearly finished, no official concession for the competition had until last week been obtained. The German authorities have now, however, been over the whole course, and, after a thorough inspection, announced that the concession would no longer be withheld. A commission of seventeen officials and technical experts started early in the morning from Saalburg in ten motor-cars to see if all the demands for safety and the maintenance of order had been complied with. They began with an inspection of the two grand stands erected at the starting-point, close by the old castle.

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FOLLOWING the direction which the competing cars will take, the road leads down a steep incline and turns into the woods of Saalburg, from which it emerges near the railway station of Wehrheim. Here Herr von Budde, the Prussian Minister for Public Works, who was one of the Inspecting Commission, declared that a bridge would have to built over the course. At this point there is another grand stand at Wehrheim, and here will possibly be the largest assemblage of sightseers, because one can follow the racing cars over a straight road through an open country for nearly five miles each way. After Limburg is passed the country becomes hilly, and the road shows a number of sharp turns. At Glashütten the road climbs up to its greatest height, about 1,600 feet, and then descends rapidly to Oberursel.

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A NEW decision has been arrived at with regard to the starting of the competitors in the Cup race. According to the latest plan, instead of seven minute intervals, the cars will be despatched at periods of five minutes.

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OWING to several of the members being called up for active military service, the Russian Automobile Club has abandoned the idea of touring from St. Petersburg to Homburg on the occasion of the Cup race.

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THERE is, after all, to be no American team in the 1904 Gordon Bennett race. A Committee of the A.C.A. held a series of trials of the Peerless and Winton racers on a course about three miles long near Cleveland, O., on the 5th inst. The idea of the Committee was to keep the cars running for four or five hours, now at all possible speed, again slowly and making occasional stops, but always to keep the engines going. Only one of the Peerless cars showed any speed. It ran about fifty miles, carrying one official with a stop watch, and speeding and stopping as he directed, then its change speed gear gave way, with the result of a twisted countershaft and a cracked gear case. The other Peerless was only run a few times over the course. On its second trip it had to be stopped and fitted with new sparking plugs. The best showing was made by Oldfield with his Winton Bullet car. He sped up and down twenty-two times, or something more than sixty-six miles, without a hitch. On some places he was going at the rate of sixty-five miles an hour. After his twenty-two trips, however, a pin in the driving gear of the circulating pump broke and the cooling water quickly steamed away.

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THE Christie 40-h.p. car was tested on the 10th inst. over a five-mile course on Long Island. Altogether thirty-eight miles were covered at an average rate of forty-nine miles an hour. At the last minute the Committee ordered the foreign carburettor to be replaced by an American one. During a preliminary running of the motor carburation troubles were apparent, but made no appearance during the actual road tr ia defective oil feed being then the only noticeable trouble.

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AT a meeting of the Board of Governors of the A.C.A. on the 11th inst., it was decided that the cars should be given another opportunity to prove their fitness for places in the American team, when a 200 mile run would be held on the Empire City track, at Yonkers, New York. The trials, however, proved unavailable, for, according to telegraph advice, there were only two contestants—Oldfield on the Winton, and Mooers on a Peerless. Oldfield took exception to the stringency of the regulations, and withdrew from the contest. Mooers, who covered 19¾ miles in 27 min. 43 2-5 secs., finally withdrew on the ground that there was no other competitor. As a result the Automobile Club of America has decided not to send a team to compete in the 1904 Cup race.

SPEED AND POWER, LIMITED, is the title of a company registered with a capital of £10,000, to carry on the business of manufacturers of or dealers in automobiles. The registered office is at 8B, Rumford-place, Liverpool.

THE BRITISH GORDON BENNETT TEAM.



Mr. S. F. EDGE (Napier).



Mr. S. GIRLING (Wolseley).



Mr. C. JARROTT (Wolseley).

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The Glasgow to London Non-Stop Run.

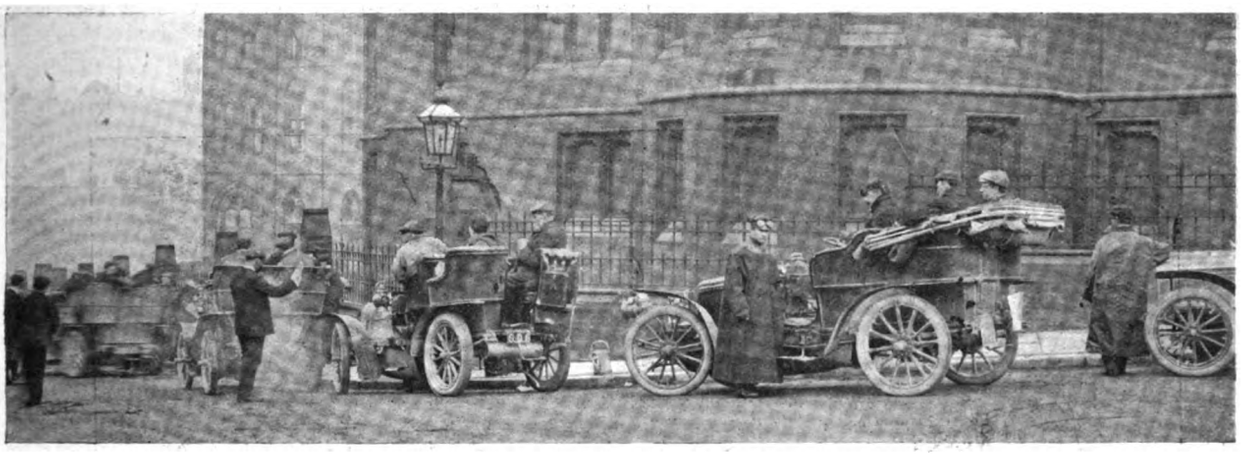
AGAIN the Scottish Automobile Club—or, we should say, the Western Section of that organisation—has proved its enterprise, and given its hon. secretary, Mr. R. J. Smith, an opportunity of demonstrating his capacity for organisation. Last week we were able to briefly mention the departure of the cars from Glasgow on the morning of Thursday, the 19th inst. In our issue of April 23rd, we gave a list of the entrants, of whom thirty actually started from the Scottish city.

Eagle light car, the 16-h.p. Delahaye, the 12-h.p. Siddeley, the 18-h.p. James and Browne, the 16-h.p. Rochet-Schneider, the 16-h.p. Maxim, and the 8½-h.p. Humber. The Renfrew and Vulcan cars were withdrawn, and the Spyker did not start owing to not being ready in time.

No. 3 was a 14-h.p. Renault of good repute. It was driven by Mr. McBride, of the Roadway Autocar Co., Ltd, who had entered the vehicle in the sure expectation of it receiving



The Cars in the Market Square, Penrith.



Photos by] Mr. John Adam despatching the Cars from Leeds. *[Argent Archer.*

Owing to the more diversified character of the route, it was anticipated that the incidents would be more numerous than were likely to take place on the following day. This hardly proved the case, for, with the exception of a puncture of one of the tyres of Captain Deasy's Martini and the withdrawal of the 24-h.p. Eagle, nothing worth noting occurred. A halt was cried at Penrith for lunch, and all the cars duly reported themselves at Leeds by the evening.

The four-cylinder Argyll, which started eighth, arrived first; other cars which similarly improved their position and enhanced their reputation being the 10-h.p. Ryknield, the 6-h.p. Wolseley, starting twenty-fourth and arriving seventh, the a non-stop certificate, which it ultimately won. Such a combination of driver and car made up such a "unit"—to quote the term made familiar in the Eliminating Trials by the A.C.G.B.I.—as gave confidence to us, as we took our seat in the tonneau at 5.45 a.m. on the morning of Friday, the 20th. It was a cold, dull morning, and in the ashen light of the early day the party of motorists seemed almost as men without hope. They were taking their pleasures sadly. Punctually at three minutes past the hour of six Mr. John Adam gave the word to go, and we went, crossing over the tramlines and passing through the industrial district of Hunslet, with such crowds of working people as made some of the wayfarers almost forget 'twas

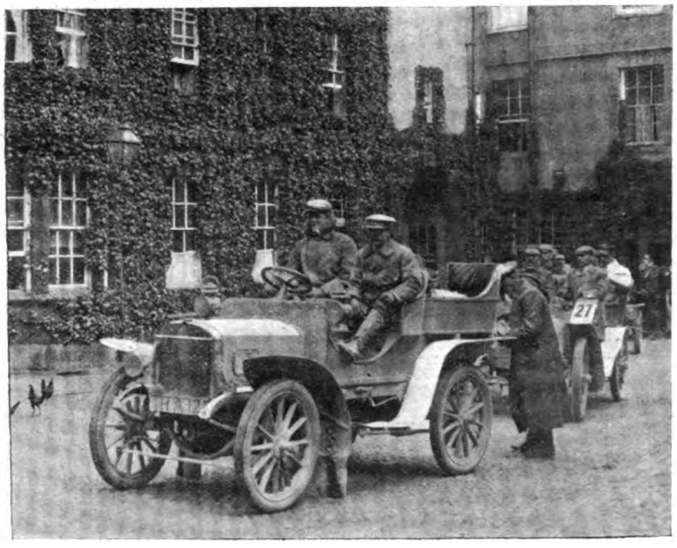
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morning. But the population of Leeds is one of early risers. Being in the van of the procession, there were few incidents in the first few miles, but none could help remarking the excellent organisation by which posters pointing the way to drivers were shown at all the corners, a work in which the good help of the Yorkshire club had been cheerfully given to the Scottish organisation.

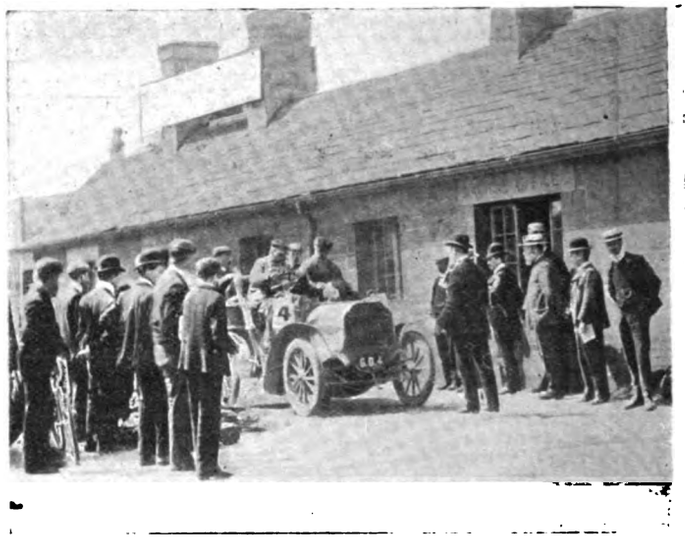
Beyond Oulton a curious thing happened We ran into a fog—a definite, determined sort of white cloud that enveloped the cars and made driving a speculation indeed. Curiously and cautiously the cars had to pick their way. No question of speed was likely to violate the law, and rarely have motorists had to go so gingerly as in that district; but ere Pontefract was reached the sun came out joyously and dispelled the gloom. By the time we got to the town just named and had skirted its market-place a warmth became apparent in the atmosphere, and dust rose from the road. Thanks to the fog, the cars had got into a cluster, and one or two were particularly pronounced as dust-raisers. Others, like the 12-h.p. Richardson, were going well and strong.

At Doncaster, one or two garages were passed on the way to the famous Course, and outside the Crown Hotel at Bawtry a combination of an old gipsy van and a little Renault—a small relative of our trusty 14-h.p. car—stood side by side, almost a picture of Dignity and Impudence. At Tuxford a crowd of school children awaited the arrival of the automobiles, reminiscent of the way the children were drawn up outside schools to see the cars pass on the great Thousand Miles Trial. Across some of the pleasant moors the cavalcade pursued its way, and it was noticeable how well the local postmasters have carried out the instructions of the central authorities as to the names being conspicuously painted outside. At a quarter to ten we were at Newark, a town made famous by being the first constituency of the late Mr. Gladstone. Bennington was a long, straggling village, in which Mr. J. W. Stocks was discovered at the helm of a 12-h.p. De Dion. Beyond Great Gonerby and Grantham we got into a more hilly locality—quite a change after the flat, dull level that had been encountered thus far. At twenty minutes to twelve Stamford was entered, the motor place of Messrs. Hayes and Son passed, and we strode into the old-fashioned yard of the George Inn, an unkempt, dirty, dusty set of mortals, whose appearance betokened tramps rather than men of some responsibility in the world.

After lunch—and all the cars reached the place in good time without particular incident—we were weighed—1 ton, 9 cwts., 2 qrs.—and off we set for the next stage, Biggleswade, forty-four miles away. Before reaching Wansford, one of the most charming villages seen on the whole journey, a danger board of the A.C.G.B.I. was noted. Norman Cross, with its two hotels and proneness to police traps, was left behind, and, passing through the village of Eaton Socon, we got to Biggleswade, where Mr. Dan Albone



Photos by] The Cars entering the Yard of the George Hotel, Stamford.



Weighing the Cars at Stamford. [O. G. Hodgkinson

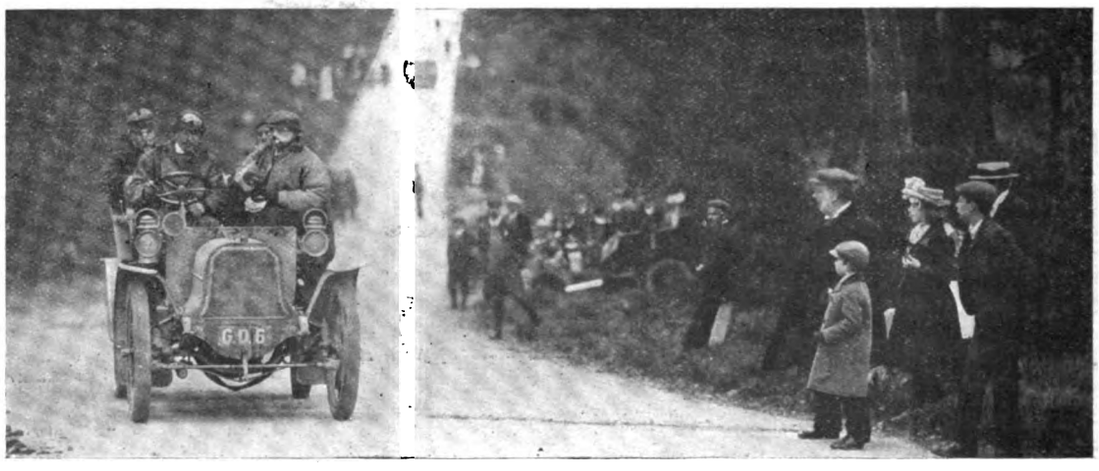


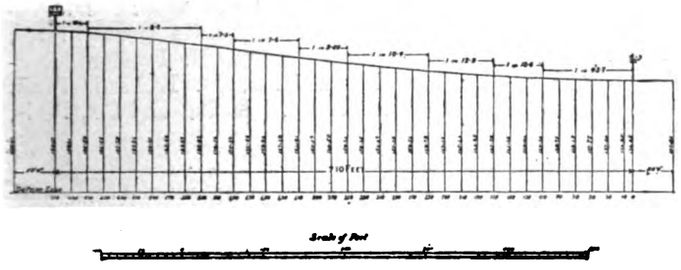
Photo by] The Hill Climb near Elstree. The 16-h.p. Argyll Making the Ascent. [E. Scamell.

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greeted all who crossed the Ivel. Hitchin was the next place of importance on the route. Beyond Langford post office was a nasty corner requiring careful negotiation to avoid a pond at the foot of a decline. We were at Welwyn at four o'clock, and then at Hatfield turned to the right for St. Albans and Elstree, from whence we went steadily towards Woodcock Hill, where the hill climb was announced to take place.

THE HILL-CLIMB AT ELSTREE.

En route, the competing cars were subjected to a hill-climbing test from a standing start on a short but stiff



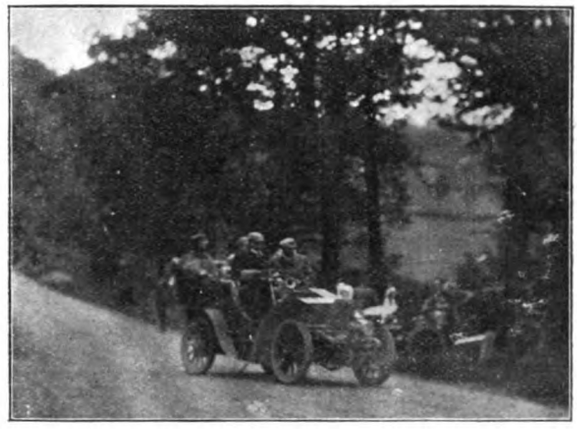
Profile of Woodcock Hill, Elstree.

gradient, known as Woodcock Hill, on a cross road between Elstree and Barnet. We arrived at the spot about 4 p.m., but learned that the first car was not expected for at least forty-five minutes. The road was under repair, and indeed the road-menders were at work right up to the time the vehicles began to arrive. They had, however, considerately repaired one half of the road at a time, and that the right side, so that the competitors had nothing to complain of as regards road surface. As the time the cars were expected drew near, several motorists from London and district put in an appearance, there being about a dozen cars and as many motor-cycles drawn up on the roadside. The timekeepers, Messrs. F. Straight and H. J. Swindley, and officials had now put in an appearance, the necessary flags fixed in position and tapes laid across the road at the starting and finishing points. It was exactly 4.45 p.m. when the cry was raised, "Here comes a car," which proved to be the six cylinder Sunbeam, No. 1, driven by Mr. Pullinger. We had only time to learn from him, as he pulled up on the line, that he had come thus far on the long journey without trouble of any kind, when the timekeeper, with watch in hand, called out "Ready, five, four, three, two, one, go!" Unfortunately Mr. Pullinger made a poor start, which had serious results, for his car only got about 100 yards along the course when the engine stopped and the vehicle came to a stand. Coaxing proved



Stocks on the 12-h.p. De Dion on Woodcock Hill.

ineffectual, and another car having arrived, there was nothing to be done except to run the vehicle back on to the side of the road. The second arrival was No. 6—a 16-h.p. Argyll, with No. 4, a 10-h.p. out of the same stable, quickly on its heels, the drivers and passengers presenting a sorry sight, so thick did the dust lie on their faces and clothing. Both cars took the hill in good style, as also did Mr. Martineau on the 18-h.p. James and Browne, No. 20, who was the fourth to arrive. The doughty little 6-h.p. Wolseley, the identical car which carried us through the snow to Edinburgh in February last, was the next to put in an appearance, and the way it mounted the hill came as a surprise to the onlookers. The cars now came in rapid succession, Mr. Siddeley on the 12-h.p. Siddeley, No. 17, the 20-h p. Thornycroft, and No. 25, the 12-h.p. Eagle, No. 12, with Mr. Jackson at the wheel; all of whom went up in good style. The 12-h p. Richardson was not so fortunate, as it had to shed a passenger as it reached the stiff portion near the top. The 14-h.p. Renault, No. 3, with Mr. McBride driving, and with the representative of the *Journal* among the passengers, was now on the scene and tackled the hill splendidly, as did also Mr. Stocks on the 12-h.p. De Dion, No. 22, and the 16-h.p. Maxim, No. 24. The 12-h.p. Arrol-Johnston car, No. 13, which, by reason of its novel lines, attracted much attention, successfully mounted the hill, albeit somewhat slowly, although it must be remembered that it was carrying a load of six persons. The 10-h.p. Rykneild, No. 7, with Mr. Clay driving, which came next, had to drop a passenger ere the summit was reached. The 16-h.p. Delahaye, No. 19, was next despatched, and went up without a murmur. What may be termed two sister cars came in together, Mr. Morgan Donne on the 16-h.p. Rochet-Schneider, No. 6, and Captain Deasy on the 16-20 h p. Martini, No. 10. Both made excellent climbs, although Mr. Donne put in his clutch too soon and had to be given a fresh start. The 12-h.p. Argyll, No. 5, also made a false start, and only got to the top of the hill by being pushed by a number of willing hands. The 6½-h.p. Cadillac, No. 21, noticeable for the quiet running of its engine,



The 12-h.p. Richardson ascending the hill.

the 12-h.p. Gladiator, No. 2, with Mr. Shaw at the helm, the 12-h.p. Sunbeam, No. 14, the 12-h p. Pipe, No. 15, all made the ascent without difficulty, and, with a lull in the arrival of the cars, Mr. Pullinger made another and successful attempt to scale the hill on the six-cylinder Sunbeam. There were four stragglers still to come as we left Woodcock Hill for London, the journey being made *via* Edgware, Hendon, and Cricklewood, in order not to partake of the dust of the competing cars, which travelled *via* Barnet and Finchley, and to enable us to reach the Club in Piccadilly in time to welcome the dust-covered travellers.

Appended are the official times of the hill climb. It must be remembered, however, that the times are only a factor in the formula by which the awards are made, and that they convey nothing with regard to the definite results.

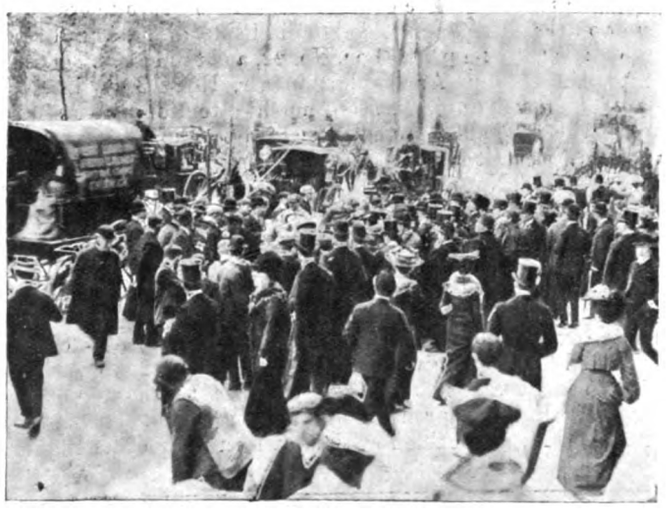
TIMES ON WOODCOCK HILL.

No.		Secs.	No.		Min.	Secs.
10	16–20-h.p. Martini	32 1-5	22	12-h.p. De Dion		57 2 5
19	16-h.p. Delahaye	34 4-5	17	12-h.p. Siddeley		58 4-5
25	20-h.p. Thornycroft	38 3-5	4	10-h.p. Argyll		58
27	18-h.p. Siddeley	39 3-5	2	12 h.p. Gladiator		59 1-5
16	16-h.p. Rochet-Schneider	44 2-5	9	12-h.p. Richardson		65
6	16-h.p. Argyll	42 2-5	29	8½-h.p. Humber	1	2 2-5
15	12-h.p. Pipe	43 4-5	21	6½-h.p. Cadillac	1	3 1-5
14	12-h.p. Sunbeam	45 4-5	24	16-h.p. Maxim	1	21 1-5
3	14-h.p. Renault	45 4-5	13	12-h.p. Arrol-Johnston	1	23 4-5
20	18-h.p. James and Browne	49 4-5	8	6-h,p. Vauxhall	1	29 1-5
26	6-h.p. Wolseley	50 2-5	7	10-h.p. Rykneild	1	41
12	12-h.p. Eagle	55 1-5	5	12.h.p. Argyll	5	18

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After the hill climb, as before, there was no excitement and no incident save one or two punctures, and by six o'clock we reached Piccadilly, having travelled the 212 miles without mishap. The Renault proved a very quiet-running vehicle, with no vibration, no worry to the driver, and altogether a most reliable and pleasurable vehicle for touring purposes.

The 12-h.p. Arrol-Johnston car, which made a non-stop run with six passengers, started on Saturday evening about eight o'clock



Scene at the arrival at the A.C.G.B.I., Piccadilly, W.
[Photo by [Baker and Dixon.

from the Automobile Club-house, 119, Piccadilly, with four passengers, on a non-stop run to Glasgow, Mr. Adam, chairman of the Western Section of the Scottish Automobile Club, being one of them, he being in London superintending the Glasgow to London non-stop trials. The car arrived in Glasgow at four minutes to 6 p.m. on Sunday, completing the total journey in one minute less than twenty-two hours. There were no stops on the journey except compulsory ones, during which the engine was kept running.

The Renfrew car entered by the Scottish Motor Garage Co. was withdrawn from the contest through a flaw in the casting of the pump allowing a leakage of water. Up to the point where this leakage was discovered, near Carlisle, each control had been passed up to the minimum time. The flaw was put right at Carlisle and the journey continued to London on Saturday morning. Leaving early, they arrived in London the same evening at 9 o'clock, covering a distance of 320 miles, and doing the journey at an average of over twenty miles per hour. They did not touch a nut or a bolt on the car during the run, beyond their misfortune to have this leakage of water in the pump.

The committee of the Scottish Automobile Club (Western Section) have issued the following statement:—

A preliminary examination of the Observers and Stewards' records has disclosed that non-stop certificates have been gained by the following cars:—

CLASS A.—Cars having one cylinder.

No. 26. 6-h.p. Light Wolseley, entered by Rennie and Prosser, Limited, Glasgow.

CLASS B.—Cars having two cylinders.

No. 4. 10-h.p. Argyll, entered by Hozier Engineering Company, Limited, Glasgow.

No. 12. 12-h.p. Light Eagle entered by the Eagle Motor and Engineering Company, Limited, Altrincham.

No. 13. 12-h.p. Arrol-Johnston entered by the Mo-Car Syndicate, Limited, Paisley.

CLASS C.—Cars having three or more cylinders.

No. 3. 14-h.p. Renault (1904) entered by the Roadway Autocar Company, Limited, London.

No. 14. 12-h.p. Sunbeam, entered by John Marston, Limited, Wolverhampton.

No. 20. 18-h.p. James and Browne, entered by James and Browne, Limited, London.

No. 25. 20-h.p. Thornycroft, entered by Thornycroft Steam Wagon Company, Limited.

The foregoing statement is subject to more minute and exhaustive examination of the records, and is not to be held as final.

The gold medal awards cannot be determined until the times recorded by the official timekeepers on the hill climbing test at Woodcock Hill, Elstree, have been worked out on the basis of the prescribed formula.

CONTINENTAL NOTES.

The A.C.F. Carburettor Competition.

The carburettor competition organised by the French Automobile Club commenced on Tuesday last. Messrs. Longuemare have entered two carburettors, Messrs. Gautreau Freres, Dourdan, three, and M. Cormerais, Nantes, M. Frossard, Ronchamps, Messrs. Hanon and Co., Paris, M. Richard, Paris, M. Saint-Denis, Bonnieres, and Messrs. Michaud and Co., Paris, one each.

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The Belgian National Circuit.

The Circuit National, organised by the Belgian Automobile Club, is fixed to start on the morning of the 30th inst. from Brussels. The first day's run is to Antwerp, and the second to Spa. On the 1st June there will be a kilometre slow race (the winner being the one who takes the longest time), and a kilometre speed trial, with flying start. The journey back to Brussels from Namur will be made on June 3rd.

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A Novel Balloon Chase.

A novel balloon chase is to be held on Sunday by the Lyons section of the French Aeronautical Club and the Automobile Club du Rhone, in so far that both motor-cars and horses will compete in the chase. The horses will be ridden by officers of the cavalry corps at present stationed at Lyons. We may add that great interest is being shown in the event.

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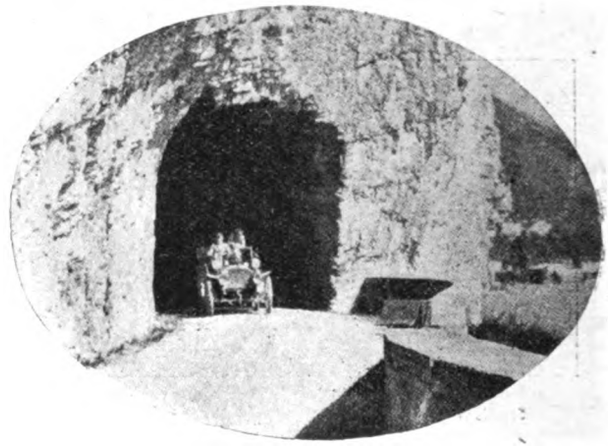
A Touring Competition at Lyons.

The Automobile Club du Rhone is organising a touring competition for the Rochet-Schneider Cup. The distance to be covered is about 340 kilometres, the route being Lyons, La Cluse, Saint Claude, Gex, Bellegarde, Seyssel, Amberieu, Lyons. The points which will be taken into account in making the award are—regularity of running, consumption of fuel, speed on hills. The exact date of the event has not yet been fixed.

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Motor-cabs in Paris.

Paris will soon be in possession of a motor-cab service. For the last two or three years motor-cabs have occasionally been seen in the streets, but they have never been popular, for the



A Snapshot near Lake Como.

reason that the tariff was too high for ordinary pockets. The authorities have found it necessary to draw up regulations concerning these new vehicles. A special commission has just fixed the rate for the hire of motor-cabs. For instance, it has decreed that one can now drive for a kilometre, which is five-eighths of a mile, in one of these cabs for 1f. 75c., and 50 centimes for every additional kilometre.

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THE TURNER-MIESSE STEAM CAR.

IN our report of the recent Exhibition at the Agricultural Hall we gave a few general particulars of the Turner-Miesse steam car which is made by Turner's Motor Manufacturing Company, Limited, at their works in Wolverhampton. Judging from the enquiries we have been receiving lately there seems to be a growing interest in steam vehicles, so that the following detailed description of the Turner-Miesse may not be without interest. The cars are being made in two sizes, 10-h.p. and 16-h.p; the general design of both is identical, and is clearly shown in the accompanying illustrations. The main frame is built up of wood, stiffened with steel flitch plates and corner plates. It is fitted with five cross-members of channel section, two of which carry the boiler beneath the bonnet in front, one is beneath the dash-board, and the other two support the fuel and water tanks at the rear.

The generator, which is of the flash type is built of a number of layers of solid-drawn steel tubes, each tube being bent into a special shape. There are sixteen layers in all, laid horizontally one above the other, each layer being at right angles to the other, and each four layers connected together by outside unions. The water enters the bottom layer first and finds its way up through several of the sections before being led across some of the central sections to flow up through the upper sections. After passing through the top sections it is brought down again to the lowest of the intermediate layers, through which the steam then passes upward before passing to the engine. The lowest tubes may thus be considered to act as a feed-water heater, and are therefore not liable to become burnt under ordinary working conditions. The top layers receive less heat from the burner, and may be called the steam raising coils. The intermediate coils may in the same way be looked upon as the super-heater portion of the boiler

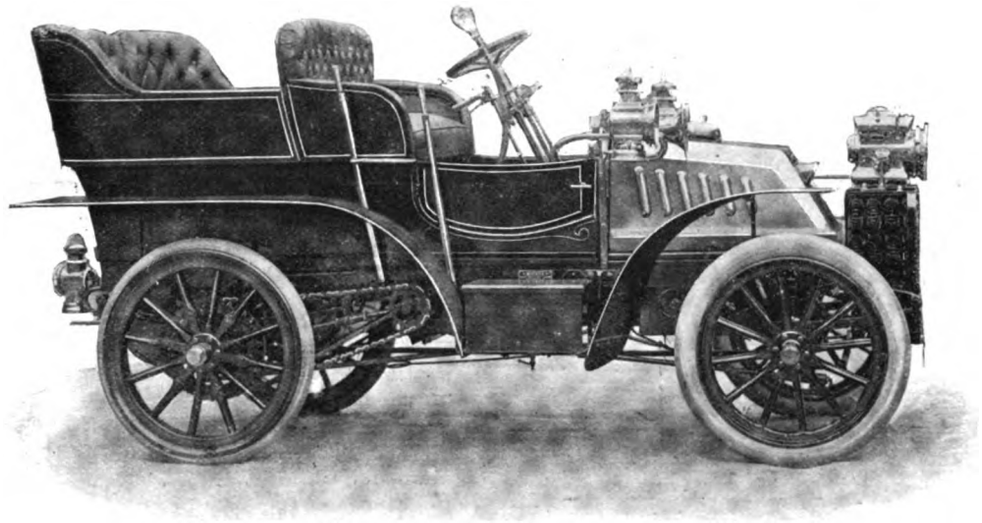


Fig. 1.—General View of Latest Type of Turner-Miesse Steam Car.

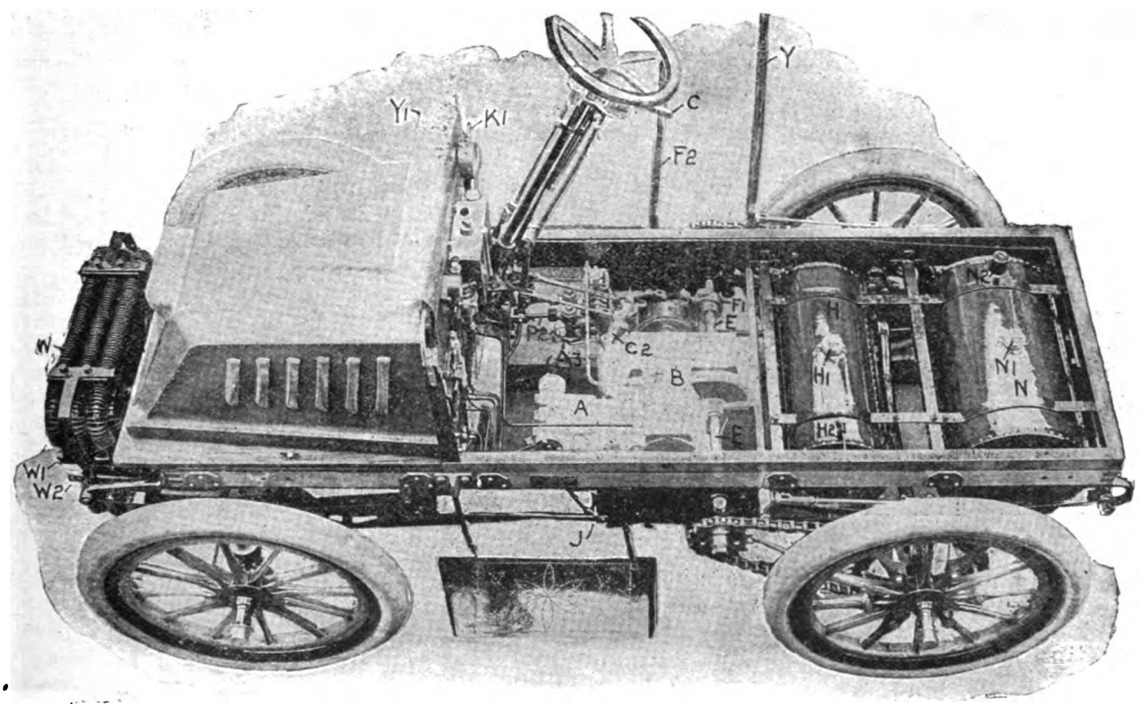


Fig. 2.—Top View of Chassis of Turner-Miesse Steam Car.

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The tubes vary in thickness, although the external diameter throughout is ¾ in.; those at the bottom have an internal diameter of about 5-16 in., and the superheated coils of about 7-16 in. In the 10-h.p. generator the total length of tube is about 200 feet, and in the 16-h.p. car, roundly 300 feet. The generator is enclosed in a special casing, built up with an inner and outer sheet of steel, held together by channel steel frames top and bottom, the space between the metal sheets being filled up with asbestos. The cover above the generator tubes is formed of a plate having three long rectangular holes in it, and made to form the bottom of a horizontal flue, a second bent plate being fixed above it. This flue runs out through the bonnet in front, and is connected with a vertical flue passing down between the

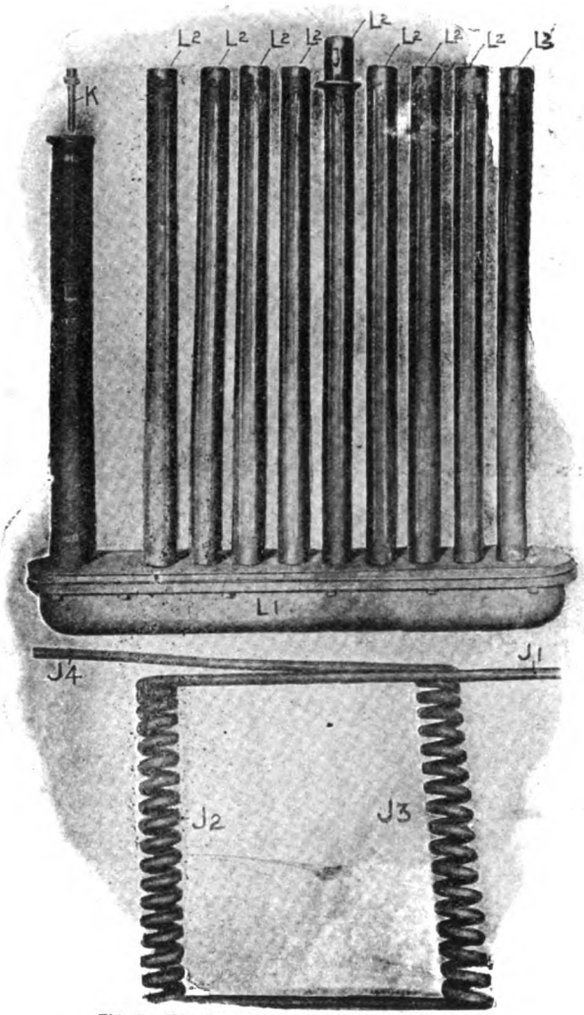


Fig. 3.—The Turner-Miesse Burner and Vaporiser.

generator casing and the hollow dashboard, the burnt gases passing out through it beneath the car.

The generator, which is tested to a pressure of 1,200 lbs. per square inch, is fired by a special form of burner which uses ordinary paraffin as fuel. The latter is carried in the air-tight tank H. (Fig. 2); the feed-pipe from it is led to a shut-off cock on the left-hand side of the car. A pressure of about 40 to 50 lbs. per square inch is maintained in the tank by a mechanically-driven air pump worked directly off the crank shaft of the engine. The delivery pipe from the pump is led to a three-way cock, which is connected with a gauge showing the pressure in the fuel tank, and with a relief valve on the dashboard. The three-way cock has a nozzle to which can be attached an ordinary tyre pump for obtaining the necessary pressure initially. The fuel finds its way through two vaporiser coils which lie above the burner and the regulating valve to the burner nozzle. The quantity of gas which is fed to the burner is regulated by a hand lever, K^1, on the dash-board. No regulator for the air is provided; the air and gas pass along the pipe into a chamber from which a large number of parallel horizontal tubes project beneath the boiler. The tubes are perforated with rows of fine holes, drilled at an angle, which form the burner jets. The oil enters one end of the vaporiser which rests directly on two of the main burner tubes, passes through the various spirals and emerges at the other end as vapour. A view of the vaporiser is given in Fig. 3. The burner is placed in line with a hole in the casing, through which the flame of the pilot light is introduced. The vaporised oil passes through the pipe, J^4, and through the hand regulator to the burner jet. The vaporiser has an internal bore of 5-16 inch and an external diameter of 9-16 inch. An inspection hole in the generator casing allows the operator to see when the coil J^3, is sufficiently heated by the pilot light to permit the paraffin cock to be opened. The burner is also illustrated in Fig. 3, the nozzle, K, through which the vaporised oil passes, being shown withdrawn from the mixing pipe L. The latter is open to the air at the end into which the nozzle K projects. The pipe leads into a chamber L^1, which is made in two parts so as to allow the burner tubes, L^2, to be fixed into it, and to permit of cleaning out when necessary. The tubes, L^2, are perforated, the two external tubes having but one row of holes in them, and the other tubes two rows. The mixture of gas and air issues out of these holes at an angle of 45 degrees, and the flames from each adjacent tube strike one another and cause the heat generated to be equally diffused. The burner is slid in through holes which are bored for each of the pipes, L^2, in the front and back of the generator casing. The mixture supply tube, L, lies outside the casing, while the central tube, which is somewhat longer than the others, projects through at the back. It is slotted near its end so that the burner may be fixed in place by a wedge-shaped cotter key fitting in the slot. All the tubes are, of course, closed at their rear ends. The 10-h.p. burner has seven tubes and the 16-h.p. nine. Even the smaller burner has over a thousand small holes in its tubes. The hole through the nozzle, K, is extremely small, being only about 1-16 in. in diameter. The burner can be easily taken out when necessary, the pipe connection to the nozzle and the cotter behind the generator casing, alone requiring removal before drawing the burner out forwards from the car. The vaporising coil of the burner is initially heated up by a pilot lamp and subsequently kept hot by the burner itself.

The vaporiser coil requires to be thoroughly heated by the pilot light before attempting to start the burner with its ordinary fuel. The operation of heating up takes something over five minutes to perform, but should not be hastened unduly, as the burner is liable to smoke if the coil is not sufficiently hot. The burner appears to work well and quietly, and to give a very high degree of heat.

(To be continued.)

THE Maidstone Town Council has withdrawn its application to the Local Government Board with regard to the ten mile speed limit.

THE Massachusetts Society for Prevention of Cruelty to Animals has appointed a committee to consider the question of purchasing an automobile ambulance.

IN a case at Epsom, where he secured the conviction of a motorist, P.C. Pearman said he could dissect a watch and put it together again. I have, he added, "served an apprenticeship to the watch-making trade."

THE vehicles which are being used by the South Hams Motor Carriers, Limited, for their new service between Modbury and Plymouth are of the Milnes-Daimler eighteen-seated single-deck type. We had an opportunity of inspecting one of the 'buses last week, prior to its despatch. The road wheels are shod with Peters' solid rubber tyres, those on the rear wheels being of the twin type.

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THE LONDON-EDINBURGH MOTOR-CYCLE RUN.

OUT of the seventy entries for the twenty-four hours' run from London to Edinburgh, a distance of 400 miles, organised by the Motor-Cycling Club, forty-six competitors started about 10 p.m. on Friday night last week from the General Post Office. Soon after half-past nine the preliminaries were completed, and, with Mr. C. W. Brown, hon. secretary of the trials, at their head, the competitors filed out of Paternoster-square for the G.P.O. Stops for meals were made at Grantham, Wetherby, Durham, and Berwick-on-Tweed. The checking points were:—Biggleswade (45 miles), Grantham (110¼ miles), Tuxford (137¾) miles), Wetherby (193½ miles), Durham (259½ miles), Alnwick (308 miles), Berwick-on-Tweed (338 miles), Dunbar (368 miles), and Levenhall, Musselburgh (390 miles). At Wetherby, which was "controlled" from 8.10 to 9.30 on Saturday morning, the following had arrived by 10 a.m.—C. W. Hacking, 3 h.p. Ormonde; F. Hulbert, 2¾-h.p. Bramley; Chester Fox, 2¾-h.p. Special Vindec; J. Platt-Betts, 3-h.p. Rover; W. H. Wells, 2¾-h.p. Vindec Special; H. Williamson, 3¼-h.p. Rex; J. H. Reeves, 2½-h.p. R. and P.; A. Candler, 3 h.p. Quadrant; A. Wright, 3-h.p. Roc; W. A. Sale, 2-h.p. Quadrant; C. W. Brown, 2¾-h.p. F. N.; A. S. Wilson, 2¾-h.p. Ormonde; J. Van Hooydonk, 3½-h.p. Phœnix Trimo; H. J. Densham, 2¾-h.p. Anglian; H. E. Cowles, 2¾-h.p. Minerva; C. E. Bell, 3-h.p. Quadrant; E. T. Arnott, 4-h.p. 2 cylinder Princeps; T. Silver, 4½h-.p. Quadrant Tricar; T. Hooydonk, 3½-h.p. Ariel; J. F. Crundall, 2¾-h.p. Humber; F. J. Heighton, 3½-h.p. Vinco Tricar; W. J. Milligan, 2¾-h.p. Bradbury; D. Elyard Brown, 3-h.p. Ormonde; and A. H. D'Aeth, 2¾-h.p. Humber. At Durham, 18 had arrived by 12.30 p.m. on Saturday, Reeves, Candler, J. Van Hooydonk, Crundall, and C. W. Brown being among the number. Seven more, including Milligan and Elyard Brown, passed through shortly after.

Twenty-two of the forty-six competitors who started from London succeeded in the attempt to reach the Edinburgh General Post Office in twenty-four hours, and thus gained gold medals. Nine riders covered the distance in twenty-two hours. The successful competitors were:—F. H. Arnott (3-h.p. Werner), C. E. Bell (3-h.p. Quadrant), C. W. Brown (2¾-h.p. F. N.) D. Elyard Brown (3-h.p. Ormonde), A. Candler, (3-h.p. Quadrant), H. E. Cowles (2¾-h.p. Minerva), J. F. Crundall, (2¾-h.p. Humber), H. J. Densham (2¾-h.p. Anglian), Chester Fox (2¾-h.p. Special Vindec), C. W. Hacking (3-h.p. Ormonde), J. Van Hooydonk (3½-h.p. Phœnix Trimo), T. Hooydonk (3½-h.p. Ariel), F. Hulbert (3-h.p. Hulbert-Bramley), H .P. Maffert (2¾-h.p. Butt), W. J. Milligan (2¾-h.p. Bradbury), J. H. Reeves (2½-h.p. R. and P.), W. A. Sale (2-h.p. Quadrant), T. Silver (4½-h.p. Quadrant Tricar), W. H. Wells (2¾-h.p. Vindex Special), H. Williamson (3¼-h.p. Rex), A. Wright (3-h.p. Roc), and L. H. Young (2¾-h.p. Werner).

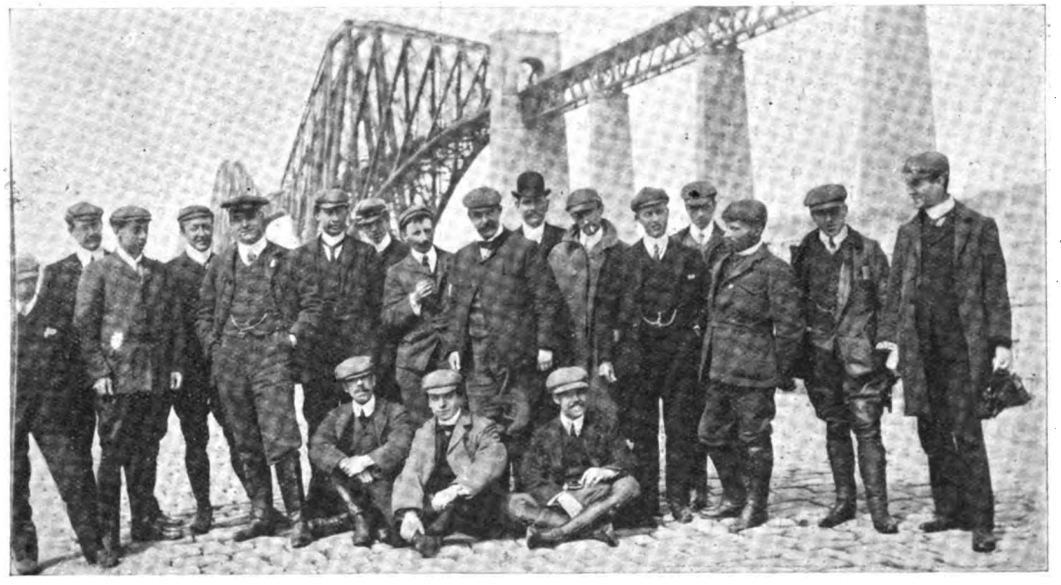


Photo by The London to Edinburgh Motor-Cycle Run. A group of the Survivors and Officials at the Forth Bridge. [*E. W. Ashworth.*

COMPRESSION.

WHAT is the most advantageous compression to use in motor-car engines is still an open question. Designers of high speed vertical motors generally advocate a high compression, as it gives a lighter motor for a certain power, or a more powerful motor for a certain weight, and, besides, insures greater fuel economy. In slow speed horizontal motors, on the other hand, the compression is usually kept low, as a high compression would necessitate a very heavy flywheel, make the starting of the motor more difficult, increase the vibration and add to the strains on the working parts of the motor. There are therefore a number of reasons both for and against high compression.

In studying the problem account must be taken of the fact that at present nearly all motors are fitted with throttle control and work with maximum compression only when the throttle is wide open. Cars with an abundance of power are most of the time being run on the throttle; that is, the cylinders receive only a partial charge and the compression is below the maximum for which the engine is designed. In such an engine the advantages of a low or moderate compression are therefore secured when the power required is considerably less than the maximum which the engine will develop, while at the same time the advantages of high compression may be had where these are desirable, as in travelling over heavy roads, in climbing hills, etc. Hence it would seem, remarks the "Horseless Age," advisable always to design an engine for high compression, and the only reason against it is that the owner may not operate the car properly and run on full throttle all the time, regulating his speed by the ignition, which would be wasteful. There would be certain advantages in so arranging the throttle lever that it could ordinarily be operated only to open the valve far enough to admit about 70 to 80 per cent. of the full charge, but by making some alterations in the connections or by moving the stop for the lever allow it to be opened fully.

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MOTOR-CYCLING NEWS.

THE Auto-Cycle Club is just now considering information which has lately come to hand concerning the greasy state of the tram lines in many of our great cities and metropolitan boroughs. It is suggested that these are watered with a frequency that leads to a practically continuous greasy condition, a condition that is positively dangerous to motor-cyclists and others travelling in their vicinity. Unfortunately, there is no central organisation of the tramways, as is the case in the railway system of the country, and the suggestions for improvement will have to be made to the individual companies or corporations concerned. Under these circumstances the need of securing considerable local support will devolve upon those motor-cyclists in various parts of the country likely to benefit by any action which the Auto-Cycle Club may take. Hence the necessity for those who are interested in the matter to give all the information they can as early as possible to Mr. F. Straight, the secretary of the Club, at 119, Piccadilly, W.

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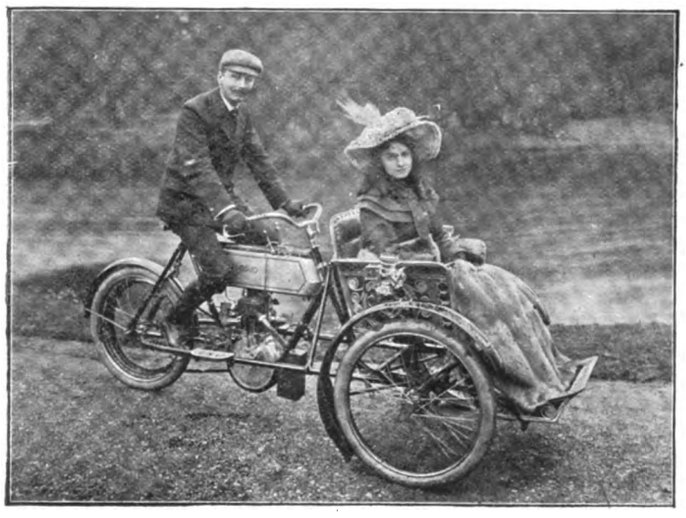
MR. ALBERT BROWN, of Messrs. Brown, Bros., Ltd., has presented a handsome trophy, value 25 guineas, to the Motor Cycling Club, for competition in a 250 miles non-stop run, confined to British built machines. The contest will be an open event, and the winner will secure the trophy outright.

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THE combined run to Great Yarmouth organised by the Auto Cycle Club is to be held to day (Saturday). Riders are requested to meet at the Old Salisbury Arms, High Barnet, at 10 a.m. The start will be made at 10.30 a.m. sharp, the route being *via* Hatfield, Hertford, Ware, Puckeridge, Barkway, Barley, Newmarket (lunch at Victoria Hotel), Bury St. Edmunds, Harleston, Bungay (tea, King's Head), Beccles, Yarmouth. Total, 126½ miles. The return journey on Sunday will be *via* Ipswich, Colchester, Chelmsford, Dunmow, Bishops Stortford and Ware. The headquarters of the Club at Great Yarmouth will be the Queen's Hotel. Arrangements have been made with Mr. F. Flanders, 11, Regent Road, Great Yarmouth, to supply petrol, etc.

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THE Catford Cycling Club will hold its annual touring motor-bicycle hill-climb at Westerham on June 11th. Instead of



The Ormonde Motor Fore-Carriage.

simply a weight limit, as last year, there will be a class for engines not exceeding 70 by 70 mm., and a class for over 70 by 70 mm and not exceeding 80 by 80 mm. A sealed handicap will be run in conjunction with each class. Gold medals are being offered in each section, and the Catford Club will present three prizes for each handicap, while illuminated certificates with time affixed will be given to all who complete the course without dismounting. Pedalling will be allowed, it being considered that Westerham Hill is an exceptional hill for ordinary touring motor-cycles. All machines must be fully equipped for the road, including mudguards. It is desired to make the test a genuine trial of touring motor-cycles.

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MR. E. J. STEEL accomplished a notable performance on a 3-h.p Rover motor-bicycle on Wednesday last week. Leaving



Mr. E. J. Steel on his 3-h.p. Rover Motor Bicycle.

Edinburgh at 3 o'clock a.m., Mr. Steel started for London, with no idea of record-breaking. He made a non-stop run to Newcastle (121½ miles), where he stopped for breakfast, then went on to Doncaster, pulling up at Northallerton *en route* for petrol, and at York to send off some telegrams. Doncaster (237¼ miles) was reached at 2.40 p.m., and here Mr. Steel halted for an hour for dinner. Then going on by Grantham and Norman Cross, he reached the G.P.O., London, at 11.47 p.m., having covered the 400½ miles in 20 hours 47 minutes. His actual riding time was 19 hours. The machine was an ordinary 3-h.p. Rover machine, with belt drive, and neither rider nor machine were in any way specially prepared for the journey.

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THE number of foreign motor-cycles imported into this country during the four months ending with April last is returned at 457, their value amounting to £14,771.

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THE awards in respect of the Auto-Cycle Club's hill-climbing competition on the 14th inst. have been made known. The hill had a length of about 750 yards. In Class 1, for machines having motors of a cylinder capacity not exceeding 70 by 70 mm., Mr. A. A. Chase on a Chase machine was the winner, his time being 1 min. 2 1-5 sec. Class 2, up to 76 by 76 mm., was won by Mr. F. R. Goodwin (Griffon), time, 48 1-5 sec. Class 3, up to 80 by 80 mm., by Mr. A. A. Chase (Chase), time, 44 2-5 sec.; and Class 4, fore-carriages, side-cars, and trailers with two persons up, by Mr. F. W. Chase (Chase), time, 1 min. 6 4-5 sec. The award of the gold medal for the most meritorious performance was made on a figure of merit arrived at by the following formula:— $\frac{W}{C \times T}$, where W = weight of machine and rider, C = volume swept out by piston, and T = time taken to climb the hill. Under this formula, Mr. J. van Hooydonk was awarded the gold medal for the performance of his two-speed Phœnix Trimo, on which he has now travelled over 3,000 miles. Mr. Hooydonk climbed the hill in 1 min. 20 2-5 secs.

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HERE AND THERE.

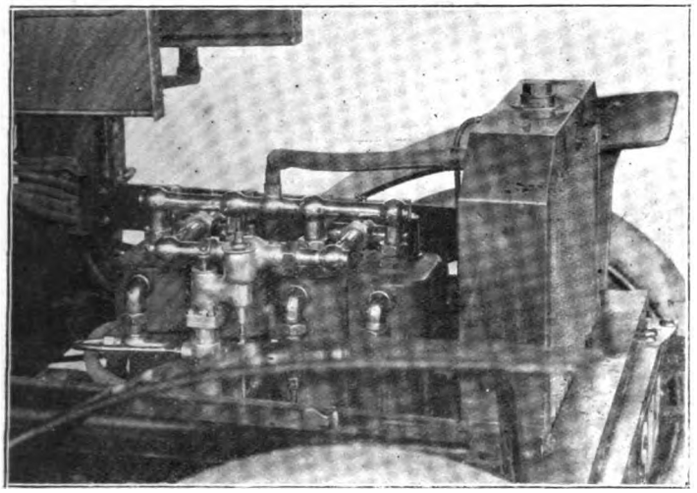
THE West Ashford Rural District Council have decided to fix danger boards at a dozen points within the area of their jurisdiction.

A MOTOR-OMNIBUS SERVICE is about to be started from Strand to Babbicombe, which, although part of Torquay, is two miles from a railway station.

AT a meeting of the Junior Institution of Engineers, on Friday, last week, a paper on "Practical Notes on the Running of Motor-Cars and Cycles" was read by Lieut. W. G. Windham.

PARISH'S CYCLE STORES, 47, Fishergate, Preston, have just secured extensive premises in Charnley Street, in the centre of the town, for a motor garage, which they intend keeping open night and day. There is room for the storage of over twenty large cars at one time, while repairs will be made a speciality.

THE Forman Motor Company, Limited, Coventry, have now completed arrangements for the conversion of single or double-cylinder engines to double or four-cylinder respectively. The accompanying illustration depicts a Clement car which has been converted, the double-cylinder engine having been replaced by a Forman four-cylinder motor, and, as can be readily seen, the details have been carried out very satisfactorily. We understand that in the trial run the engine ran very smoothly, the car showing a marked improvement in hill-climbing capabilities. The petrol consumption of the four-cylinder fitted with the Forman automatic carburettor was, we are informed, no more than with the old two-cylinder engine.

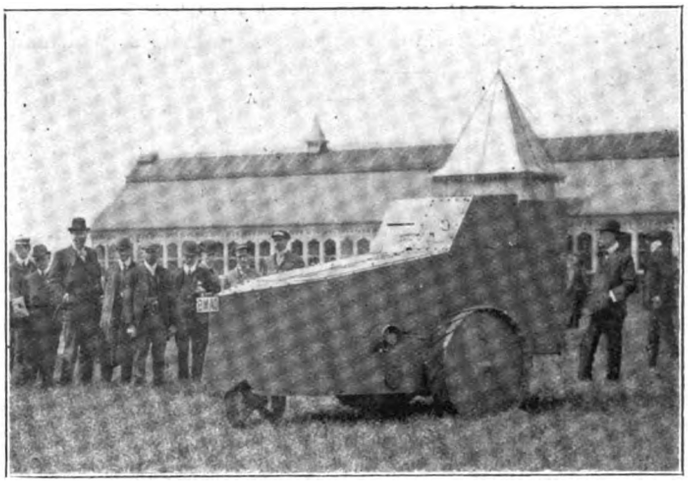


UNITED MOTOR INDUSTRIES, LTD., have recently put on the market a contrivance to get over the trouble of tail lamps jolting out. They are now supplying with their ordinary oil tail lamps a little electric light attachment, made to screw into the container of the oil lamp in place of the burner. It is such a good fit that the firm recommend carrying the container filled with oil even when the electric lamp is in position, so that the oil burner can be replaced if the electric light fails.

So many conflicting and erroneous reports concerning the fire at the Cadillac motor-car factory in the United States have been current that the Anglo-American Motor-Car Company, Limited, the agents for the Cadillac cars in this country, ask us to mention—firstly, that the fire did not destroy the whole of the plant, but was confined to the assembling room; secondly, that it was caused by neither the ignition nor the explosion of petrol, but originated in a somewhat peculiar manner. The supply tap of a riveting machine burning crude oil was accidentally opened by a workman passing the machine, who struck it with his elbow; the oil caught alight and flowed from the tank on to the floor, where the fire spread with such rapidity that it completely destroyed this department of the factory. Fresh arrangements have been so quickly made that the works are by now once more in full operation.

THE Prince of Monaco has just made a journey from Monte Carlo to Paris on a motor-cycle.

THE County Surveyor of Hampshire at Winchester is inviting tenders for the supply of cast-iron warning posts.



The Ivel First-Aid Armoured Motor at Bisley. (*See page 254 last issue.*)
Photo. by [*J. T. Newman.*

THERE are now 90 motor-cars and motor-bicycles registered in Stirlingshire, and the number of licences issued to drivers is 119.

THE Dublin, Wicklow, and Wexford Railway Company is putting on the road, between the Railway Station of Shillelagh to Newtownbarry, a motor-car for the conveyance of passengers as well as of goods traffic.

FROM the Honorary Secretary of the Motor Cycle Club comes a copy of the Club hand-book that has just been issued. In addition to a list of officers and members, this contains the full rules of the Club, and also much other information of use to the members.

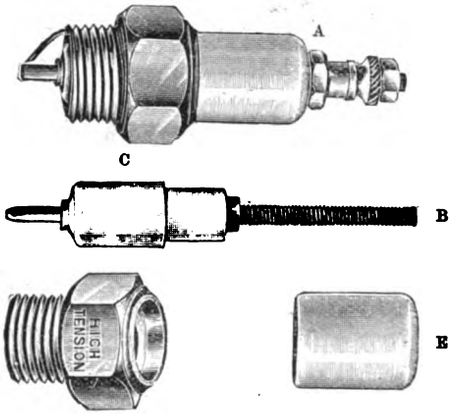
MESSRS. J. W. BROOKE AND CO., LIMITED, of Lowestoft, have sent us a photograph of a yacht's tender they have just built and engined for Mr. J. Hamilton Benn, owner of the yacht "Hesper." The boat, which was designed by Mr. F. Shepherd, is arranged to be slung in the davits, and is 17 feet long by 4 feet 6 in. beam and fitted with a three-cylinder 14-h.p. Brooke engine. The absence of vibration and noise are particularly noticeable features of the boat, which has maintained a speed of 9·2 miles an hour.



The above illustration shows one of the latest Orion Petrol Lorries. The vehicle was driven by road from London to Swaffham, and has been working each day, Sundays included, for the past fortnight conveying milk from Pettygards Hall, Swaffham, to Caley's Chocolate Factory in Norwich, a distance of 26 miles, loaded, in 3½ hours.

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MESSRS. PERCY HARRISON, LIMITED, Birmingham, have recently introduced the new sparking plug illustrated herewith. It is known as the "P.H. No. 2," and has been designed to overcome the constant source of trouble of porcelains breaking, through unequal contraction and expansion. It will be seen from the illustrations that the porcelains C and E are made in two parts. The porcelain C is fixed to the spindle B, which in



turn is inserted into the brass hexagonal nut D. The porcelain E, being bell shaped, is then placed over the spindle, fitting up against a shoulder formed in the hexagon nut, the whole being held together by the nut A, which pulls the two porcelains up against the shoulder in the nut, and with the help of a little asbestos packing makes a perfect gas-tight joint. Very little strength is needed to screw up the nut A, in fact a perfectly tight joint can be made by screwing up with the thumb and finger. The plug is supplied with terminal, copper and asbestos washer with wood dome on the end to protect the points.

THERE has just been completed at the factory of the Electric Vehicle Company, of Hartford, Conn., what is believed to be one of the largest automobiles ever built. The car, which, because of its shape, has been termed "The Whale," has a capacity of 56 passengers. It has been built for advertising purposes and will shortly be sent to St. Louis, where it is to be used for sight-seeing purposes at the exhibition. The car is driven by four electric motors, one attached to each wheel.

THE accompanying illustration shows the combination tail lamp and number plate which has been brought out by Messrs. Lowe, Bevan and Co., of Birmingham, to meet the new requirements. The feature of the lamp, which burns paraffin and shows a red light to the rear, is the provision of an automatic shutter



which acts as a reflector to illuminate the number plate, enabling figures and letters to be seen at any angle. The automatic shutter can be closed during the daytime to prevent, in dry weather, any dust getting on to the glass, and in wet weather to stop mud being thrown on the glass and reflector. We may add that the lamp is made in three sizes, according to the size of the number plate.

"WATERMOBILE" is the newest of the many suggested definitions for the motor-boat.

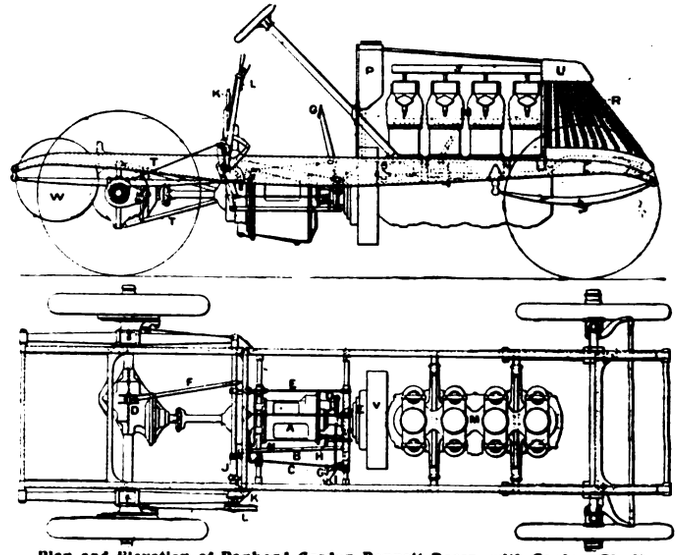
ACCORDING to the Natal Customs returns the value of the imports of motor-cars into that colony last year amounted to £8,203.

THE Sligo Motor Service Company, Limited, has been registered with a capital of £750 for the purpose of running motor-cars between Sligo and Ross's Point and between Sligo and Bundoran. The registered office is at Bridge Street, Sligo.

THE Upper Norwood Ratepayers' Association suggest that the neighbourhood of the Crystal Palace and Upper Norwood, being quite unprovided with any kind of public conveyances, affords a desirable area for a motor-car service.

FROM the Wolseley Tool and Motor Car Company, Ltd., comes a copy of their 1904 catalogue—an exceedingly well-got-up booklet which gives very clear illustrations of the various types of Wolseley cars, ranging from 6-h.p. to 24-h.p. The list includes a description of the cars, in which the motor, ignition, water cooling, change-speed gear and transmission are fully dealt with.

WE have received from Messrs. J. C. Lyell and Company a sample of a new metal they are putting on the market. It is known as "Patrick" metal, and is claimed to be a perfect sub-



Plan and Elevation of Panhard Gordon Bennett Racer, with Cardan Shaft Transmission.

[*La Vie Automobile.*

stitute for nickel, and to possess many advantages over nickel-plated goods. It is silver white through and through and keeps its appearance and brilliancy permanently. The metal retains a very high degree of polish and with ordinary care will not rust even under unfavourable conditions. It is malleable to a degree when cold and will easily solder and braze, the flux for this metal being the ordinary soldering water or powdered borax. "Patrick" metal is supplied in the rough state in ingots only for casting purposes and in finished state in motor-car fittings and accessories of all descriptions.

IN answer to Mr. Scott Montagu, who asked whether his attention had been called to the case of Mr. Macleod, who had been summoned at the West London Police-court for an alleged infringement of section two, subsection (*b*), of the Motor Car Act, 1903; and whether, in view of the fact that the special trader's licence and number plate had hitherto been held to cover the case of motor-cars used by a trader in the pursuance of his business, he would state what action he proposed to take, Mr. Akers-Douglas in a printed reply to the House of Commons said:—I am informed that the point at issue in the case to which my hon. friend refers is whether or not the car in question was being used by a trader in pursuance of his business so as to bring it within the enactment quoted. I can express no opinion with regard to a case pending in a court of law.

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CORRESPONDENCE.

QUERIES *RE* MARSHALL CARS.

To the Editor of *The Motor-Car Journal.*

Sir,—I have read with some amusement, not unmixed with astonishment, the effusion of "Amateur" in the last issue of the *Journal*. The writer appears to be smarting under a sense of disappointment with some car he has bought, and to be seeking to solace himself by covert attacks on a firm of well-known tyre makers and an equally well-known firm of car builders. I rather fancy it will take more than "Amateur's" diatribe to convince anyone in the know that a 1902 Marshall car steers badly for any reason other than his own incompetence; the very fact that he wants to go up hills on the top speed stamps him as an "amateur" indeed. He is one of those who certainly ought not to be trusted with a car equal to even his twenty-five miles, especially if there be any "old woman" to save himself on the same road at the same time. I have had some experience (as a passenger) of a "second-hand" Marshall car in a hilly district, and most certainly that particular car suffered from none of the drawbacks specified; but then it was not being handled either by "Amateur" or an old woman, and I should be inclined to advise "Amateur" (he asks for advice) to put the car into the hands of some one who knows how to manage it; he evidently does not. As for his back-handed attack on the tyre and car makers, nobody who knows aught of either will attach the slightest importance thereto.—Yours truly,

Streonshalk.

To the Editor of *The Motor-Car Journal.*

Sir,—If "Amateur" would like to write to me, I would be happy to try and answer any questions or give information about the above car, as I have had one for some time. I am surprised at his experience with the manufacturers, as I have found them most obliging and prompt on many occasions.—Yours truly,

Walter Keating, Jun.

Sibyl Hall, Raheny, co. Dublin.

PROPOSED ALTERATION OF BOILER.

To the Editor of *The Motor-Car Journal.*

Sir,—"Oxon" will not be able to fit a flash boiler to his Locomobile without great expense, and, when finished, it will not give satisfaction, the engine not being suitable for flash steam. The bore of cylinder is too large, and would require a very large generator; and, again, the superheated steam would destroy the packing in the glands in a few minutes. Furthermore, I do not think the construction of engine would stand the increased pressure of steam. If "Oxon" fitted a superheater to his boiler he would find a great advantage. The other day I went fully 24 miles on two gallons of spirit and less than a tank of water, my car being size 2½ and of an old pattern.—Yours truly,

W. T. Warne.



Grand-Duke Boris Wladimirowitsch on Count Josef Potocki's 35-h.p. Mercedes. [*Allgemeine Automobil Zeitung.*

CHARGING ACCUMULATORS.

To the Editor of *The Motor-Car Journal.*

Sir,—As a supplement to your answer to "Rallentare's" query in the issue of the *Journal*, may I point out there is a much more economical method than the one you suggest—namely, to connect the cells up to the terminals of an ordinary tumbler switch, of course leaving the switch blade in the open position, or short circuit will result.

All that is necessary is two short lengths of bell wire, 18 g. for preference, then, after slackening the terminal screws, force a wire into each

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socket. After testing for polarity connect up the cells in the usual way, using the lamps and wiring controlled by this particular switch as a resistance. By this way the lamps can also be usefully employed instead of burning to waste. I usually charge my cells at night when the light is needed, thus killing two birds with one stone.—Yours truly,

P. H. A.

THE ACCIDENT TO MR. EARP.

To the Editor of *The Motor-Car Journal.*

Sir,—I shall be greatly obliged if I may thank, through your paper, the number of very kind friends who have enquired about my recent accident. I am pleased to say that it proved to be of a very slight nature, and I am now about again in good health.—Yours truly,

W. Clifford Earp.

TOURING IN IRELAND.

To the Editor of *The Motor-Car Journal.*

Sir,—I should be greatly obliged if any of your readers, who have done any touring in Ireland, would be kind enough to give me the benefit of their experience. I want to get away from the beaten track for a few weeks' fishing, and should much like to take a car and be independent of railways, if it would not greatly increase the cost. Any information as to route, approximate cost of shipping car (weight about 17 cwt.), facilities for getting petrol, etc., and also especially the suitability of the country roads for motoring, would be greatly appreciated.

Having heard something of the other side of the question, it is a pleasure to record the following instance of promptness and courtesy. Arriving a short while ago, late one afternoon, in the neighbourhood of Stow-in-the-Wold, in the Cotswolds, with accumulators running dangerously low, I learned, to my surprise, that the little town boasted of the possession of motor works. The proprietor lent me a spare accumulator to take me to the village at which I was spending the night, started his engine, and sat up till 2 o'clock in the morning with my two sets of accumulators, which I found ready for me the next day, and all for the sum of three shillings.—Yours truly,

H. V. F.

A PROPOSED INSTITUTION OF AUTOMOBILE ENGINEERS.

To the Editor of *The Motor-Car Journal.*

Sir,—It is with great surprise that I read the letter from Mr. J. F. Marshall in your issue of the 14th inst., and would draw his attention to the "Automobile and Cycle Engineers' Institute," which is already in existence and carrying out all of the objects as laid down in his letter with the exception of 5 (Testing Department).

For some years now this Institute has done good work in the interests of, and for, the profession of cycle engineers; but, at the last annual meeting, the Council of the Institute, having realised that a great number of its members were associated with automobile engineering, recommended that the title be altered so as to include the profession of automobile engineers. This suggestion met with the unanimous approval of the meeting, as was announced in the various Press notices, and as a result applications for membership are being received daily, and will be dealt with at our next Council meeting. In view of the foregoing, I cannot help thinking that a "proposed" Institution of Automobile Engineers is unwarranted and therefore quite unnecessary.—Yours faithfully,

H. Austin.

President of The Automobile and Cycle Engineers' Institute.

COST OF OPERATION.

To the Editor of *The Motor-Car Journal.*

Sir,—I have just read with great interest Lord Churchill's account, in the *Journal* for the 14th inst., of his costs for a year's run on a 14-h.p. Daimler. I wrote you last week asking for information *re* Collier tyres, and this seems to come as an answer. In one year the cost for repairs is £23 17s. 7d. for 3,000 miles. This must be an eye-opener to the users of these tyres, and no wonder my tyres are in such a bad state, for they have certainly, as far as I can make out, run the same distance, or thereabouts. But I cannot make out how such a figure could be run up for mere repairs; the tyres themselves—that is, the covers—cost, catalogue price, £9 each for such cars, and surely one or more must have burst entirely to run up such a bill. Mine are not burst as yet, but I must own I expect them to blow up every time I go out, and no doubt if a long journey were taken three of them would be gone before that journey's end. It would be most interesting to know how the tyres gave way and what repairs were made. My covers are of 1902 make; Lord Churchill's will be of the latest pattern, and, from testimonials sent out by the firm, should run thousands of miles, and no spare cover is necessary, so say the firm.—Yours truly,

Amateur.

STEAM CARS.

To the Editor of *The Motor-Car Journal.*

Sir,—I should like to have the experience of any of your readers who have used a Locomobile steam car for some time. I have been discouraged from buying one by being told that, though very pretty, it is really nothing but a toy and is too flimsy for real use. I cannot myself see why, with ordinary care, and without overloading or running too fast on too rough roads, it should not keep in order. I should like also to know what it usually costs for petrol per mile, and if it is satisfactory with a petroleum burner.—Yours truly,

Saunterer.

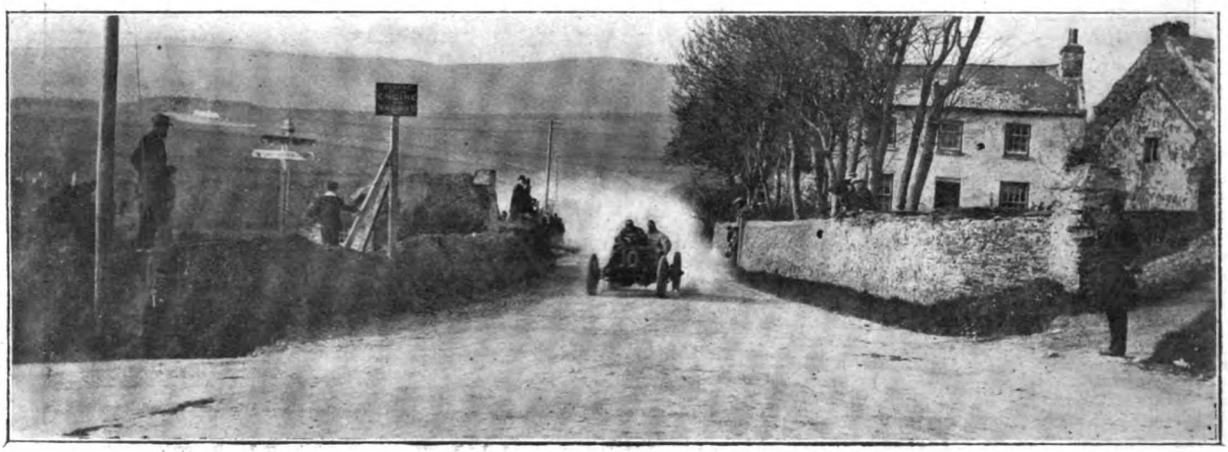


Photo by] The Isle of Man Trials. Mr. S. Girling on the Wolseley passing Creak-na-Mona on his last round. *[D. Collister, Douglas.*

To the Editor of *The Motor-Car Journal.*

Sir,—"Lancelot" should try the "Miesse" steam car, which burns paraffin, and is as fine a hill-climber as it is possible to find. I have never found the burner affected in the slightest degree by wind (the fault of many steam cars), and it gives tremendous heating power. Personally I have driven one for a year and a half with the greatest satisfaction.—Yours faithfully,

Paraffin.

WHEEL *v.* TILLER STEERING.

To the Editor of *The Motor-Car Journal.*

Sir,—In the *Journal* for the 14th inst. "Tillerleve" suggests that experiences as to the above may be of interest. My first car, an old Peugeot, had a vertical pillar, the wheel making three-fourths of a revolution from extreme left to right. I substituted a lever, hinged to turn up out of the way, and about 14 in. long, just short enough to escape catching in my watch chain. This made steering quite easy with one finger on the lever, giving same power as a wheel 28 in. in diameter. My present car, of modern type, had inclined pillar and wheel, which I removed to the right side of the car, and substituted a lever about 2 ft. long, steering with left hand resting on knee. The comfort and ease of this cannot be described without a special extra number of the *Journal* be issued for the purpose. In a lever of this type the handle should not be merely slipped on the end of the straight bar, but should be at the same angle as the modern bicycle handle; this makes a vast difference to the comfort in steering. Of course the lever turns up to give access to the seat.

One advantage of any form of lever steering is the open foot-board

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giving easy access to the seat, without having to squeeze in behind the wheel and pillar. Having to carry out serious repairs to my present car, I am now fitting for trial an unusual form of lever, vertical, in centre of car, steering with left hand, with straight forward and backward movement, similar to the usual speed changing lever at side of car. This will leave footboard absolutely clear, except for the clutch pedal. When makers find time to consider ease of steering, comfort, and convenience, I do not doubt that lever steering will be more generally fitted, except, of course, to racers, motor omnibuses and the heavier cars.—Yours truly,

A.B. 50.

[It would be interesting if "A.B. 50" would send us a photograph of his steering arrangements when he has completed the alteration.—Ed. *M.C.J.*]

WIRING A DOUBLE CYLINDER MOTOR.

To the Editor of *The Motor-Car Journal.*

Sir,—Having constructed a double cylinder motor of about 5-h.p., and fitted it into a boat with propeller and everything complete, I find that the coil will not spark. Having got the loan of a good trembler coil, the motor now goes away without any trouble. The coil was bought second-hand, and I cannot afford to buy another new coil.

I have seen references in the *Journal* about double-cylinder motors being worked with one coil. Could you favour me with a sketch of the arrangement of the wiring, because a good single coil would cost less than a double one, the contact breaker being the ordinary wipe contact, with cam of vulcanite and brush.—Yours truly,

Apprentice Engineer.

[To work a double-cylinder engine with a single coil, "Apprentice Engineer" would require a special type of coil and contact breaker, which would cost as much as an ordinary double-coil. The price of a single trembler multiple induction coil for a two-cylinder engine is £6, whilst an ordinary two-cylinder coil can be purchased for £4 10s. The multiple induction coils are a new development, which enables a single trembler coil to do the work of a 2, 3, or 4 cylinder engine, but it is not possible to to do the same thing by any arrangement of wiring with an ordinary coil, and as the cost is the chief item in "Apprentice Engineer's" case, an ordinary double coil must be used.]

CHAUFFEUR OR DRIVER.

To the Editor of *The Motor-Car Journal.*

Sir,—"Chauffeur" has struck the right chord at last as regards a suitable person. For my part, I would not give a snap for a man from a big works, who has been used to nothing but department work all his life. Such a man is no good in private service, he may be an excellent workman as far as his particular job goes, but he knows nothing of the hundred and one little and important things in connection with the modern car, and, besides, having always relied on his foreman, he seems paralysed when called upon to act for himself; and, again, his sudden access to a responsible position very often partially turns his brain, the result being a proud and sometimes positively insolent personage who does really more harm than good to his profession. On the other hand, a man who has served his time or worked a few years at one of our repair shops or general engineering works is essentially the man for the job. He is often entrusted with both intricate and delicate repairs, which, undertaken as it is often fifty or sixty miles from home, demands that he should work on his own; he also knows that if he can detect a hitherto unseen fault it is to his benefit to do so, thus his penetrative powers are developed. Then, again, the variety of the work, from the repair of an electrical generator to the fixing of a new pump ram on a gentleman's estate, or perhaps the re-tubing of a boiler, stamps him at once as one who, with a little practice, which he is already speedily obtaining, is the right man to keep in thorough working order a costly and high-powered car.

It is this keeping in tune, so to speak, which shows up the true work of a man, and not so much the ability to effect a repair after the damage is done, although this, too, is needed. The man for private service must be, like the true artist and musician, able to detect a fault, and remedy the same before it becomes palpable to the less experienced mind. At least such is the opinion of—Yours truly,

Electron.

Charging Accumulators from a Dynamo.—The omission of a decimal point rendered our reply to Mr. Tinsley's letter in the last issue of the *Journal* somewhat misleading. Instead of 8 c.p. lamps taking 4 amperes each, ·4 amperes should be read.

Cars for Devonshire.—Replying to the query of "Would-be Motorist" as to cars for Devonshire, V. E. B. writes:—"I have driven a Turner-Miesse 10-h.p. steam car since the beginning of August, and I consider it very satisfactory on the hilly Devonshire roads."

Darracq Cars.—"Margate" writes:—"Would any of your readers give their opinion of the 24-h.p. Darracq? Is it reliable? Does it require much attention as compared with a 10-h.p. Panhard, and is the water circulation efficient?"

IMPORTS OF AUTOMOBILES.

Below we publish our monthly official list of the imports of motor-cars, motor-cycles, and the parts thereof, into the United Kingdom during the month of February, 1904:—

BELGIUM.

Shipped from	To	Description.	No.	Value. £
Antwerp	Grimsby	Motor-car	1	360
"	"	" cycles	3	110
"	London	" cycle parts	—	64
"	Grimsby	" car "	—	313
"	Harwich	" car	1	260
"	"	" car parts	—	271
"	"	" cycle parts	—	1,662
Ostend	London	" cars	72	32,173
"	"	" cycles	30	1,208
"	"	" car parts	—	1,534
"	"	" cycle parts	—	22
"	Dover	" car parts	—	12
Brussels	London	" car	1	160
"	"	" cycles	19	552
"	"	" car parts	—	470

Total value of imports from Belgium in February, 1904 ... £39,171

FRANCE.

				£
St. Nazaire	Newhaven	Motor-car parts	—	60
Boulogne	London	" cars	141	42,148
"	"	" cycles	1	25
"	"	" car parts	—	2,478
"	Bristol	" cars	2	280
"	Folkestone	" "	34	11,114
"	"	" cycles	1	40
"	"	" car parts	—	3,466
"	Goole	" cars	15	6,640
"	"	" cycle parts	—	4
"	"	" car "	—	2,027
Calais	London	" cars	4	930
"	Dover	" cycle	1	30
"	"	" car parts	—	31
Dieppe	Grimsby	" cars	6	1,600
"	Newhaven	" cars	173	64,640
"	"	" cycles	28	862
"	"	" car parts	—	7,457
Dunkirk	Leith	" cars	1	520
"	Hull	" "	2	500
"	London	" car parts	—	32
Havre	Liverpool	" car	1	300
"	Southampton	" cars	4	720
"	"	" cycles	1	36
Marseilles	London	" cars	1	600
Honfleur	Southampton	" car	1	450
Paris	London	" cars	2	630
Rouen	Hull	" car	1	220
"	Glasgow	" car parts	—	12
Treport	London	" cars	11	3,095
"	"	" car parts	—	288
"	Dundee	" cars	1	700
"	Leith	" tyres	—	1,848

Total value of imports from France in February, 1904 ... £153,783

GERMANY.

				£
Bremen	London	Motor-cars	17	5,888
"	"	" cycles	2	63
"	"	" car parts	—	25
Hamburg	"	" " "	—	5

Total value of imports from Germany in February, 1904 ... £5,981

HOLLAND.

				£
Amsterdam	London	Motor-car	1	200
"	"	" cycle parts	—	57
Flushing	"	" car parts	—	36
Rotterdam	"	" cars	11	3,932
"	"	" car parts	—	160
"	Bristol	" cars	1	110
"	Newcastle	" "	1	200
"	Goole	" car parts	—	9
"	Harwich	" " "	—	250
"	"	" cycle parts	—	138
"	Manchester	" car parts	—	8

Total value of imports from Holland in February, 1904 ... £5,100

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SOUTH AFRICA.

				£
Natal	London	Motor-cycles	2	140
Total value of imports from South Africa in February, 1904 ...				£140

UNITED STATES.

				£
New York	London	Motor-cars	10	3,535
„	„	„ car parts.....	—	83
„	„	„ cycle parts.....	—	30
„	Southampton	„ cars	25	4,197
„	„	„ car parts.....	—	45
„	Glasgow	„ cycle	1	45
„	Liverpool ...	„ car parts.....	—	250
„	„ ...	„ „	—	6
Boston	London	„ cars	1	125
Portland	Liverpool ...	„ car parts.....	—	16
Total value of imports from United States in February, 1904				£8,332

CLUBS AND ASSOCIATIONS.

VICTORIA.

With a view of holding an invitation motor sports and social gathering at an early date, a sub-committee of the Automobile Club of Victoria recently visited several of the horseracing tracks around Melbourne, so that the most suitable grounds for fast motor travelling could be secured. After trying the speed capabilities of several of the grass racing tracks, the Maribyrnong course was decided on as being the fastest and most suitable. Speed tests carried out on this track showed it to be fast and the corners easily negotiated. The course is wide and flat and of good even surface, and, furthermore, only six miles from Melbourne.

SOUTH LINCOLNSHIRE.

The members of the South Lincolnshire Motor Club held a most pleasant meet at the popular Lincolnshire watering place (Woodhall Spa) on Whit Monday. Fine weather again favoured the motorists, and the run through this picturesque rural district was a most enjoyable experience. The following is a list of the members and friends present:—Mr. R. Holland, Mr. G. Holland, Mrs. C. and Miss Holland, 8-h.p. Peugeot; Mr. and Mrs. Holloway and family, 5-h.p. Baby Peugeot; Mr. T. W. Mayes, 12-h.p. Wolseley; Dr. and Mrs. Crompton, 5-h.p. Baby Peugeot; Mr. A. H. Holland, Minerva Tri-car; Dr. South and Miss Stafforth, 5-h.p. Baby Peugeot; Dr. and Mrs. Miller, 4½-h.p. De Dion; Mr. S. G. and Miss Lovell, 5½-h.p. Wolseley; Dr. and Mrs. Mason, 5-h.p. Baby Peugeot; Mr. Pilley, Dr. R. Tuxford, and Mr. C. Holland, 6½-h.p. Peugeot; Mr. and Mrs. F. and the Misses Richardson, 10-h.p. Wolseley. Tea was provided at 4.30 at the Royal Hotel, and about six o'clock a start was made for home, most of the motorists making a detour through Horncastle, the run amidst the lovely woodland scenery bringing a very enjoyable day's outing to a close. The next meet will be held at "The Shades," Spilsby, on Thursday, June 2nd.

WOLVERHAMPTON AND DISTRICT.

The opening of the new club premises in London Buildings, Lichfield Street, Wolverhampton, took place on Monday, the 9th inst. Mr. J. O. Evans (president) in declaring the club rooms open, congratulated the members upon the large increase of membership, the interest displayed by them in automobilism, and the bright prospects of the club. In the course of three years the club had attained a membership of about 100, and, as the result of efforts made by the committee, he ventured to think club rooms second to none in the provinces had been secured.

On Saturday, the 14th inst., about thirty members journeyed to Bridgnorth, where, after tea was partaken of, the run was continued to Shifnal and thence home, a most enjoyable afternoon being spent.

FINED FOR NOT STOPPING.

At the Lambeth Police Court, on May 10th, before Mr. Hopkins, Henry Richard Pope appeared on two adjourned summonses—(1) charging him with driving his motor-car in a manner which was dangerous to the public, and whereby he was alleged to have knocked down an old man named Martin, and (2) for not stopping his motor-car. The magistrate on the previous occasion expressed his intention of committing the defendant for trial, but the evidence for the prosecution was dealt with in such a manner by Mr. Staplee Firth as to convince the magistrate that there was no act of negligence on the part of Mr. Pope. When the case was called on for hearing on the adjourned hearing, Mr. Hopkins intimated to Mr. Firth that he should deal with the summonses under the provisions of the Motor Car Act, and not send the case for trial. Upon this, Mr. Firth went into the facts fully, and the police having agreed that Mr. Pope had dealt with the matter as a gentleman and sportsman, Mr. Hopkins dismissed the charge of driving to the danger of the public, but stated that, with regard to the other summons, viz, for not stopping his motor-car, he must find against the defendant, and therefore imposed a penalty of £10 and £3 3s. costs.

KEEP AWAY FROM LAMPPOSTS.

At Walsall last week, J. Moran, Birmingham, was summoned for unlawfully and accidentally damaging a certain lamp belonging to the Corporation of Walsall, on the 11th April, to the amount of £1 14s. 1d. —Defendant did not answer the summons.

Mr. Smith, Corporation gasworks' manager, appeared in support of the summons, and stated that the motor-car, alleged to have been driven by defendant, while passing a lamp in the Bloxwich Road, knocked the lamp down, doing damage to the amount mentioned. Asked how he got jurisdiction if it was an accident, Mr. Smith replied that it was under the Gas Clauses Act of 1847.

He pressed the summons, as the Corporation had had so many cases in which damage had been done by motorists and the drivers had cleared off. The Bench made an order for the amount of damage and costs.

THE MOTOR-CAR ACT.

James Lavell, a job master, of New Church Road, Camberwell, has been summoned by P.S. Hopper, 62 P, to answer the complaint that he, "being a dealer in motor-cars, did not keep a record of the distinguishing number A 7 L, placed or annexed to the identification plate and the name and address of the person driving the same." Arising out of the case there was also a summons against George Edward Lavell, a son of the other defendant, for driving a car which was not registered, or on which the identification mark was not fixed. It was admitted by the police that there was no offence if the car was being used "after completion, or on trial by an intending purchaser"—if, in other words, it was a car coming under the dealer's licence held by Mr. Lavell, sen., but the police contended that the car was not out on a trial trip or on a trial by an intending purchaser, their point being that a trial trip meant a trip after the building of the car. Mr. Robinson, for the defence, contended that a car could be taken out on a trial trip after repairs had been executed, and stated as a matter of fact this car was sent out on a trial trip after being overhauled prior to its sale, which took place two days afterwards. A dealer, he submitted, was always entitled to send a car on a trial trip after it had been overhauled. With regard to the registration summons Mr. Robinson said the police called shortly after the car had gone out, and before Mr. Lavell had had time to make the necessary entry in the register. It was not necessary, Mr. Robinson contended, for the entry to be made before a car was sent out. It could be done as soon after as was conveniently possible. In the result the magistrate dismissed both summonses.

Walter Oddy, 22, Bridge Road, Battersea, was summoned at the South Western Police Court for driving an unregistered motor-car at Streatham High Road, and using an identification mark which did not conform to the regulations. Theo Clark, manager to Mark Mayhew, Limited, of Battersea, was summoned for aiding and abetting the offence of driving an unregistered car, and T. Thornycroft, of Chiswick, was summond for fraudulently allowing Oddy to use an identification plate, and for failing to keep the required record of the number used.—After a deal of complicated evidence, Thornycroft was fined 5s. on his second summons, and acquitted of fraud; Clark was directed to pay 2s. costs, and Oddy was fined 29s., including costs.

At Bow Street Police-court, Daniel Weigel, managing director of the British Automobile Syndicate, Ltd., Long Acre, W.C., has been fined 20s. and 2s. costs for failing to keep a record of the distinguishing number and the name and address of the driver of a motor-car which was being used for trial purposes. Defendant said the usual entry was not made in the book kept for the purpose owing to several members of the staff being at the Law Courts to give evidence in a case in which the company was concerned.

For a similar offence John de Solla, manager to Evart Hall, Limited, motor-car dealers, 38, Long Acre, W.C., was ordered to pay 40s. and 2s. costs. Defendant said there was nothing in the Act—the Motor Car Act of 1903—to show when the record was to be made. In this case the car had only been out for thirty-three minutes, and during that time he (defendant) was engaged with a customer. Mr. Marsham said he had no doubt the record should be made immediately the car went out, or even before.

CONVICTIONS AGAINST MOTORISTS.

Place.	Summoned for	Fine.
Glasgow	Using unregistered motor-bicycle	5s., etc.
Manchester	Furious driving of motor-cycle	20s., etc.
Lewes	No light	5s., etc.
Epsom.....	Beyond legal limit	£2 18s.
Builth	Insufficient light	£1.
Margate	Furious driving	£4.
Ipswich	Excessive speed	£5.
Kingston.....	Dangerous speed	£5.
Llandudno	Reckless driving	£5.
Stratford.....	Improper numbering	4s.

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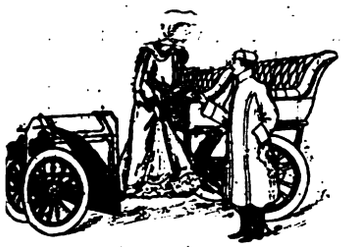
THE

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COMMENTS.



FROM the way in which the Sheffield Club is keeping its members informed of the progress made in the arrangements for the united meet of automobile clubs at Buxton on Saturday next, a goodly attendance of motorists from that part of the country may be expected. The Manchester Club has made excellent arrangements with the management of the Empire Hotel at Buxton for the accommodation of owners and their cars, and it is evident that a successful meet is assured, provided the weather is fair and favourable. In and about Buxton there are ascents which will give drivers good opportunities of trying their capabilities as well as testing the power of their vehicles. This annual event will have added interest by the presence of several notable cars.

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The Automobile Mutual Protection Association.

A MEETING of the committee of this Association was held at the registered offices, Cecil Chambers, Strand, W.C., on Tuesday, the Earl of Shrewsbury and Talbot (president) in the chair. The report of the sub-committee, appointed at the last annual general meeting to revise the articles of association, was received and adopted. The principal recommendation was that a finance and general purposes committee should be formed, and this will be submitted to an extraordinary general meeting to be held early this month. The present nominations are Lord Shrewsbury, Messrs. Charles Cordingley, Charles Friswell, E. Lisle, J. J. Mann, W. H Maudslay, A. Rawlinson, J. R. Richardson, Henry Spurrier, jun., and J. D. Siddeley, which leaves four seats yet to be filled. These vacancies are held over because there has recently been a considerable accession to the membership of the Association, which will elect representatives later. Sir David L. Salomons, Bart., and Col. R. E. Crompton, C.B., have intimated their willingness to accept offices as vice-presidents.

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The New Secretary.

IT was reported that the funds of the association now exceed two thousand pounds, and the current income exceeded current expenditure. The principal object of the Association is to protect the motor industry against actions of the Maybach and Seldon class, where it is sought to impose master patent terms on manufacturers and users alike. The committee finally approved an agreement with Messrs. Cordingley and Company in respect of the Royal Agricultural Hall Motor-Car Exhibition which will now be under the auspices and patronage of the Association, by which specially advantageous terms are secured to the members. Mr. E. Shrapnell Smith, who has recently undertaken the joint office of Secretary and Treasurer to the Association, reported on various matters of interest, and it was decided to hold an extraordinary general meeting of members on Friday, June 10th.

Our Identification Card.

THE demand for the Identification Card recently given as a Supplement to the *Journal* increases, and every post continues to bring applications for the same. We shall be pleased to send supplies to the officers of the various automobile organisations for distribution to their members on hearing the number they can usefully dispose of. The curiosity as to the places from which passing cars come seems an almost universal feeling among motorists.

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An Annoyance to Motorists.

AT the Lymington County Petty Sessions, John William Wise, of Southampton, was summoned, as the driver of a carriage at Efford Hill, for not keeping on the left side of the road, and thus allowing free passage to a motor-car, owned and driven by Dr. A. D. Pithie, of Lymington.—Dr. Pithie stated that he was driving his motor-car along the Milford Road, when he saw the defendant in front of him driving a carriage in the middle of the road. Witness repeatedly sounded his horn and shouted, but defendant refused to give way, and he had to run into the ditch to pass him. Defendant saw him in the ditch, and even then refused to pull in. Defendant gave his name and address to a constable, saying he would not get out of the way of the car, as motor-cars monopolised the whole of the road. P.C. Ward deposed that when he asked the defendant for his name he said he did not intend to get out of the way of the car, as motor-cars were a nuisance on the highways. The defendant was fined 10s. and 6s. costs, the Chairman remarking that the Bench took a lenient view of the case as it was defendant's first offence. A few more cases of this kind will save motorists much discourtesy on the road.

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Scotland and the Act.

DURING the last few days the Right Hon. A. Graham Murray, the Secretary for Scotland, has been touring over a large number of the roads in Perthshire, his object being to obtain personal knowledge of these roads before formally approving of the proposed regulations for motor-cars. The right hon. gentleman, accompanied by Mr. A. Robertson, the Central District surveyor, drove in his motor-car over a large extent of the county. His Lordship, who drives his own car, has been "doing" all the other districts of the county as well, and seemed thoroughly conversant with most of the roads traversed. It would be well if all having anything to do with the administration of the Motor Car Act were equally as practical as the Secretary for Scotland.

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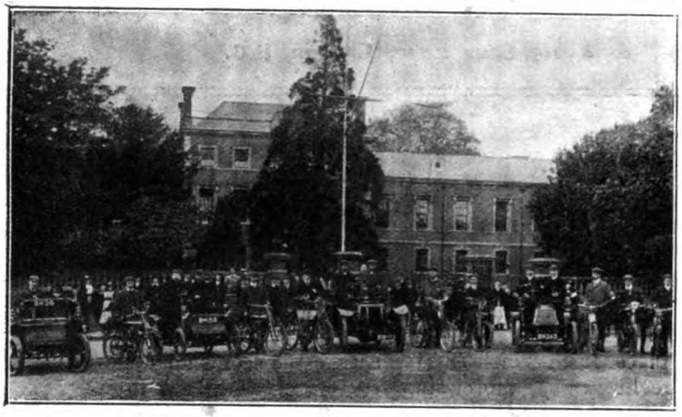
At an Agricultural Show.

LAST year's show at Southport was signalised by the introduction of a section for motor-cars. A couple of classes were devoted to this feature last week, but it cannot be said that they proved a popular attraction. Only a couple of motor-cars out of three entries put in an appearance for the class for the best-appointed and best-driven motor-car,

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the competitors being Mr. H. Bell and Dr. Pollard, the former of whom steered for himself, while the latter had the services of a youthful driver in the person of his son, Master John Pollard, who is not fifteen years old, and who managed the car with great dexterity. In the tour round the ring Dr. Pollard in his Mercedes defeated his rival, who piloted a Lanchester, by a second, while in some intricate manœuvring backwards and forwards between hurdles he was 8 secs. better. The first prize, a cup value £5 5s., the gift of Mr. Leonard Williamson, went to the doctor, and Mr. Bell gained a silver-gilt medal.

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The Inaugural Meet of the Aylesbury Automobile Club.

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New Motor Clubs.

Of the making of clubs there is no end. Last week we briefly mentioned the formation of the Stockton and District Automobile Club, of which Mr. Leonard Ropner has been elected captain, with Mr. J. Nattrass as hon. sec. and treasurer. The committee consists of Drs. L. Blandford and T. R. Smith, Messrs. T. E. Atterby, N. Downing, E. Stephenson, and T. G. Wrightson. The subscription is to be one guinea per annum, the meetings to be held in the surgery of Drs. Smith and Talbot. The first meet was announced to be held at the Hardwicke Arms, Sedgefield, on the 2nd inst. Away in the south the Aylesbury Club has held its inaugural meet to Oxford and back *via* Bicester. The members were photographed in front of the entrance gates to the Royal Bucks Hospital. The motorists present included Dr. T. G. Parrott (4½-h.p. De Dion), Messrs. P. Young (4½-h.p. Swift), J. Kingham (4½-h.p. De Dion), J. G. West (10-h.p. Panhard). Mr. C. J. Seed, the captain, was mounted on a 3¾-h.p. Bat motor-bicycle, Mr. T. P. Hedges, the vice-captain, being on a 2¾-h.p. machine of the same make, and Mr. A. C. de Frame, the hon. sec., on a 2¾-h.p. Aster. Messrs. G. Adams, P. Brisker, P. Lucas, C. J. Stanley, R. Neill, and A. G. Bower were other Aylesbury motor-cyclists present, the company being completed by the presence of Mr. J. Franklin, of Thame, and Mr. C. Jacobs, of Princes Risborough.

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Progress in Norfolk.

The automobile industry seems to be making great progress at King's Lynn, and Messrs. Johnson and Sons have just erected extensive new works at the rear of St. James's Street, in that Norfolk town, which are admirably adapted for the purpose of a garage, as well as of repair works. A fashionable company assembled at the opening ceremony, and Miss Ridley, of Docking Hall, drove the first car into the garage. The mayor of the town and many of the Norfolk gentry were present, and congratulated Messrs. Johnson and Sons upon the energy with which they have developed the motor-car business during the last few years. Motorists touring in Norfolk are certainly well provided for in the matter of garage accommodation, most of the principal towns and villages having their motor repairers as well as accommodation for cars.

The Education of Officials.

It is a useful custom, and one worthy of adoption wherever motorists abound, to hold, at least once a year, an official club run. This is the practice of the Burnley Club, who invite as guests the mayors, town clerks, magistrates' clerks, and chiefs of police of Burnley, Padiham, Nelson and Colne. The result is not only to give the leading officials of those towns some automobile education, but also to create a friendly feeling between the motorists and those in authority. Mr. Smith Lawson, the hon. secretary of the Burnley Club, which has three mayors among its vice-presidents, is to be congratulated on the good work done by the club.

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Ignorance no Excuse.

At the North London Police Court a young man was reported to have taken a new motor-bicycle to show to his friend. The latter got on to the machine to try it. On his return to his own door he was met by a constable, who summoned him for driving a motor-bicycle without a licence and without an identity plate. His friend was summoned for aiding and abetting in the commission of the offence. Both pleaded that they did not know the law, but the magistrate said that motors were luxuries, and people who indulged in them were supposed to know the law. He fined the abettor 3s. with 2s. costs, and the other defendant 3s. with 4s. costs.

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The Glasgow-London Run.

Among the cars that performed well in the Glasgow-London run was the Cadillac, and we believe we are right in stating that it was probably the first time that a car of 6½ h.p. has carried four passengers an equal distance, and kept up the speed maintained throughout the run. The four passengers were also carried up the test hill at Elstree, the time being 1 min. 3 1-5 sec. We have not yet the official figures on hand, but understand that the running weight of the car was something over one ton. These trials have demonstrated beyond doubt the reliability of the modern motor-car.

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A Motor-Car Mishap.

We illustrate herewith a motor-car after a mishap, which has, as usual, been exaggerated beyond recognition by the press of the North of England. Mr. T. M. De Bingham, of Manchester, was motoring at Bollington, near Altrincham, when his car (N. 447, a 20-h.p. Herald) was run into by N. 504—



Photo by] *F. J. Loblay.*

a Panhard owned by Mr. Newton, and driven by Mr. Scott. Mr. Bingham's car was stationary at the time, both brakes having been applied as soon as the collision was judged to be inevitable. All the connecting bolts of N. 447 were snapped, and considerable damage done to the car generally. Fortunately none of the occupants of either vehicle were hurt.

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The Royal Agricultural Hall.

AGAIN has the Royal Agricultural Hall, London, demonstrated its "drawing" power, and the Military Tournament, visited by Royalty and patronised by the nobility, has been as popular as ever. The Smithfield Show, the Stanley Show, the Horse Shows, and the score of Trade Exhibitions which every year find a home at the Agricultural Hall, are so many proofs of the hold it has upon all who have had experience in attracting the people. Its great area, for it presents the largest letting space of any hall in the United Kingdom, is another factor contributory to its popularity. Then, too, the convenience of access by means of tube, train, or tram from every part of London has increased wonderfully of late, and the favour with which the Hall is regarded as the *locale* of exhibitions is further shown by the success of the Motor-Car Exhibitions that have been held there, and by the favour assured that announced for March of next year. Already more than 120 exhibitors have booked space—a number greatly in advance of the firms who have booked space at the corresponding periods of previous years.

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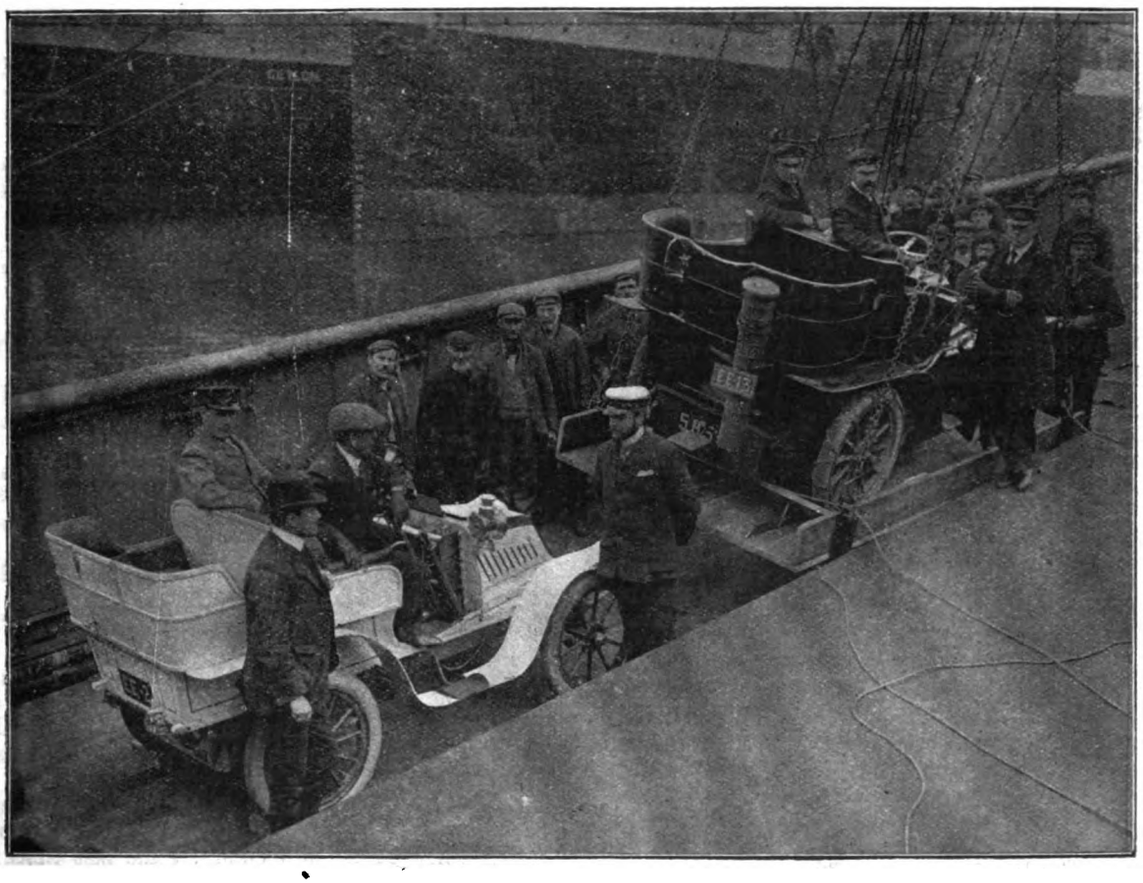
Commerce and Alcohol.

THE Lincolnshire Automobile Club have asked that a deputation might wait upon the Lincoln Chamber of Commerce with regard to the matter of alcohol being a duty free spirit for commercial purposes. They pointed out that many million gallons of petrol spirit were being used at the present time in this country for the propulsion of motor-vehicles. The demand was ever increasing, and as there was no increase in the amount of production, there was found to be a shortage. Alcohol had been found to be equally suitable, and this was largely made from potatoes. In Germany the area under production was four times as large, in proportion to its size, as it was in England. The German could obtain it at 10d. per gallon, while the Britisher had to pay 11s. for duty. The abolition of the duty would allow the supply to meet the demand. The Chairman of the Chamber said he was afraid it was rather a selfish application, but it was a matter for the Chancellor of the Exchequer and not for the Chamber of Commerce to consider. Mr. Bemrose did not believe any good result would be obtained by an interview, and the Chairman said he thought they must fight their own battle with the Chancellor of the Exchequer, an opinion which shows a narrowness of view that is regrettable.

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Motor Omnibus Success.

THE motor-omnibus which has been running from Brighton to Hove for some months has proved its value so conclusively that three other similar vehicles are shortly to be placed on the same road. Holiday-makers staying in either of the two resorts will be able to go to and fro with a considerable saving of time compared with that possible by the horse-drawn system of locomotion. The way in which the southern seaside towns are taking advantage of the motor-omnibus for public service is very notable, especially in view of the fact that it was away in the north that the early progress was made.



Loading Motor Cars at Grimsby Docks.

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Motor-Cabs.

THE other day on the Holborn cab rank we descried a motor-cab with the No. 15381, and, interviewing the driver, found he was ticketed "Licensed Driver No. 3, Mechanical Power." Evidently the authorities are placing the drivers of mechanically-propelled vehicles in a category apart from those who drive horses. Motor-cabs and 'buses plying for hire in the streets do not require being numbered after the manner of ordinary automobiles, but are identified by means of the ordinary figures given public-service vehicles. So many times has London

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been promised an adequate supply of motor-cabs; that we almost begin to despair. "One swallow does not make a summer," but we hope the one motor-cab we have seen is a herald of many to follow; and these days of cab disputes seem an opportune time for the introduction of mechanical power to our cab ranks.

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The Development of Ireland.

THE scheme organised by Lord Iveagh and the Right Hon. W. J. Pirrie for improving the facilities for transport in Ireland was explained in detail at a meeting of the Antrim County Council in Belfast on Tuesday. Mr. Sanderson, of the Local Government Board, said it was proposed to start a motor-car service between Ballymena and Pontglenone. There would be one run daily each way between the places mentioned. The motor-vehicle would weigh about four tons, and would have trailers weighing between one and one and a half ton, able to carry live stock and agricultural produce. The speed would be about ten miles an hour. The Council decided to support the scheme.

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Southport and Southampton.

FROM Southport and Southampton we have this week received complaints of the way motorists are being treated by the police. A correspondent at the latter place asks us to warn motorists passing through the town, as the borough police have again taken to "trapping," and are doing this in a most vindictive way, stopping drivers on the least suspicion, and generally incurring the odium of those who motor. At Southport, too, some feeling has been aroused by the fine of £5 in each of three cases where motorists were summoned for their first offence. There is no doubt that the want of uniformity in fines throughout the country is providing many anomalies.

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The British Team.

THE possibility of Mr. Edge withdrawing from the team for the Gordon Bennett contest is an incident all the more regrettable because of the vacillating policy of the A.C.G.B.I., which is regarded as the foundation of the unpleasantness. In the Isle of Man it was at first said that no results would be known till the return of the officials to London, and then, an hour or two after the unfortunate accident at Douglas, the team was posted. Had a settled line of action been adhered to, there would have been no ground for much of the protestation that has been indulged in in the Press during the last few weeks. The latest development of the position is a letter from Mr. Orde to Mr. Edge on behalf of the Club committee asking to be informed "whether you are prepared to fulfil the obligation resulting from your entry and from your performances during the trials, or whether you refuse to drive as one of the selected team in the Gordon Bennett Race."

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The Transport of Cars.

SLOWLY but surely the railway companies are recognising that automobile traffic is likely to become a source of considerable revenue, and we are glad to learn that the Great Central Company have devised a plan whereby they can handle cars with care and secure their safe transfer from the quay at Grimsby to the deck of the steamer. A platform or tray has been constructed, on to which the car is driven as soon as it reaches the loading berth. The wheels are then checked by an ingenious device, the car not being tied or strained in any way. The tray with its contents is then carried into mid-air, gently swung into position and then lowered on to the steamer's deck, as shown in the illustration on page 299. The first car was driven to the quay by Major H. A. Errington Josse; the second contained Mr. F. Barwick, the postmaster and steamship superintendent, who had driven from the Royal Hotel at Grimsby prior to the taking of the photograph. The manager of the hotel is a practical motorist, so that owners who intend to go to the Gordon Bennett race *via* Grimsby will be well looked after. One little point which speaks for itself is, that soft cotton rope has been provided to lash the cars on the ship. This is rather a good idea, as it is calculated to save the bad language which is sometimes used on arrival at destination, when it is discovered that the car is scratched and tarred. Similar arrangements have been made for handling cars on the Continent at either Rotterdam, Antwerp, or Hamburg, and this selection of routes will give a splendid opportunity to motorists who wish to extend their Continental trip to North Germany.

THE Leicestershire Club will have a run to Stratford-on-Avon on the 11th inst.

A SPEED limit of ten miles per hour has been fixed for Richmond Park by the Office of Works.

THE Clement cars, as supplied by Mr. E. H. Lancaster, are fitted with "Aster" engines.

FROM the Bull Hotel, Redbourne, the first trial for the S. F. Edge motor-cycle trophy takes place to-day (Saturday).

TO-DAY the Wolverhampton Club is having a non-stop run to Llangollen, starting from the High Green at Tettenhall at 3 p.m.

MOTOR-CARS are about to be used in the public service from Windermere to Keswick, and also on the Ambleside and Coniston routes.

TO-DAY (Saturday), the Hertfordshire A.C. is holding a hill-climbing competition for motor-cycles at Maples Hill, near Chesham.

OWING to pressure on our space we have had to hold over a number of letters to the Editor, including one from the Rev. F. A. Venables.

ON Wednesday the Irish club-house in South Anne Street, Dublin, was opened to members. It includes a garage for thirty cars, with inspection-pit.

THE first meet of the Ladies' Automobile Club is announced for Thursday next. The cars will assemble at 3.30 p.m., near the Duke of York's statue in Waterloo Place, W., and will proceed to Ranelagh.

INQUIRIES by the Local Government Board into the applications for the restriction of the speed limit at Beverley and Todmorden will be held on Wednesday and Thursday next respectively.

MR. R. HILL, of the Victoria Mills, Leeds, has sent us samples of the motor-car cleaning and polishing cloths he has lately introduced. They are made of specially absorbent material, and, being moderate in price, should prove useful to motorists.

DURING a recent series of trial runs on Leon Bollée cars over nearly the whole of the ground constituting last year's "Reliability Trial" hill climbs, some fast times were accomplished. The Speedwell Motor Company inform us that over the test portion of Westerham Hill the speed exceeded 21 miles an hour. On Hogsback, Farnham side, one mile was covered in 1 min. 25 secs. On Hindhead top speed was maintained the whole of the way, over 30 miles an hour being reached.

IN view of the increasing use of motor-vehicles for commercial purposes, more and more attention is being devoted to the question of producing reliable solid rubber tyres for use on such cars. Among the firms who have devoted themselves to this class of work are the Shrewsbury and Challiner Tyre Company, Limited, whose "Giant" and "Twin" solid tyres have been adopted by several of the leading railway companies, corporations, public service companies and other users of heavy motor-vehicles. It is satisfactory to learn that these tyres have for a long time past given such satisfaction that many of their customers now prefer to purchase the tyres outright rather than to enter into any maintenance contracts, and that at the present time the company have orders in hand for no less than forty complete sets of solid tyres.

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THE SIDE-SLIP COMPETITION.

JUDGES' REPORT.

THE side-slip trials organised by the Automobile Club produced thirteen entries, three being devices forming an integral part of the tyre, three being discs in contact with the road carried on arms attached to the back axle; two being steel blades kept in contact with the road by springs and attached to the wheels, three to each wheel; three being detachable leather covers fitted with steel studs or segments, and two being detachable chains or plates.

The trials began with an endurance test of 857 miles, to which all the devices were submitted, except those which could be put in or out of action from the driver's seat; these latter were only run over a distance of 104 miles. The roads chosen were, as far as possible, representative, but included a large proportion of tram lines and setts. Observers were carried on all the cars throughout the whole of the endurance test, who reported every repair and renewal made during the runs. At the conclusion of the endurance test, the cars were submitted to a trial of the absorption of power of the various devices. The cars were run down a hill at a speed of about twenty miles an hour, firstly with the device fitted, and secondly with the device removed. The distance between the stopping points under the two conditions was then measured and it was shown that there was an appreciable difference in the power absorbed.

The devices were then submitted to the actual side-slipping test. A space of 50 feet by 10 feet of smooth asphalt under cover was coated with a thin layer of Thames mud and fluid soft soap, forming a greasy substance closely resembling a London asphalt street on a damp, foggy day. All the cars were required to cross the greasy patch at speed, and to attempt to make a sharp turn while on the grease. None of the cars succeeded in turning in the least degree out of the straight, all making a front wheel side slip in the direction of the length of the car with the wheels locked hard over, clearly proving the necessity for having both front and back wheels fitted with a non-slipping device to ensure perfect control under extreme conditions; the Vivian device was fixed on all four wheels, but this did not enable the car to turn under the severe conditions imposed. The cars were then run over the greasy patch and the brakes applied suddenly; a considerable variation was apparent in the adhesion of the wheels fitted with the various devices. The cars were then made to start on the greasy patch and the results agreed with those of the brake test. Three of the devices under trial were then fitted to the front wheels, and this enabled the cars to make a fairly sharp turn on the grease. All the tyres, tubes, and devices were then examined for wear, and the results of the examination have been duly taken into consideration.

We recommend as follows:—

1.—That a prize of £150 and a gold medal should be given to M. L'Empereur for his device No. 12. This device gives good protection against side-slip, is quickly applied and removed, affords protection to the tyres, and in case of any fracture or disarrangement is easily, cheaply and quickly repaired.

2.—That a second prize of £100 and a silver medal be given to the Parsons Non-Skid Company for their device No. 14. This device gives good protection against side-slip, is easily applied and removed and is simple and cheap to repair.

3.—That a third prize of £50 and a silver medal be given to the Civil Service Motor and Cycle Agency for their Billet device, No. 15. This gives good protection against side-slip and to the tyres. The studs, however, require considerable attention and somewhat frequent renewal, and the device when detached is not so conveniently carried.

A silver medal and high commendation is given to the Wilkinson Tyre and Tread Company for their device, No. 8, but we find that considerable heat is developed, which is liable to cause trouble both with the covers and tubes.

That a silver medal with high commendation be given to Mr. Mark Vivian, for his device, No. 7. These tyres were in very good condition at the end of the trials, they absorb no more power than an ordinary tyre and are a fair protection against side-slip.

That a silver medal be given to Mr. H. S. H. Cavendish for his device, No. 2, as this proved to be the best of those designed to be operated from the driver's seat and to effectually prevent side slipping of the back wheels of the car to which it is fitted.

We are of opinion that all devices which depend for their application on the timely action of the driver, such as Nos. 2, 3, 5, and 6, are subject to the objection that they may not be brought into use quickly enough in emergency, and that they are not easily fitted to all types of cars without special design.

Although we have recommended the award of three money prizes with medals and three other medals, we do not consider that any of the devices as entered for the competition meet all the requirements. The problem is a difficult one, but more has been done towards its solution by some of the competitors than might have been expected. Much, however, yet remains to be done to remove the difficulties of application, inconvenience or even danger attending breakage of parts, first cost, cost of renewals, inconvenience caused by the necessity for frequent renewal of small component parts, and the absorption of power.

C. VERNON BOYS.
W. WORBY BEAUMONT.
F. LINDSAY LLOYD.





Photos by] Mr. L. Williamson and Mr. H. R. Kirk on their 50-h.p. Mercedes Cars at Ramsey. *[T. H. Midwood, Ramsey.*

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GORDON BENNETT RACE NOTES.

COUNT SIERSTORPFF, of the German Automobile Club, reports that the following towns and villages on the Taunus route will be neutralised :—Usingen, Weilburg, Limburg, Idstein, Konigstein, Obersursel, and Homburg. It will require forty-three minutes per circuit to pass through these seven localities, and as there will be four circuits, there will be a loss of 2 hours 52 minutes. The route will be guarded by 4,800 men, not including those at the start. Nearly eighteen miles of crossings will be barred with wire fences. Although the race will not start until 7 a.m., all the roads leading on to the course will be barricaded off at 4 a.m.

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THE Opel-Darracq car for the German Gordon Bennett team, with Herr Fritz Opel at the wheel, is shown in the accompanying illustration. Most of the details of this car have already been given in the *Journal*, but it may be repeated that the four-cylinder engine develops 85-h.p., and that the transmission is by cardan shaft and bevel gear on to a live axle. The car has been subjected to road trials and is stated to have attained a speed of over eighty miles an hour.

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Now that the United States has declared forfeit many are wondering what has become of the Swiss entry for the Cup race. Nothing has so far been heard or seen of the vehicle entered by the Swiss Club.

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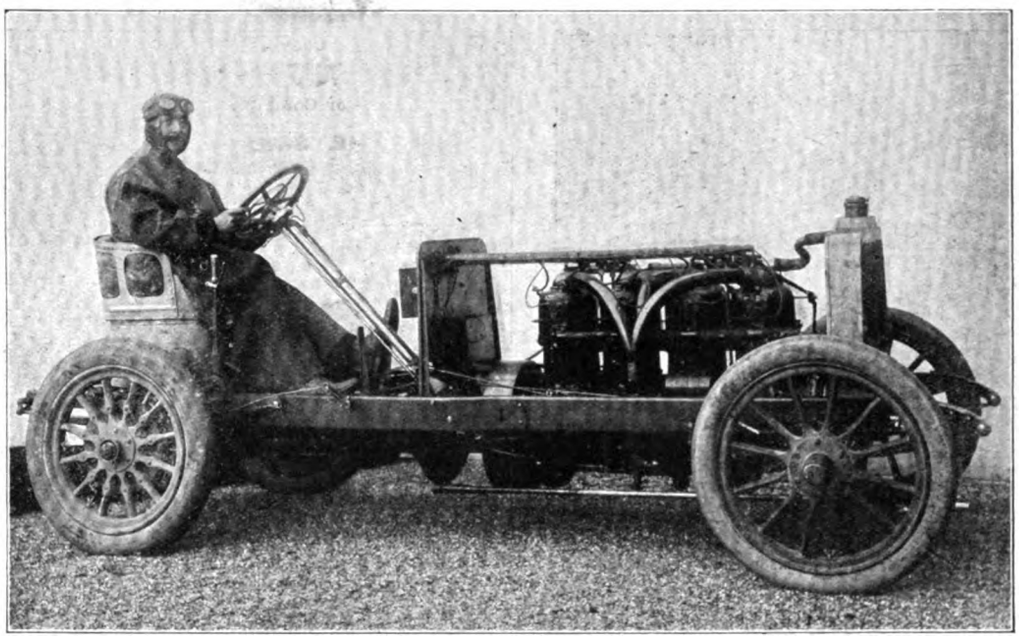
THE Georges Richard Company last week gave a banquet in Paris in honour of the success of its car in the French Eliminating Trials, there being over 600 guests. Both the designer of the vehicle, M. Brasier, and the motorist who drove it to success, M. Thery, were enthusiastically congratulated on the results of their efforts in proving the merits of the Georges Richard-Brazier cars.

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THE Great Eastern Railway Company has sent us copies of a pamphlet they have issued regarding the Gordon Bennett race. It includes a time table and list of fares for the journey as far as the Hook of Holland, *via* Harwich. The charges for the carriage of motor-cars are also given, as also a sketch map of the route to Homburg, one of the Cup race course, and other information useful for those intending to visit Germany for the great event.

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WE are officially informed by the Austrian Daimler Motor Company that the drivers of their three cars which will represent Austria in the Cup race are Warden, Werner and Braun. The cars, which are of 90-h.p. and closely resemble those built at Cannstatt, have been on the road for some little time.



Herr Fritz Opel on his Opel Darracq Racer.—One of the three cars for the German Team.

"LA FRANCE AUTOMOBILE" publishes an interesting list of the causes which led to the withdrawal of the various cars in the French eliminating trials. We give a summary below :—

A. Fournier	Hotchkiss	Broken wheel.
Amblard	,,	Broken back axle.
Baron de Crawhez ...	,,	Magneto trouble.
Baras	Darracq	Rim of wheel ridden on so long that new tyre cover could not be fitted.
Beconnais	,,	Broken starting handle.
Wagner	,,	Leaking tank.
Rigolly	Gobron-Brillié	Radiator troubles.
Duray...	,,	Radiator troubles.
Burton	,,	Leak from water jacket into cylinder.
Baron de Forest ...	De Dietrich	Broken starting handle.
Jarrott	,,	Broken water tank.
Tart	Panhard	Overheating of engine.
Hanriot	Clement-Bayard	Clutch troubles.
Guders	,,	Clutch troubles.
Leger	Mors	Broken inlet pipe.
Lavergne	,,	Broken clutch spring.
De La Touloubre ...	Turcat-Mery	Leaky petrol tank.
Stead	Georges Richard	Pump troubles.
Chanliaud	Serpollet	Broken front axle.

AN outcry is being made against the speed of automobiles in Bulawayo.

THE Circuit Nationale of Belgium, which should have started on the 30th ult., has been postponed.

MOTORISTS will learn with interest of the engagement of Captain Skeffington Smyth to the Hon. Violet Monckton.

LORD WINDSOR, First Commissioner of Works, has laid before Parliament new rules for the regulation of the Royal parks and gardens. In accordance with Section nine of the Parks Regulation Act, 1872, they remain on the tables of both Houses for the space of one month, when, unless formally objected to, they acquire the force of law. Cycles, whether mechanically propelled or otherwise, and carriages and cars propelled or drawn by mechanical means, shall only be admitted subject to such regulations as may from time to time be framed by the Commissioners of his Majesty's Works and Public Buildings, and published by notice exhibited in the park.

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THE TURNER-MIESSE STEAM CAR.

(*Concluded from page* 288.)

THE water is forced into one end of the generator either by a hand-pump, when starting, or by a mechanically-driven pump when the car is running; in the latter case the quantity of water delivered depends upon the speed of the car, but the actual amount which finds its way into the generator is regulated by hand, any surplus being allowed to find its way back to the supply tank. The hand regulator consists of a by-pass, and it primarily enables the driver to regulate the steam pressure. From the water tank, N, the water is led to the feed pumps, F, its passage to the pump cylinders being regulated by a shut-off cock. A small dome, N^2, is placed on the top of the tank on the right hand side, and an overflow pipe, which passes down through the water and out at the bottom of the tank, terminates at its upper end inside this dome. One of the delivery pipes, P^2, from the pumps is led to a by-pass valve, which is also connected back again to the suction side of the pump. The by-pass is controlled by a small lever working over a toothed quadrant attached to the steering column under the steering wheel, and the quantity of water delivered to the boiler can thus be regulated. The delivery pipe from the pumps to the boiler has an additional non-return valve between it and the pumps. It passes direct to the bottom coil of the generator, and has two branch pipes, one of which leads through a relief-valve, S, which forms part of the quadrant on the steering pillar, and the other to the safety-valve, Q, on the dashboard. The relief-valve, S, is normally kept closed; but, in the event of the pressure rising abnormally at any time, it can be opened by the driver, when the water or steam in the delivery pipe will be allowed to pass to the condenser. The overflow pipe of the safety-valve, Q, is also taken to the condenser. The feed-water pumps, F, are fixed on the right-hand side of the car and are formed in one casting. One of them is operated by the hand lever, F^2, and the other by the eccentric, F^1, on the countershaft, E. An air pump (Fig. 4) is fixed to the left of the engine, and is driven by a crank-pin on the crankshaft. The other end of the shaft carries a band-brake, X^1, controlled by a foot pedal, X^2; the latter also operates the steam throttle valve, its action being to first cut off the steam supply to the engine, and on further depression to apply the brake. The two water pumps have separate suction and delivery valves. The water passes from the pumps to the hand controlled by-pass R., and through an additional delivery valve and pipe fitting in order to go (1) to the generator, (2) to the relief valve, and (3) to the safety valve Q. The valve F^6, a non-return valve between the generator and pumps, is thus provided, which prevents the steam pressure forcing water or steam back through the by-pass and the condenser to the water tank.

The engine is carried in the centre of the frame. The cylinders, A, are cast in one piece, and are bolted to the crank chamber, B, which also encloses the differential gear on the countershaft, E. The cylinders of the 10-h.p. engine are 1 15-16 inch bore by 3 1-8 inch stroke, and those of the 16-h.p. 2 5-16 inch by 3½ inch. The engine, which is lubricated on the splash system, consists of three parallel, horizontal, single-acting cylinders, fitted with mushroom valves operated by cams. The cranks are arranged at angles of 120 degrees to one another, and the power is transmitted through a pair of spur-wheels to a differential shaft enclosed in the same casing, from the ends of which side chains convey the power to the rear wheels. The steam enters the cylinders through ports on the upper sides of the same, and is led out by the exhaust valves on the under side. Two spur wheels are mounted upon the crank shaft between the two bearings on the one side of the cranks. One wheel meshes with a corresponding pinion fixed to the shell of the differential gear; the latter is supported on each side by bearings formed in the casing. The differential countershaft is driven at about half the engine speed. The second spur-wheel on the crank shaft gears with a wide toothed wheel mounted on a lay-shaft in the box, and driving the two cam-shafts which operate the inlet and exhaust cams. The cam-shafts, which slide freely longitudinally in the crank-chamber casting, and are therefore easily removable, are simultaneously moved longitudinally by a fork piece which engages collars on both of them. The inlet cams are so shaped with varying profiles that they have a neutral longitudinal position in which they fail to open the valves at all. When slid in one direction they cause the engine to run forwards, and in the other direction to run backwards. For the forward direction they not only open the valves at the beginning of the outward stroke of the pistons, but they allow them to close later during these strokes according to the distance the shaft is moved, thus varying the cut off. The exhaust cams are so shaped that they hold the exhaust valves slightly open when in their neutral position, and allow for running backwards and forwards when slid longitudinally in one direction or the other,

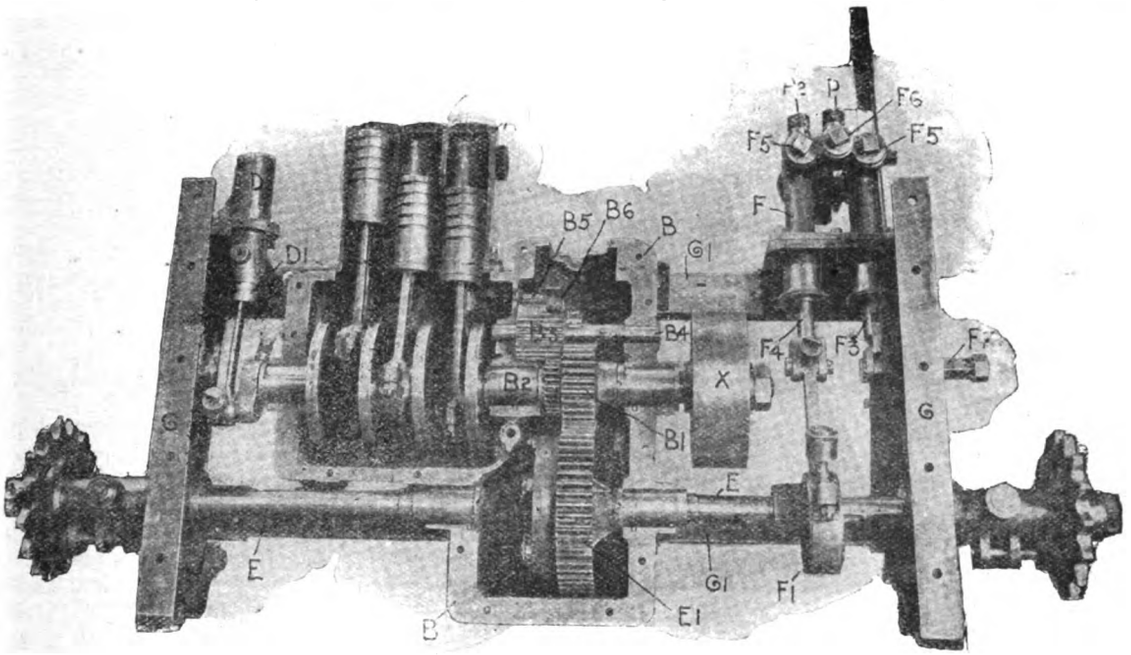


Fig. 4.—View of the Turner-Miesse Engine, Differential Shaft, and Water and Air Pumps.

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and enabling the engine to run freely when the car is travelling downhill with the reversing lever in its neutral position. The sliding of the two cams is controlled by the lever C on the steering pillar (Fig. 5); on the extreme left, it gives the reverse; when moved to a central position no steam is admitted to the cylinders, and when shifted to the right various degrees of cut-off in a forward direction are obtained. The forks which slide the cam shafts are carried on a vertical spindle, C^3, by means of the lever, C^2, fixed to its upper end. The steam is taken direct from one end of the generator to the engine, the latter being controlled by varying the cut-off and reversing gear; in all cases a throttle-valve is also fitted, and it is so arranged as to be closed by depressing a foot pedal. The main steam pipe, A^6, from the generator to the engine, is of very small diameter; it leads to the admission-valve chamber on the top of the cylinder casting. The throttle-valve is fitted close up to the valve-chamber. A small pipe is taken from a junction on the steam throttle casting to the steam-pressure gauge, V, on the dashboard. The gauge is of special construction in order to prevent the needle from vibrating, in consequence of rapid variations in the pressure. For this purpose it is provided, beneath the dial, with an air and water cushion, which acts as a kind of dashpot. The exhaust steam is conducted by the pipe, W^1, to the condenser, W, in front. The steam enters the top tubes and passes down through each successive layer to the bottom, the condensed water being forced by the pressure of the exhaust steam through the pipe, W^2, and back to the water tank, N. This pipe passes up through the bottom of the tank and terminates above the normal level of the water in it. Any uncondensed steam which may find its way into the tank goes across the surface of the water into the dome, N^2, and down the overflow pipe. The crank chamber is lubricated from the oil-tank T on the dashboard by means of the hand pump, T^1, alongside it, the oil being conducted to the engine by the pipe, T^2.

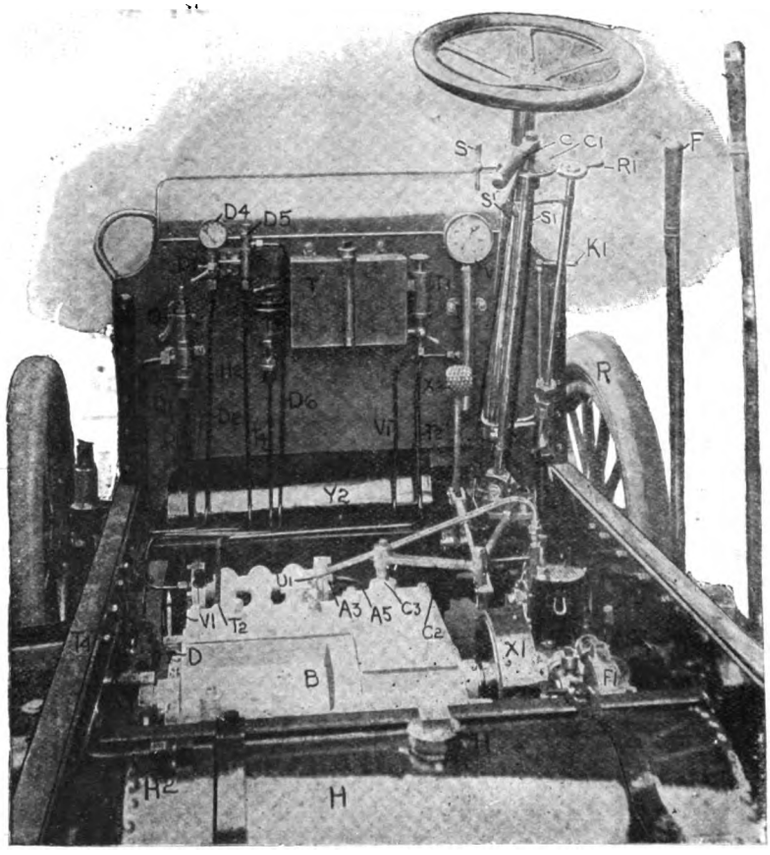


Fig. 5.—View of Chassis from Rear, showing Controlling Levers, Gauges, etc.

The paraffin tank is tested to a pressure of over 120 lbs. per square inch. On the 10-h.p. car it holds nine gallons, and on the 16-h.p. fourteen gallons—sufficient for running 100 miles. The water tank on the small car holds fifteen gallons, and on the large nineteen gallons. The pressure is not only kept constant in the fuel tank by the relief valve, D^5, on the dashboard, but, even in the event of this sticking, there is very little chance of an excessive pressure being attained, because the clearance space between the plunger and the delivery valve of the air pump is sufficiently large to prevent it from rising much above 45 to 50 lbs. per square inch. The steering gear is of the usual type, a worm and segment being used to render it irreversible. In addition to the brake on the countershaft double-acting hand brakes are fitted to each of the rear road wheels, and are operated by a hand lever. In practice the speed of the car is for the most part regulated by varying the steam pressure, and this is done almost entirely by varying the quantity of water which is admitted to the generator. The heat of the burner must, of course, be regulated to a certain extent in accordance with the amount of power which is required. When the car is standing for periods longer than a quarter of an hour the pilot light lamp cock is turned on and immediately lights itself from the main burner, which is then turned out, and *vice versa* when ready to start car again. When running, the driver can ascertain whether the genererator tubes are insufficiently hot, or are overheated, by noticing the rapidity with which the steam pressure rises in relation to the quantity of water delivered to the generator. If very hot, the pressure will rise very quickly, and if not hot enough, the reverse will be the case. When unexpectedly brought to a standstill by traffic, the steam pressure is apt to rise rapidly, and it is for such occasions as these that the hand relief valve on the steering pillar is provided, and that the safety valve is fitted. The steam pressure normally varies from about 150 pounds up to 400 pounds. The throttle valve is intended for use when wishing to slacken speed, or to stop momentarily, and is for the most part intended to obviate the necessity for removing the reversing lever to zero and back again; it thus saves trouble and avoids unnecessary wear and tear on the cams.

The only part of the system which is automatic is the air device for maintaining a constant pressure of fuel. The pressure is initially obtained by an ordinary tyre pump, which is connected to a nozzle provided for the purpose on the dashboard. The hand pump for forcing water into the boiler is only intended to be used when starting the car.

Although somewhat heavier than petrol vehicles of similar size, the Turner-Miesse steam car appears to have ample power for all ordinary purposes, and to be well and strongly built.

Sufficient water for a run of 80 miles can be carried, while the capacity of the fuel tank is, as already mentioned, equal to 100 miles' running.

In conclusion, we may mention that the cars are entirely built at the Turner Company's works at Wolverhampton, and that the consumption of fuel is only about one gallon per hour.

LORD AND LADY SAVILE have returned from an enjoyable motor-car trip through Northern Italy.

MESSRS. J. W. LOVEGROVE AND COMPANY, of Piccadilly, W., have issued an artistically designed catalogue to introduce their specialities in clothing to lady and gentleman motoriste. In addition to a full range of clothing, hats and caps, the list also includes goggles, motor-car lamps, sparking plugs, accumulators, jacks, horns, speedometers, and a whole host of accessories.

THE Executive Council of the County Councils Association, having considered the report of the Departmental Committee on Motor-Cars, has passed the following resolution:—"That this council regards the recommendations of the Departmental Committee on Motor-Cars with great satisfaction, and requests the Local Government Board to give effect to them at the earliest possible date."

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CONTINENTAL NOTES.

A Touring Competition at St. Etienne.

The Automobile Club Forezien is organising a competition for touring vehicles, to be held on the 12th and 13th inst. The following categories are provided for:—(1) motor-cycles; (2) cars weighing less than 500 kilogs., with engines up to 8-h.p.; (3) cars up to 750 kilog. and 12-h.p.; (4) vehicles up to 800 kilog. and 16-h.p.; and (5) cars up to 1,000 kilog. and 18-h.p. With the exception of those in classes 1 and 2, all the competing cars must carry four persons. On the 12th inst. there will be a run of 235 kilometres, starting at 7 a.m. The route is St. Etienne, Bonson, Saint-Bonnet-le-Chateau, Craponne, Saint-Paulein, Le Puy, Paulhaguet, Brioude, Issoire, and Clermont-Ferrand. On the following day the run back to St. Etienne will be via Riom, Gannat, Vichy, Cusset, Lapalisse, Roanne, and Feurs, a total distance of 206 kilometres. The event is an international one, and entries will be received up to the 6th inst.

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Driving Diplomas in France.

L'Association Générale Automobile has drawn up a series of rules with regard to the diploma it is arranging to issue to motor-car drivers. Candidates, who must not be less than eighteen years of age, will be subjected to an examination comprising the following points:—(1) driving motor-cars (starting, reversing, stopping, taking corners and driving up and down hill); (2) knowledge of the car (motor, transmission, ignition, dealing with breakdowns, detaching punctured tyres and fitting new ones); (3) acquaintance with the Motor Car Acts and Regulations; (4) physical and moral aptitude (sight, hearing, general conduct and behaviour, etc.) The diploma will only be available for a year, but can be renewed. Every driver to whom a diploma is granted will be required to acquaint the A.G.A. whenever he leaves or changes his place.

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Motor Water Carts in Paris.

The streets of Paris are now being watered by a steam watering cart built by Messrs. De Dion, Bouton and Company. The wagon is provided with a 35-h.p. two-cylinder engine; the boiler, which is placed in front, has its smoke stack underneath the vehicle. The transmission is by means of a live axle and cardan joint. About a thousand gallons of water are carried on the vehicle, which can in twenty minutes sprinkle one mile of roadway fifteen yards wide.

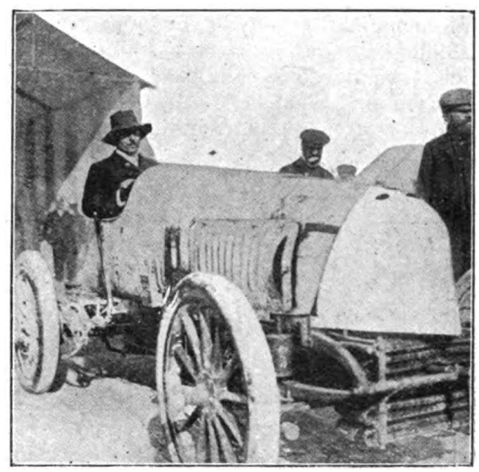
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The late Marcel Renault.

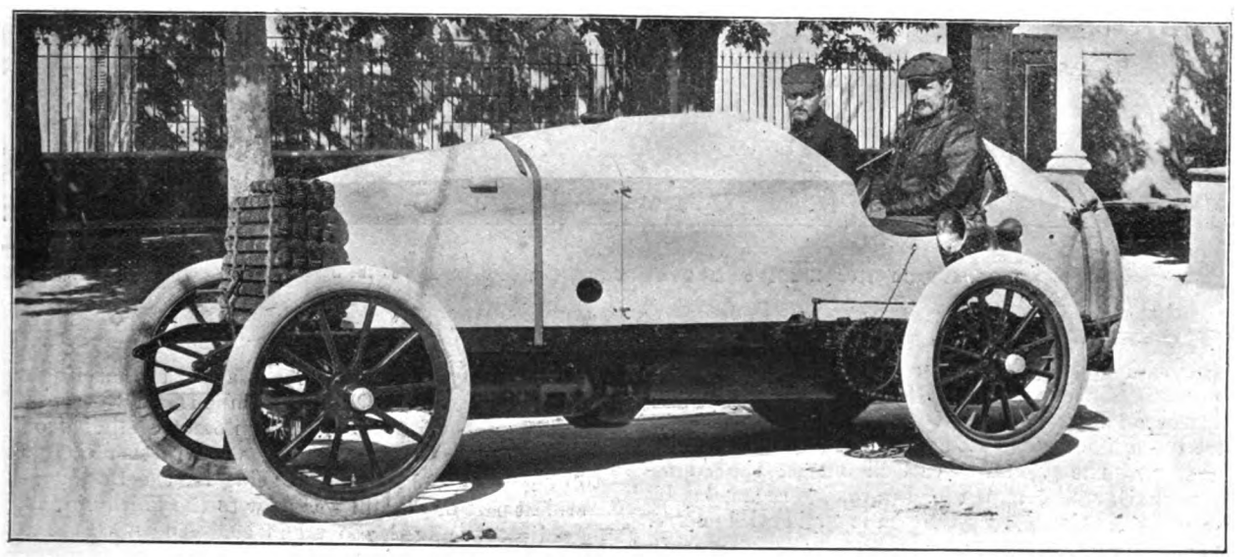
A monument in memory of Marcel Renault, who lost his life in the Paris-Madrid race, was publicly inaugurated at Billancourt, near Paris, last week. The monument consists of a marble bust of the deceased motorist mounted on a large pedestal. On one side of the latter is a *bas relief* representing the arrival of Renault at Vienna in the Paris-Vienna race of 1902.



Thery on his Georges-Richard-Brasier.



Salleron on his Mors.



Rougier on his 80-h.p. Turcat-Mery.

THE FRENCH GORDON BENNETT TEAM.

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Another Austrian Hill Climb.

The Austrian Automobile Club will hold its annual hill-climbing competition from Schottwein to Semmering, on the 21st August. Entries will be received until the 10th of that month.

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An Italian Motor-Cycle Reliability Trial.

The Italian Touring Club is organising an international reliability trial for the 19th June. The distance to be covered is about 200 kilometres, the route being Turin, Pignerol, Sesnieres, Suse, and Turin. A maximum of twelve hours will be allowed for the journey, this including a two hours' stop at Sesnieres for lunch.

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A Public Service between Honfleur and Trouville.

A public service of motor-vehicles has just been inaugurated between Honfleur and Trouville by a company known as La Société Honfleuraise de Transports Automobiles. At present three vehicles—single deck omnibuses constructed by Messrs. De Dion Bouton and Company—are being used, the time-table allowing an hour for the journey of 15 kilometres, including stoppages *en route*.

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The Five-Kilometre Speed Trials.

The programme on the second day of the meeting consisted of a series of five-kilometre speed trials on a straight road near Beaumetz-les-Loges, about ten miles from Arras. Griet on a Griffon was the best in the motor-bicycle class, his time for the five kilometres being 3 min. 30 2-5 sec., while Rigal, on a Buchet, secured first place in the heavy motor-cycle category (time, 3 min. 25 2-5 sec.). Villemain again led his Darracq to victory in the voiturette class (3 min. 15 sec.). The regular running of the Darracqs was again seen in the light car section, Beconnais and Baras both doing the distance in 2 min. 53 sec., as against 3 min. 15 sec. by Hanriot (Clement-Bayard). The best times of the day were made in the heavy car class, Gabriel on his Gordon Bennett De Dietrich doing the five kilometres in 2 min. 36 3-5 sec., or a speed over seventy miles per hour. Wagner (Darracq) was second in 2 min. 40 3-5 sec., and A. Clement (Clement-Bayard) third in 2 min. 54 3-5 sec. The day's proceedings were brought to an end by the trials of the touring cars, in which ten competed, Deville on a 20-h.p. Serpollet proving the winner; time, 3 min. 55 3-5 sec.

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The Arras Speed Trials—Hanriot on the Clement-Bayard Car, on which he won the De Caters Cup.

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Speed Trials at Arras.

The automobile meeting at Arras, organised by the Automobile Club du Nord in connection with the exhibition in that town, commenced on Thursday of last week by a series of mile and kilometre trials, the former with a standing and the latter with a flying start. The event was carried out on the Arras-Douai road, near Gavrelle, and the awards were made by adding together the times for the mile and kilometre. Some new times were set up; thus in the racing voiturette class Villemain on a Darracq did the mile in 1 min. 8 2-5 sec. and the kilometre in 34 4-5 sec. In the light racing car section Beconnais and Baras, both on Darracqs, each did the mile in 1 1-5 sec., claimed to be a new world's record for this class of vehicle. Although slower on the mile Hanriot on a Clement-Bayard covered the flying kilometre in 28 1-5 sec., likewise said to be a world's record. In the heavy racing car class Wagner on a Darracq took the first position, his time for the flying kilometre being 28 3-5 sec. A. Clement (Clement-Bayard), was the fastest over the mile (time, 1 min. 1 2-5 sec.). In the touring car section, Delmasure on a 12-h.p. De Dion did best in the two-cylinder category—2 min. for the mile and 1 min. 5 sec. for the kilometre. In the four cylinder 12 to 20-h.p. category Dreye on a 20-h.p. Serpollet headed the list, his combined time for the mile and kilometre being 2 min. 13 1-5 sec.

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The Doullens Hill-Climb.

The event for the third day of the meeting consisted of a hill-climb near the village of Doullens. Two trials were included in the proceedings, the first a kilometre climb from a standing start, the run being continued over a further 500 metres, with a flying start, the latter trial being for the De Caters Cup. The stiffest part of the hill was near to the finishing point, where the gradient averaged about 1 in 10. Appended are the best times for the kilometre from a standing start in each section:—

RACERS.

Class.	Driver.	Machine.	Time.
Motor-bicycles	Lamberjack	Griffon	50 sec.
Motor-cycles	Rigal	Buchet	55⅘ sec.
Voiturettes	Villemain	Darracq	53⅘ sec.
Light Cars	Beconais	,,	47⅕ sec.
Cars	Wagner	,,	53⅕ sec.

TOURISTS.

Motor-bicycles	Godard	Alcyon	1 m. 13⅘ sec.
Cars, 12 to 20-h.p.	Dreye	Serpollet	1 m. 14⅘ sec.
Cars over 20-h.p.	Wattine	Peugeot	1 m. 42 sec.

The result of the 500 metre speed trials for the De Caters Cup were:—

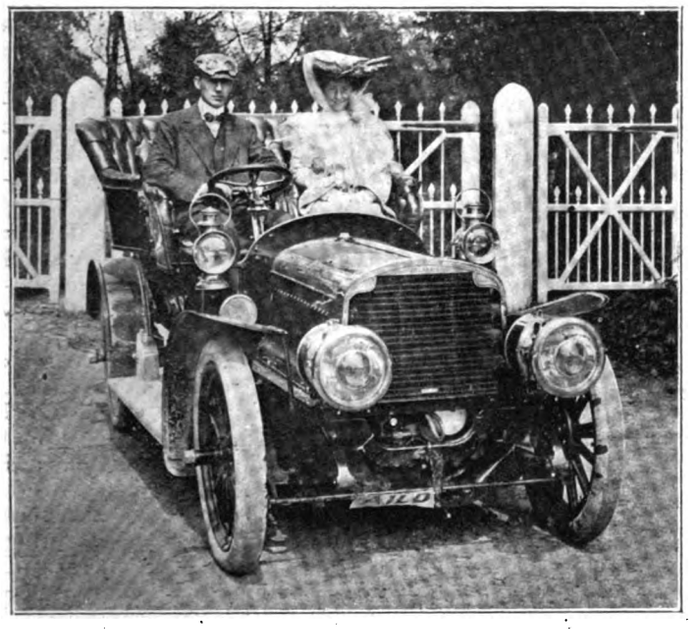
1. Hanriot ... ... Clement-Bayard ... ... 19 sec.
2. Wagner ... ... Darracq ... ... 19⅕ sec.
3. Anzani ... ... Alcyon motor-bicycle ... ... 19⅘ sec.

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HERE AND THERE.

A NEW garage has been opened at King Street, Cork, by Mr. J. T. Mulligan.

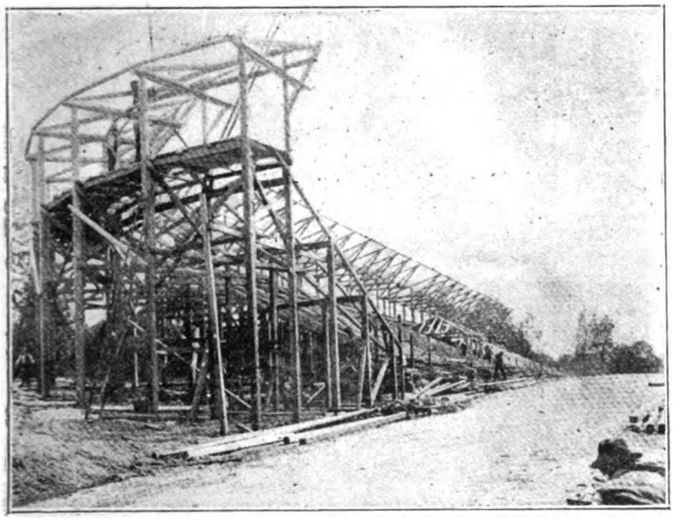
THE Lagonda Motor Company, Limited, has been registered with a capital of £10,000.



The 24-h.p. Delahaye Car, which took part in the Glasgow-London Non-stop Run and which made the second best time on Woodcock Hill.

MR. R. S. CURRIE, of St. Luke's Yard, Bravington Road, West Kilburn, has been appointed expert and engineer to the Ladies' Automobile Club.

MR. T. MASUI has opened a garage and repair at 8, Earl Street, Westminster, S.W., where he will have accommodation for 100 cars. The department will be under the supervision of Mr. H. Ramoisy.



The Gordon Bennett Race. The Grand Stand in course of erection, at the Starting Point at Saalburg. [*Automobil Welt.*

THE Government of India have sanctioned the purchase of a steam motor coach, for trial on short branches of the North Western Railway. The coach will be capable of attaining a maximum speed of 30 miles an hour and will carry 68 passengers, with luggage and sufficient coal and water to run thirty miles without replenishing.

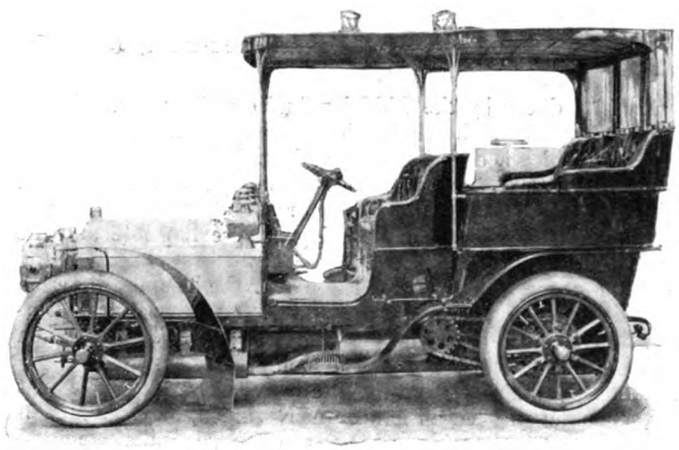
A MILNES-DAIMLER van has just been put in service by the G.P.O. authorities between Mount Pleasant, W.C., and Paddington.

THE dangerous corner on the main road from Windsor to Maidenhead, known as the Cannon-hill death-trap, is to disappear, the local district council having received a free gift of land which will enable them to widen the road by 10 ft.

MESSRS. FULLER, MACLEOD AND COMPANY, LIMITED, have been appointed sole British agents for the dry batteries of Messrs. Hellesens, Enke and V. Ludvigsen. These cells have excellent keeping properties, as an instance of which it may be stated that several Governments, who use the cells for torpedo work, keep them in store for five or six years.

DIXI MOTORS, LIMITED, is the title of a company registered with a capital of £16,000 to adopt an agreement with Mr. R. S. Harger, and to carry on in the United Kingdom or elsewhere the business of proprietors of and dealers in motor-cars and carriages of all kinds. The first directors are Messrs. R. S. Harger, J. B. Stanford, and Captain W. H. Benett.

SICILY, by Mr. Jackson, is the latest addition to the series of "Little Guides" now in course of publication by Messrs. Methuen and Co. Illustrations add to the pleasure of the volume. The natural features as well as the historical associations of Sicily —the largest island in the Mediterranean— make it a delightful centre for tourists. The plan of these Little Guides is now well known; the newest volume adds to the reputation of the series.



The 35-h.p. Germain Car, which has just been supplied to Prince Albert of Belgium.

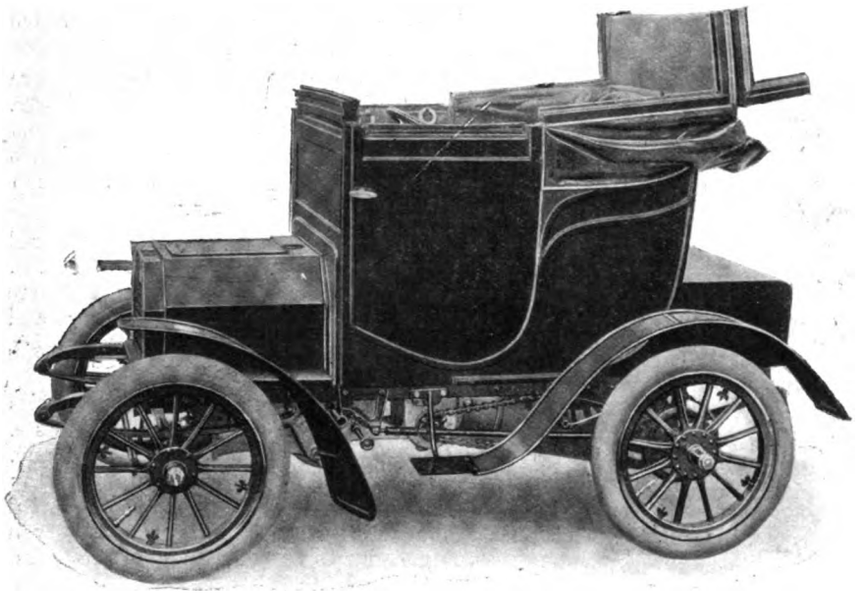
WITH reference to the excursion in the South of England which Messrs. De Dion-Bouton and Company, of Puteaux, are organising for users of their cars in July next, an outline of which was given in the *Journal* for the 21st ult., we are asked to mention that any owner of a De Dion-Bouton vehicle who would like to take part in the tour for the whole or a portion of the time will be supplied with further particulars in regard to hotel accommodation, etc., by applying to Messrs. De Dion-Bouton, Limited, 10, Great Marlborough Street, W.

KELLY'S Directory of Merchants, Manufacturers, and Shippers of the World for 1904 has just been issued. The book is intended to bring together, in one volume, not only the names of the manufacturers, merchants, exporters, &c., of the United Kingdom trading with the Colonies and abroad, but also those of all the more important foreign merchants (whether exporters to or importers from the United Kingdom), and further, those of the manufacturers of the principal goods imported into the United Kingdom. The Directory thus furnishes a guide to both the import and the export trades of the world, containing a large amount of information not to be found in any other book. The Directory contains (with the Customs' Tariffs published as a companion volume this year for the first time) no less than 4,300 pages, many of which will be found singly to give the names of as many as 400 merchants and manufacturers.

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MR. W. G. MORRANT, the chief constable of Durham, is the last addition to the ranks of chief constables who are also motorists.

THE accompanying illustration shows a 6-h.p. landaulet



The Siddeley Doctor's Landaulet—Open.

recently introduced by the Siddeley Autocar Company. Except for the body work, the vehicle is identical with the Siddeley light car of which a description was given in the *Journal* for the 20th February last. In fine weather the car, which has been specially designed for the use of doctors, can be used as an open vehicle, the rear part of the top being made collapsible and the front glass to drop down.

THE commissioners of the bridge over the Thames between Goring and Streatley have agreed to reduce the toll for motor-cars from two shillings to one shilling, the speed of cars when crossing the bridge not to exceed four miles an hour.

THE London and Brighton Railway Company have just issued a booklet entitled "Picturesque Normandy." In addition to being a most interesting guide to the Dieppe and Rouen districts, the illustrations are veritable works of art, and we strongly recommend those interested in this part of France to procure a copy.

MR. G. GOLDSCHMIDT sends a new edition of his catalogue of motor accessories, in which we notice illustrations of some excellent types of headlights, tail lamps, side lamps, motor horns, pumps, oilers, goggles, and other necessary accessories for motorists. Among his specialities is a motor-cycle acetylene lamp fitted with sliding panels for the number plates.

THE Comptroller-General of Patents, Designs, and Trade Marks, in his report for the year 1903, states that the subject of electric traction received much less attention at the hands of inventors than in the two or three preceding years. On the other hand, the development of motor-cars advanced very considerably, especially in the last quarter of the year. This development was shown not only in the construction of the cars themselves, but also in motors for driving them, particularly oil engines, and in tyres, speed gears, speed indicators, lamps, and other accessories. The new regulations for numbering motor-cars produced towards the end of the year many applications for number plates and means for illuminating them.

THE Rt. Hon. the Earl of Scarborough has just acquired a 12-h.p. Wolseley car.

WE hear that the Putney Motor Company are at present engaged on the construction of a twelve-cylinder petrol motor.

THE King of the Belgians motored from Brussels to Chantilly on his 90-h.p. Mercedes on the occasion of the French Derby.

MESSRS. R. A. WHYTE AND COMPANY, 144, Bath Street, Glasgow, have been appointed agents for the Continental Caoutchouc and Gutta-percha Company.

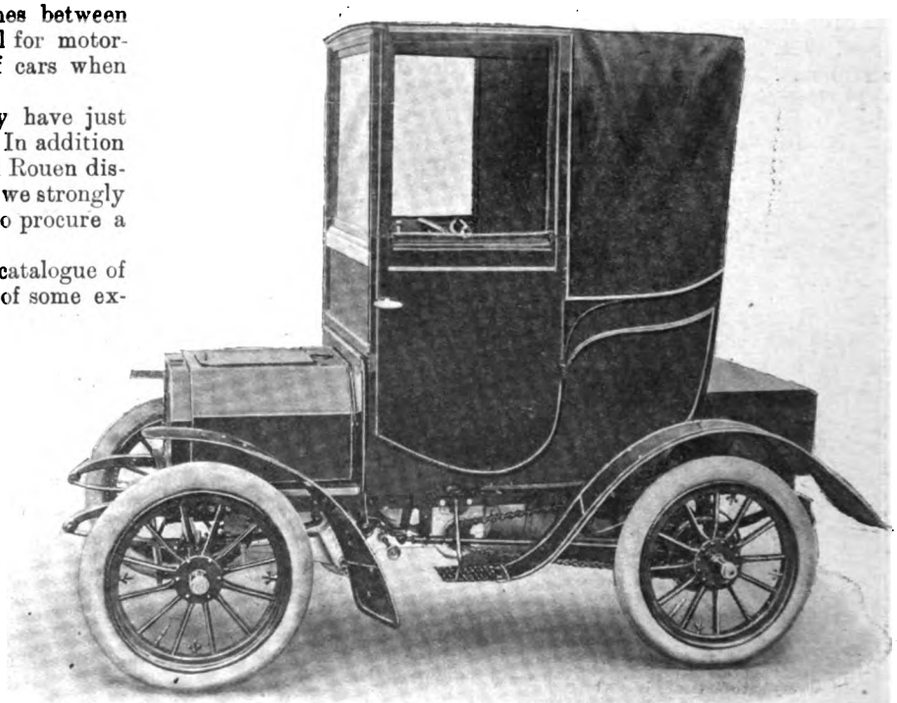
THE Patent Fluid Soap Company, of Coventry, are introducing Klenoyl for removing dirt and grease from the hands without hard rubbing. It leaves the skin in a soft, natural and emollient condition.

IN a case heard at North Shields on Monday fourteen Chinamen were summoned. They stood in and about the dock each bearing a number—"as if" says a facetious reporter, "they were so many motor-cars."

THE third edition of Mr. John Williamson's book on the Motor Car Acts of 1896 and 1903, together with the latest regulations of the Local Government Board, and a series of useful notes, has just been issued by Messrs. Iliffe and Sons, Limited.

ACCORDING to the Weather Chart sent out by Mr. B. G. Jenkins, the weather during June will be unsettled except for ten days in the middle of the month. So far during the present year the predictions of this chart have been generally accurate.

SOME time ago Messrs. John S. Morris and Son sent us a sample of their "Speedon" motor oil. We have now tested the lubricant and find it gives excellent results. "Speedon" is a pure, trebly-refined and filtered oil, quite free from acid, and has a high flash point. No lubrication troubles were encountered whilst it was in use, and there was no tendency for any parts to gum up.



The Siddeley Doctor's Landaulet—Closed.

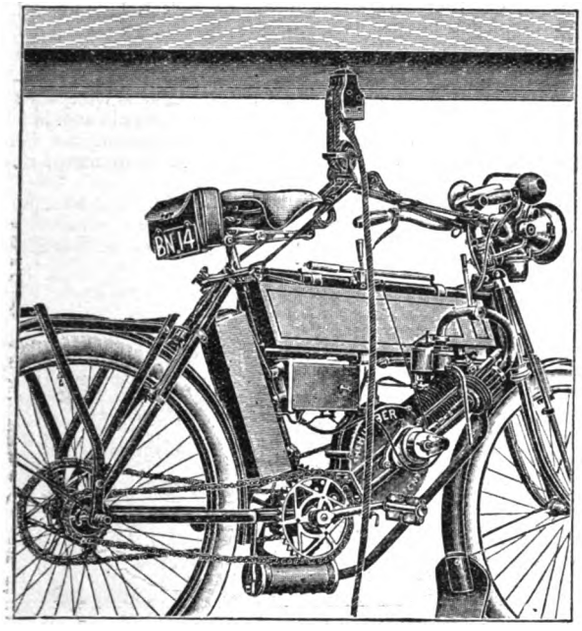
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MOTOR-CYCLING NEWS.

A MOTOR-CYCLE section of the Brighton Cyclist's Club has been formed.

◆ ◆ ◆

IN a recent issue we illustrated a device for suspending a motor-car from a strong roof to permit of repairs and adjustments being readily made where no inspection pit is available. We now give an illustration of a somewhat similar device



which has recently been introduced by Messrs. Jas. Roscoe (Bolton), Limited, for suspending motor-cycles to enable these to be cleaned and adjusted with facility. The suspender is also useful for storage purposes, as the pulley block is provided with a brake arrangement which permits the machine to be held at any desired height from the ground. The device consists of two pairs of pulley blocks, the upper pair of which is intended to be attached to a beam, while the lower pair is attached to a skeleton cradle which grips the frame just behind the seat pillar at the one end and the steering pillar at the other. The connections are made of the best raw hide belting, and are such that they can be easily adjusted to any motor-cycle with a minimum amount of trouble, and are designed to carry a weight of 224 pounds.

◆ ◆ ◆

THE second round of the eliminating motor-cycle trials organised by the Peterborough and District Motor Club took place on Friday, the 27th ult. The test is a 100 miles non-stop run from Peterborough to Lincoln and back. Originally there were thirteen competitors, and the first round reduced these to seven, as follows:—B. C. Holmes (Peterborough), 3½-h.p. Vinco-Minerva; T. Woodman (Peterborough), 2¾-h.p. Bat; H. Brown (Peterborough), 2¼-h.p. Bradbury; P. Mays (Bourne), 2¾-h.p. Vinco-Minerva; E. A. V. Sturton (Peterborough), 2½-h.p. Vinco-Minerva; P. R. Heighton (Peterborough) 2¾-h.p. Vinco-Minerva; and B. Gibson (Bourne), 2⅜-h.p. Vinco-Minerva. The rules were precisely the same as those in the first round, but rain fell during a greater part of the journey. Of the seven starters three again completed the non-stop as follows:—Holmes, Woodman, and Brown, and they consequently qualified for the third round. Two of the other competitors, Sturton and Mays, had the misfortune to break the belts of their machines, Gibson's ignition failed, and Heighton punctured. In the third round, should more than one competitor be left in the running after completing the 100 miles course as before, a further fifty miles will be run to Folkingham and back, and, if necessary, after an hour's interval, a further twenty-five miles, and so on until the winner is decided. The prizes offered are a handsome silver cup to the winner, gold medal to the second, and a silver medal with gold centre to the third. The seven competitors who originally competed in the non-stop will receive certificates recording their success.

◆ ◆ ◆

A MEETING of trade representatives interested in motor-cycles will be held at 119, Piccadilly, London, W., on the 9th, at 7.30 p.m., to consider the question of reliability trials for motor-cycles, to discuss the date of the same, and to elect ten representatives of the trade to form, with an equal number of representatives of the Auto-Cycle Club, the Trials Advisory Committee.

◆ ◆ ◆

THE Sheffield and District Automobile Club will hold a motor-cycle hill climb at Padley Wood to-day (Saturday), for which twelve entries have been received. Competitors must weigh machine and rider at Grindleford Station, under superintendence of the weighing clerk, Mr. L. C. Howlden. Mr. B. H. Gainsford will act as umpire, and Messrs. W. E. Cope, T. Lonsdale, C. Pearson, and J. R. Wade will officiate as timekeepers and starters. The first competitor will be started at 3 o'clock. Tea will be taken at the Maynard Arms after the event.

◆ ◆ ◆

AN interesting point has been decided by the Margate Borough Justices with reference to the affixing of identification number plates at the back of motor-bicycles, as well as on the front of the machine. Three defendants were summoned for a breach of what was submitted by the Chief Constable to be the regulations of the Local Government Board. The cases were dismissed on the payment of costs, but the Mayor, in reply to the Chief Constable, stated that the view the Bench took was that the back number on a motor-car was necessary to comply with the Act.

◆ ◆ ◆

IN our report of the opening run of the Eastern Counties Automobile Club, on another page, will be found a reference to the run of the Auto-Cycle Club from London to Yarmouth, which was thoroughly spoiled by the rain.

◆ ◆ ◆

THE annual meet of the Federation of American Motor-cyclists will be held in Cambridge, Md., on July 7th and 8th. The annual motor-bicycle endurance contest will be inaugurated



Mr. H. Williamson on the 2¼-h.p. Rex, on which he made a Non-stop Run in the London to Edinburgh Trial.

on July 2nd, and on that and the two following days runs radiating from New York will be made. On the 5th July the competitors will leave New York and finish in Cambridge on the evening of the 6th. It is proposed to devote one day to a series of tests designed to prove the hill climbing capacity of motor-bicycles, also how quickly they may be started and stopped, and also how slowly they may be run.

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CORRESPONDENCE.

QUERIES *RE* MARSHALL CAR.

TO THE EDITOR OF *The Motor-Car Journal.*

SIR,—In reply to the letter of "Amateur," *re* Marshall car, in the *Journal* of the 21st ult., I would beg to suggest he is a little unreasonable in his complaints. In the first place, he seems to impute blame to the makers of the car for the condition in which he found the tyres of a third-hand car, and for which Marshall and Co., now the Belsize Co., can be held in no way responsible. As he was deceived respecting the mileage the tyres were said to have done, so he may be still under a misapprehension in saying they have now only done 3,000 miles. The makers of the car will fit any pattern of tyre that the purchaser may select, but no doubt an extra sum would be charged for fitting Collier tyres, as they are one of the most expensive in the market; but the make of the tyre in no way affects the good name of the Belsize Co. or their cars.

In the latter part of "Amateur's" letter he complains that the engine runs badly on top speed, that it cannot do anything on the roads in his district. As he does not say where his district is, I cannot draw comparisons between his neighbourhood and mine, but both he and your readers will admit that a car that gives satisfaction in Westmorland will, if properly treated, give satisfaction anywhere. I also am an amateur, and the possessor of a Marshall car, of which I received delivery from the makers last September. Previously to this my motoring experience had consisted of only one quarter of an hour on a car, and reading a large number of *Motor-Car Journals*. For the first two or three weeks I had one of their driver-mechanics to teach me how to drive and manage the engine, and since then I have driven it, cleaned it, and looked after it generally myself, employing no man.

For some little time the engine and I exchanged hard words, and then I went with my woes to Marshall and Co., and this is what I wish to emphasise, that the firm have always been most willing to spare neither trouble nor expense in helping me out of my difficulties, and in the end the engine and I became very good friends and understood each other very well.

No one can expect to get the best results out of a car which is two years old, and that for all "Amateur" knows has never been overhauled since it was turned out of the shop, and if he has not succeeded in selling his car, as he suggests, I should advise him to send it at once to the makers and have it thoroughly put in order, for he cannot expect an engine that may be badly wanting adjustment and repairs to be able to be driven with pleasure or satisfaction, and that with tyres valued at 2s. 6d. each. As for the hill-climbing power of the Belsize, I may mention that I have climbed hills with a gradient of 1 in 9 on the second speed with six adult passengers, although the car was only built to accommodate five.—Yours truly,

CHARLES E. MUMFORD.

SULPHATED ACCUMULATORS.

TO THE EDITOR OF *The Motor-Car Journal.*

SIR,—I should be glad if you or any of the readers of the *Journal* can advise me what to do in the following difficulty. I have a high-class accumulator which has unfortunately, owing to neglect, become rather badly sulphated, and it is not possible to get it charged. I may add that I am able to charge the cells from a 100-volt circuit.—Yours truly,

J. LITTLETON.

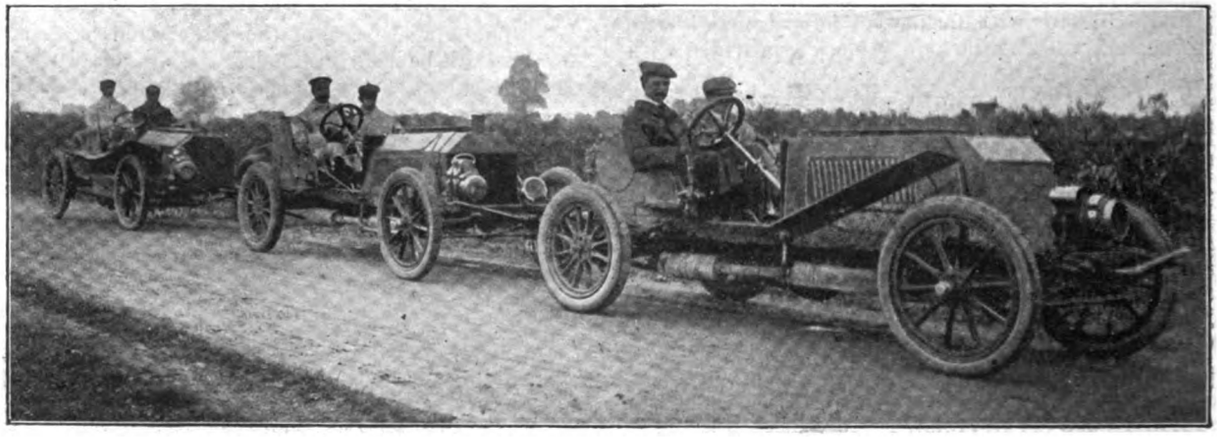
[The remedy for sulphation in an accumulator is charging for a very long period at a low charging rate. If possible, the acid should be emptied out and weak acid of 1·050 specific gravity substituted, but if this is not easily done it is not an absolute necessity. The accumulator should then be charged at half its normal rate for a long period of time. The sulph will then be gradually reduced, or that part of it which is too hard to acted upon will be driven off by the gas bubbles when "gassing" begins take place. Some authorities recommend the addition of a little soda (sodium hydrate) to assist the action, but practical users have found that it makes very little difference. As the charging can be done from a 100-volt circuit, it will be no trouble to arrange for a low current, one 16-c.p. lamp being put in circuit for every ½ ampere required. Change to ordinary acid after the sulphate has been removed.]



Mr. S. F. Edge Rounding the last Bend.



The Finishing Point.



Messrs. Mayhew, Edge and Earp on the three Napier Racers.

THE NOTTINGHAM AUTOMOBILE CLUB'S HILL CLIMB. (*See page* 314).

CARS FOR DEVONSHIRE.

TO THE EDITOR OF *The Motor-Car Journal.*

SIR,—As no one has ventured to advise "Would-be Motorist," perhaps my experience in S.W. Devon may be useful to him. I wish he had mentioned the price to which he was prepared to go, as all depends on this.

I have a 10-h.p. Argyll, top gear 20 m.p.h., other two lowered proportionately, supplied originally with small solids; after 3,000 miles altered to 3-inch Buffers on back wheels, and recently Martin pneumatics on front

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I averaged 17 m.p.h. to London and back, actual running time spread ov four days; petrol consumption about 28 miles per gallon, three up a luggage, extra passenger some part of journey; I averaged 14 m.p.h. on Devonshire roads, including those across Dartmoor. One in seven is child's play with four up, one in five for a short distance I can manage; on the very few occasions when I have met anything steeper than this I have shed passengers just over the steepest part and started off again with full load on one in six (all taken on tested gradient meter).

I have just returned from Bude, and was informed when I got there that I had climbed the old hill out of Launceston and the old hill out of Stratton, neither of which are used for traffic, as new roads with less gradients have been built; of course, the road was strange. We were four up and luggage. Possibly your correspondent knows these, or he may know the road from Ashburton to Princetown or Moreton Hampstead to Princetown, both of which are a good test for any low-powered car. At the same time, a four-cylinder 16-h.p. would be better, of course, and give one a reserve in case of leaky valves or other troubles.

I daresay I could convince "Would-be Motorist" that a 10-h.p. car can go anywhere in any weather and over any road fit for a farmer's market cart (with solid tyres). I have no experience of other makes, so cannot say the Argyll is better, but in a country where one is constantly changing gear I consider the Govan gearing one of the best to manage, and less likely to wear or get broken. I had better state that I have no interest in this make and drive entirely for pleasure, or my enthusiasm may be misconstrued.—Yours truly,

T.2.

A WARNING.

To the Editor of *The Motor-Car Journal*.

Sir,—I think it is about time a word of advice was given to young men who are thinking of going in for motor-car driving. Several firms are advertising that competent drivers can command a good wage, and are much sought after. I, and several young men of my acquaintance, have paid fifteen guineas for what they term a thorough course of driving and mechanism, leaving good situations to do it, and now find the utmost difficulty in getting employment as chauffeurs.—Yours truly,

Disgusted Pupil.

LIGHT CARS.

To the Editor of *The Motor-Car Journal*.

Sir,—Two hundred miles per day with a single cylinder hardly seems possible. Yet my single-cylinder 8-h.p. M.M.C. car has done it on several occasions between Exeter and London, and it has never landed me on the road. It has covered altogether over 6,000 miles, and with the exception of tyres has not cost a ten pound note for repairs and renewals, notwithstanding the fact that between twenty and thirty people have learned to drive on it. My driver had only six months' mechanical training, previous to which he was an indoor servant, but he is endowed with common-sense, and no doubt this, combined with the simplicity of the car, has much to do with the successful running I have experienced.—Yours truly,

Howard Beadle.

STEAM CARS.

To the Editor of *The Motor-Car Journal*.

Sir,—In reply to "Saunterer" I bought a Locomobile when they first came over, six years ago, and the car runs as well now as on the day I had it. Of course, I have made one or two alterations and have had the usual tyre troubles, but it is practically the same car, and I question if any owner could show a better balance-sheet for cost of running, repairs, or petrol, and, above all, the silent and smooth running not to be found in any explosive car. Petrol per mile a fraction over 1d., water free; I can do forty-two miles on tank of petrol and twenty-two on water. I am glad makers are giving a little more attention to steam.—Yours truly,

Comfort.

To the Editor of *The Motor-Car Journal*.

Sir,—In answer to "Saunterer," *re* Locomobile steam car, I have driven several sizes for some time, and I may say in the hands of a careful person you can get more work out of them than any petrol car their own strength, and on a hill can keep up with, if not pass, a petrol car double its own power. If not for the trouble of picking up water often I should prefer it to any small petrol car on the market. What I wonder is that the police do not take action against the drivers for loitering. Again, it is argued that the time taken to get steam up is between ten and fifteen minutes. I prefer that to possibly the same amount of time in tuneless barrel-organ playing at the risk of one's arm being shattered. With the Locomobile you can start with the little finger on any hill, no changing gear. They are strongly built, suitable for a rough, hilly country, and may be called a toy, but are not to be played with. Regarding consumption of oil, I use Bowley's petrol B, 10d. gallon, and can run ten miles on a gallon. I have tried others, and find this the cheapest and best for steam cars. If "Saunterer" should purchase one and should want any information I should be pleased to answer any questions.—Yours truly,

A. Roper.

INGRATITUDE.

To the Editor of *The Motor-Car Journal*.

Sir,—Just an instance of how some motorists treat the trade, and a warning to others not to take the word of strangers. A car recently pulled up outside my place for petrol. They had four gallons and paid for it, but said they would take the cans, as it was for another car stranded for want of petrol. They took the two cans, promising to bring them back in about ten minutes, but did not. Consequently, I am minus 4s., which I have to pay for the empties.—Yours truly,

G. Turner.

COST OF OPERATION.

To the Editor of *The Motor-Car Journal*.

Sir,—On reading the letter which appeared in your valuable journal of 14th May, 1904, page 246, we felt it would be of still further interest to all concerned to obtain details of the item "Repairs to tyres (Collier's) £23 17s. 7d.—about 2d. per mile" from your correspondent, and we are pleased to say that he (Lord Edward S. Churchill) has very kindly furnished a detailed rendering of same, which, together with his letter, we have received permission to publish.

We therefore append same, and trust you will grant us space in your next issue for this correspondence, for, as will be seen from his lordship's figures, the actual total of "Repairs," pure and simple, amounts to £5 0s. 6d. only, which is equal to a little over one farthing (f. 1·606) per mile in 3,004 miles per set of four "Collier" tyres.

"Detailed Account of Cost of Tyre Up-keep."

	£.	s.	d.
1 new inner tube	2	9	0
1 new inner tube	2	9	0
Telegrams	0	2	10
Repair inner tube	0	10	6
Repair inner tube	0	10	0
Repair to cover	3	5	0
Garage while wheels were splayed	0	19	3
Repair to cover	0	15	6
1 new cover	12	7	6
	£23	8	7

"28, Grosvenor St., W.
"May 18th, 1904.

"Sir,—In reply to your letter of the 16th inst., I beg to enclose particulars of my tyre bill. There was a slight mistake in the addition, it should read £23 8s. 7d.

"I am at liberty to state that a friend of mine who has had a car of the same make for about the same period, but with another make of tyres, has had to pay £90 for repairs to them.

"Yours faithfully,
(Signed) E. S. Churchill."

The latter portion of this interesting letter makes the "Colliers," for reliability and durability, stand out in a most satisfactory and successful manner.

It will be noted further that the total tyre bill is shown now to be £23 8s. 7d.. and not £23 17s. 7d., as previously given.—Yours truly,

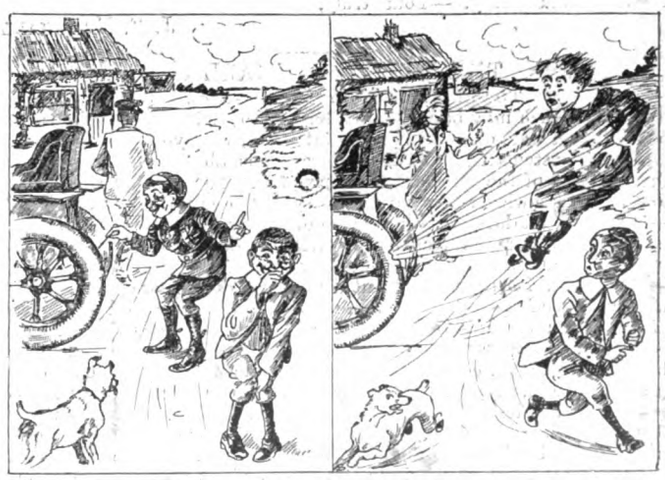
The Collier Tyre Co., Ltd.

BRAKES.

To the Editor of *The Motor-Car Journal*.

Sir,—I have a De Dion car with the usual leather-lined spring brakes. I find that the leathers slip with grease and swell with wet, requiring constant re-adjustment. I would be glad if any reader who has tried them would tell me if metal-lined brake springs are suitable for De Dion cars, 6-h.p. If so, what metal, size, and number of segments, and distance apart?—Yours truly,

J. C. Eddison.



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PROPOSED INSTITUTION OF AUTOMOBILE ENGINEERS.

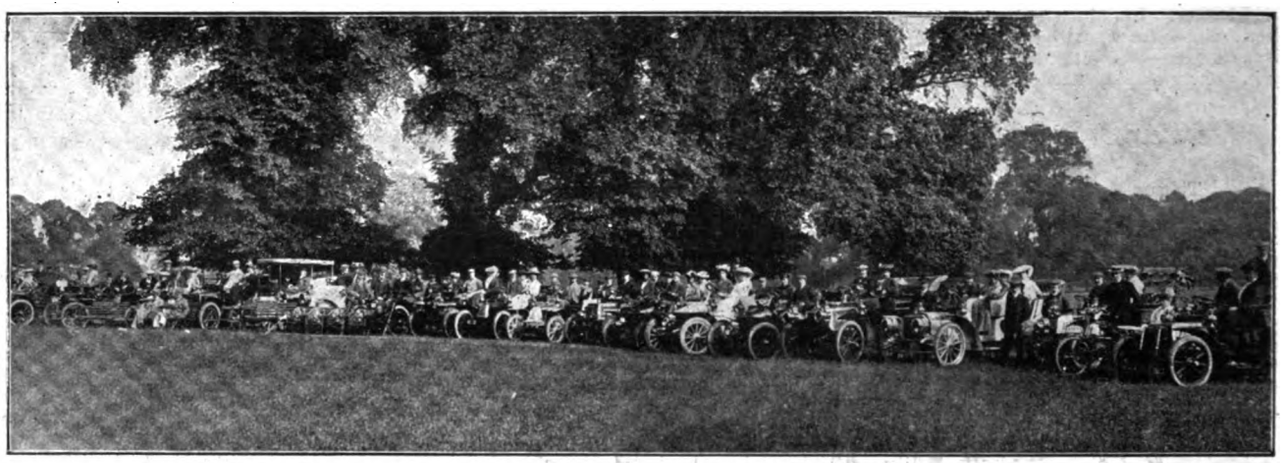
To the Editor of *The Motor-Car Journal*.

Sir,—I regret to find that my letter in your issue of May 14th has caused Mr. H. Austin such "great surprise," and trust that you will allow me, by way of apology, to draw his attention to the chronological side of the matter.

Early in November, 1903, I submitted to the criticism of about 600 automobile engineers and others connected with automobilism a circular containing certain proposals as to the formation of an institution of motor engineers—a circular in which, for the sake of promoting discussion, I had set out, in considerable detail, a suggested scheme. By a remarkable coincidence, a leading article in an automobile journal of November 28th dealt with the growing necessity for a Motor Engineers' Institute, and suggested that the Cycle Engineers' Institute "could possibly so enlarge its scope" . . . . "as to embrace the new industry." I thereupon wrote to the editor of your contemporary informing him of the steps which I had already taken, and received in reply a courteous letter, requesting me to forward my circular for his consideration. As a result of this, a leading article was published dealing very fully with my proposals. This article I specially commend to the notice of Mr. Austin. After this, I received a great many letters on the subject, and in February of this year issued, for further consideration, a circular summarising the results of my preliminary "canvass."

In another journal of March 17th, 1904, a letter from Mr. A. S. Hill (at that time President of the Cycle Engineers' Institute) stated that the title of the C.E.I. would, "at the general meeting, to be held in the near future," be amplified by the addition of the word "automobile." As far as I am aware this was one of the earliest (if not *the* earliest) announcements of such change of title; and it seems to me, therefore, that Mr. Austin's letter scarcely does justice either to myself or to those who are now assisting me in the matter. One of the principal aims of our "proposed" Institution to stimulate the investigation of the more advanced problems presented by automobile machinery—such problems as are (except in occasional papers by such authorities as Prof. Hele-Shaw, Mr. Dugald Clerk, and a few others), but rarely attacked. I have yet to learn that a knowledge of such subjects as (say) higher thermodynamics or, even, differential equations, has ever been regarded as a necessity to the cycle engineer; and I am equally at a loss to imagine how the mere alteration of a title at a general meeting can, *ipso facto*, render our "proposed" Institution "unwarranted, and therefore unnecessary."—Yours truly,

J. F. Marshall.



The Berkshire Automobile Club's Gymkhana. The cars lined up at Hall Place, Maidenhead. (*See page* 313.)

THE RATIONAL SMALL CAR.

To the Editor of *The Motor-Car Journal*.

Sir,—Much may be written under the above heading, as the subject is necessarily a wide one, but it is my intention, with your permission, to try and treat systematically of the two-seated small car as it is required by the majority of the public. Now, people have frequently written to the *Journal* asking when manufacturers are going to produce the "rational" car—not a car that does thirty miles per hour, and not to have pneumatic tyres, etc., *ad infinitum*. This is all very well, and doubtless such ideas are held by a large number of people, but they are *not* the ideas of the majority. When a manufacturer brings out a new and cheap car, his only hope of making a good profit lies in the number he must manufacture. He must also make an absolutely standard article, and hardly ever deviate from the specification, and when he does so, he must charge extra. The public, however, resent an extra, and a manufacturer can easily lose an order by refusing to add, say, an additional lever to control the air from the steering column, unless he makes some extra charge. If he once starts allowing a few extras there is no telling where it will end—hence the present question of the difficulty in obtaining a rational small car. People may not think o, but the question is infinitely more perplexing to the manufacturer than to the public. There are a large number of purchasers who really do not know what they want in the way of a small car; there are a still larger number who want too much, and if they had what they wanted their "small" car would be a large one; and the largest section of all want a reliable two-seated car—two-cylinder preferably—absolutely up-to-date, for less than £150. The manufacturer's difficulty can now be appreciated. He does not wish to put a car on the market which is obviously unsuitable, and he *cannot* supply one to suit the third section above-mentioned at £150. Consequently he can only adopt the course open to him. He finds out what *most* people require, makes a standard machine, and charges for all extras.

Now let me examine the question from the point of view of the public. If the requirements of those who demand solid tyres are carefully analysed, it will nearly always be found that they are not satisfied with a speed of fourteen to sixteen miles an hour; hence the unwillingness of the manufacturer to supply solid tyres to a very light vehicle which may be rushed about at over twenty miles an hour. If a manufacturer always knew into exactly what hands his car were going, he could act very differently; to put it plainly, he must make the car more for the "fool" than the "expert." In my opinion, a good, powerful, two-seated car should have a small two-cylinder engine, say about 7–8 h.p. A vertical engine also is necessary, it is only one out of ten who will clamour for a horizontal engine. "The rational car is not to be very speedy" is a statement frequently made, but is one which should be taken for exactly what it is worth. A man will buy a car that will travel about sixteen miles an hour, perhaps less; after he has had it a month he will want it to run faster—it will grow upon him, he will not be able to help it. But this can be supplied by the manufacturer. He will gear the car low, and if his customer requires more speed he can change the sprockets. By this last remark, it will be seen that I denominate the rational car as being "chain-driven." This, in my opinion, is undoubtedly what it will be. Several very large houses adhere to the side chain-drive, and there can be no doubt that if the chains are taken care of there is no fault to be found with the chain-driven car. As to the tyres, most people, especially those who have had experience of large cars, will go for pneumatics. If ample size tyres are fitted, they will not give much trouble on a car weighing about 7 cwt. If solids are demanded, the manufacturer will be wise to supply them only at customer's own responsibility. As regards transmission, as only about one in a hundred (if that) swear by belt transmission, I may safely predict a gear-drive for the rational car—probably three speeds and reverse—with a direct drive on the top speed, the whole being actuated by a single lever. With reference to the ignition, most people are quite satisfied with the ordinary high-tension, and this will probably be fitted. A high-tension magneto can always be fitted to any petrol motor, if required.

Let me now sum up the "rational two-seated car" in the form of a specification, and see how it looks:—

Engine.—Two-cylinder, 7–8-h.p. vertical.
Gears.—Sliding, three speeds and reverse, with direct drive.
Ignition.—High tension from accumulators. High tension magneto fitted if required. (Extra.)
Tyres.—Pneumatic, ample size; solids only at customer's own responsibility.

I have omitted several points from the specification, such as cooling, lubrication, type of frame, control and carburettor, etc., which may safely be left to the manufacturer. These are my views, Mr. Editor, on the subject of the rational small car. It would be interesting to know how far they agree with those of other readers of the *Journal*.—Yours truly,

C. A. R.

Charging Batteries.—Replying to R. P. Ross, primary batteries for charging ignition cells are made by the Boron Battery Company, 131, St. Domingo Road, Liverpool, and Messrs. J. C. Fuller and Co., Woodland Works, Wick Lane, Old Ford, London, E.

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CLUBS AND ASSOCIATIONS.

BERKSHIRE.

On Saturday the members of the Berkshire Automobile Club held a gymkhana at Hall Place, near Maidenhead, the residence of Sir Gilbert A. Clayton East, Bart., the Chairman of the Club. In all some twenty-five or thirty cars were on the ground, and only the owners of the cars drove them, with the exception that Miss Thompson drove Mr. O. S. Thompson's Wolseley. Sir Gilbert Clayton East himself took part, and was cheered on scoring a success in one of the contests. The judges were Colonel H. C. L. Holden, R.A., F.R.S., and Sir Gilbert East, and the starter Mr. C. R. De la Salle, Chairman Sports Committee Berks A.C. During an interval Sir Gilbert and Lady Clayton East entertained their visitors at afternoon tea in the house.



The Berkshire Automobile Club's Gymkhana. Sir Gilbert Clayton East (on the extreme left) and the Officials.

Photo by] [Argent Archer.

The first event was a bending race between staves. This was run in heats, the "final" contest being between Lieut.-Colonel Waring (9-h.p. Renault) and Mr. L. Barwell (12-h.p. Clement), the latter ultimately winning by three lengths.

The motor-house competition was a contest in "pulling up," the cars first making roughly the figure of a letter S around two flags, then reversing and backing into a space between hurdles representing the "motor-house." The winners were Mr. W. Littleton (in 17 1-5 sec.), on a 7-h.p. Panhard, first, and Colonel Waring (19 sec.), on his Renault, second. Mr. Graham Loyd did the task in 18 sec. on a 8-h.p. Wolseley, but he and one or two other competitors did not back fully into the "house."

In the Ladies' Passenger race for four-seated cars, the idea was to drive 100 yards, alight, assist lady from a chair to the back seat of the car, re-take seat, drive another 100 yards, and pick up another lady as before, re-take seat and drive to finish. The cars were run in pairs, the final order of the winners being:—First, Mr. Powys Lybbe, on a 24-h.p. Bollée; second, Mr. Barwell, on a 12-h.p. Clement; third, Mr. Shrapnell Smith, on a 12-h.p. Lanchester. The object of the legal limit race was to test judgment of speed and ability to keep to the 20 mile an hour limit. The course being a mile long, the competitor who did the distance in a time nearest 3 minutes won. Dr. Norman Joy, on his 2¾-h.p. Morris motor-bicycle, completed it in 2 min. 26 sec., and Mr. H. Powys Lybbe, on his 24-h.p. Bollée car, in 2 min. 35 sec.—both too quickly. Ultimately the winners proved to be:—First, Mr. Littleton (3 min. 7 sec.); second, Mr. O. S. Thompson (car driven by Miss Thompson), 3 min. 16 sec.; third, Sir Gilbert East, 3 min. 16½ sec.). Other competitors were:—Mr. Shrapnell Smith (3 min. 19 sec.), Mr. Barwell (3 min. 44 sec.), Mr. Dodd (3 min. 50 sec.), Mr. Garcke (5 min. 8½ sec.), Dr. Paterson (4 min. 5 1-5 sec.), and Dr. Walters (driver Mr. Parrish), whose car had special trouble with the ground (5 min. 36 sec.).

SOUTH WALES.

The annual general meeting of the South Wales and Monmouthshire Automobile Club was held at the Royal Hotel, Cardiff. Mr. Godfrey Clark presided over a large attendance. The following officers were elected:—President, Lord Windsor; chairman of committee, Mr. Godfrey L. Clark; hon. secretary, Mr. J. T. Willows; hon. treasurer, the Rev. M. Whiteside; committee, Colonel Homfray, Captain Hughes Morgan, Dr. Prichard, Mr. J. L. Proger, Mr. W. Graham, Mr. A. G. Moffatt, Mr. J. J. Handcock, Mr. V. E. Brukewich, Mr. Griffith Jones, Mr. J. J. Neale, and D. W. Graham, J.P.; auditors, Messrs. Dryden Lewis and R. E. Jones.

BURNLEY.

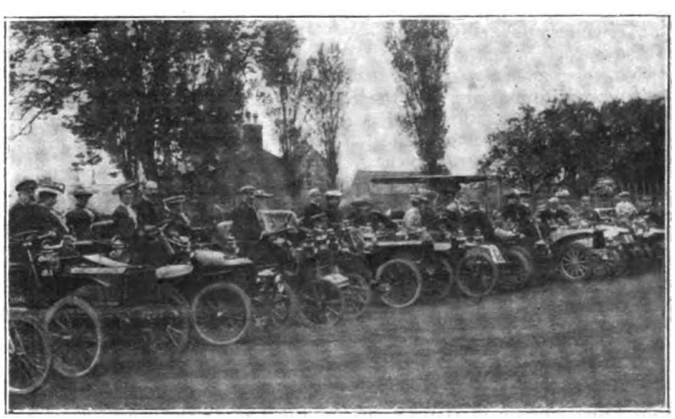
Fourteen automobiles took part in the Burnley club's run to Settle. At the Town Hall, the Mayor (Alderman Carrington) and the Town Clerk (Mr. Sheldon) found seats in Mr. Jesse Altham's 12-h.p. Napier. Mr. Frank Clarke, of Nelson, on his 20-h.p. Vinot, was the first in the market-place at Settle, Mr. Ridehalgh following closely. There were a few mishaps on the road. Mr. Hargreaves had a puncture before he left the Cattle Market, Burnley, and was so unfortunate as to get another later. Mr Jesse Altham, too, was delayed for some time after the parade in Burnley, and was the last to arrive. The fourteen cars were marshalled in a half-moon before the old Shambles on the market-place, Mr. Jesse Altham's car forming the keystone to the arch composed of the following cars:—Councillor C. Atkinson's (Colne), chairman of the club, Locomobile steam car; Mr. W. S. Atkinson's 7-h.p. New Orleans; Mr. Jesse Altham's 12-h.p. Napier; Mr. Ridehalgh's 16-h.p. Belsize; Mr. A. Hartley's (Colne) 11-h.p. Clement; Mr. Riley's (Nelson) 6-h.p. Argyll; Mr. Parkinson's 7-h.p. Turrell; Mr. John Watts' 8-h.p. De Dion; Mr. John Hurtley's 8-h.p. Manchester car; Mr. Frank Clarke's (Nelson) 20-h.p. Vinot; Mr. Smith Lawson's 7-h.p. Panhard; Mr. Mosedale's (Burnley) 6-h.p. Midland car; Mr. Hargreaves' 10-h.p. Decauville; and Mr. R. Cox's 10-h.p. Decauville. The party took tea in the Golden Lion, an old stage-coach inn, built in 1671. The return journey by the same route, in the cool of the evening, was delightful, the first car arriving at Burnley about half-past seven. For the perfect smoothness of all the arrangements for the run, Mr. Smith Lawson, the secretary of the club, was mainly responsible.

MIDLAND.

Owing to the weather only a few members of the Midland Automobile Club met at Bettws-y-coed at their Whitsun tour. The journey to Bettws-y-coed was made *via* Shrewsbury and Llangollen. The principal trips enjoyed by the party were as follows:—Llandudno *via* Llanwrst, returning *via* Conway; Capel Curig, Beddgelert, visiting the Pass of Aberglaslyn, *via* Snowdon Ranger, through Carnarvon and Bangor to the Menai Bridge, passing over the bridge, the night being spent at Beaumaris. The return to Bettws-y-coed was made *via* Menai Bridge, Carnarvon, Llanberis Pass, and Capel Curig. The members returned home *via* Oswestry.

LINCOLNSHIRE.

The meet of the members of this club at Crowland, on Saturday, would probably have been a record one had not the weather been so threatening, for many would have gone over, if only to inspect the fine old Abbey and its ancient and historical surroundings. Notwithstanding the rainy morning, there was quite a nice muster of cars by four o'clock, and two of them were driven upwards of sixty miles. The meet took place at the residence of Dr. and Mrs. Husband, and amongst those who put in an appearance were:—Mr. and Mrs. W. B. Jevons (Market Rasen), on a 9-h.p. De Dion; Mr. and Mrs. A. A. Padley (Market Rasen), on a 6-h.p. De Dion; Mr. C. W. Pennell (Lincoln) with Mrs. Pennell, Mr. W. R. Pennell, and Mrs. Newsum, on a 12-h.p. Richardson; Mr. and Mrs. G. Linnell (Market Deeping), with Mrs. Linnell and Mrs. Stanton, on a 12-h.p. Wolseley; Mr. C. Holland (Boston), with Mr. W. Kitwood, on a 5-h.p. Baby Peugeot; Major F. H. Goddard (Lincoln), on a 12-h.p. Richardson; Mr. W. A. Tomlinson (Sleaford), with Mrs. Tomlinson and Miss Pearson, on a 5-h.p. Bardon; Dr. Reckitt (Boston), on a 5-h.p. Baby Peugeot; Dr. Gilpin (Bourne) with Mrs. Gilpin and Mrs. Wade, on an 8-h.p. Peugeot; Dr. Cragg (the Club Secretary, Billingboro'), on a 3½-h.p. Enfield Quad.; Mr. and Mrs. J. R. Richardson (Lincoln), on a 12-h.p. Richardson; Dr. and Mrs. F. Husband with their 8-h.p. Wolseley, and Mr. C. Brookes, with a motor-cycle, also joined in the group. Several personal friends of the host and hostess were



The Meet of the Lincolnshire Automobile Club at Crowland.

invited to meet the motorists, and close upon forty were entertained to tea. This over, Mrs. Husband, acting as guide, took the party on an exploration of the ancient town. The abbey, which was founded in 716, is still a beautiful building, and is highly interesting to the antiquary and architect. Part is in ruins, but one side is used as the parish church. The remarkable triangular bridge, if not the oldest in England, is certainly the most peculiar, and it is the object of much curiosity among the hundreds of motorists and other tourists who visit the place during the season. After viewing other points of interest the party returned to their homes. The evening kept fine, and, the roads being free from dust, the outing was immensely enjoyed.

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WEST SURREY.

The annual hill-climbing competition of this club was held on Saturday last at Hind Head. The course was over the whole length of the hill, but the start was made somewhat further back than last year, giving a distance of 2 miles 1,500 yards with a rise of 520 feet. Messrs. Ponsford and R. W. Buttemer officiated at the start, and Messrs. Crothers and A. Buttemer took the times at the finish, the first car, Mr. Wilson Noble's 18-28-h.p. Mercedes being sent off at 4.20 p.m., and the remainder at two-minute intervals, with a short delay for some late arrivals. The following list shows the times and results:—

	Time. min. sec.	Handicap. min. sec.
Mr. W. Noble, 18-h.p. Mercedes	6 9	.. scratch
Mr. J. S. Fletcher, 20-h.p. Durkopp ..	9 42	.. 1 0
Mr. E. E. Pullman, 15-h.p. Durkopp ..	10 30	.. 1 30
Mr. O. Wrigley, 12-h.p. Clement	8 43	.. 2 0
Mr. A. C. Tessier, 10-h.p. Motobloc ..	10 32	.. 3 0
Mr. J. F. Ponsford, 9-h.p. Clement	9 38	.. 3 45
Miss Crothers, 9-h.p. Argyll	12 24	.. 4 30
Major Matson, 6-h.p. Benz	20 18	.. 7 30
Mr. G. C. Halahan, 20-h.p. Dennis ..	9 15	.. 1 0
Mr. R. W. Buttemer, 10-h.p. Decauville ..	13 46	.. 3 20

Mr. Ponsford was therefore the winner of the handicap, with Mr. Noble, who also won the badge offered by the club for the best time, second; and Mr. Wrigley third. Mr. Pullman was stopped on the hill through missing gear, and Mr. Buttemer by the breakage of his accelerator wire. The members subsequently adjourned to the Royal Huts Hotel for tea.

LEICESTERSHIRE.

On Saturday the Leicestershire Automobile Club had its fourth run of the present season, when among the members taking part in the trip to Rothwell, Northamptonshire, were Mr. E. G. Mawbey (the president) and Mrs. Mawbey, Mr. Maurice Mawbey, Mr. and Mrs. A. Mawbey, Mr. R. E. Parker, Mr. J. G. McAlpin, Mr. Harris, Mr. Pierpoint, Mr. Earp, Mr. and Mrs. Peberdy, Miss Peberdy, Miss G. Peberdy, Mr. and Mrs. Whitby. Mr. and Mrs. Waite, and Mr. A. McAlpin (hon. secretary). At the Red Lion Hotel the party took tea together, and subsequently returned home. Doubtless the fact that the Nottinghamshire Club were holding a hill-climbing competition on the same day prevented a larger attendance.

EASTERN COUNTIES.

The opening run of the second season of the Eastern Counties Automobile Club was originally intended to be to Felixstowe, but the fact that the Auto-Cycle Club had resolved upon a run from Barnet to Yarmouth on Saturday, passing, of course, through Suffolk, tempted the Committee of the E.C.A. Club to alter their plans in order to give their fellow motorists a welcome to Suffolk. It was arranged that the members of the Auto-Cycle Club should meet at Barnet, and start for Yarmouth at ten a.m., lunch at Newmarket, and from there proceed to Bury St. Edmunds, where the E.C.A. Club would meet them. Various circumstances militated against the realisation of this programme. The roads from London to Barnet were in such a shocking state that only ten members of the Auto-Cycle Club foregathered at Barnet, and so hindered were they by various happenings that they did not start on their journey north until 11.35. They were due to lunch at Newmarket shortly after one o'clock, but they did not reach there until three o'clock, and they had all had a good wetting en route. The condition of the roads between Newmarket and Bury, after the rain, was not such as to expedite matters, and the Eastern Counties Club members had given up all hope of meeting their southern friends, and had commenced the return journey when five of the ten who had set out from Newmarket were encountered on their way to the Angel, at Bury. The members of the E.C.A. Club who undertook the trip to Bury were fewer in number than they would have been had the weather been more propitious. They included Mr. H. J. Wood, on a 12-h.p. Peugeot; Messrs. O. T. and W. M. Cooke, of Polstead Hall, on a 8-h.p. Darracq; Mr. Forbes Gower, on a 12-h.p. Darracq; Mr. Botwood, on a 16-h.p. Argyll; Mr. and Mrs. Hossack, on an 8-h.p. M.M.C.; Mr. C. K. Moseley (the hon. secretary), on a 6-h.p. De Dion; Dr. Longworth, on a 3-h.p. Rex motor-bicycle; Mr. J. R. Egerton, on a 2¾-h.p. Bat; Mr. Leofric Hunter, and some others. The motor-cyclists journeyed from Bury through Diss and Scole to Yarmouth, which was to have been reached about seven o'clock. The headquarters at Yarmouth were the Queen's Hotel, where Mr. Nightingale had made every arrangement for the reception of the visitors, but it was some time after eight o'clock before the first cyclist arrived; and at a later hour a few more arrived, making nine in all. A nasty drizzling rain fell again on Sunday morning about 11.30, when the return journey was commenced, the route home being via Ipswich, Colchester, Chelmsford, Dunmow, Bishop Stortford and Ware.

NOTTINGHAM.

The hill-climbing competition held on Saturday, under the auspices of the Nottingham A.C., was in every way a notable event. The course was a mile in length, and was on the road from Melton Mowbray to Nottingham, about fourteen miles from Nottingham, and known as Ab Kettleby. It starts 1 in 21, then increases to 1 in 11, with a short stretch of 1 in 7. There are two slight bends, and on Saturday there were places that were rather greasy, owing to the rain in the early morning and the mist. The arrangements were excellent, both as regards the actual contest and for the convenience of the public. There were few spectators other than members and friends of the club, and no inconvenience was caused.

In the open section the fastest times alone counted, whereas in the other events the weight, power, and other things were taken into account. The times were:—S. F. Edge, 80-h.p. Napier, 1 min. 35 sec.; Lieut.-Colonel Mark Mayhew, 80-h.p. Napier, 1 min. 37 4-5 sec.; Clifford Earp, 55-h.p. Napier, 1 min. 40 1-5 sec.; W. D. Wells, 28-h.p. Daimler, 2 min. 5sec.; and F. Pearson, Nottingham, M.M.C., 2 min. 45 sec.

In the club event the results will not be known till the "most meritorious performance" is ascertained. The times, however, are as follows:—

W. D. Wells, 22-h.p. Daimler, 2 min. 15 4-5 sec.
A. R. Atkey, 12-h.p. Georges Richard, 5 min., 9 3-5 sec.
C. Hardy, 16-h.p. Georges Richard, 3 min. 4 sec.
J. Burton, 24-h.p. Darracq, 4 min. 17 3-5 sec.
R. R. Latham, 12-h.p Progress, 5 min. 3 4-5 sec.
S. Harvey, 4½-h.p. Renault, 9 min. 25 4-5 sec.
G. H. Kirk, 12-h.p. Georges Richard, 5 min. 0 3-5 sec.
Dr. Gass, 10-h.p. Georges Richard, 4 min. 40 sec.
H. Belcher, 25-h.p. Humber, 3 min. 36 4-5 sec.
H. H. Bowden, jun., 24-h.p. Darracq, 4 min. 24 2-5 sec.
F. Bowden, sen., 12-h.p. Darracq, 4 min. 59 sec.
J. T. Overton, London, 24-h.p. Georges Richard, 3 min. 24 3-5 sec.
J. T. Overton, 16-h.p. (two-seated) Georges Richard, 3 min. 35 2-5 secs.
A. M. Wright, Lincoln 8-h.p., De Dion, 4 min. 11 1-5 sec.
P. Huskinson, 6½-h.p. Wolseley, 5 min. 10 sec.
R. Harbidge, 12-h.p. Gladiator, 4 min. 54 sec.

CONVICTIONS AGAINST MOTORISTS.

Place.	Summoned for	Fine.
Enfield.....	Beyond legal limit	25s., etc.
Kingston..... ..	Driving dangerously	£5.*
North London ...	Insufficient lighting of number plates.	5s., etc.
Westminster	Driving dangerously	£15.*
Exeter.....	Beyond legal limit	£5.*
St. Neots	Beyond legal limit	£5.
Hove	Allowing motor-car to remain in street.	10s., etc.
Brighton.....	Reckless driving	40s.
Huddersfield	Reckless driving	£10.
Nottingham	Reckless driving	£5.
Oxford.....	Reckless driving	£2, etc.
Glasgow	Reckless driving	£2 2s.
Knaresborough ...	Riding motor-cycle without licence.	5s.
Margate	Excessive speed	£3.
Brentford	Employing unlicensed driver	40s. etc.
Wareham	Reckless driving	Dismissed on payment of costs, 21s. 6d.
Guildford	Reckless driving	£3.
Padiham.....	Reckless driving	20s.
Horsham.....	Reckless driving	£5. etc.
Shoreham	No identification mark	18s.
Southport	Driving to public danger	£5.
Margate	Beyond legal limit	£1.
Oxford.....	Beyond legal limit	£2 10s.
Swansea	Dangerous driving	£2.
Burnley	Dangerous driving	£1.
Dublin.....	Reckless driving	£5.
Ipswich	Failing to stop when asked	£2.
Canterbury	Not disclosing name of driver	£3.
Daventry	Failing to stop when desired	£2, etc.
Dambridge	No number on motor-tricycle	2s. 6d.
Oxford.....	Dangerous driving	10s. etc.
Corwen	Furious driving	£5 etc.

* Licence endorsed in addition to fine.

MOTOR CAR v. TRAMCAR.

At the Liverpool Assizes, before Mr. Justice Jelf and a special jury, an action was brought by Mr. H. Jolliffe, of Rossett, against the Lancashire Light Railways Company, Limited, to recover damages for injuries done to a motor-car belonging to plaintiff, who said that the damage was due to the negligence of the defendants. Defendants denied negligence. Mr. Horridge said that the plaintiff and three friends, on the 9th of January, had been motoring to Warrington. Going back, when between Prescott and Liverpool the motor-car broke down and stuck in the road, so that a portion of it was across the tram lines belonging to the defendant company. Whilst in that position a tramcar was heard approaching from behind. The tram was well lighted, and threw a considerable light before it on to the road. Two of the members of the motor party ran for a distance along the road, shouting for the driver of the electric tramcar to stop, as there was a motor-car stuck in the road. The tram went on, however, and ran into the motor vehicle. The defence was that the motor was not lighted, but he, counsel, held that it was. There was a light behind and two lights at each side of the front of the car. After hearing evidence, and after counsel's speeches, the jury returned a verdict for plaintiff, and awarded him £145 damages. Judgment was given accordingly.

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COMMENTS.

THE King and Queen have been frequently seen when motoring lately, and have used their automobile not only for purely pleasure trips, but also when fulfilling social engagements. The other evening their Majesties drove in their canopied motor-car from Buckingham Palace to Coombe Court, Coombe Warren, and dined with Earl and Countess De Grey. They ascended Kingston Hill just as a large number of motorists and cyclists were returning to London, but passed without being recognised. Both the King and Queen wore goggles, Her Majesty being attired in a fawn dust cloak and hat to match. The fact that Royal recognition is thus being given to the automobile is most gratifying to the industry, and the prospect of seeing the automobile in a State procession is really not very far off.

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The Gordon Bennett Race.

ON Friday next the great race will be decided and there will be a huge gathering of motorists in Germany from all parts of the world. During the few days preceding as well as those following the race a series of automobile events have been arranged which will prove of considerable interest, and of which fully descriptive and illustrated accounts will appear in the *Journal*. During the Eliminating Trials in the Isle of Man we were able to give the results of the hill-climbing competitions following the eight hours' trial in the same issue as the description of the race itself—outdistancing other automobile journals in the effort. A similar use of the telegraph will be made next week to enable us to chronicle the latest doings and give completeness to our special reports. As usual, photographic and other illustrations will add interest to the letterpress.

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The Glasgow-London Run.

ELSEWHERE we give the results of the Glasgow-London Reliability Trial for touring cars, a full report of which has previously appeared in the *Journal*. Gold medals have been gained by the 6-h.p. Light Wolseley, the 10-h.p. Argyll and the 20-h.p. Thornycroft cars, while the full marks—1,000—were also gained by the 12-h.p. Eagle light car, the 12-h.p. Arrol-Johnston, 12-h.p. Sunbeam and the 18-h.p. James and Browne. The loss of one mark for a driving stop by the 14-h.p. Renault robbed that vehicle of the credit of a non-stop run for a car that kept most uniform time throughout the trial. It will be seen from the table on another page that most of the vehicles secured more than 950 out of a possible 1,000, while punctures were responsible for losses on seven of the twenty-seven cars that completed the run.

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Sergeant Jarrett in a New Role.

SERGEANT JARRETT has so often been denounced and ridiculed in the automobile press, that when he appears in a new role it is right he should be publicly thanked. At Kingston a motorist was hauled before the Bench for driving his car at a speed which was declared by the police to be dangerous to the public. Among the witnesses for the defence was Sergeant Jarrett, the most famous of the motor-catchers in the south. He said he had been subpœnaed by the defendant, whom he knew from having seen him constantly on the road for two years. From his observation he had never seen anything to even justify a complaint. His attention had been more particularly drawn to the defendant, as he noticed he never wore goggles. Despite such evidence, the Bench considered the danger proved, and fined the defendant £3. We would congratulate Sergeant Jarrett on his courageous expression of opinion in the witness-box.

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In Ireland.

A FEW weeks ago we announced the formation of the Sligo Motor Service Company, Limited, to facilitate transit in a part of the country that has hitherto been neglected from the point of view of locomotion. The new concern has just put on the road a Stirling 'bus which is intended to run between Sligo and Rosses Point. This should go a long way towards making the picturesque and increasingly popular Point more popular still, not only with Sligo people generally, but with tourists and others visiting the locality. The committee of the company had a trial run in the early part of last week to Rosses Point and Collooney, and this proved very satisfactory. The service between Sligo and Rosses Point has already been started, and five or six runs will be made daily during the season.

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Motor-Cars in Parliament.

WHEN the House of Commons went into Committee of Supply the other evening, Sir Edward Strachy made a complaint against the Local Government Board for relying upon Section I. of the Motor Car Act, rather than sanctioning a series of restricted regulations for different localities. Mr. Cathcart Wason amused the House, and did harm to no one, by a graphic description of how he was very nearly run over by a motor-car within a quarter of a mile of the Houses of Parliament. He did not consider himself nervous, but, because of the speed with which automobiles can move about, he was in fear of his life whenever he went out for a ride. Replying to the discussion Mr. Long rightly justified the action of the Local Government Board in declining to accede to local applications to the ten-mile limit without very great care being exercised. He felt sure that the Act was working successfully, and had substantially reduced the number of reckless drivers. One gratifying feature of his speech was the confession that the police were abandoning the method of setting traps, and of this there can be no doubt, in view of the evidence in most of the cases lately heard at the police-courts.

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Ladies and Motoring.

MUCH interest has been evinced in Society circles in the first motor meet of the Ladies' Automobile Club, of which we shall give a full report in our next issue. This was announced for Thursday, the 9th, in the open space of Carlton House Terrace, opposite Waterloo Place, S.W. Some fifty petrol, steam and electric cars were expected to start from the Terrace

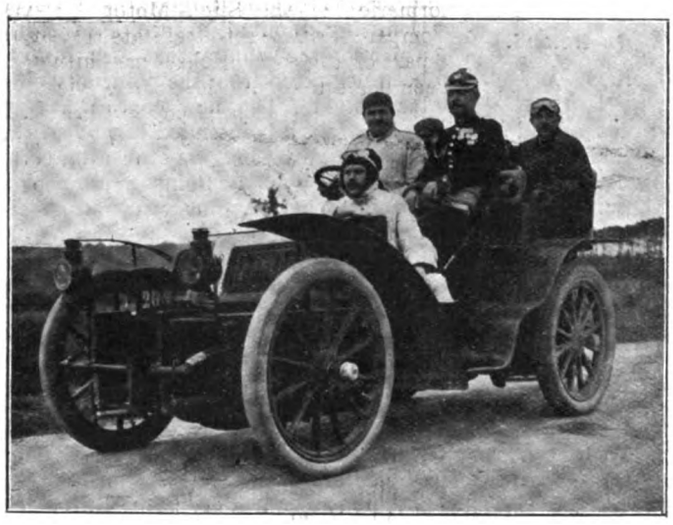
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for Hyde Park, *via* Pall Mall, Birdcage Walk, and Constitution Hill. After making a circuit of the Park, the cars were to proceed to Ranelagh, where tea was to be partaken of. The President of the Club, the Duchess of Sutherland, was to head the procession on her 24-h.p. Mercedes, among the members entering for the meet being Mrs. Ainslie, 16-h.p. Pritchett; Lady Brassey, electric brougham; Mrs. Buttemer, 10-h.p. Decauville; Lady Colville, 6½-h.p. De Dion; Mrs. Edmunds, 10-h.p. Panhard; Mrs. E. M. Edmunds, 9-h.p. De Dion; Hon. Mrs. Tatton Egerton, 50-h.p. Panhard; Mrs. Grant, 12-h.p. Lanchester; Mrs. Hall, 30-h.p. Wolseley; Mrs. Hartung, 9-h.p. James and Browne; Mrs. Ashton Jonson, 5-h.p. Locomobile; Countess of Kinnoull, 14-h.p. Chenard and Walcker; Mrs. Gerard Leigh, 15-h.p. C.G.V.; Countess of Londesborough, 40-h.p. Panhard; Mrs. Arthur Paget, Electromobile; Hon. Mary Portman, 16-h.p. Clement; Lady Beatrice Rawson, 10-h.p. Peugeot; Mrs. Chas. E. Shaw, 24-h.p. Star; Lady Viola Talbot, 12-h.p. Clement-Talbot; Mrs. Wightwick, 10-h.p. Dennis; and Miss Woodhull, 20-h.p. Mercedes.

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At Oxford.

MANY undergraduates at both the great universities are becoming keen motorists, and the Vice-Chancellor's court at Oxford has been the scene of a motor-car case. Mr. Claude Gouldesbrough was summoned at the Vice-Chancellor's court on a charge of driving a motor-car on the Banbury



Thery on the Gordon Bennett Course, with a German Policeman as Pilot.

road at a speed and in a manner dangerous to the public. The proceedings were taken nominally by the police under Section 1, Sub-Section 1, of the Motor Car Act, the information having been laid by Mr. J. U. Powell, M.A., a member of St. John's College. The Vice-Chancellor (the Provost of Oriel) presided, supported by the Provost of Queen's, the Senior Proctor, and the Junior Proctor. Mr. Gouldesbrough, who pleaded not guilty, was represented by Mr. Andrew Walsh. The Chief Constable notified that the police were only the nominal prosecutors and intended to offer no evidence. After a long hearing the Vice-Chancellor said in the opinion of the Bench there had been some degree of negligence on the part of Mr. Gouldesbrough. They could not say he drove at an excessive speed, but they were bound to impose a fine of £2 and 9s. costs. His licence would also be endorsed.

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A Mishap—not to a Motor-car.

LEICESTER has now its electric tramways, and we would congratulate Mr. E. George Mawbey, the borough surveyor and engineer, upon their successful inauguration. He is president of the Leicestershire Automobile Club, and one of the most enthusiastic motorists in the county. At the time of writing he is staying within doors as the result of his indiscretion in trusting himself to a horse-drawn vehicle. On Monday, with the chairman and vice-chairman of the Tramways Committee, Mr. Mawbey was making an inspection of various new routes. Their horse shied—apparently at nothing—and, running away, knocked down a lamp-post, overturned the carriage, and generally proved the want of equine education. All the occupants of the vehicle were badly shaken, Mr. Mawbey being the most seriously damaged. Some may suggest this was a punishment for a seeming inconsistency in a motorist, but all will be glad to know that the president of the Leicestershire Automobile Club will soon be about again. Probably the Corporation will now recognise the value of the automobile in municipal service.

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Mona's Thanks.

AT the last meeting of the Tynwald Court at Douglas, Lord Raglan, the Governor, congratulated the Court, the officials, and the inhabitants generally of the Isle of Man on the success of the recent motor-car trials. He apportioned praise as follows:—Firstly the Highway Board, and secondly the Chief Constable; and, in addition to him, those Captains of Parishes who gave assistance in selecting fit and proper men to act as "specials." He mentioned a member of the Court, Mr. Hutchinson, who, at some considerable trouble to himself, spent many days going round administering the oath to the special constables. Lord Raglan also congratulated the police and the special constables for the remarkably good manner in which they kept the course. They could congratulate themselves that it had been done entirely by Manxmen, and that no outside assistance had been required.

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The Motor-Car in India.

THE automobile is rapidly coming into favour for general adoption in India, and several leading firms in Bombay are already doing good business in motor-cars. Mr. Arthur Hoare, of Messrs. Turner, Hoare and Co., and one of the directors of the Bombay Motor-Car Co., is of opinion that the real introduction of the motor-car into India began with the Delhi Durbar. On the occasion of that ceremonial the Motor-Car Co. exhibited a large number of cars close to the Viceregal camp. For the most part the cars imported by them have been of French manufacture, and in their showrooms are to be found cars made by firms like Peugeot, Renault and De Dion. One of the first difficulties, says Mr. Hoare, which motor-cars in India encounter was the heating of the engines. This was noticed by such well-known motorists as Lord Wolverton and Mr. Henry James, who went out for the Durbar, and whose cars ran successfully through the Punjab during the cold weather of 1902–3. The Motor Car Co. now import all their cars with extra large water tanks, and the result has been shown to be very satisfactory indeed. For the cold weather of 1904 the company are making elaborate preparations. They have found that the demand in India is chiefly for small cars carrying from two to four people, and they are importing a large number of these types.

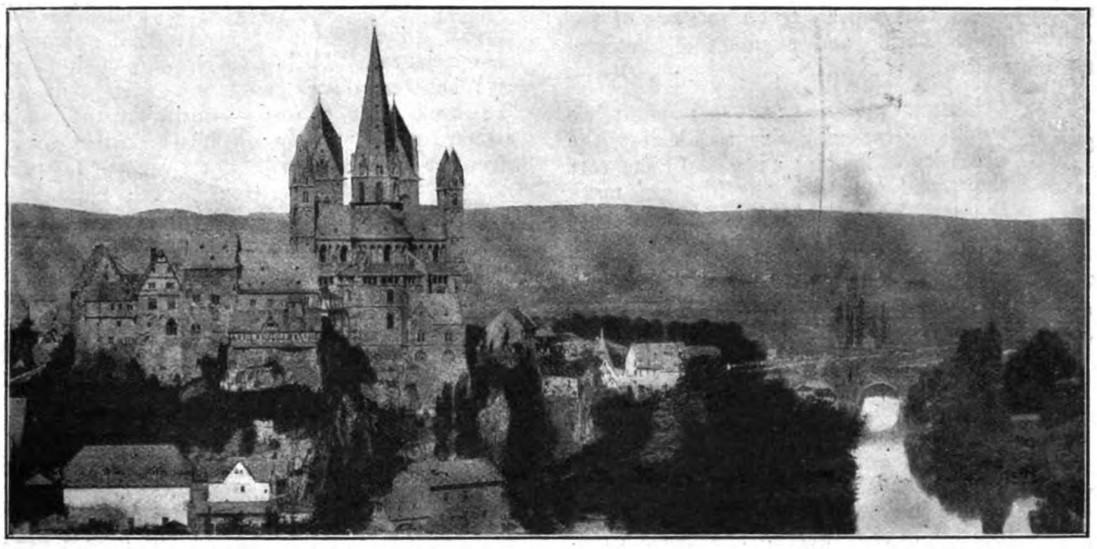
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Another Ascent of Snowdon.

THE recent achievement of Mr. Harvey du Cros, Jun., in ascending Snowdon on a motor-car, has just been emulated by Mr. W. M. Letts, on a 5-h.p. Oldsmobile. Mr. Letts did the journey in fifty-seven minutes, as compared with the three and three-quarter hours of the other trip. Mr. Letts, after having been lifted over two of the crossing points, ignored all the others and rode easily through or over the most intricate. His car weighed only 800 lbs., and working at 800 revolutions per minute on its low gear, equivalent to six miles an hour on level roads, consumed about half a gallon of water and about as much petrol over the whole course, and had enough spirit left in the three-gallon tank at the end to carry the car, *via* Capel-Curig and Bettws-y-Coed, to Llandudno—a trip of

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about forty miles. Starting at 6.57 in the morning, Mr. Letts took the first one in eight gradient with evident ease. He stopped two minutes at Hebron station points, half a minute at a second set of points, and when the special train following stopped two minutes at Ilfway Station for water he raced clear out of sight, pulling up at Bwlch-on-llyn for fifteen minutes. There he awaited the arrival of the train and was photographed. At five minutes to eight he stopped to let out some tepid water in the tanks, and then, after another four minutes' stop, he preceeded without further pause to the top, arriving at 8.24. Once the car, owing to an obstruction on the line, swerved to within three inches of the verge of the precipice, Mr. Letts fortunately steering clear at the last moment. He informs us that if the culverts were covered over beforehand he could drive the car straight to the top of Snowdon without a single stop.



A View of Limburg, showing the Cathedral.



Entrance to the Castle at Saalburg.



The Main Street of Konigstein.

THE 1904 GORDON BENNETT RACE.

Some Typical Indian Agencies.

One of the cars which has made itself very popular in Bombay, and also in Calcutta and Rangoon, is the Oldsmobile. Mr. K. N. Wadia, of the Bombay Cycle Agency, who has secured the agency of this machine, has had a large experience of motoring in that city, and he generally selects an Oldsmobile to take him about town or for a run into the country. Messrs. J. A. Kirkbride and Company are introducing very shortly the Alldays Traveller Voiturette. Mr. Kirkbride also imports the Quadrant motor-cycles. Another importer who has done a good deal to popularise motoring in Bombay is Mr. T. Zuberbuhler. This gentleman will shortly have at his disposal the "Minerva" car. A variety of other cars are now being introduced into Bombay. At the show rooms of the American, London and Eastern Trading Company are automobiles by Dechamps, Peugeot, and Pick, and the company also import the De Dion and the Milwaukee steam car, as well as the Mills and Fulford forecars. Mr. Thanawalla, of Kalbadevi, has a speciality which has attracted much notice—the Orient Buckboard, a little car which is composed of a small petrol motor engine hung on to the rear axle of a lightly built vehicle. A motor-car which will probably have a considerable vogue in India as time goes on—the Humber—is imported by the Bombay Cycle Agency.

The Motor Car Act.

Another point in connection with the Motor Car Act has just been demonstrated by the Rev. Arundell Whatton, who was summoned at Marlborough Street Police Court for driving a motor-car at Hyde Park Corner, on May 7th, without a registered number or mark. Mr. Whatton said he would admit the fact but dispute the guilt, as a section of the

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Motor Car Act gave a reasonable time in which to register and obtain numbers. That had actually been done, and the car was out solely for the purpose of being tested. The numbers were being made, but were not quite finished to put on the car. If there were any blame, he thought it ought to attach to the company who made the car, though he had no desire to blame anyone, as the offence, if offence at all, was quite technical and of an accidental nature. Mr. Kennedy imposed a fine of 10s., with 2s. costs, remarking that the company did seem to blame, and perhaps ought to have been summoned. Mr. Whatton asked the magistrate not to endorse the licence, but was informed that that must be done. This is one of the bad features of the Act, and although the discretionary powers of the magistrates have not always been wisely used, this appears to be just one of the cases where the infliction of the fine and payment of the costs seems adequate punishment.

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The Record Must be kept.

WHILE referring to this point we would again emphasize to dealers the necessity of keeping a record of the cars they send out with the dealers' mark thereon. Neglect of this easy matter has led to several firms making expensive appearances in the law courts, and no successful defence has yet been found. Those who use traders' identification letters for ordinary touring, too, will have to be careful in view of the interpretations of the provisions of the Act made by the average magistrate.

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Municipal Enterprise.

LIVERPOOL has an enviable position among English municipalities, and in the matter of quickened locomotion in the streets has shown an enterprise worthy of so important a city. At the last meeting of the Liverpool Finance Committee, it was resolved to purchase a motor-car at a cost of £700 for the use of the surveyor of the water supply. When this is procured, all the heads of departments in Liverpool will have motor-cars, thus showing an example of economy in time that should be followed throughout the country.

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Corporations and Cars.

WE hear that the committee of the Yorkshire Automobile Club is arranging for a gymkhana to be held during the present month in conjunction with the Harrogate Corporation. This is gratifying, because it indicates the growing friendliness towards motorists on the part of the municipal authorities, which will find development in the toleration of the police to those who drive through that town. Southport and Bexhill have already shown equal consideration, and now that automobile clubs are beginning to work in association with corporations for the development of the movement as well as the attraction of visitors to popular resorts, we may expect to hear less of the petty prosecutions that have done so much to arouse ill-feeling. In fact, organisers of anything likely to attract the public seem disposed to take advantage of the value of the automobile in such connection, and on the last two Saturdays in June the Wolverhampton Club is taking part in the charity sports in that town. We shall be glad to hear of similar engagements elsewhere.

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The Latest from Germany.

ALTHOUGH we admitted last week there was a "possibility" of the withdrawal of Mr. Edge from his allotted place in the British team, we did not imagine that such was probable. In response to the letter from the Club he wrote declaring his intention of competing in Germany, and the fact that he has been daily over the Taunus course has dispelled any illusions that may have been in the minds of readers of the uninformed press. He has just telegraphed to the A.C.G.B.I. from Nijmegen, which is situated near the frontier dividing Holland from Germany, stating that the route through Holland *via* Rotterdam and Dordrecht to the German frontier is a troublesome one to follow—although he finds the roads good—as it necessitates crossing the river by ferry several times. He therefore advises all who are driving their cars through Holland to proceed from Rotterdam *via* Gonda, Utrecht, and Arnheim to Nijmegen.

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Customs Difficulties.

ALTHOUGH the Dutch authorities have distinctly stated that motor-cars introduced into the country for touring purposes may enter free of Customs duty, Mr. Edge had to make a deposit with the officials, and has experienced great difficulty in recovering the money. The part of his telegram dealing with this point reads as follows:—"Wherever duty paid, get wire sent to frontier station to have money ready; desirable to obtain transit passport when paying duty; officials will say unnecessary but frontier officials will not repay duty without it." Mr. J. W. Orde has written to the Dutch Customs authorities on the matter, and it is hoped that they will not demand a Customs deposit on any further cars which may be introduced into Holland *en route* for Germany; but it is advisable for motorists to be prepared to deposit a sum at the rate of 5 per cent. of the value of the car. They are also strongly advised to obtain a "transport permit" from the authorities, and to adopt Mr. Edge's suggestion as regards sending a telegram to the Customs officials on the frontier asking them to be prepared to refund the amount which has been deposited at the Customs House by which it is intended leaving Holland.

THE Hertfordshire Club will hold a hill-climbing competition on the 18th inst.

THE Frankfurter Reklame Gesellschaft, 58, Kaiserstrasse, Frankfort-am-Main, ask us to mention that they will be glad to afford any information to visitors from England, at the disposal of whom will also be a reading-room, where the *Motor-Car Journal* and other automobile papers can be seen.

FOR the convenience of British visitors going over to the Gordon Bennett Race, large depôts for Clipper Continental Tyres during the race week have been established at 76, Louisenstrasse, Homburg, and 4, Friedenstrasse, Frankfort-am-Main, where all sizes of these tyres, which are licensed in England, can be obtained at once from stock.

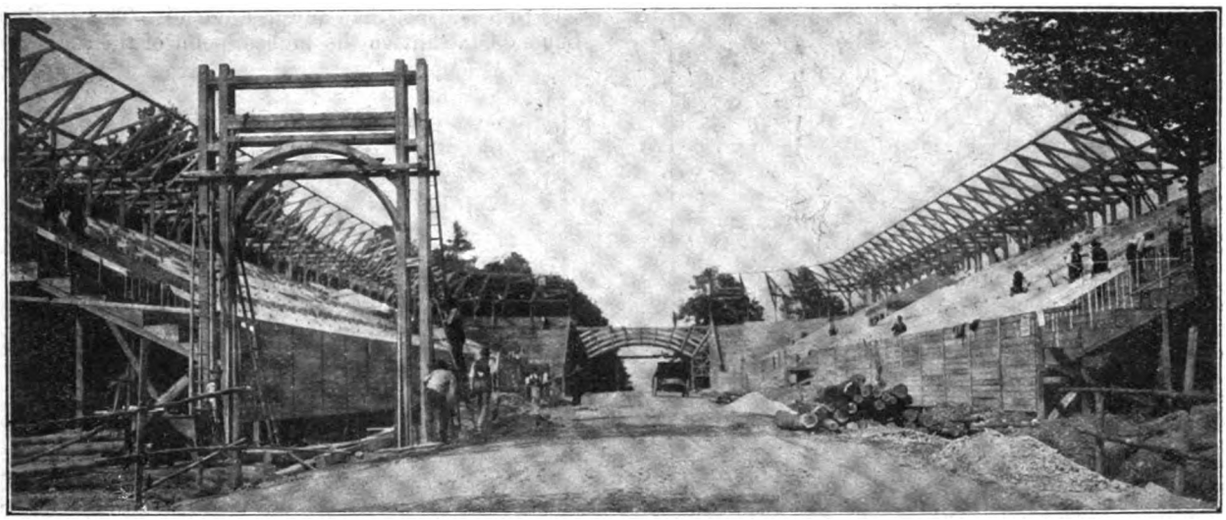
THE Begbie Manufacturing Company, Limited, inform us that their advertisement as to "Aster" engines being fitted to the Clement-Bayard cars was an error, those vehicles not being fitted with that particular engine. It is the Clement car, which, as we announced last week, is supplied by Mr. E. H. Lancaster, that is fitted with the Aster engine.

ON or about the 20th inst. one of the Seaham Harbour Engine Works' "Londonderry" steam wagons will leave Seaham Harbour for London carrying a five-ton load, only stopping to pick up water and relays of drivers *en route*. The course taken will be through Durham, Boroughbridge, Wetherby, Doncaster, Retford, Newark, Grantham, Stamford, Biggleswade, Hitchin, Hatfield, and Barnet to the Metropolitan Market. On arrival in London the vehicle will be garaged at one of the depots of the Provincial Carriers, Limited.

CALLING in at the extensive depot of Messrs. Friswell, Limited, the other day, we had an opportunity of inspecting what is claimed to be the most powerful motor-car ever constructed. The vehicle, which has just been purchased by Mr. Friswell, is of Italian construction, having been built by Messrs. Dobelli, of Rome. The car, which is of no less than 150-h.p., is fitted with a monster four-cylinder engine. One carburettor, of abnormal dimensions, supplies all four cylinders, the admission pipe being about 3 in. in diameter. Both magneto and high-tension ignition are provided. The transmission is on the usual lines of chain-driven vehicles, the gear-box giving five speeds forward in addition to the reverse.

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The Gordon Bennett Race.



View of the Grand Stands at Saalburg.—the Starting Point.

NOW that we are within measurable distance of the great event of the year—the Gordon Bennett race, which is to take place on Friday next, the 17th inst.—interest in the international contest is becoming more and more intense. As all motorists are aware, the race is, this year, being held in Germany, the course decided upon being in what is known as the Taunus district. The largest and nearest town to the starting point, Saalburg, near Homburg, is Frankfort-am Main, which has a population of about 315,000 inhabitants, and is only about 20 minutes' rail from Homburg.

Itinerary of the Course.

	Intermediate Distance.	Total Distance.	Altitude.
Saalburg	—	—	418 m.
Wehrheim	3 k. 700	3 k. 700	313 m.
Usingen (n)	4 k. 600	8 k. 300	288 m.
Gravenwiesbach...	8 k. 900	17 k. 200	288 m.
Einhaus	9 k. 200	26 k. 400	282 m.
Graneiten	4 k. 100	30 k. 500	330 m.
Weilburg (n)	7 k. 300	37 k. 800	150 m.
Allendorf	6 k. 800	44 k. 600	290 m.
Hechkolzhausen	3 k. 700	48 k. 300	210 m.
Obertiefenbach	4 k. 700	52 k. 300	223 m.
Limburg (n)	9 k. 700	61 k. 300	110 m.
Zollhaus	5 k. 800	67 k. 100	250 m.
Kirberg	5 k. 700	72 k. 800	200 m.
Hühnerkirche	8 k. 800	80 k. 800	380 m.
Zugmantel	6 k. 400	87 k. 200	465 m.
Neuhof	2 k. 600	89 k. 800	382 m.
Eschenhahn	3 k. 600	93 k. 400	410 m.
Idstein (n)...	4 k. 500	97 k. 900	265 m.
Esch (n)	7 k. 900	105 k. 800	370 m.
Glashütten	7 k. 500	113 k. 300	515 m.
Glashütten Hill	1 k. 300	114 k. 600	565 m.
Konigstein (n)	5 k. 200	119 k. 800	365 m.
Oberursel (n)	10 k. 200	130 k. 700	200 m.
Homburg (n)	4 k. 700	134 k. 700	183 m.
Dornholzhausen	2 k. 800	137 k. 600	220 m.
Saalburg	3 k. 500	141 k. 100	418 m.

n = neutralisation. 1 kilometre = ⅝ mile. 1 metre = 3·28 ft.

Neutralisations.

It has now been decided to neutralise Esch, so that there will be no less than eight "neutralisations," viz., Usingen, Weilburg, Limburg, Idstein, Esch, Konigstein, Oberursel, and Homburg. Between the starting point and the first control is a distance of only 8 kilometres, between Idstein and Esch 5 1-5 kilometres, between Konigstein and Oberursel 9 1-10 kilometres, and between Oberursel and Homburg 5 kilometres. The longest stretch is between Limburg and Idstein—37 3-10 kilometres, equal to about twenty-three miles.

The Course Described.

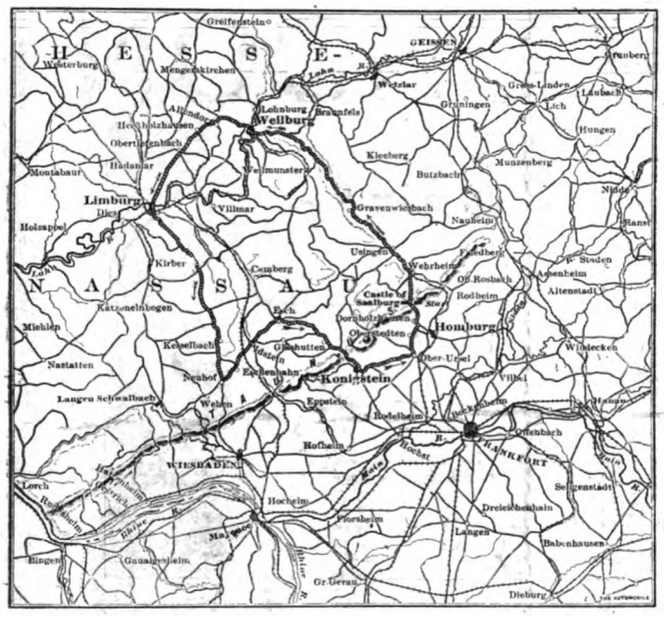
The course, which is roughly about eighty-eight miles in length, and has to be covered four times, extends over some of the most magnificent scenery in Germany, through well-wooded valleys, and across forests, and past quaint old-world villages, whose appearance is redolent of the middle ages.

The map on page 320 marks some of the principal points in the circular route. The Saalburg, from which the race starts, is an old Roman fort, formerly a ruin, but now in process of restoration. The fort was, it is said, erected in the first century, and was one of the frontier strongholds along the border line between the Roman and German Empires. It is situated at the summit of an ascent terminating on the one side at Dornolzhausen and on the other at Wehrheim. From the Saalburg the course runs to the north-west, through some woods. The first thing that attracts attention beyond is a magnificent straight road for two miles ahead down a fine hill. At the end is a railway crossing, just before entering Wehrheim. The road then continues through the forest to Usingen, the first capital of the principality of Nassau-Usingen, now forming part of the province of Nassau. The town is approached by a long descent from Wehrheim, and is situated picturesquely amid wooded hills. The town is connected with Homburg by a branch line of the railway, the station being at some distance from the main street.

After leaving Usingen the road rises sharply for several miles, passing through the forest till Gravenwiesbach is reached. This is a village standing in a clearing in the forest. About a mile or so from Gravenwiesbach a steep descent, in which there are some nasty corners, is encountered. The road is comparatively level for about six miles after this, leading through the beautiful beech woods for which the locality is renowned. After a short but steep descent Weilburg is reached, the town, which is the capital of the Duchy of Nassau-Weilburg, being entered by an avenue of ancient beeches, so planted that six cars could be driven abreast along the thoroughfare. After Weilburg

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there is one of the dangerous descents of the race, in a steep hill, down which cyclists are forbidden to ride. The route winds southwards to Limburg, and the hill climb of the course is entered on by way of Allendorf, Heckholzhausen, and Obertiefenbach. From the latter place the road now falls sharply for some five miles, two of the hills being dangerous, especially that



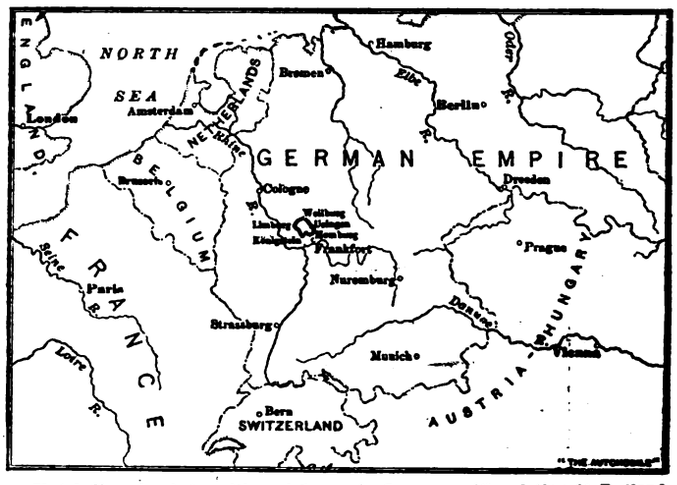
Map of the Course.

descending into Limburg, an ancient episcopal town, situated on a rock overlooking the Lahn. About nine miles before the old and picturesque cathedral town is reached a sharp curve in the road has to be negotiated.

The Cathedral of Limburg is one of the oldest in Germany, dating from the beginning of the tenth century, and built in the reign of the Emperor Conrad I., 911-919, and rebuilt in the Gothic style about the beginning of the thirteenth century. The edifice shows traces of the transition from the Romanic to the Gothic style of architecture, and is of especial interest both from the historical and artistic point of view.

The bridge by which the Lahn in crossed dates back to the Middle Ages, and contains an effigy of Saint Nepomuk, the patron saint of all bridges.

After passing out of Limburg over the old bridge there is a clear run on splendid roads to the village of Kirberg, leaving which there is a hill—the longest and most trying on the course—nearly eight miles in length, to be mounted. This hill is called "The Hühnerkirche." The road now goes to Neuhof, thence northward to Idstein. The town contains a well-preserved castle and an interesting old church with mural paintings. The main line from Frankfort to Limburg passes through here. Some distance from Idstein, after passing Esch, there is a hill said to be steeper than any in England. The gradient is 1 in 5. Beyond Glashütten the highest point of the course is reached—



Sketch Map showing position of Course in Germany with relation to England and Neighbouring Countries.

1,820 feet, and thence the road winds down to Königstein, the southernmost part of the run, which is famed for having the most beautiful ruins in the Taunus district. The old castle towers above the houses huddled together at the foot of the hill, and its name is associated with old stories of warfare and pillage. There is a finely wooded way right on to Oberursel, which is passed on the right. Thence to Saalburg the route is by way of Oberstedten, Homburg and Dornholzhausen.

From Homburg a new track has been laid down for some distance, especially for the race, and just before the end of the course there is another steep hill—1 in 6—leading to the finishing point at Saalburg. Over 70 miles of the course are being sprinkled with Westrumite in order to lay the dust as much as



A view of the Course between Obertiefenbach and Limburg.

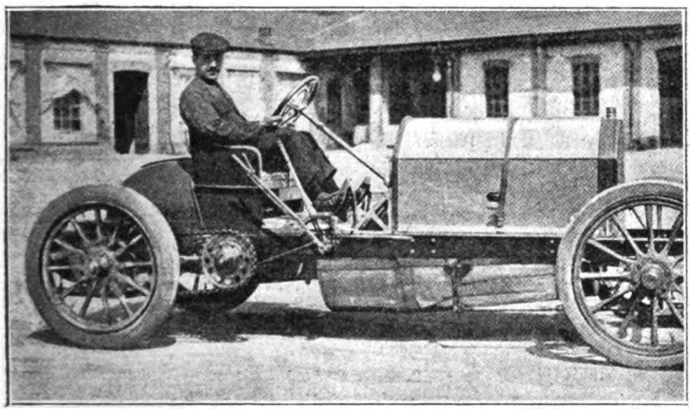
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possible, while the most complete arrangements are being made to keep the course clear.

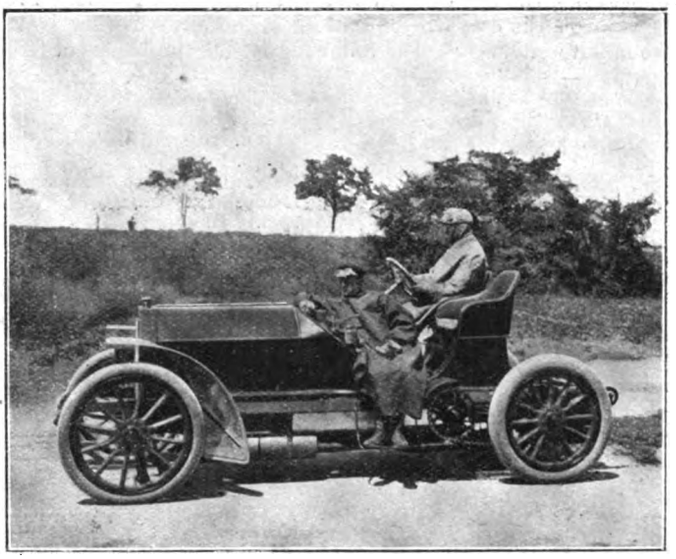
The Competitors.

Germany, as holder of the Cup, received challenges from no less than seven other countries, viz., England, Austria, Italy, France, Belgium, Switzerland, and the United States. Of these the last-named is the only one which has declared forfeit, and is unrepresented. Switzerland is only sending one car, as against three from each of the other nations, so that altogether there will be nineteen vehicles competing, the "field" for the 1904 race being thus much larger than in any of the preceding Cup contests. As for the cars themselves, the majority have already been illustrated and described in the *Journal*, so that it is only necessary now to deal with those of which information has only just been made public. Among the accompanying illustrations will be found reproductions of the Swiss, Austrian, Italian, and Belgian cars. The car which will represent Switzerland in the Cup race has been built by Messrs. Picard, Pictet and Company, of Charmilles, for and to the designs of Messrs. Dufaux Freres, of Geneva. It possesses an eight-cylinder motor, giving 90-h.p. on the brake at a speed of 1,200 revolutions per min. The cylinders are cast in pairs, the bore is 125 mm., and the stroke 130 mm. There are two systems of ignition, magneto and accumulators. M.O.V. valves are used, while, in addition to the usual differential and rear wheel brakes, the hubs of the front wheels are provided with brakes. Three speeds and a reverse are available. The tyres were made by the Michelin Company in a small factory established for the purpose in Switzerland. The car will be driven by M. F. Dufaux. The Fiat (Italian) vehicles have four-cylinder engines, rated at 75-h.p., with mechanically-operated inlet valves and magneto ignition. The vehicles, as also their drivers—Messrs. Lancia, Cagno and Storero—left Turin for Homburg by rail on Friday of last week. The Pipe (Belgian) cars have four vertical cylinders, developing about 75-h.p., with mechanical inlet valves and accumulator ignition. The clutch is of the Jenatzy magneto type, as used for some time past on the Pipe cars. Four speeds forward and a reverse are controlled by one lever. Continental tyres are fitted to the road wheels. There are two brakes on the differential shaft, while the rear brakes are of the expanding type. The vehicles will be driven respectively by Baron P. de Crawhez, one of the leading automobile sportsmen in Belgium, M. Augieres, who has hitherto driven Mors cars in such classic events as Paris-Vienna, Paris-Madrid, Gaillon, and who held the world's kilometre record for a period of eight months, and M. Lucien Hautvast, an old cycle racer, and who has also taken part in the Paris-Madrid, the Circuit des Ardennes, the Ostend week and other important mee ings. It may be added that, with the exception of the Napier and the Opel-Darracq, all the cars are of the chain-driven variety. The following are the colours of the cars representing the different countries, and their order of starting :—

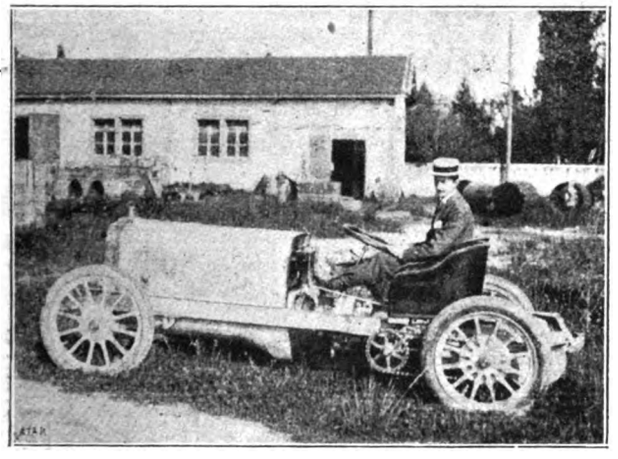
Country.	Colour of Cars.	Order of Starting.			Drivers.
Germany	White	1	8	14	Jenatzy, Baron De Caters, Opel.
England	Green	2	9	15	Edge, Girling, Jarrott.

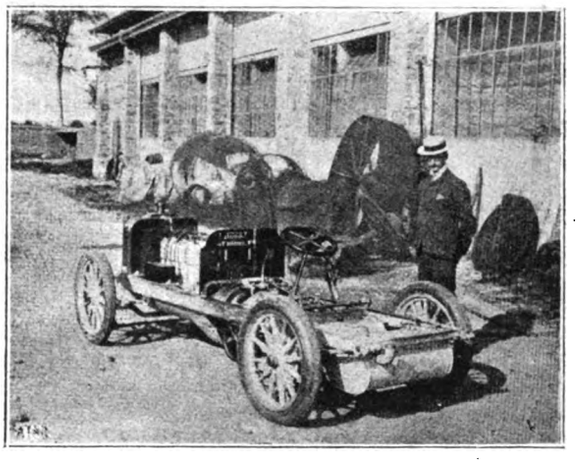


M. Cagno on the 75-h.p. F.I.A.T. (Italy).



Mr. W. Warden on the 90-h.p. Austrian Mercedes.





Two Views of the 90-h.p. Dufaux (Swiss Car) and its driver, M. F. Dufaux.

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Country.	Colour of Cars.	Order of Starting.	Drivers.
Austria	Black and Yellow	3 10 16	Warden, Braun, Werner.
Italy	Black	4 11 17	Storero, Cagno, Lancia.
France	Blue	5 12 18	Thery, Salleron, Rougier.
Belgium	Yellow	6 13 19	Baron de Crawhez, Augieres, Haut-vast.
Switzerland	Red and Yellow	7 — —	Dufaux.

Of the nineteen drivers, only four—Jenatzy, Edge, Jarrott, and De Caters—have driven in the Cup contest before.

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The Order of Starting.

The course will be closed at 4 o'clock on the morning of the race. The cars will be started at five minutes' intervals, the first being despatched at 7 a.m., so that, as there are nineteen competitors, the last car will not get away until 8.30. From the controls the cars will be sent off in the order of arrival at two-minute intervals. The following is the probable order of starting :—

1.	Jenatzy	90-h.p. Mercedes
2.	Edge	80-h.p. Napier
3.	Warden	90-h.p. Austrian Mercedes
4.	Cagno	75-h.p. Fiat
5.	Thery	80-h.p. G. Richard-Brasier
6.	De Crawhez	75-h.p. Pipe
7.	Dufaux	90-h.p. Dufaux
8.	De Caters	90-h.p. Mercedes
9.	Girling	72-h.p. Wolseley
10.	Werner	90-h.p. Austrian Mercedes
11.	Storero	75-h.p. Fiat
12.	Salleron	100-h.p. Mors
13.	Augières	75-h.p. Pipe
14.	Opel	80 h.p. Opel-Darracq
15.	Jarrott	96-h.p. Wolseley
16.	Braun	90-h.p. Austrian Mercedes
17.	Lancia	75-h.p. Fiat
18.	Rougier	90-h.p. Turcat-Mery
19.	Hautvast	75-h.p. Pipe

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Previous Gordon Bennett Contests.

Year.	Course.	Distance. kil.	Winner.	Car.	Time. h. m. sec.	Average Speed. m.p.h.
1900	Paris-Lyons	554	Charron	Panhard	10 36 23	38·5
1901	Paris-Bordeaux	586	Girardot	Panhard	11 24 59	39.5
1902	Paris-Innsbruck	617	Edge	Napier	10 41 58	34.
1903	Ireland	564·8	Jenatzy	Mercedes	6 39 0	49.

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The Programme of the Gordon Bennett Week.

The following is the programme for the Gordon Bennett week :—

Thursday, June 16th.—Weighing of racing cars. Evening reception at Kurhaus in Homburg.
Friday, June 17th.—Gordon Bennett race.
Saturday, June 18th.—Touring excursion on the Gordon Bennett course. Evening dinner at the Kurhaus in Homburg.
Sunday, June 19th.—Races at Frankfort-on-Maine.
Monday, June 20th.—International Congress.
Tuesday, June 21st.—Competition for appearance in the Kurpark. Flower Corso.

There has also been issued a programme of festivities at the Kurhaus in Homburg, in connection with the Gordon Bennett meeting, from June 12th to 23rd. It includes concerts, theatrical performances, firework displays, and other fêtes.

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The Banquet in Homburg.

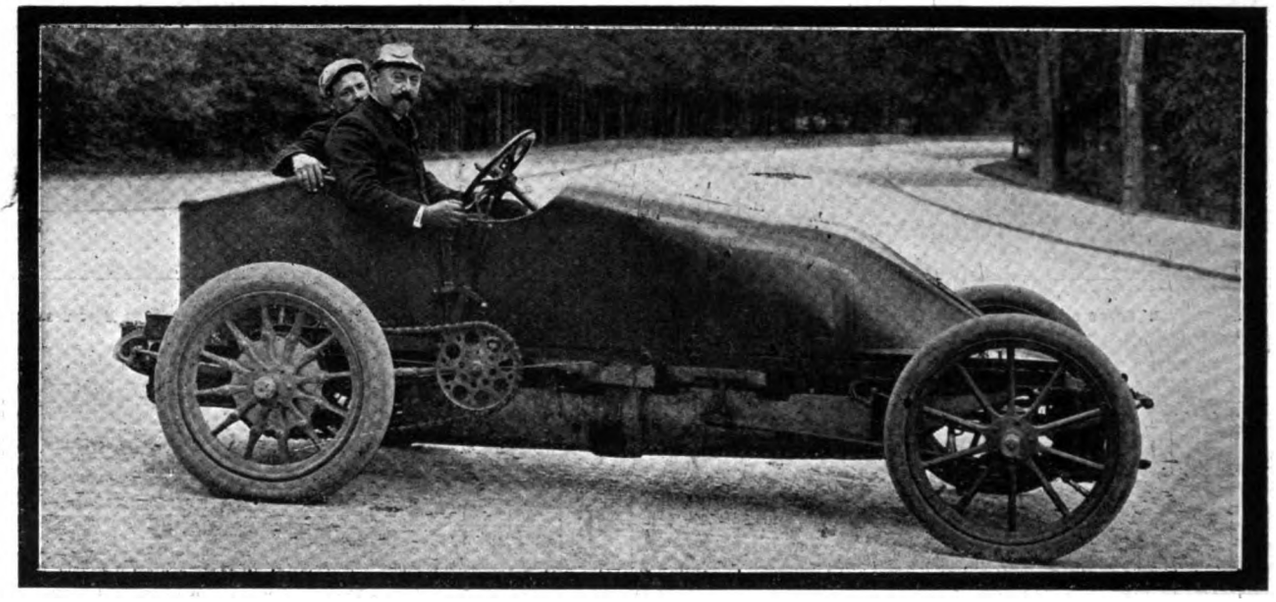
The German Automobile Club will give a banquet at the Kurhaus, Homburg, at 8 p.m. on June 18th. The club intends to invite the presidents and vice-presidents of the leading clubs as well as those members who have rendered conspicuous service to automobilism. Other members of automobile clubs are at liberty to attend at the dinner upon payment of thirty marks.

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Track Racing at Frankfort.

A large list of entries has been received for the track races at Frankfort-on-Main on the 19th inst. In addition to Germany, France, England and even Russia will be represented among the competitors.

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M. L. Hautvast on his 75-h.p. Pipe, one of the three Belgian Cars.

Keep Clear of Baden.

Those motorists who contemplate making the journey by road to the Cup course will be wise to steer clear of the Duchy of Baden, and especially the towns of Constance, Waldshut, Freiburg, Offenburg, Karlsruhe, and Mosbach, the police having received orders to keep an unusually vigilant eye on excessive speed.

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Free Garage in Frankfort.

The Mitteldeutsche Gummiwaarenfabrik (Louis Peter), the makers of the well-known Peter tyre, write us that they are placing at the disposal of visitors, without charge, a large garage capable of accommodating close upon 200 cars. The building, which will be open day and night, is situated close to their works in the Mainzerlandstrasse, Frankfort-am-Main. Arrangements have been made to supply petrol (known in Germany as "benzin"), lubricating oil, etc., and also to carry out any necessary repairs at moderate prices.

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THE Wolseley Company used Van Raden's coils and accumulators on their cars in the eliminating contest in the Isle of Man. They went through without a hitch and will be used in the great race of Friday next.

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ARE MOTOR-BICYCLES DESIRABLE FOR CLERGYMEN?

By the Rev. R. W. Taylor.

In considering the usefulness of the motor-bicycle from the viewpoint of a clergyman, the first and most important thing is its practicability as a means of conveyance. The writer is one who willingly, from a large experience, speaks commendatory words of the safety-bicycle as an aid to the pastor. With this he was able to do much more than would have been possible with the horse.

During the last two years a motor-bicycle has been doing service, and the writer is frank so say that with it he can cover a much larger district, reach more people, and do it quicker and easier than is possible with the bicycle. In a country with average good roads it is very useful. It is surprising how quickly one can ride out six or eight miles, make an average stop, and return. I find that about three calls can be made with the motor-cycle to one in the ordinary way. This means that with the motor-bicycle a much larger flock can be shepherded, and that more effectually, than would otherwise be possible.

Next to practicability are its possibilities as a means of recreation, which is necessary. The old saying, "All work and no play makes Jack a dull boy," is just as applicable to those in this profession as any other. In this respect the motor-bicycle serves admirably. A motor-cycle ride is a panacea for a "logy" mind or one overburdened with care. It will dissipate worry. A spin on a fine summer day over a good road will come as near rejuvenating a man as anything, and he will return to his study entirely relieved of that sluggishness which made study well nigh an impossibility, and with a mind clear and keen he will take up that dull theme with which he had been struggling to no purpose but an hour or so previous and find it as delightful and fresh as was the breeze which fanned his cheeks while the wheel, of its own power, bore him swiftly along. He can go as fast as he wishes and experience none of the ill effects so liable to follow scorching with the safety. In short, a spin on the motor-bicycle is just the thing for a hard-worked dominie.

Another use of the motor-cycle is that of touring. Vacations may be spent in this way with entire satisfaction. It will afford pleasure and rest; it will act as a tonic, increasing the appetite and building up the constitution. The increased speed afforded enables one to make journeys of considerable distance. You can visit friends, go to resorts, attend summer gatherings, even if you have to cross a county or two to do so. In case you are so unfortunate as to have no vacation, still, tours of considerable distance are possible—some hundred miles from your charge and return between Sabbaths. You will get inspiration from the ride for your next Sabbath's sermon. Some of your best pulpit efforts will be those prepared by the roadside, under the branches of a friendly tree, against which the faithful wheel leans.

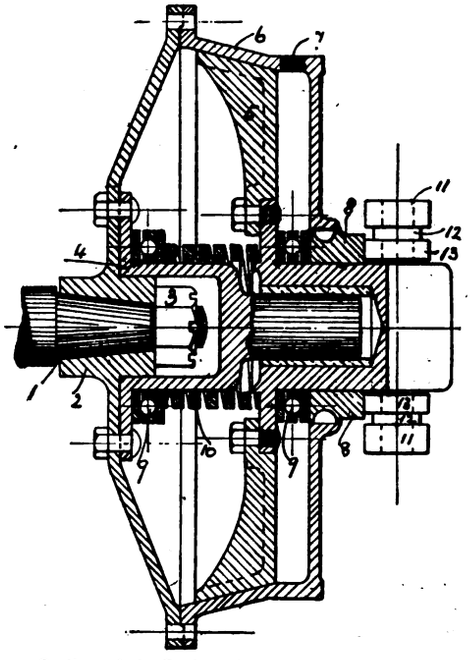
In many ways the motor-bicycle is certainly useful for clergymen. It may occur to some that it is not, after all, desirable—that there are occasions when it would be entirely out of place to use one, as, for instance, the making of appointments on the Sabbath day. It sometimes happens that the pastor's right hand men are not over progressive, and so its use might be contrary to the sentiment of some very good people. Such sentiment against the motor-cycle, which certainly must be rare, can, however, be interpreted, and that justly, as against progress, and must eventually result to the advantage of the one against whom it is exercised.

Can gentlemen of the "cloth" use a motor-cycle and present a respectable toilet? The motor-cycle is pre-eminently an oil machine, it must be well supplied with oil for lubricating and motive power purposes; in fact, the rider is in proximity to a tank of petrol and lubricating oil, and this may seem an undesirable feature. However, the liability to soiling clothes lies with the rider, and may be reduced to a minimum, so that on this account it cannot be considered undesirable. Now the conclusion of the whole matter. Let those of this profession who are enthusiastic cyclists purchase a good make of motor-bicycle, become intimately acquainted with the machine, and use it for pastorate and pleasure. It will be found both desirable and useful.

THE DURHAM CHURCHILL FRICTION CLUTCH.

In a recent issue we mentioned that Messrs. Durham, Churchill and Company had brought out a metal to metal friction clutch specially designed for use with engines having no external flywheel. We are now able to give a sectional illustration of the new clutch, together with a brief description. Referring to the drawing, 1 represents the end of the crank shaft of the motor, on which is mounted the clutch drum, 2, which is fitted in the same manner as an ordinary flywheel and fixed by means of a castle nut, 3. The clutch centre piece, 4, which centres and supports the inner cone, 5, is made separate from the drum, 2, to facilitate the tightening of the nut, 3.

The outer cone, 6, forms the special feature of the clutch, in that instead of the outer cone ending about the face of the inner cone, it is continued forward and carried down, forming a box, into which oil can be poured by means of the filling hole, 7,



Section of the Durham Churchill Friction Clutch.

and so long as the level of the oil does not come above the lowest part of the sliding collar, 8, it will be oil tight. In addition to being oil tight the clutch is dust proof. The surfaces of the two cones are of metal. There is no end thrust upon either the clutch shaft or the motor when driving, two anti-friction bearings, 9, taking the thrust while the clutch is being operated. The clutch spring, 10, is of the ordinary type. It will be seen that the inner cone, 5, is bushed where it runs above the centre piece, 4, and it also forms at its outer end a dog or finger clutch to transmit power to the change-speed gear shaft.

The two arms of the fork are shown in plan at 11; pins, 12, are fixed in the arm of the fork, these carrying square blocks, 13. Should wear take place on the faces of these blocks adjustment can be made by giving them a quarter turn upon the pins, 12.

A sliding collar, 8, is provided to transmit the pressure from the blocks 13, in thrusting against the spring when operating the clutch. This collar further serves the purpose of filling the orifice in the outer cone.

Lady Blytheswood has ordered a C.G.V. car, with landau body, from the London Motor Garage Company.

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CONTINENTAL NOTES.

The Ostend Automobile Week.

The programme of the Ostend automobile week, which is being organised by the Automobile Clubs of Antwerp and Flanders, has been issued. The meeting will commence on July 14th with a driving competition for decorated touring cars at the Wellington Hippodrome, followed by a flower fete on the Digue. On the 15th there will be a series of 5-kilometre speed trials for all classes of vehicles, from motor-cycles up to cars costing £1,200, on the road between Nieuport and Snaeskerke. On Saturday, the 16th July, on the same course, will be held the 10-kilometre speed tests for racers. Sunday will be an off-day, but on Monday, the 18th, there will be a run of touring cars from Ostend to Blankenberghe and back. Tuesday, the 19th, will be devoted entirely to motor-boat races, and Wednesday, the 20th, to a series of standing mile speed tests for racers and touring vehicles. The times for the standing mile will be added to those taken over the flying kilometre, in awarding the prizes. On Thursday, the 21st, kilometre speed tests on the Snaeskerke-Ostend road are to be held for all classes, while on Friday, July 22nd, the start will be made for a tour to Namur and Spa. Entries for the various events are to be sent to M. T. Ratinckx, 40, Grande Place, Antwerp, before the 25th inst.

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A Race Meeting at Padua.

The Union Automobile Venitienne is organising an automobile race meeting to be held at Padua in the first fortnight of September. Among the events will be a ten kilometre race and a series of flying kilometre speed trials.

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A Motodrome at Versailles.

The Automobile Club de Seine et Oise is considering a scheme of establishing a large motor racing track at Versailles. The course would be 20 kilometres long, and from 20 to 25 metres wide. The road is a good macadam one, which it is proposed to treat with tar to lay the dust.

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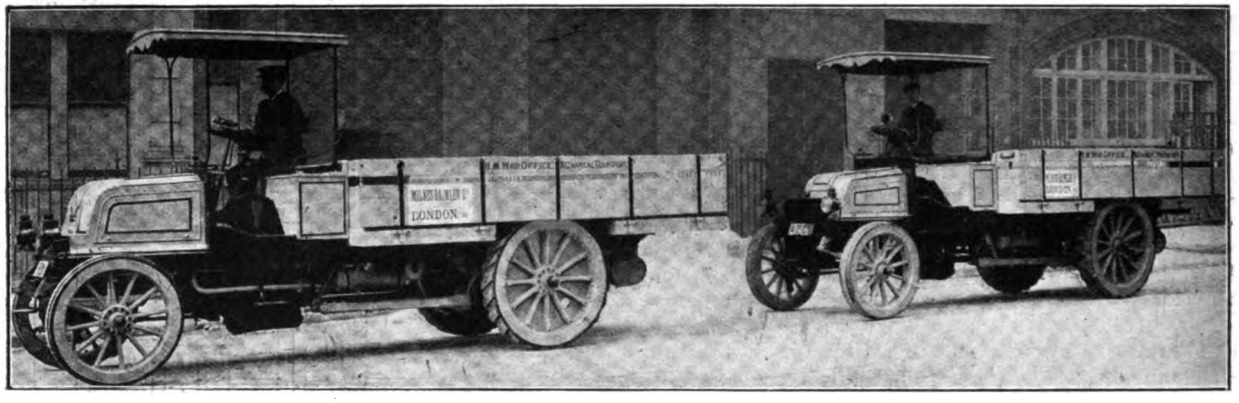
A Swedish Reliability Trial.

The Swedish Automobile Club is organising a two-days' reliability trial of automobiles of all classes, including commercial vehicles. The start will take place in Stockholm on July 2.

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The Spa Week.

Still another programme which has just been issued is that of the Spa automobile week, to be held from July 26th to August 1. The first day will be devoted to the weighing in; and on the morning of July 27th there will be the Spa-Malchamps hill-climb, open to all classes of vehicles. The course is 5·137 kilometres long. The afternoon will be devoted to the mile hill-climb from a standing start for the Coupe de Spa, at present held by Barbaroux (Benz-Parsifal). On the 28th will be held a motor-cycle speed competition between Spa, La Sauvenière, Malchamps, Francorchamps, Sart, Niveze, Spa. This course has to be covered five times, giving a total of about 100 kilometres. The following day, July 29, there will be a competition for touring cars, six times round the same course. The 30th will be devoted to a balloon chase by motor-cars, and the 31st to an exhibition. The meeting will end with a driving competition on August 1st.



Two of the Four Vehicles recently supplied to the British War Office by the Milnes-Daimler Co. The Wagons are of 18-h.p., and are intended for loads up to 35 cwt. The engines are provided with magneto and high tension ignition, and are adapted to use either petrol, paraffin or alcohol as fuel.

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The Circuit des Ardennes.

The Arras meeting over, attention is now being centred on the Circuit des Ardennes, which is to be held on July 25, and entries for which will be received by the Belgian Automobile Club until the 2nd of that month. Already ten motor-cycles, nine light cars, and twenty-eight racers have been entered, the latter including Mr. S. F. Edge (Napier), and two Wolseleys. The names of Mr. C. Jarrott and the Hon. C. S. Rolls also appear in the list, but no information is so far available as to the vehicles they will drive. As usual, the A.C.B. is arranging for a special train from Brussels to Bastogne.

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Le Circuit du Pas de Calais.

The Arras meeting was brought to an end by a run of touring vehicles from Arras to Paris Plage, near Boulogne, via St. Pol, Hesdin, Fruges, St. Omer, Colembert, St. Leonard, Montreuil, and Etaples, the total distance being 212 kilometres. There were twenty-eight starters, of whom twenty finished within the specified time. *En route*, the speed of the vehicles was tested over a kilometre on the level and over a similar distance on a hill, in both of which tests the best times were made by M. Leon Serpollet on one of his steam cars; his time for the level kilometre was 40 2-5 sec., and on the hill, 1 min. 1 2-5 sec. In the evening a banquet was held at Le Touquet, when the gold medal presented by the King of the Belgians for the touring car making the best average in the different events was awarded to M. Deville, who drove a 15-h.p. Serpollet.

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A Touring Competition at Lyons.

A touring competition for the Rochet-Schneider Cup was held on Saturday last by the Automobile Club du Rhone. The route was from Lyons to St. Claude, Faucille, Amberieu, and back to Lyons a total distance of 346 kilometres. There were twenty-five starters, of whom no less than twenty-three finished. The award of the jury has not yet been issued, but in the hill climb which formed part of the trial the best times were made by M. Dumond on a 24-h.p. De Dietrich, M. Chalencon on a 24-h.p. Berliet, and M. Gobalcool on a new 14-h.p. car made by Les Chantiers de la Buire.

CAPTAIN NEWSUM, who has toured many thousands of miles on his 12-h.p. Richardson car, which is identical with the one which took part in the Glasgow to London non-stop run, has now placed an order with Messrs. J. R. Richardson and Company, Limited, for a 20-h.p. 4-cylinder car.

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THE "G.A." SPEED REGULATOR.

AMONG the many interesting devices displayed at the last *Salon* in Paris was the new speed regulator for petrol motors introduced by Messrs. Grouvelle and Arquembourg, of Paris. This is an apparatus arranged between the float feed and spraying chambers of the carburettor, in which advantage is taken of the suction of the engine to automatically regulate the feed of petrol to the spraying chamber, means being also provided whereby the action of the same can be gradually varied between the normal maximum speeds, or instantly set at the minimum or maximum rate from the steering wheel. Referring to the illustrations, Fig. 2 is a view of the regulator, which, as already mentioned, is located between the float-feed and spraying chambers of the carburettor; Fig. 3 shows the control mechanism on the steering wheel, while Fig. 1 shows the regulator in position and in section, as well as the connections to the steering wheel and the suction pipe of the motor. The reference letters under Fig. 1 refer equally to those on Figs. 2 and 3. The suction of a petrol motor varies, of course, with the speed at which the latter is running, being, however, always the same for any certain number of revolutions per minute. Coming now to the action of the device, when the engine is in operation the different phases of the cycle of operations cause a rise and fall in the suction pressure in the admission pipe F,

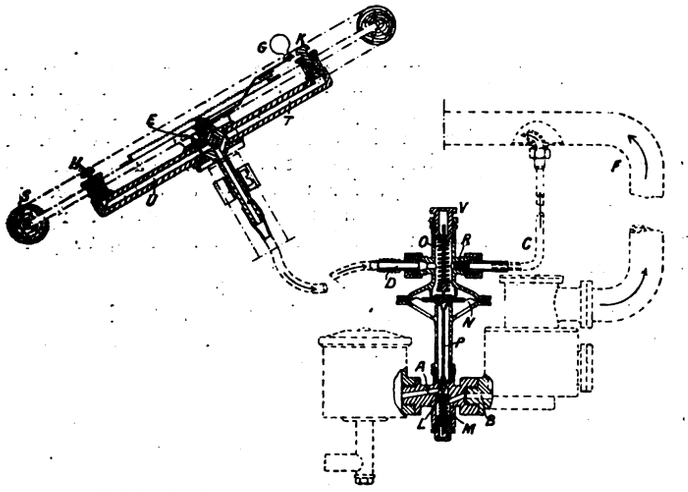


Fig. 1.—Sectional View of Regulator and Control Mechanism.

A.—Petrol supply from Float Chamber.
B.—Petrol supply to Spraying Chamber.
C.—Branch from suction or admission Pipe.
D.—Union connecting regulator with Valve E.
E.—Needle Regulating Valve.
F.—Suction or Admission Pipe to Engine.
G.—Lever controlling Valve E.
H.—Minimum Speed Button.
K.—Maximum Speed Button.
L.—Petrol Valve.
N —Diaphragm.
O.—Diaphragm Spring.
P.—Petrol Valve Control Rod.
R.—Diaphragm suction inlet.
S.—Steering Wheel.
T. U.—Return Air Pipe.
V.—Screw to adjust tension of Spring O

which is transmitted to the upper side of a diaphragm N, by the pipe C, in which is a small diaphragm R. The pressure on N is resisted by a spring O, the tension of which can be regulated by the screw V. The pipe D is connected by flexible tubing to a return air valve E on the steering wheel, by means of which the degree of action of the suction pressure on the diaphragm N can be controlled at will; the more N is lifted the smaller the opening of the petrol valve L, and, *vice versa*, as the suction pressure on N is reduced the rod P falls and opens the petrol valve. Two buttons H and K on the steering wheel complete the system, and permit, without interfering with the adjustment of the valve E, controlled by the lever G, the return air pipe to be entirely closed or fully opened instantly.

With the motor at a standstill, the valve E half open and the spring O at a suitable tension, the petrol valve L is open and allows spirit to pass to the spraying chamber. On starting the engine, as its speed increases, the suction pressure on the diaphragm N becomes greater and eventually will be equal to that of the tension of the spring O. In this position the petrol valve will be opened and closed and the degree of opening varied automatically by the speed of the engine—that is to say, any slight increase of suction pressure will overcome the spring O and allow the petrol valve to close to a corresponding degree, while any fall in pressure will allow the spring O to act and open the petrol valve. To modify the speed slightly from the steering wheel it is only

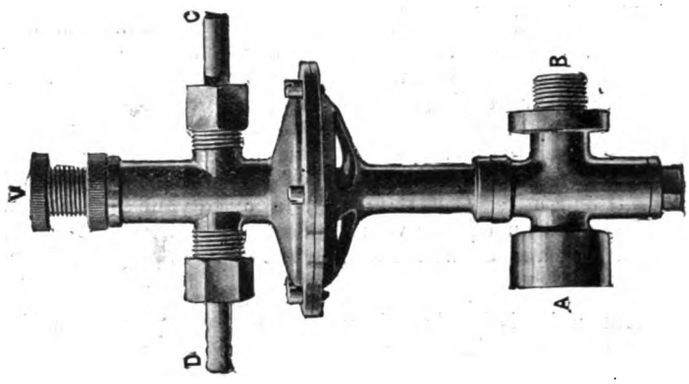


Fig. 2.—General View of Regulator.

necessary to move the lever G a notch or two, while by pressing down either the button H or K the minimum or maximum engine speeds can be instantly obtained; one button controls a valve which opens another air inlet. The lever G actuates the valve E which regulates the degree of opening of the air pipe at that point, so permitting the air pressure to enter and assist the spring in overcoming the suction pressure, while the other closes the air supply, so that only the tension of the spring has to be overcome by the suction pressure. In fixing the apparatus, the engine is set in motion and the lever G put at the end of the sector, the valve E then being closed. The compression of the spring O is next reduced by turning the adjusting screw V until the engine

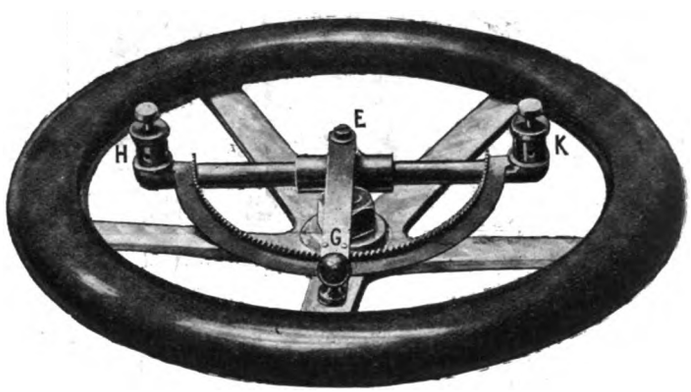


Fig. 3.—View of Control Mechanism on Steering Wheel.

is running at the slowest speed permitted by the carburettor. The lever G is then moved round two-thirds of the sector, opening the value E to such an extent that the engine should run at its normal speed. If it exceeds this a larger opening is given to the piece R, while if it is below the normal the opening in R is reduced. The normal speed being obtained, the adjustment screw V is securely fixed and need not be further touched. By moving the lever G notch by notch along the remaining third of the sector the valve E is gradually opened and the speed of the motor accelerated step by step up to its maximum. The apparatus, which can be fitted to any float-feed carburettor, is claimed to obviate the use of a governor and its consequent mechanical parts, while among other advantages it is stated to possess are the economy in fuel, the consumption of spirit being proportional to the power developed, the instantaneous control of engine speed rendered possible, and, finally, the cooling of the cylinders, owing to the suction of cold air only, when the supply of petrol is shut off.

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SOME USEFUL NOTES.

THE Swift Motor Company have issued some hints which should prove useful to owners of the new 7-h.p. Swift cars, from which we take the following.

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WE would preface the following instructions on driving the "Swift" car by remarking that undoubtedly the chief charm of motoring is the driver's, and that the more interest he takes in his charge, the more is that charm enhanced. The peculiarly keen pleasure of piloting a modern motor-car, with all its gradations of speed from minimum to maximum, and its wonderful ease of control, must be experienced to be understood; and it is equally difficult to describe the sense of mastery of the car which is developed after a little study of the principal parts and their careful practice. Give the consideration to your car that you would give to an equally valuable horse; don't treat it like a wheelbarrow, and blame the makers if it refuses to go satisfactorily.

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THE engine is lubricated by means of a pump fitted on the dashboard, and special motor oil should always be used for this purpose. The amount of oil which this engine requires is about one charge, *i.e.*, a pump-full, every twenty miles. It is preferable, however, to give a ¼ charge every five miles. While this may be a little more inconvenient, it is much more satisfactory, as an excess of oil may cause trouble with the ignition. The gear-box should be kept about one-third full of gear-box oil, and this quantity may be maintained by adding a little each week according to the amount of running that the car is given. The bearings of the gear-box are kept lubricated by means of a screw-down Stauffer grease-box, which is fitted in a position easily accessible from the driver's seat, and the cap of this should be screwed down before starting, and once in about every fifty miles. The back gear-box should be lubricated with the same sort of oil as is used for the change-speed gear-box. A small trap door is fitted in the back of the body to give easy access to this part. The driving shaft bearing in the back gear-box is lubricated by means of an automatic Stauffer grease box, readily reached through the same trap door. The back axle is fitted with four lubricators, and should be well oiled before taking the car out, using ordinary machine oil. This also applies to all other running parts of the mechanism, such as wheels, working parts of brakes, etc. It should be borne in mind that efficient running of the car can only be ensured by thorough cleaning and lubrication of the working parts. If an owner intends to use his car every day it would be advisable to take special precautions and have suitable mud shields fitted. Care should always be taken to lubricate the car immediately after washing, and not leave this overnight.



One way of Getting a Timid Horse past a Motor-Car.
[*Allgemeine Automobil Zeitung*

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AS regards starting and driving no actual force is required to actuate any of the levers. We consider this a most important point for amateurs to bear in mind, as it is invariably their greatest mistake and frequently the cause of trouble and expense. Of course, one has to learn to drive, especially on a gear-driven car; but there is not the slightest difficulty in learning, providing the tyro first obtains even an elementary knowledge of what he has to do. He should first, then, make it a point to gain this information. The fact that the engine will work is no proof that the car is running well. It is necessary to periodically examine the various bearings to see what amount of wear is taking place, and as soon as wear is detected steps should be taken to have the part properly adjusted. Most of the bearings are made adjustable, and upon the degree of attention that is given to this item depends the life of the car.

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IF the best results are to be obtained, it is absolutely necessary that the motorist should be in sympathy with and have a liking for his car, for if this is the case he will take the trouble to both thoroughly understand and care for it. Not only is care necessary if the best results are to be obtained, but thorough knowledge of what each part is and what it is intended to do is necessary in order to properly locate troubles and remedy the same. The automobilist who has this knowledge of his vehicle drives with a feeling of security not possible if the fear of mysterious happenings haunts him, and thus derives pleasure not known to the motorist less well informed. As rapidly as practicable, therefore, the novice should get acquainted with each part of the car and thoroughly understand its operation and construction. In doing this care should be taken not to disarrange any portion of the mechanism needlessly, for unless care is exercised the educative process may result in putting something out of order and being unable, because of lack of information, to put it back correctly.

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IT should not be overlooked, in the constantly growing practice of mounting a chain-driven commutator upon the dashboard, that a great deal of difficulty will be experienced in getting the chain correctly replaced if for any purpose it is taken off. Of course, where a spur gear is employed to drive the commutator, it is very easy to mark one tooth and the bottom of the two opposite teeth, into which it engages, thus insuring correct timing, but with a chain drive it is impossible to simply mark two teeth alone. The difficulty may, however, remarks a writer in the "Automobile Magazine," be overcome to a certain extent by marking the rim of the wheel on the centre line; it then becomes a matter of the eye in replacing the chain, and also one of memory to insure the marks being in correct positions, *i.e.*, both marks should be at the bottom or top of the wheel, as originally placed when they were indicated. It is a good idea, too, to have pointers attached to convenient parts, the marks on the chain wheel being brought opposite to these. In any case, it will, of course, be necessary to ascertain, roughly, the relative position of the crankshaft to the camshaft. Unless this is done, it is quite possible to get the setting incorrect, since, while one wheel may be in correct position, the other may be a revolution ahead or behind it.

FROM our contemporary the "Queen" comes a "Book of Travel," being a *resume* of the practical travel information that has appeared in our contemporary during the last ten years. This has been brought thoroughly up to date, and the list of hotels at all the tourists' resorts throughout Europe will be of considerable utility to those who travel. One section of the book is devoted to the routes and fares from London to resorts throughout the world, and this, so far as we have been able to gauge, has been done with accuracy. A few excellent illustrations add interest to the volume, which is published in a size convenient for the pocket.

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HERE AND THERE.

WITH a capital of £5,000 Motor Agencies, Limited, have been registered in Scotland.

MOTOR-CARS were let on hire in London by a well-known tourists' agency for the conveyance of parties going to Epsom for the Derby.

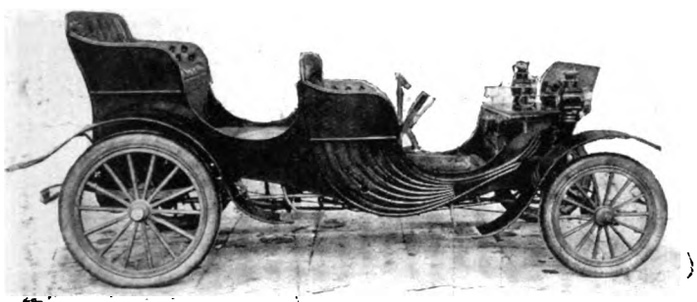
NOT only will the three German cars which are entered for the forthcoming Gordon Bennett Race be fitted with Continental tyres but also the three Belgian and the three Austrian cars, the tyres in each case being manufactured in the respective countries.

MR. A. GOVAN, of the Hozier Company, has an article on the progress of the motor-car industry in Scotland in Scotland's Industrial Souvenir, recently published by Messrs. Bemrose and Sons, Limited.

WE learn that Messrs. J. E. Hutton, Limited, are now in a position to undertake all classes of motor-car repairs at their extensive works at Thames Ditton. The plant there has been designed entirely for motor-car work, and a staff of trained workmen is available.

MR. J. RICHARDSON, of Unity Buildings, Market Street, Altrincham, has just erected a commodious garage, situated on the main road between Manchester and Chester, which has accommodation for twenty cars. A large stock of petrol, grease, oils, spare parts, etc., is kept, and accumulators are charged on the premises.

THE Duryea Company have just delivered a 15-h.p. British built Duryea Surrey to Mr. Allen McMullen, of Dublin. The car was driven from Coventry by road to Holyhead, and did



The First British-built 15-h.p. Duryea Surrey.

not meet with a single hill on the whole journey which necessitated the use of the low gear. The last twenty-six miles were covered in fifty minutes.

MRS. MANVILLE, Mr. Frank Butler, Mr. Spencer and his son, aged seven, ascended in the Aero Club's balloon No. 1 from the Crystal Palace on Saturday. After attaining a height of 10,000 feet and passing over Box Hill and Leith Hill it descended at Chichester. Aero Club No. 2, with Mr. C. F. Pollock, Mr. Martin Dale, and Mr. Moore Brabazon, descended at Petworth.

AN automobile club has recently been formed in Winnipeg, Manitoba. The opening run was held a few days ago, more than thirty cars taking part. A parade of all the principal thoroughfares in the city was made, the line of cars being headed by Dr. Webster. The Winnipeg Automobile Club has for its honorary president Sir Daniel McMillan, Lieutenant-Governor of Manitoba, who is taking a great interest in the movement and will shortly possess a car of his own.

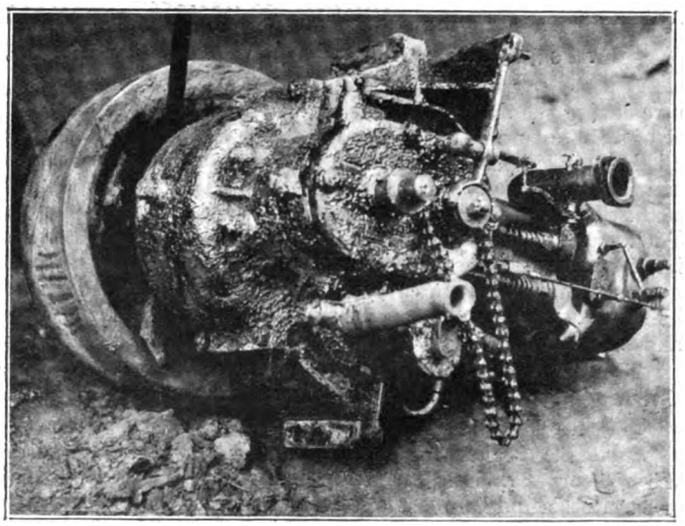
LAST week end the Locomobile Company of Great Britain, Limited, subjected one of the latest 20-h.p. Spyker cars, for which they have recently secured the agency, to an interesting test. Leaving the depot in Kensington at noon on Friday last week, Mr. A. E. Perman started off on a tour of the south coast in order to ascertain how far he could comfortably travel in a couple of days. The first part of the journey was to Margate (eighty-five miles), *via* Maidstone and Canterbury. From the batch of postcards we have received the day's run appears to have ended at Folkestone (116 miles). On Saturday morning the journey was continued, keeping close to the sea coast, *via* Hastings, Eastbourne, Brighton (200 miles), Chichester, Southampton (262 miles), Poole, Bridport, Exeter, Teignmouth, Torquay, and on to Plymouth (432 miles.) Mr. Perman had intended to return by the north of Devonshire through Torrington, Bristol, etc., which would have made the tour a very interesting one; but, unfortunately, he suffered from sunstroke just before reaching



The 20-h.p. Spyker Car.

Plymouth, and had to place himself in the doctor's hands which naturally made it impossible to continue the run Not only was the journey a severe test of the hill-climbing capabilities of the car, but it was an even more severe trial of the brake power, especially in Dorsetshire and South Devon. Although no attempt was made to perform a non-stop run, the only delays encountered were to refix the fan belt, which slipped off the pulley near Hastings, and to replace the contact blade in the electrical ignition distributor. Otherwise the car was not touched, with the exception, of course, of filling up the tanks. Just after leaving Eastbourne the off-side back tyre punctured, this being caused by a rusty nail about 3 in. long and nearly a ¼ in. thick which had penetrated the cover and tube. On Sunday the car was driven from Plymouth to London, a distance of a little over 250 miles, by Holland, the mechanician.

THE Stern-Sonneborn Oil Company are making arrangements whereby their lubricating and cylinder oils may be obtained from any motor dealer in Great Britain.



An Object Lesson—How Not to Treat an Engine.

THE accompanying illustration is reproduced from a photograph sent us by the Beaufort Motor Company. It depicts the engine of one of their 9–10-h.p. Beaufort phaetons which has lately been sent in for an overhaul. It will be agreed that it requires one! On the ground to the left will be seen a heap of dry mud which has been chipped off the engine.

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AN automobile gymkhana will be held at the Ranelagh Club, Barnes, this (Saturday) afternoon.

MR. F. WILKINSON, of Prince's Chambers, John Dalton Street, Manchester, has successfully negotiated Bland's Cliff, at Scarborough, on a Stanley steam car.

THE Electric Welding Company, Limited, have sent us an illustrated circular giving particulars of a variety of articles welded by their electrical apparatus. Included in them are an electrically-welded tyre rim and a motor hub, etc.

ALTHOUGH no accidents have been reported in Montreal, Canada, in spite of the rapid increase of motor-cars, an old ordinance limiting vehicle speed to six miles an hour has been dug up, which ridiculous rate it is proposed to apply to all automobiles.

MESSRS. DAVIES, BROS., of Llanelly, have recently introduced the Stepney Spare Motor-wheel illustrated herewith. The idea is that, instead of carrying a spare inner tube and cover a complete rim and tyre shall be kept in reserve on the car ready to be affixed to the side of the disabled wheel at any time, and so enable the motorist to drive home without delay, and without injuring the deflated tyre. The additional rim is attached to the side of the road wheel by means of clips and two thumb screws; the makers claim that it can be fitted within a minute without the use of any tools. thereby saving the unpleasant labour and loss of time entailed

A 22-28-H.P. Benz-Parsifal car has just been delivered to Prince Henry of Prussia.

AN automobile parade, in which no less than 228 motor-cars took part, was held in Chicago on the 21st ult.

MESSRS. J. WATERS AND COMPANY are opening a depot and small motor garage at 79, Hyde Road, Ardwick, Manchester.

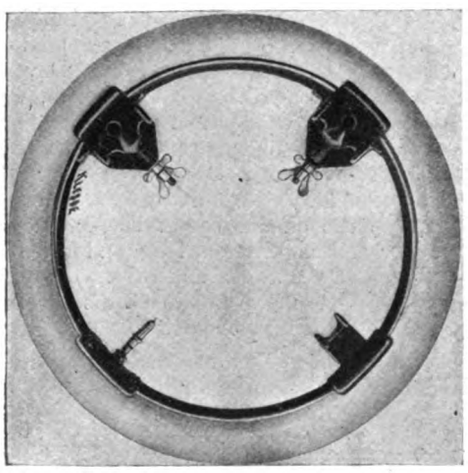
MAJOR DRINKWATER, J.P., of the Isle of Man, has become a motorist since the Eliminating Test there, having purchased a White steam car.

IT is stated that no less than 2,500 motor-cars passed through Rheims on the way to the French Eliminating course, the night before the great race.

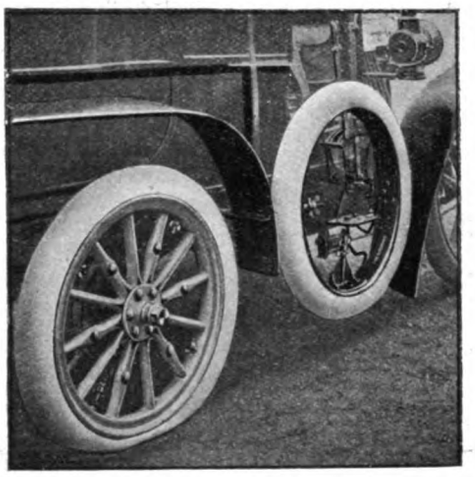
AMONG recent purchasers of the popular little Oldsmobile are the Right Hon. James Lowther, M.P., Sir Charles Hamilton and Lord Algernon Percy.

MR. DOUGLAS S. COX has taken over the premises at Thomas Place, West Norwood, London, S.E., lately occupied by Messrs. Weller Bros., Limited, and has opened the same as a Garage and Motor Works.

DRASTIC measures are being taken by the Automobile Club of Buffalo, U.S.A., to stop "scorching" on club runs. A police representative will be asked to accompany future runs, for the purpose of keeping the participants in line.



The Stepney Spare Motor Wheel.



View Showing Punctured Tyre, and one way of carrying Spare Wheel.



The Spare Wheel in Position.

n removing the damaged, dirty tyre, and the substitution therefor of a spare tyre. There is no pumping required on the road, as it is intended that the spare wheel should be always carried pumped hard, ready for use. The second illustration shows one of the many ways of carrying the wheel when not in use. When carried at the side or tail of car, a ring is made the same size as the rim of the road wheel, and the spare wheel clipped thereon. Many modern cars are made with a box underneath the tonneau for carrying a spare tyre, in which the spare wheel can also be carried.

THE Rochet-Schneider Company have lately completed a 50-h.p. eight-cylinder racing car. It weighs complete only 700 kilogs., and is fitted with wire road wheels.

MR. J. R. BROOKS, of Trinity Hall, Cambridge, entered his 28-h.p. Georges Richard car at the University Club Hill Climb for the Rothschild Cup last week, and obtained second place in 1 min. 9 secs. The first car was a 40-h.p. Mercedes, which made the ascent in 59 secs.

IN our last issue we stated that the Shrewsbury-Challiner Tyre Company, Limited, had orders in hand for forty complete sets of solid tyres. We are asked to mention that this is of the "Giant" and "Twin" type alone, for heavy motor vehicles, and does not include tyres of the Company's Cup section for lighter classes of cars, for which orders for about fifty complete sets of wheels and tyres are at present in course of execution.

WITH a view to encouraging motor-car traffic, the Southampton Dock Company have provided a tray similar to that of the Great Central Railway Company, illustrated in last week's *Journal*, for the more efficient handling of automobiles leaving their docks.

MESSRS. SIMPSON AND BAILEY, LIMITED, has been registered with a capital of £1,000, to acquire the business now carried on by Mr. A. L. Abraham at 14, Pembridge Road, Notting Hill, as Simpson and Bailey, and to carry on the business of manufacturers and factors of and dealers in motor-cars, etc.

THE Streets Committee of the Corporation of the City of London, in consequence of the great success of the motor dust-carts, have just been empowered to purchase two more at a cost of £750 each. It was stated that these carts were not only cheaper in working and repairing than horse vehicles, but they were a great advance in the matter of cleanliness.

THE largest single order so far secured by the Milnes-Daimler Company for public service vehicles is that which has just been placed with them by the Birmingham Motor Express Company, Limited. The contract in question is one for no less than forty double-deck omnibuses, which are to be delivered by the end of September next. It may also be interesting to mention that the Great Western Railway have now close upon thirty Milnes-Daimler vehicles in service.

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MOTOR CYCLING NEWS.

MESSRS. MECREDY, PERCY, AND COMPANY, LIMITED, have presented a valuable cup to the Committee of the Motor Cycle Union of Ireland. The offer has been accepted by the Committee of the Union and it has been decided to offer it in a competition confined to members of the Union to be ridden by teams of three riders, each rider to be mounted on the same make of machine, and the team doing the best performance to be declared the winners of the cup. A Sub-Committee have been appointed to consider the further details of the competition and to consider the possibility of running the event on the track at Ashtown, Dublin, or on the Velvet Strand at Portmarnock, where the recent competitions of the Union were held.

THE New York Motor-cycle Club has finally and officially set its seal of disapproval on leather clothing for motor-cyclists' wear. After six months of endeavour to agree on a suitable uniform, the club has adopted a suit of Scotch tweed of "pepper and salt" colour—a grey that is not too light to readily show oil stains, and not too dark to quickly show dust. The coat will be of the half Norfolk pattern, capable of being buttoned closely at the neck when occasion requires, and with more pocket room than usual. The trousers will be of the ordinary knicker-bocker pattern, or long trousers to be worn with leather leggings, as the individual member desires. The cap will be of the same grey material as the clothing.

THE Hertfordshire Automobile Club held a successful hill-climbing competition for motor-cycles on Saturday last, the hill chosen for the contest being Maples Hill, on the road between Boxmoor and Chesham. The gradient at the worst part is one in seven, and is never at any part of the hill better than one in nine. The competitors were weighed in at Boxmoor station, and then proceeded to the hill, which lies about three miles beyond Boxmoor, and where some thirty members and friends had assembled to watch the contest. There were six starters, these being Messrs. N. B. Kenealy (2¾-h.p. Bat), Dr. Ker (2¾-h.p. Bradbury) A. Hunt (2½-h.p. Kerry), B. Crump (3½-h.p. Trimo), W. S. Cole (2¾-h.p. F.N.), and C. Wood (2¼-h.p. Kerry). Only three succeeded in reaching the top of the hill. The following were the times made by those who succeeded in surmounting the hill:—Dr. Ker 21⅖ secs., Mr. A. Hunt 25⅗ secs., Mr. B. Crump 42⅕ secs. After deducting handicap allowance, Mr. Hunt was adjudged the winner. The handicapping was based upon the formula of multiplying the list horse-power with number of seconds taken in ascending the hill, and dividing by the weight in pounds of machine and rider.

ON Saturday the annual hill-climbing competition of the Sheffield and District Automobile Club took place so far as motor-cycles were concerned, on a course from Grindleford Bridge to Longshawe Lodge, with the following result:—

		M.	sec.	Marks.
1.	F. W. Oates, De Dion tricycle, 2¾-h.p, 4 cwt. ...	7	32	.. 21·6
2.	W. L. Gilder, Royal Enfield tricycle, 2¾-h.p., 3 cwt. 2 qr....	6	19	... 20·9
3.	W. James, Fairfield Griffin bicycle, 3-h.p., 2 cwt. 2 qr.	4	52	.. 19·1
4.	J. Walker, Devonshire tricycle, 3½-h.p., 4 cwt. 2 qr.	8	25	... 17·1
5.	C. Harlow, Majestic bicycle, 3-h.p., 2 cwt. 3 qr. ...	6	57	... 14·7
6.	F. B. Cawood, M.M.C. tricycle, 2½-h.p., 3 cwt. 1 qr.	11	42	... 13·7

THE Irish Motor Cycle Union challenge cup, presented by the Hon. Leopold Canning, D.L., which was won last year by the Belfast centre in competition with Dublin, was competed for on Saturday in a race from Dublin to Belfast. Mr. R. G. McTaggert marshalled the competitors at Drumcondra, whence the start was made, the route being through Swords, Balbriggan, Dunleer, Castlebellingham, Dundalk, Newry, Loughbrickland, Banbridge, Dromore, Hillsborough, Lisburn, and Balmoral, a run of 96 miles. The speed limit was twenty miles an hour, and those who did not exceed it, and went at a rate of not less than fifteen miles an hour, were to be entitled to the maximum marks (100). Every minute gained on the minimum time involved a deduction of five marks, and each minute or portion of a minute lost a like deduction, as also for every stoppage from any cause other than the exigencies of traffic. Besides the challenge cup, the donor gave three presentation silver champagne goblets to the three best of the winning team, the Dublin centre presenting a consolation guinea to the best performer of the defeated team. The teams were as follows:—

Dublin Team—T. W. Murphy (Singer), H. A. Evans (Singer), C. B. Franklin (F.N.), A. Somers (Triumph), R. Morrow (Quadrant), F. A. Wallin (Triumph), B. Gannon (Riley), L. R. Oswald Sealy (Brown), C. G. Grey (Bowden), H. S. Heiet (James), and W. B. Martin (F.N.)

Belfast Team—J. Holden (Rover), A. W. Hamilton (Ormonde), T. Denby (Riley), R. W. Ireton (Riley), P. S. Brady (Centaur), J. Brady (Centaur), T. Ireland (Humber), and J. M'Kee (Werner). The result was that Messrs. Evans, Murphy, Franklin and Gannon, of the Dublin team, each secured 100 marks, while two of the Belfast contingent, Messrs. Holden and Hamilton, obtained the maximum number of marks. Mr. T. Denby was credited with 95, and Mr. T. Ireland with 90. Dublin thus won by 15 marks.



Mrs. E. Rogers, a well-known American Lady Motor-Cyclist.

THE first of the 200-mile non-stop trials for the Edge trophy was held by the Motor Cycling Club on Saturday last. In order to better control the riders, the course selected differed from that of last year; it extended from Redbourne for a distance of 25 miles on the Coventry road, the competitors turning near Stony Stratford. The conditions under which the run is held provide that no competitor may cover less than 15 miles nor exceed 20 miles in one hour. No adjustments of any description are allowed. For the first trial there were thirty-three entries. The start was made at 6 a.m., the riders being despatched at intervals of a few seconds. The following successfully completed the run of 200 miles:—T. Silver, 2-h.p. Quadrant; H. P. Mays, 2¾-h.p. Vinco-Minerva; W. H. Wells, 2¾-h.p. Special Vindec; S. Bramley-Moore, 3½-h.p. Hulbert-Bramley; F. Hulbert, 2¾-h.p. Hulbert Bramley; T. Hooydonk, 3½-h.p. Ariel; W. A. Sale, 3-h.p. Quadrant; A. Hoffmann, 3½-h.p. Ariel; J. F. Crundall, 2¾-h.p. Humber; W. J. Milligan, 2¾-h.p. Bradbury; Chester Fox, 2¾-h.p. Special Vindec; E. F. Johnson, 2¾-h.p. Humber. The foregoing list is not official, as it is not unlikely that one or two may be disqualified for exceeding the speed limit.

ON another page will be found a short but interesting article by the Rev. R. W. Taylor on "Are Motor-Cycles Desirable for Clergymen?" taken from the columns of the "Motor Cycle Magazine," a monthly publication which has recently been started in New York.

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CORRESPONDENCE.

ACCUMULATOR TROUBLES.

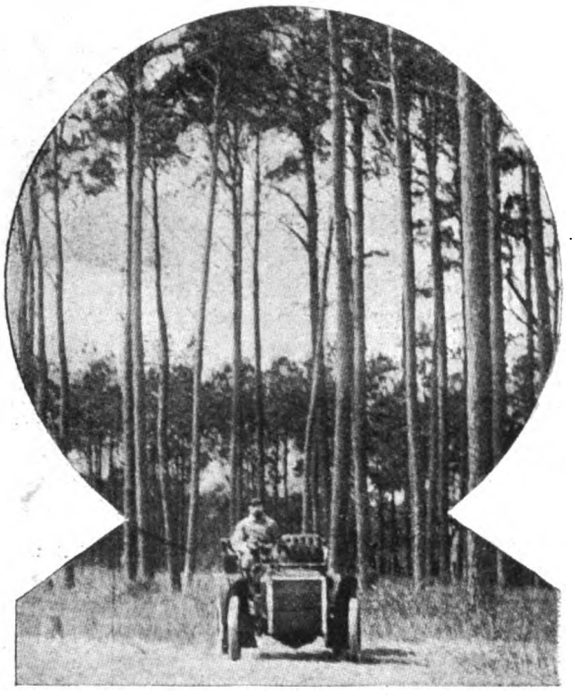
To the Editor of *The Motor-Car Journal.*

Sir,—I have been having some trouble recently owing to my accumulator constantly running down. I have taken all the wiring completely down, and can find no flaw in the same. Similarly I have tested the contact maker and other parts, but without locating any cause for the trouble. I recently went for a run, and having gone about forty or fifty miles found the accumulator had run down. The voltmeter at starting had registerd 4½ volts, and the car had run quite well up to the time of stopping, when the accumulator only showed about three volts.

I should also feel obliged if you or any of your readers could inform me how to stop the acid leaking out of accumulators.—Yours truly.

J. W. C.

[Provided that the voltmeter is accurate, and that no fault of an intermittent character exists in the wiring, the most probable cause of the trouble is that the accumulator requires fresh acid and rinsing out with water to clear all loose particles of material in the cell. The capacity of an accumulator rapidly declines when the density of the acid falls below a certain point, and if the acid is old, the voltage may fall as soon as the density has dropped below the amount that charging has brought it up to. J. W. C. should test a little of the acid with a hydrometer; to be correct it should be at 1·200 approximately. If it should be as low as 1·0 the accumulator cannot be properly charged.



A White Steam Car among the Pine Trees.

To prevent the acid leaking out of accumulators, many devices can be used, but they all depend upon whether the containing cells are ebonite or celluloid. Also, by leaking out, does J. W. C. mean actual leakage of the containing cells, or splashing out of the vents? The first can only be remedied by efficiently repairing the cells, the second can be effected by various forms of valve vents and by care in properly fixing the accumulator in the car. The acid can also be made unspillable by making it into a jelly with silicate of soda, but this reduces the capacity in time.]

STEAM CARS.

To the Editor of *The Motor-Car Journal.*

Sir,—The *Journal* of May 28th contained a letter by "Saunterer" on steam cars, asking for readers' experiences of the Locomobile. I have done a good deal of driving and repairing of Locomobile cars, and feel qualified to give an opinion to your enquirer. The vehicle is not a toy; some really remarkable work can be got out of one. I have not met a car to equal them in hill climbing. For an about-town car or for short distances of thirty miles or so they will take a lot of beating. I do not think they are so satisfactory for touring as a petrol car, the filling of water and petrol tanks takes up too much time on a journey; and, again, the wheel base is rather short, which makes the car, if driven fast over rough roads, rather shaky. They are not very fast, although a good average can be made. Your correspondent says "he is told the Locomobile is too flimsy for real use." They might look so, but they are not; the metal is put exactly where it is wanted, and where it is not wanted it is not put. This is not after the pattern of many English builders of motor-cars, who have a habit of putting great lumps of metal exactly where they are not wanted, and in places where metal is wanted it is omitted. The only things I have found to need attention in the Locomobile, with ordinary use, are—the air valve for pumping pressure in petrol tank sometimes leaks; the back band brake is rather inefficient, and in some of the older types the back wheel spokes used to break and chains stretch, but latterly this has been remedied. Your correspondent also asks "what is the cost of running," and also "can paraffin be used?" Twelve to fourteen miles per gallon of petrol is a fair average, but if a superheater is fitted (the Strickland is the best for this car) fifteen to eighteen miles per gallon can be made. I myself have found that all petroleum does not work satisfactorily, although an addition of 10 to 15 per cent. of petroleum to the petrol works very satisfactorily, without any alteration to the burners. The driving of this car is a pleasure. Care must be exercised to always keep the water level correct; the boiler soon runs short of water and scorches if this is not seen to. A good deal of time requires to be spent to keep them in good order. If "Saunterer" wishes to run these cars efficiently and economically, he must always keep a good steam pressure, say 180 to 220 lbs. per square inch, and always, as soon any leaks start, have them seen to at once. Have a car fitted with a Klinger gauge and not more than 2½ years old.—Yours truly,

A. I. Toby.

HIGH COMPRESSION.

To the Editor of *The Motor-Car Journal.*

Sir,—I have a 1¾-h.p. engine which would take hills in very good form with trailer when I first had it, but now I am unable to get up those hills alone without pedalling. The compression, when new, was very good for a new engine. I have come to the conclusion, now that the rings are well worn in, the compression is too high. I weigh eleven stone ten, and it takes a good training effort to get it over. Do you think my surmise is correct? If so, what remedy would you suggest, please?—Yours truly,

Supplant.

[High compression is undoubtedly the cause of "Supplant's" engine failing on hills—this because the engine is unable to keep up a good speed and the flywheels too light to carry over the compression. We would suggest hollowing the piston, if possible; or, if there is not sufficient metal to admit this, a new piston would be necessary, somewhat shorter than the one now fitted.]

IRREGULAR IGNITION.

To the Editor of *The Motor-Car Journal.*

Sir,—The other Sunday Mr. J. K. Heard went for a drive on his 8-h.p. M.M.C. to a place called Burnham, 18½ miles from Taunton, when a most peculiar instance occurred. The engine kept misfiring, then picking up again. He examined his wiring and took out the plug, all to no effect. On reaching home, the voltmeter was tried on the accumulator and found to be showing only 1·5 volts. Can you or any of your readers give me any idea of this strange thing? For a 8-h.p. car to carry two people a distance of at least twenty miles on an accumulator showing only 1·5 volts seems incredible, but I can vouch for the truth.—Yours truly,

H. Douglas.

[It is, of course, possible that under certain conditions, such as a very short spark gap, a very efficient coil, etc., an E.M.F. of 1·5 volts may effect more or less regular ignition; in fact, in the Benz cars of 1896–97 it was usual to run on one accumulator cell, two volts, and the coil was kept constantly at work, the secondary being "shorted" except at the moment of ignition. But then the compression was low. On the other hand, self-ignition where the compression is high and the engine runs rather hot may go far to help out a feeble spark. Another and not unlikely theory is that of mendacity on the part of the voltmeter. The number of incorrect instruments sold is scandalous, while to these must be added the further number which, trustworthy enough in their youth, become depraved by too close and violent association with the contents of the tool-box. A voltmeter is a delicate instrument, and deserves treatment as such if its needful accuracy is to be maintained.]

SECOND-HAND CARS.

To the Editor of *The Motor-Car Journal.*

Sir,—Each season witnesses a greater number of second-hand cars thrown on the market, to be disposed of to the best possible advantage. The owners get rid of them for one reason or another, the chief cause being a desire to purchase a more powerful car. There are fewer antiques disposed of each season, and it will be only a few years before they have been relegated to the scrap-heap.

The net result is that the second-hand car business is rapidly assuming a condition where it is no more necessary to "get stuck" in a deal of this kind than it is in buying a new car. Bad bargains can always be made, of course. The purchaser who wants something for nothing—or close to it—is likely to get pretty nearly what he deserves, as is his fellow who brushes aside advice and in a cocksure way rushes in where even experienced motorists fear to tread, and makes

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a bargain without having much idea of what he is getting. But these deserve, as they get, little sympathy. The one who is to be considered is the man who wants a good, serviceable car at from one-half to three-quarters the value of a new car of similar type. He can get just what he desires if he will but go about it in the right way. He needs to look carefully into the standing and reputation of the car. Pedigree counts for a great deal, and the car turned out by a concern which for years has built practical, reliable cars, and has a long list of satisfied customers to cite as evidence, is a good one to go in for.—Yours truly,

PLANTAGENET.

A WARNING.

TO THE EDITOR OF *The Motor-Car Journal.*

SIR,—With regard to the warning given by "Disgusted Pupil" in your issue of the 4th inst., we think it fair to inform your readers that the utmost charged by the School of Motoring in Liverpool—the first school of the kind in the country—for the instruction of intending chauffeurs is five guineas. Your correspondent has doubtless had bad luck in not having secured a position, but plenty of pupils who have passed through our school have secured positions; we, however, always refuse to secure situations for pupils, preferring to leave this matter to their own enterprise and initiative.—Yours truly,

ARCHIBALD FORD.

THE POLICE AT SOUTHAMPTON.

TO THE EDITOR OF *The Motor-Car Journal.*

SIR,—I notice in your last issue a paragraph reflecting on the police of Southampton, as you say they "are trapping motorists in a vindictive way, stopping drivers on the least suspicion and generally incurring the odium of those who motor." I do not know who your informant is, but I am sorry you should have based such a sweeping assertion upon his complaint. I cannot think that these attacks by the Press are likely to improve the condition of motorists. I have spoken to the hon. sec. of our Motor Union, and he, like myself, knows nothing of any of the difficulties you mention. We have both used our cars of late, and neither of us have been spoken to by any motoring friends on the subject. For my part I have never been interfered with by the police ever since I drove a car, in any possible way.—Yours truly,

SIDNEY TEBBUTT.

[The note was based upon information supplied by a correspondent whose reports have been found most reliable.]

WHEEL v. TILLER STEERING.

TO THE EDITOR OF *The Motor-Car Journal.*

SIR,—It was with great pleasure we read the letter of "A.B. 50" in a recent issue. But for the fact that wheel steering is fashionable and is used on racing cars, and that the whole question of steering gear is not understood by the public, we feel certain that for the touring car we should have seen the claims of properly-constructed lever steering much more widely recognised than they are at present, to the greater comfort of the car-driving public. No one who has once tried and got used to a good lever steering car would go back to the wheel except for sixty miles an hour work, where the wheel serves not only for steering but for "hanging on" to. The wheel is, after all, but a creature of circumstances, the result rather than the cause of a safe steering gear. It is bulky, expensive to construct, cumbersome and dangerous in case of accident, and it renders mounting and dismounting very awkward. It is the result of using worm gearing to counteract the reversing tendency of the ordinary vertical-socket steering gear, and with such a construction is more or less needed; but if the steering wheels are centred this reversing tendency is destroyed, and there is no need for either worm gearing or wheel, and the greater comfort and ease, rapidity and certainty of control obtained by the lever, as well as the freedom of access to the seats provided by its use, can be obtained without any disadvantage.—Yours truly,

THE DURYEA COMPANY.

A USEFUL HINT REGARDING TYRES.

TO THE EDITOR OF *The Motor-Car Journal.*

SIR,—I noticed in your paper recently a suggestion as to covering tyres with old covers. No doubt this would be a protection against puncture. But what about wet, say in washing the car; would not water penetrate between the covers, thus causing rot to set in?

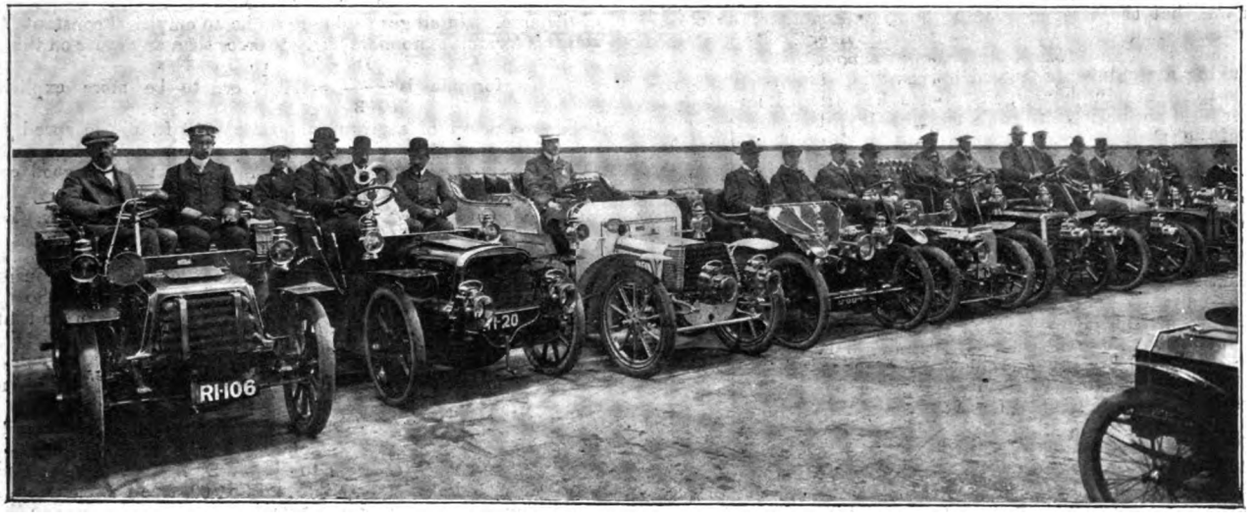
With regard to the query of "Would-be Motorist" *re* cars for Devonshire—I fancy an 8-h.p. M.M.C. would meet his requirements. I am the owner of one of these vehicles and speak from experience in this hilly district, *i.e.*, North Wales.—Yours truly,

E.Y. 29.

TYRES FOR THE GORDON BENNETT RACE.

TO THE EDITOR OF *The Motor-Car Journal.*

SIR,—Is it not more than a coincidence that the Club, in having voted against Earp, should have vetoed the only car not fitted with Dunlop tyres? I understand that Earp's tyres gave no trouble whatever, whereas this is far from the case with the rest. It certainly appears that the Dunlop Company are even unable to make a reliable touring tyre (*vide* Cecil Edge's 2,000 miles run), therefore it follows (and this is borne out by facts) that they cannot make a racing tyre.



A Group of Members and their Cars at the opening of the New Motor House and Club Rooms of the Irish Automobile Club.

Now I have come to the conclusion there is something wrong somewhere. Can it be that there is a want of competition between tyre manufacturers as to which is to have the honour of fitting tyres to the Gordon Bennett racers, and probably of having the proud boast that theirs was the winning tyre? It is the duty of the Club to choose the best tyre quite as much as the best car, and however good a car may be bad tyres will handicap it. Before it is too late, let the Club have a trial of other tyres, and choose that make which in all human probability can be more relied upon than the Dunlop.

As a subscriber to your valued paper since the first number, I ask you to insert this letter. If it is the means of opening a discussion which may help the Club to come to a right decision, it will not have been written in vain.—Yours truly,

(Rev.) F. A. VENABLES.

THE ENDORSEMENT OF LICENCES.

TO THE EDITOR OF *The Motor-Car Journal.*

SIR,—In your issue of May 21st, under the heading "The Endorsement of Licences," your criticism on the judgment of the magistrate for West Ham is surely in error.

A motor-cyclist who had left his licence at home was fined and his licence endorsed. As I believe the motor-cyclist pleaded guilty he cannot complain about the fine! Now what does the Act say about endorsing the licence in such a case? "And if the person convicted holds any licence under this Act *shall* (not *may*) cause particulars of this conviction and of any order of the court made under this section to be endorsed upon any licence held by him, etc."

It seems, therefore, quite plain to anyone of average intelligence that

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the magistrate has no option in the matter, and *must* order the endorsement of the licence.

I feel sure that Mr. R. A. Cillespie, the stipendiary for West Ham, has no bias against us motorists, so it is hardly fair to place him in the same category as certain county justices. The law may be a "hass," but a magistrate can only administer it as it is written, and this our genial stipendiary does, with such an admixture of sound common sense as makes me anxious that he should not be unfairly criticised for so doing.—Yours truly,

PH. D. (WEST HAM).

[What we feel is that forgetfulness or carelessness—or call it what you will—is not surely so great a crime as recklessness or driving furiously, and that even if there is no escape from endorsement the payment of costs might suffice as a warning in such a case.]

STEAM OR PETROL.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—Could any of your readers advise me which is the better car for work on really bad, rough roads—steam or petrol? Further, which of them gives the less trouble for winter work? In my case speed would not be a factor to be considered, as an average of ten to twelve miles an hour would be ample. Are the light two-seated cars now on the market strong enough for work on rough and steep gradients?—Yours truly,

MOUNTAINEER.

SOME EXPERIENCES.

TO THE EDITOR OF *The Motor-Car Journal*.

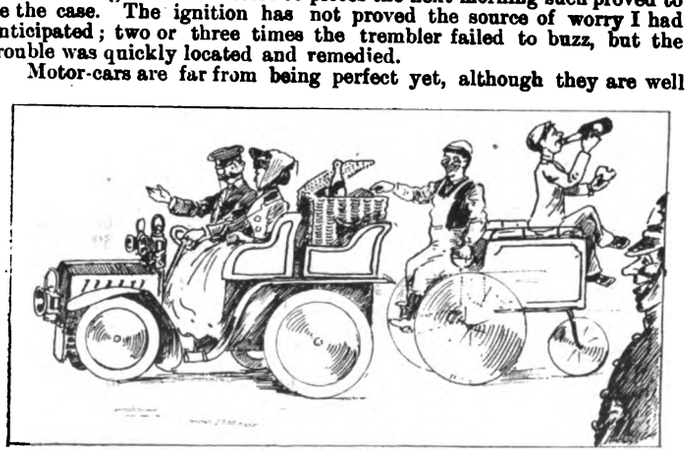
SIR,—Long before ever seeing a "horseless carriage" I wanted to own one; later two great fears developed and almost reconciled me to being without a motor-car—one fear was that the new vehicle would frighten so many horses that there would be but little pleasure in using it, the other was that the steering would require altogether too close attention and leave but little opportunity for enjoyment. By degrees these fears diminished, and eventually I bought a popular type of two-seated car having a single water-cooled horizontal cylinder.

In regard to frightening horses, experience has taught me that a careful driver need not hesitate to run a car from fear of it, for by a due observance of the speed limit and decent regard for the rights of others he will not be likely to experience trouble. The time has come when a motor-car is liable to be met on any public road, and it is pretty generally understood that the driver of a horse must be equal to the emergency, if such it should be called. It is pleasing to find that the majority of motorists are considerate enough not only to slow down but to stop both car and engine when a horse shows much fright, and it is to be wished, for the good name of automobilists in general, that all would do so. It must be admitted that it is exasperating to have a horse persist in being afraid when he meets his best friend, and it is anything but pleasing to be obliged to lose the headway that would have carried you up the next hill so nicely; but it is certain that these inconveniences are to endure but for a season, and the existing horses will be succeeded by an equine race both fewer in point of numbers and less troublesome to encounter.

It seems to be expected that whoever relates automobile experiences will tell of troubles, both those caused by faulty design or construction in the car and those occasioned by the inexperience of the driver. Perhaps my worst trouble came while on a trip in the Highlands one hot day last summer. When part way up a long zig-zag road, the engine began to behave strangely, and would run slower and with less power if the throttle was opened, instead of having the opposite effect. I did not think the trouble was in the ignition, but, still, changed the plug for a new one; of course no improvement followed. At length the engine would not only run slower, but would come to a full stop if the throttle was opened. At last we reached a village where the car was stabled for the night, while the tired and puzzled driver retired to rest and to wonder a good deal what was wrong. The conclusion arrived at was that some petrol passage had become clogged, and on taking the carburettor to pieces the next morning such proved to be the case. The ignition has not proved the source of worry I had anticipated; two or three times the trembler failed to buzz, but the trouble was quickly located and remedied.

Motor-cars are far from being perfect yet, although they are well advanced on the road to perfection, and I do not hesitate to advise any intending motorist to get a car without delay and enjoy life as he goes along. The man who waits for a perfect automobile will still be waiting when some of us have worn out at least one car, and got our money's worth, too.—Yours truly,

P. T. L.



EASY FORMULA FOR DETERMINING HORSE-POWER.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—The usual formula for computing horse power is more complicated than average men can or will use. If they, on the other hand, could get at these facts instantly by a simple mental process, more of them would inform themselves as to the probable power of the motor in their vehicle. Working towards this end the writer has prepared a table covering seventy-three American vehicles, and twenty-two foreign ones, and from this table has learned that the average rated piston speed of American vehicles is 778 ft. per minute; of foreign ones, 790. Since rated speeds are usually higher than the speeds commonly used, it is likely that 750 ft. piston speed per minute is a most satisfactory one, and since this has already been used as a standard maximum limiting speed, it seems advisable to base computations of automobile motors upon this speed. The table also shows that American motors develop a rated horse power for each 15½ cubic in. piston displacement, whereas European motors are rated at a horse power for each 12½ cubic in. displacement; also that 6,350 cubic in. per minute mixture burning capacity corresponds with a rated horse power in the American list and 5,625 cubic in. mixture burning capacity per horse power in the foreign list. From these figures a simple formula has been found by dropping the revolutions and stroke, since these vary inversely to produce the constant piston speed of 750 ft. per minute. Since the area of the piston varies as the square of diameter, the readily ascertained diameter may become the basis of computation instead of the area. In all gas engine formulæ an empirical constant is necessary, and this formula is no more likely to error than any other on this account.

This formula is $\frac{D^2}{3}$ = H.P., or, to be more explicit, to find the horse power of a given cylinder at 750 ft. piston speed per minute square the diameter and divide by 3. The result will be as high power as may be reasonably expected from a good motor in good condition.—Yours truly,

CHAS. E. DURYEA.

OWNER WANTED.—Mr. W. A. Wigram, of Hersham House, Hersham, near Walton, has an accumulator belonging to a motorist whom he recently assisted at Walton, and will be pleased to hear from him, so that it may be returned.

AHOY POLISH.—We have received several inquiries for the address of the Hansa Chemical Works, the makers of the "Ahoy" liquid metal polish. Can any reader supply it?

HULL.—Alderman Holder suggests that Hull would be a good manufacturing centre for the automobile industry.

MILDE CARS.—Replying to Mr. J. D. Adams, the Mildé electric carriages are made by Messrs. Mildé and Co., 60, Rue Desrenaudes, Paris.

KOSMOS TREADS FOR PNEUMATIC TYRES.—In answer to the inquiry in a recent issue, Mr. J. Foster, of 422, Birkbeck Bank Chambers, E.C., writes to say that he is the English agent for the Kosmos detachable non-skid device.

MOTOR-CAR CHAINS.—Replying to W. O., the J.C. chains for motor-cars are made by M. J. Conte, 38, Rue des Panoyaux, Paris.

PETROL IN READING.—Replying to A.391's letter in *The Journal* for the 14th ult., Messrs. Watts and Co., of 28, Caversham Road, Reading, write that their premises are open day and night, and that petrol can be supplied any day of the week, Sundays included.

PATRICK METAL.—Replying to several inquirers, the "Patrick" metal referred to in a recent issue is being introduced by Messrs. J. C. Lyell and Co., Ltd., 55, Victoria Street, Westminster.

A TOOL-BAG belonging to a motor-cycle and an axle-cap for a large car, have been found and taken to Mr. C. W. Burnell's garage, Rugeley, Staffs.

PETROL SUPPLIES IN SETTLE.—A reader of the *Motor-Car Journal* writes:—"Requiring motor spirit in Settle (Yorks) one Sunday, I enquired at two shops carrying Pratt's advertisement plates, but learnt that the people did not sell on Sundays. It may be useful to motorists to know that they can obtain spirit in Settle on any day of the week from Mr. Slinger (well known there as "Electrical Bill"), who is repairer to the C.T.C. and Automobile Club."

PARAFFIN BURNERS FOR STEAM CARS.—Replying to a number of enquirers, we believe the National Burner Company referred to by a recent correspondent is the National Crude Oil Burner Company, of Des Moines, Iowa, U.S.A.

A USEFUL TIP.—A correspondent writes:—"Thirty miles an hour is forty-four feet per second. In a police-court case, a witness (the usual bucolic gentleman) will swear to thirty an hour, but, if asked whether he thinks the car was travelling forty-four feet per second, he will probably say 'no.' This is a useful method of upsetting the evidence of the usual police-court witness."

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GLASGOW TO LONDON RELIABILITY TRIAL.

THE Scottish Club Committee have carefully considered the Observers' Records on the various vehicles entered, and have approved and adopted the following tabulated report. Certificates will be issuod in respect of the vehicles which completed the entire distance, in accordance with the results shown, in due course. The Committee desire to record their indebtedness to the officials and members of the Yorkshire, Lincolnshire, and Hertfordshire Automobile Clubs, who afforded them valuable assistance in connection with the Trial; to Messrs. T. Swindley and F. Straight, who acted as timekeepers at Woodcock Hill-Climbing Trial; to Mr. Basil H. Joy, the technical secretary of the Automobile Club of Great Britain and Ireland; to the gentlemen who acted as honorary observers on the cars; and to many others who assisted them in various ways at different portions of the route. The highest number of marks possible for reliability was 1,000. One mark was deducted for every minute, or part of a minute, during which the vehicle was at rest from start to conclusion of the Trial, with the exception of compulsory stops at Penrith, Leeds, and Stamford, and stops for traffic or by order of a club steward. One mark has also been deducted for every minute in excess of the maximum time allowed for each stage. At Penrith, Leeds, and Stamford, 30 minutes were allowed for replenishing and lubricating, and time was taken one minute after the order to start the engine was given. Only two gallons each of petrol and water, other than that contained in the usual tanks might be carried.

The marks for the Hill-Climbing Test on Woodcock Hill, Elstree, were arrived at on the basis of the following formula:—

$$\frac{(w \times 60 \times L) + (W \times h) + \frac{(W \times v^2)}{2}}{a \times n \times s \times \left(\frac{G}{D\pi}\right)}.$$

EXPLANATION OF SYMBOLS.

w = Laden weight of car in tons.
L = Length of hill in feet.
W = Laden weight of car in lbs.
h = Height of hill in feet.
v = Velocity in feet per second.
a = Area of piston in square inches.
n = Number of cylinders.
s = Stroke in inches.
G = Gear ratio or number of revolutions of engine for one revolution of road wheel on lowest gear.
D = Diameter of road wheel in feet.

Woodcock Hill is 710 feet in length, 62·62 feet in height, and has an average gradient of 11·3 and a gradient of 7·3 at one portion.

A Gold Medal is awarded in each class to the vehicle having full-marks for reliability making the best results in the Hill Test, as determined by the formula. The Gold Medals have been gained by the vehicles whose entry below is followed by the letter G.

By authority of the Club Committee,

GLASGOW, *7th June*, 1904. ROBERT J. SMITH, C.A., *Hon. Secretary.*

Description of Car.	Starting Order Number.	Name of Entrant.	Approximate Weight Unladen.	* Description of Tyres.	Marking for Reliability.			Hill Climb.	
					Deductions for Stops		Marks Gained.	Miles per Hour.	Marks Gained on basis of Formula
					For Tyre Troubles	For Mechanical or other causes.			
I.—CLASS A.	PETROL	VEHICLES HAVING ONE CYLINDER.							
6-h.p. Vauxhall	8	P. C. Kidner	6½ cwt.	Dunlop	—	7	993	5·42	1405
6½-h.p. Cadillac	21	Anglo-American Motor Car Co., Ltd.	11 cwt.	Clincher	19	22	959	7·65	2225 G
6-h.p. Light Wolseley (G)	26	Rennie & Prosser, Ltd.	8½ cwt.	Dunlop	—	—	1000	9·60	3129
II.—CLASS B.	PETROL	VEHICLES HAVING TWO CYLINDERS.							
12-h.p. Gladiator	2	Thomas Shaw, Ltd.	15 cwt.	Dunlop	20	—	980	8·17	2089
10 h.p. Argyll (G) ...	4	Hozier Engineering Co., Ltd.	13 cwt.	Clincher-Michelin	—	—	1000	8·34	2152
10-h.p. Rykniel	7	Rykniel Engine Co., Ltd.	15¾ cwt.	Continental	—	2	998	4·79	1773
12-h.p. Richardson ...	9	J. R. Richardson & Co., Ltd.	17 cwt.	Michelin	15	13	972	7·44	2109
12-h.p. Eagle Light ...	12	Eagle Engineering and Motor Co., Ltd.	10½ cwt.	Michelin	—	—	1000	8·76	1469
12-h.p. Arrol-Johnston ...	13	Mo-Car Syndicate, Ltd.	26 cwt.	Shrewsbury-Challiner solid	—	—	1000	5·77	1336
12-h.p. Siddeley	17	Siddeley Autocar Co.	16 cwt.	Continental	—	2	998	8·23	2146
12-h.p. De Dion	22	J. W. Stocks	16 cwt.	Dunlop	—	25	975	8·43	2966
16-h.p. Maxim	24	The London General Automobile Co., Ltd.	21½ cwt.	Continental	25	—	975	5·96	2395
6-h.p. Cronan	28	F. W. H. Garner	13 cwt.	Michelin	20	150	830	Time on hill not recorded	
8½-h.p. Humber	29	Humber, Ltd.	12½ cwt.	Clincher	19	54	927	7·75	2546
8-10-h.p. Vulcan	31	Scottish Motor Garage Co., Ltd.	13 cwt.	Clincher	—	116	884	Time on hill not recorded	
III.—CLASS C.	PETROL	VEHICLES HAVING THREE OR MORE CYLINDERS.							
16 h.p. Sunbeam	1	John Marston, Ltd.	18 cwt.	Continental	—	39	961	Time on hill not recorded	
14-h.p. Renault, 1904 ...	3	Roadway Autocar Co., Ltd.	15 cwt.	Clincher-Michelin	—	1	999	10·56	3039
12-h.p. Argyll	5	Hozier Engineering Co., Ltd.	16 cwt.	Clincher-Michelin	—	50	950	1·52	1177
16-h.p. Argyll	6	Hozier Engineering Co., Ltd.	16½ cwt.	Clincher-Michelin	—	2	998	11·41	2614
16-20-h.p. Martini ...	10	H. H. P. Deasy & Co., Ltd.	22 cwt.	Continental	45	—	955	15·03	3301
24-h.p. Eagle Light ...	11	Eagle Engineering and Motor Co., Ltd.	15 cwt.	Michelin	—	—	‡—	—	—
12-h.p. Sunbeam	14	John Marston, Ltd.	17 cwt.	Collier	—	—	1000	10·56	2631
12-h.p. Pipe	15	London Motor Garage Co., Ltd.	16 cwt.	Michelin	22	—	978	11·05	2443
16-h.p. Rochet-Schneider .	16	Morgan Donne	19 cwt.	Clincher-Michelin	—	9	991	11·69	2656
20-h.p. Spyker	18	J. W. Broadhead	20 cwt.	Collier	—	—	—	—	—
24-h.p. Delahaye	19	Saxon Motor Co., Ltd.	19 cwt.	Michelin	—	8	992	13·91	2745
18-h.p. James and Browne	20	James & Browne, Ltd.	18 cwt.	Palmer	—	—	1000	9·79	2201
18-h.p. Baudouin-Dechamps	23	J. J. Leonard & Co.	1050 kilos.	Michelin	†—	—	—	—	—
20-h.p. Thornycroft (G) ...	25	Thornycroft Steam Wagon Co., Ltd.	19 cwt.	Palmer	—	—	1000	12·54	2733
18-h.p. Siddeley	27	Rennie & Prosser, Ltd.	18½ cwt.	Palmer	—	40	960	12·22	3276
18-h.p. Renfrew	30	Scottish Motor Garage Co.,Ltd.	18 cwt.	Clincher	—	—	—	—	—

* All pneumatic tyres except No. 13.

† Car withdrawn at Leeds owing to trouble with expanding friction clutch.

‡ Gear shaft seized in Leeds before reaching storage depot; non-stop to that point.

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HOW TO GET TO HOMBURG.

Homburg, which is the headquarters of the German, English, and French Automobile Clubs on the occasion of the Gordon Bennett Race, to be held on Friday next week, is in the province of Hesse Nassau, Germany, about 10 miles north-west of Frankfort-on-the-Main. It is essentially a town of pleasure, and every preparation is made for the comfort of visitors. There are several large thermal bathing establishments, and also a magnificent kursaal, where meals are served in the open air, and at reasonable rates. The public park is supposed to be one of the finest in Europe, and contains among other things twenty-six tennis courts, a golf course, and many croquet grounds. With its dainty dinner parties, its fashionable dances, it society functions, Homburg in some respects suggests the haunt rather of vigorous health than the invalid. It stands on the slopes of the Upper Taunus. Fine roads climb the green heights up to Langenschwalbach, whence there is a delightful run down to Wiesbaden or the Rhine, or down the Aar Valley to Limburg and Ems on the Lahn, a route little known, and thence by the Lahn back to Coblence. There is a fine mountain excursion to Frankfort, by way of Königstein and Cronberg, the beautiful Taunus home of the late Empress Frederick, returning to Wiesbaden or Mayence. Or from Königstein or Cronberg the excursion can be continued to Homburg, taking the Great Feldberg, the highest point in the Taunus, on the way.

The following information concerning rates, etc., has been supplied by the various railway and steamship companies concerned:—

SOUTH EASTERN AND CHATHAM RAILWAY.

The South Eastern and Chatham Railway offers three separate routes to Homburg, viz.:—

		A. *Via* Dover-Calais.	B. *Via* Dover-Ostend.	C. *Via* Queenboro'-Flushing.
Charing Cross ..	..dep.	9 a.m.	—	—
Victoria ..	..dep.	—	1.30 p.m.	8.25 p.m.
Calais ..	..dep.	12.52 p.m.	—	—
Ostend ..	..dep.	—	8.40 p.m.	—
Flushing ..	..dep.	—	—	5.15 a.m.
Brussels ..	..dep.	5.10 p.m.	11.24 p.m.	—
Cologne ..	..arr.	11.12 p.m.	5.40 a.m.	12.12 p.m.
Cologne ..	..dep.	9.17 a.m. (next day.)	8.10 a.m.	12.27 p.m.
Frankfort ..	.. arr.	1.20 p.m.	12.17 p.m.	4.18 p.m.
Homburg ..	.. arr.	2.16 p.m.	1. 7 p.m.	5.16 p.m.

The German times are liable to slight alterations.

By Route A, *via* Dover-Calais, a through carriage is run from Calais to Cologne, and also a restaurant car between Brussels and Verviers. By Service B, *via* Dover-Ostend, a through carriage and also a sleeping car are run between Ostend and Cologne. The supplement for the sleeping car is 10s. 2d. per place, and accommodation therein should be ordered beforehand at the Sleeping Car Company's London office, 20, Cockspur Street, S.W. By Service C, *via* Queenboro'-Flushing, single berths and deck cabins (containing two berths) can be reserved beforehand. The charge for each single berth is 2s., and for each cabin £1, and these charges are payable on board the steamer. A restaurant car is attached to the train from Flushing to Cologne. A charge of 2s., payable on the train, is levied by the German railways for the corridor train.

The return journeys can be made as follows:—

	A. *Via* Calais-Dover.	B. *Via* Ostend-Dover.	C. *Via* Flushing-Queenboro'.
Homburg	10.15 p.m.	11.10 p.m.	10.15 p.m.
Cologne	5.28 a.m.	4.10 a.m. Ostend.	5.28 a.m. Flushing.
Calais	3.15 p.m.	9.25 a.m. Charing Cross.	10.20 a.m.
Victoria	6.45 p.m.	4.55 p.m.	7.15 p.m.

B. First Class only with extra fare.

The time taken by the various routes is approximately as follows:—*Via* Dover-Calais, 23 hours. *Via* Dover-Ostend, 23¼ hours. *Via* Queenboro'-Flushing, 22 hours.

Return fares between London and Homburg:—

	Via Dover-Calais.	*Via* Dover-Ostend.	*Via* Queenboro'-Flushing.
	£ s. d.	£ s. d.	£ s. d.
First Class	6 19 7	6 1 10	5 1 4
Second Class	5 2 8	4 9 6	3 10 1

Tickets are available for 45 days.

Rates for Motor-Cars.

Cars are not carried on the steamers between Dover and Ostend.

Between Dover and Calais cars are conveyed by mail boat only by special arrangement with the South-Eastern and Chatham Railway Company's Marine Superintendent at Dover Harbour, but they are carried by the cargo boat any night, Sundays excepted. Cars must be embarked before dusk. For the return journey, from Calais to Dover, cars must be on the quay by 6 p.m. The company's agent in Calais is Captain E. H. Blomefield, Quai Paul Devot. The cost of transport for four-wheeled cars, uncrated and at owner's risk, is £4, or £5 5s. at company's risk. An additional charge of 6 fr. is made at Calais for landing or shipping cars. A through rate from London may be obtained from the company.

By the Flushing route only a limited number of cars can be carried, and the Superintendent (Mr. Flood-Page) must be advised beforehand. At Queenborough Pier cars are shipped by platform crane. No car exceeding three tons in weight can be dealt with by this route, and vehicles cannot be shipped on Sundays. On the reverse journey, from Flushing to Queenborough Pier, cars are wheeled on board by means of a chute, and are carried by the ordinary mail boat, which leaves Flushing daily at 10.25 a.m. Vehicles must be on the quay not later than 9 a.m. The company quote for four-wheeled cars uncrated a rate of £4 at owner's risk (for accompanied vehicles only).

GREAT EASTERN RAILWAY.

London to Homburg *via* the Hook of Holland or Antwerp.

Passenger service to and from Homburg *via* Harwich and the Hook of Holland, daily (Sundays included):—

London (Liverpool Street)	.. dep.	8.30 p.m.
Harwich (Parkeston Quay)	.. „	10.0 „
Hook of Holland	.. „	5.33 a.m.
Cologne	.. „	12.27 p.m.
Frankfort-on-Main	.. „	4.18 „
Homburg	.. arr.	5.16 „
Homburg	.. dep.	12.54 p.m.
Frankfort-on-Main	.. „	1.42 „
Cologne	.. „	6.10 „
Hook of Holland	.. „	11.20 „
Harwich (Parkeston Quay)	.. „	6.30 a.m.
London (Liverpool Street)	.. arr.	8.0 „

Fares from London and all Great Eastern Railway Company's Stations (except Peterborough):—

	Single. 1st Class.	Single. 2nd Class.	Return. 1st Class.	Return. 2nd Class.
	£ s. d.	£ s. d.	£ s. d.	£ s. d.
To Hook of Holland ..	1 9 0	0 18 0	2 5 0	1 9 0
„ Antwerp	1 6 0	0 15 0	2 0 0	1 4 0
„ Homburg, *via* Hook of Holland	3 8 10	2 7 2	4 18 3	3 7 8
„ Homburg, *via* Antwerp	3 7 5	2 6 0	4 18 3	3 7 10

Rates for Motor-Cars.

London (Liverpool Street) to	Hook of Holland Quay	84s. each, not exceeding 1½ tons in weight.
„ „ „	Rotterdam Quay	
„ „ „	Antwerp Quay	
London (Bishopsgate Goods Station) to	Hook of Holland Quay	45s. per ton, not exceeding 2 tons in weight.
„ „ „	Rotterdam Quay	
„ „ „	Antwerp Quay	
Harwich to	Hook of Holland Quay	60s. each, not exceeding 2 tons in weight.
„ „	Rotterdam Quay	
„ „	Antwerp Quay	

The space on the Great Eastern Railway's steamers is limited, and it is necessary to give at least 24 hours' notice of intention to ship cars to Captain Howard, Marine Superintendent, Parkeston Quay, Harwich. If the tide serves cars are run on board the steamer at Harwich, otherwise they are slung by their axles.

The distance by road from the Hook of Holland to Homburg, *via* Rotterdam, Gorinchem, S'Hertogenbosch, Boxtel, Roermond, Haardt, Rheindahlen, Odenkirchen, Stommeln, Bocklemund, Cologne, Bonn, Coblence, Mayence, Frankfort, is 530 kilometres (about 330 miles), and from Rotterdam to Homburg 500 kilometres (about 310 miles). The distance from Antwerp to Homburg, *via* Herenthals, Moll, Lille, Hamont, Roermond, and thence as above is about 470 kilometres (about 292 miles). The roads, generally speaking, are good.

CLAIM FOR DAMAGES.

At Newcastle County Court, Percival John Purdy, of Manchester, was sued for £50 damages for injury done by his motor-car to a butcher's cart, driven by George Smith. The defendant admitted that he drove past the plaintiff at ten miles an hour, although the plaintiff was holding the horse with both hands. His Honour, Judge Greenwell, said that whether a man was driving a motor-car, coach and four, or any other vehicle, if he saw a man struggling as Smith was, he should not drive at ten miles, four miles, or two miles an hour, it being his duty to stop until it was safe for him to go past. That seemed to him (the speaker) to be the law of the country, and he intended to act upon it. Judgment would be given for the plaintiff for £40 and costs.

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CLUBS AND ASSOCIATIONS.

NORFOLK.

THE second meet of the Yarmouth, Lowestoft, and Beccles section of the above club was held at the Bridge Hotel, Potter Heigham, on Thursday of last week. Among those present were Mr. and Mrs. A. E. Lark, Yarmouth, 12-h.p. Brooke; Mr. and Mrs. H. W. Williams, Norwich, 4½-h.p. De Dion; Mr. and Mrs. Maudsley Brooke, Lowestoft, 14-h.p. Brooke; Mr. J. Griffin, Norwich, 12-h.p. Gladiator; Mr. and Mrs. Estcourt, Wroxham, 14-h.p. Brooke; Mr. E. King and Mrs. Bradley, Yarmouth, 8-h.p. Daimler; Mr. and Mrs. W. W. Williams, Norwich, 4½-h.p. De Dion; Mr. and Mrs. Mayer, Gorleston, 10-h.p. Swift; Mr. and Mrs. Addison-Williamson, Yarmouth, 5-h.p. Locomobile; Mr. H. L. Clarke, Norwich, 6-h.p. De Dion. There were also present Mr. J. Brooke, with his new 14-h.p. racing motor-launch Baby, and Mr. Bruce Leach, with his motor-boat, Stormy Petrel (Brooke 14-h.p. engine). Mr. Brooke ran trips with the Baby, several members of the club, with their friends, embarking, and all were much impressed with the performance of the boat. A bountiful tea having been enjoyed, the members left for home at 6 p.m. after a most successful meet.

YORKSHIRE.

A COMMITTEE meeting of the Yorkshire Club has just been held, Mr. Penrose Green in the chair, to consider the question of having a motor gymkhana, and during the evening a telegram was received from the Town Clerk of Harrogate asking for a deputation of the Y.A.C. to meet the committee at the municipal offices, and try and make the preliminary arrangements. On Thursday of last week Mr. Penrose Green drove the hon. secretary, Mr. A. W. Dougill, on his car. Mr. Walter Jackson went with Mr. King and met at the municipal offices. A full committee was present, with Councillor Holgate in the chair, and after hearing the views of the club, the Corporation Committee gave an unqualified welcome to the deputation, stating they would be pleased to assist in any way possible. They then elected three of their number, Alderman Milner and Councillors Holgate and Binns, as representatives on a special committee to be formed for carrying out the gymkhana arrangements. The committee paid a visit (per motor-cars) to the various grounds in Harrogate, and, after inspecting the Strat Football Ground and Cricket Ground, decided that the latter was most suitable, and are at present arranging for use of same. This ground is a magnificent one for the purpose, and the probable date is July 25th. The gymkhana will be open to all private owners of cars or cycles. It was suggested that the gymkhana should be preceded by a motor parade and prizes given for the smartest car and also for the best decorated car. Further particulars will be given in later issues of the *Journal*.

—The hill climbing trial of the year was proposed for Pool Bank, but Mr. King named a hill which was considered more suitable. It was duly inspected and tried, and found much steeper and on a quieter road (being situate between Beckwithshaw and Killinghall, and locally called Po Bank). The gradient appears about 1 in 6, and has two bends, but almost the whole length of course can be seen from the bottom. Mr. Jackson has promised to survey the hill, and the Superintendent of the West Riding Police (in whose division it is) has promised to meet some members of the Y.A.C. on the spot next week.

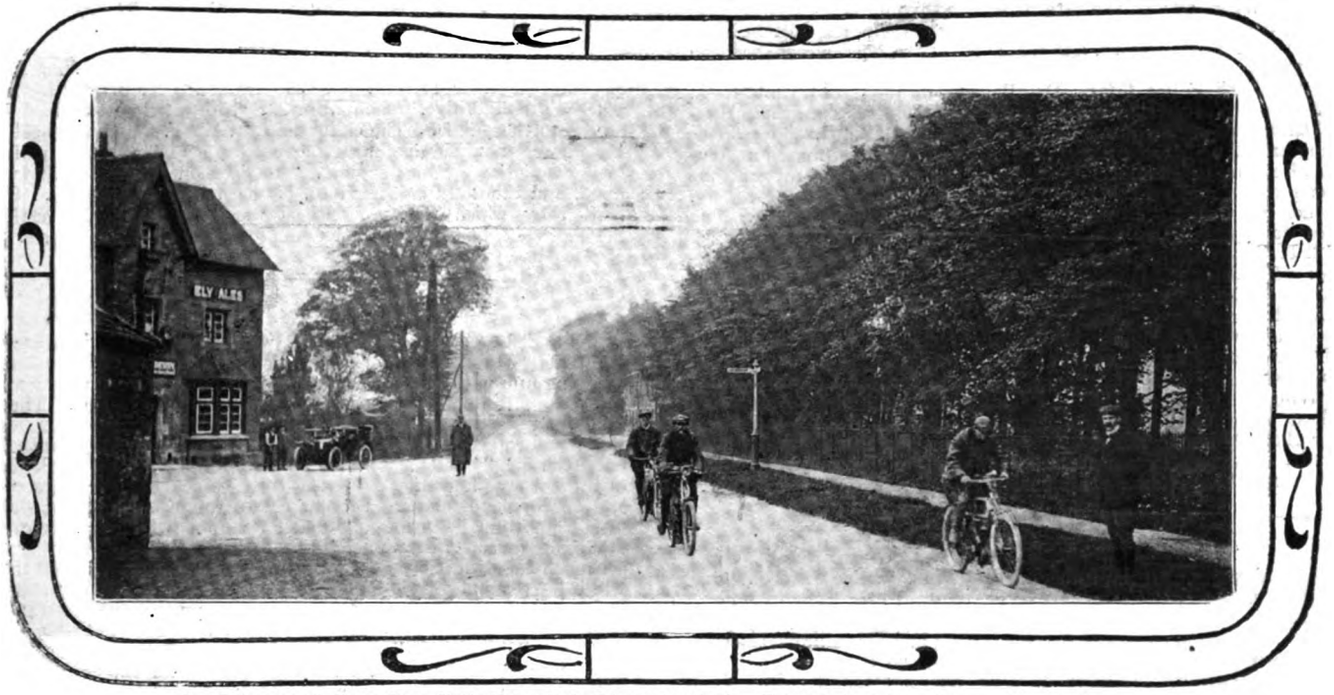
The hon. treasurer and hon. secretary have been busily engaged in getting assistance for Mr. Rees Jeffreys in the Beverley and Todmorden speed limit enquiries.

WOLVERHAMPTON.

ON Saturday last the members of the Wolverhampton and District Club had their first non-stop run of the season to Llangollen. Twelve cars were entered, all of which completed the journey without any mechanical or tyre troubles. Altogether thirty-four members and friends met at the Royal Hotel, Llangollen, and returned on Sunday afternoon, a most enjoyable week end having been spent. The following members drove:—Messrs. J. O. Evans, 10-h.p. Wolseley; H. W. Evans, 10-h.p. Wolseley; George H. Evans, 10-h.p. Wolseley; S. R. Rhodes (secretary), 16-h.p. Ariel; T. F. Young, 15-h.p. Star; W. G. Owen, 10-h.p. Wolseley; E. Lisle, 12-h.p. Star; J. Lisle, 12-h.p. Star; F. C. Bishop, 7-h.p. Star; T. T. Mills, 8-h.p. Sunbeam; F. B. Corker, 6-h.p. Sunbeam; Dr. Pratt, 6-h.p. Mobile.

PETERBOROUGH.

THE reliability trial organised by the Peterborough and District Motor Cycle Club has created very great interest in the district. Starting from Peterborough, the fifty miles was reached at the "John Bull," on the hill to the south of Lincoln, and here the riders were checked, Mr. R. M. Wright, Lincoln, a well-known cyclist and motorist, doing duty each time. The three who finished were Mr. C. Holmes 3½-h.p. Vinco; Mr. T. Woodman, 3-h.p. Lightfoot; and Mr. H. Brown, 2¼-h.p. Bradbury, and they arrived together at 11.30 a.m. on Thursday morning of last week, taking two hours and a half for the fifty miles, or twenty miles per hour. After checking and filling up their tanks with petrol they got away together and all three finished without a failure of any sort. Another run of fifty miles was taken, and in this Brown fell out. After a short rest, a further run of twenty-five miles was taken, but both Holmes and Woodman kept in so that another run becomes necessary.



The Peterborough Motor Cycle Club's Motor Cycle Eliminating Trials. The last three competitors making for home.

STOCKTON.

THE opening meet of the Stockton Automobile Club was held on Thursday of last week, the rendezvous being the Hardwicke Arms Hotel, Sedgefield. About a dozen cars assembled, and their occupants, having partaken of tea, held a business meeting, under the presidency of Mr. T. E. Atterby, J.P. Mr. J. Nattrass (hon. sec.) reported that Mr. F. B. Watson had consented to act as hon. solicitor to the club. The election of president and vice-president, the adoption of rules, and the question of affiliation with the Motor Union, were deferred, as also was the admission of motor-cyclists as members of the club.

SCOTTISH.

A MEET of the western section of the Scottish Automobile Club took place at Tarbet Hotel, Loch Lomond, on Saturday afternoon last. There was a large turnout of cars, carrying well over a hundred members and their friends, who took tea in the hotel during the afternoon. It was a perfect day for motoring, and a number of members varied the route *viâ* Luss by going or returning by Whistlefield and Arrochar or Ardlui and Callander.

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CASES DISMISSED.

At the Wigston Police Court, on Saturday, Colonel Cyril Martyr, of Stoughton, was summoned for recklessly driving a motor-car at South Wigston on the 23rd ult. After a lengthy hearing the case was dismissed.

Herbert Burbridge was summoned at East Grinstead for driving a motor-bicycle without a licence at Forest Row on April 9th. Mr. F. S. White defended, and entered a plea of not guilty. P.C. Edwards said he stopped defendant because his light did not show up the number-plate. He then asked him for his licence, and defendant said he had not got it with him. At that Court on April 25th defendant said he had no licence when he was stopped, but that he applied for one a day or so afterwards. Mr. White explained that defendant had taken the machine to Forest Row for a trial. At the time he saw the constable he was not driving it, and was not actually on the highway. The summons was dismissed.

At Stony Stratford Petty Sessions, Percy Martin, of Coventry, was summoned for driving his car to the danger of the public at Potterspury, on April 26th. Mr. W. R. D. Adkins defended, and pleaded not guilty. Sergeant Robinson said a measured quarter-mile was covered in twenty-five seconds. Mr. Adkins having addressed the Bench, called the defendant, who said when the police-sergeant signalled he was travelling at the rate of fifteen or sixteen miles an hour. The Bench considered that there was a doubt as to whether the pace travelled was dangerous to the public, and dismissed the case. Superintendent Norman gave notice of appeal.

The engineer to the Birmingham Waterworks, Mr. T. Nash, was charged at Kidderminster with recklessly driving a motor-car, and the case was dismissed. According to the police evicence, Mr. Nash drove down a hill in the town at the rate of twenty-five miles an hour. This Mr. Nash disputed, saying that for the greater part of the hill he only drove at fifteen miles an hour, and when he approached a cross road he reduced the speed to about seven miles.

At the Bath Police Court, Dr. Benson, of 1, Oxford Row, Bath, was summoned for driving a motor-car in Milsom Street at a furious rate. Defendant pleaded not guilty. P.C. Miles stated that he saw the car being driven up Milsom Street at a speed which he estimated at fourteen or fifteen miles an hour. Defendant denied that he drove at the speed suggested, and said that he disapproved strongly of motor-racing. The Bench found that the evidence did not suffice for a conviction, and the case was dismissed.

Mr. F. Barbour, of Stratford-on-Avon, was summoned at Stony-Stratford for driving his motor-car to the danger of the public near Loughton, Bucks. Three policemen gave evidence for the prosecution, and alleged that defendant was travelling at thirty miles an hour. The case was, however, dismissed. Mr. Staplee Firth was for the defence.

Mr. Paternoster, chauffeur to Mr. Ean Cecil, of Stevenage, Herts, was summoned at Ottery St. Mary, Devon, on Tuesday, the 7th June, for driving a motor-car to the danger of the public, and the defendant was alleged to have driven the motor-car in such a reckless manner that a horse bolted and smashed up a trap, injuring the occupants. The magistrates ultimately found that the motorist was not to blame and the summons was dismissed.

AN M.P.'s MOTOR-CAR.

On Monday the hearing was begun, before Mr. Justice Grantham and a special jury, of an action brought by the Hon. C. S. Rolls to recover from Dr. Rutherfoord Harris, M.P., £1,500, the price of a 20-h.p. Panhard motor-car. The defence was that the plaintiff had not fulfilled the contract; the car was to be a practically new one, and it was not, and also that certain alterations agreed to be done were not completed within a certain time. Mr. Lush, K.C., and Mr. Wills appeared for the plaintiff; and Mr. Rufus Isaacs, K.C., and Mr. Muir Mackenzie for the defendant. Plaintiff said he bought the 20-h.p. Panhard in August, 1901, it having been on order nearly twelve months. It had a French body, holding two, and when it came over witness put a small seat on behind. It was sent up to Glasgow by train to take part in the reliability trials. On the first day it scored full marks, but on the second day it broke down with a cracked piston. A new one was put in, and it returned to London by road. At Christmas witness and his father, Lord Llangattock, were at Llangibby Castle, where they met Dr. Rutherfoord Harris. Defendant mentioned that he had a small 7-h.p. Panhard, and was thinking about getting a bigger one. Witness said he had one which he was willing to sell, and an arrangement was made for a trial. The car was tried in Richmond Park and round London, and defendant suggested that he would want further accommodation at the back. It was arranged that plaintiff should take the small Panhard and allow £400 for it, but a fire occurred at Dr. Harris' stable and the small car was completely burnt. The 20-h.p. Panhard ran in the Welbeck Trials, and proved very fast. From time to time witness did his best to see Mr. George Pauling's car, as the new tonneau on the 20-h.p. Panhard was to be similar to the one on that gentleman's car. Each party was to bear half of the price of the new tonneau. In answer to Mr. Justice Grantham, Mr. Muir Mackenzie said that the contract was for an aluminium tonneau, costing 200 guineas, whereas the one put in hand was mainly of wood, costing only fifty guineas. Mr. Lush said that from May, 1902, to April, 1903, the correspondence continued, and still Dr. Harris did not take the car, but made complaints. Finally, Dr. Harris wrote that unless the car was completed by June 13th he would not take it. The car was complete, but a new tonneau which had been put in hand was not, and defendant repudiated the contract. Mr. Rolls stated that he did not represent the car as new. It had run to Aldershot with M. Santos Dumont as passenger, and it had been let to the Hon. Lionel Rothschild, who paid £9 for the hire for a day. Witness had Dr. Harris' permission to run it to Welbeck for the speed trials. Mr. Mark Mayhew took it to Bexhill in May, 1902.

On Tuesday, Mr. A. Wilkinson and Colonel Crompton gave evidence for the plaintiff. Dr. Harris, M.P., having given evidence, the case was adjourned to Wednesday, when the judge announced that the parties had agreed to leave the matter in his hands; and the arrangement come to was that Mr. Rolls should keep the car and that Dr. Harris should pay £600, each party to pay their own costs.

THE MOTOR-CAR ACT.

Charles Woolley, late chauffeur to Mr. Henry Wyndham Jefferson, of 12, Berkeley Square, W., was summoned before Mr. Sheil, at the Westminster Police Court, for driving a motor-car in a manner dangerous to the public, and for failing to stop when called upon to do so by the police. At one o'clock on the morning of the 6th of May the defendant was driving his employer's motor along the Westminster Bridge Road, at from sixteen to twenty miles an hour. As there was a good deal of traffic about, Constable Cox called on him to stop. The defendant took no notice whatever, but rushed on, and 100 yards further along the road he collided with and wrecked a hansom cab, jerking the driver off, and causing him such injury that he had since been unable to follow his employment. Mr. Sheil said he saw by the defendant's licence that he had already been convicted at Woking for driving in a dangerous manner. On the two summonses he fined him £15 and costs, or three months' imprisonment.

Before the Kingston-on-Thames county justices, Wm. Mosenthal, of 38A, Porchester Terrace, W., was summoned for driving his motor-car at Pain's Hill Bridge, Cobham, on May 15th, at a speed which was dangerous to the public. The chairman (Mr. W. Y. Cockburn) said that the Bench were not unanimous on the present occasion, seven justices being for a conviction and one against. The decision of the majority was acted upon, and the defendant fined £5, his licence being endorsed. Under the section by which the proceedings were instituted the justices, said the chairman, had no alternative but to adopt the latter course. Notice of appeal was given.

MOTORIST v. POLICEMAN.

Dr. E. Lehwess, of Holland Park Avenue, N.W., appeared at the West London Police Court on Saturday to answer an adjourned summons charging him with wickedly and corruptly offering Police-Sergeant Fellen a sovereign, intending to pervert the due course of justice. There was a further summons against him for fraudulently allowing a false identification mark to be used on a motor-car. Mr. Blanchard Wontner prosecuted on behalf of the Commissioner of Police. Last week the driver of the car was fined for using the car, which bore the mark "U 421," and the evidence showed the car came from the garage of the Motor-Car Emporium (Limited), Addison Road, of which Dr. Lehwess was managing director. It appeared that the mark in question was really a French identification mark. Police-Sergeant Fellen stated that it was while he was making inquiries at the defendant's office respecting the false mark on the car that the defendant pulled out a sovereign and offered it to him, saying: "Take this and say nothing about the matter." Witness replied: "No, thank you," but the defendant followed him about the room, persisting in tendering the coin, and witness still refused it with the remark: "I don't do business in that way." Subsequently he reported the matter to Inspector Evans. Dr. Lehwess who reserved his defence, was committed for trial, the magistrate requiring him to find one surety in £100 for his appearance at the sessions.

CONVICTIONS AGAINST MOTORISTS.

Place.	Summoned for	Fine.
Chester	Dangerous driving	20s.
North London ...	(1) No licence	20s. etc.
,, ,, ...	(2) No lamp	4s., etc.
,, ,, ...	(3) Not illuminating registered mark	10s., etc.
Marlborough St. W.	Reckless driving	To pay 2s.—cost of the summons.
,, ,,	No registered number	10s.
Daventry	Dangerous driving	£3, etc.
Bamber Bridge ..	Driving furiously	£5, etc.
Southampton.....	,, ,,	40s., etc.
Birmingham	,, ,,	40s., etc.*
York	,, ,,	£3, etc.
Ampthill..... ...	,, ,,	£5.*
Penryn	Refusing to stop	£1, etc.
Epsom	Reckless driving	£3.*
Kingston..... ..	Dangerous speed	£3.
Croydon	Dangerous driving	£5, etc.

*Notice of appeal given.

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THE

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COMMENTS.



AS this issue reaches our readers the great race will be in progress and the fate of the Gordon Bennett Cup for the coming year will be in course of decision. Elsewhere will be found reproduced the photographs of eighteen out of the nineteen drivers who are competing in the Cup race, the one too late for inclusion this week being that of Augieres, who is driving one of the Pipe cars. The youngest competitor in the race is M. F. Dufaux, who is representing Switzerland in the international event. He is only twenty-two years of age, and has not hitherto competed in any big automobile race. Next week's *Journal* will deal fully with the events following the race as well as with the great contest itself.

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Progress in Ireland.

AUTOMOBILISM is making considerable advance in Ireland, and in addition to the Irish Automobile Club, which has headquarters in Dublin, a Co. Louth Motor Club has now been formed. The inaugural meeting was held at Dundalk, and the following officers have already been elected :—President, Lord Louth ; vice-presidents, Mr. E. O'Conor, D.L. ; Mr. F. St. George Smith ; hon. treasurer, Mr. P. L. M'Ardle ; hon. secretary, Mr. Chas. J. Thornhill ; committee, Dr. Sellars, Dundalk ; Mr. D. O'Connell, Dundalk ; Mr. F. W. Brittain, Drogheda ; Mr. G. L. Wells, Drogheda ; Dr. H. Moore, Ardee ; and Mr. Bernard Gannon, Dunleer. The club headquarters are at Castlebellingham.

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The Ladies' Day.

ELSEWHERE we make reference to the first meet of the Ladies' Automobile Club on Thursday of last week. Half of the fashionables in town turned out to see ladies driving automobiles with as much elegance and grace as they handle horses. A few years ago such a spectacle would have been impossible ; the man who dared to suggest such an assemblage would have been sweetly smiled upon as a simpleton. Yet it seemed quite the order of the day. The sedate footmen who, with folded arms, sat on the box seats of electromobiles, appeared quite in keeping with the fitness of things, and the only incongruity in the display was an oil-begrimed mechanician leaning over the back of his fair driver's seat watching with evident interest her ladyship's conduct at the wheel. The contrast with her fair face and delightful summer costume and the dirty, grinning countenance at her shoulder caused even the police inspector to relax his stern visage and attempt to smile—in an unofficial way.

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The Small Car Trials.

IN another column we publish some of the salient points in the rules of the trials for small cars which are being organised by the A.C.G.B.I. for this year. The trials are this year confined to cars costing not more than £200, and will probably take place from some centre in the Midlands and not from London. A radical alteration has been introduced in the method of making the awards, in that prizes will be given for the maximum number of non-stop runs of fifty miles each, in addition to prizes given entirely at the discretion of the judges. The same system of observation of the cars will be adopted as before, every car being accompanied throughout the runs by an official who will note everything that is done to the cars, which will be under observation throughout the whole period of the trials. Washing and a reasonable amount of adjustment is to be allowed after every run, so that the conditions will approximate to those of ordinary touring, the great object being to produce a car which will run on the roads without breakdown if it receives reasonable attention.

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An Invitation from Hereford.

EVIDENTLY inland towns as well as seaside resorts are recognising the importance of the automobile movement, and the decision of the Hereford Town Council to officially invite the A.C.G.B.I. to make that place the centre of the reliability trials is proof of the wisdom of such authorities. For the presence in any important country town of such a representative number of motorists as is attracted by such an event would be a really profitable as well as a pleasant incident in local history. Should Hereford be selected, it is to be hoped that the hotelkeepers there will prove as hospitable and as free from extortion as were those of Manxland.

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Bexhill on Bank Holiday.

THE tradesfolk of Bexhill are apparently elated at the prospect of an automobile meeting taking place at their pleasant place on August Bank Holiday. Since the unfortunate injunction of two or three years ago, the town has undoubtedly lost a great deal. The event that was held then proved a source of immediate profit, and it also advertised Bexhill far and wide. There is no doubt that the great advantage of motor races at pleasure towns is the publicity they bring among a class of people whose presence is a substantial asset to whatever town they visit. Hence the delight with which the Bexhillians are anticipating the buzz of the motors again on the forthcoming Bank Holiday.

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An Artist's Perversity.

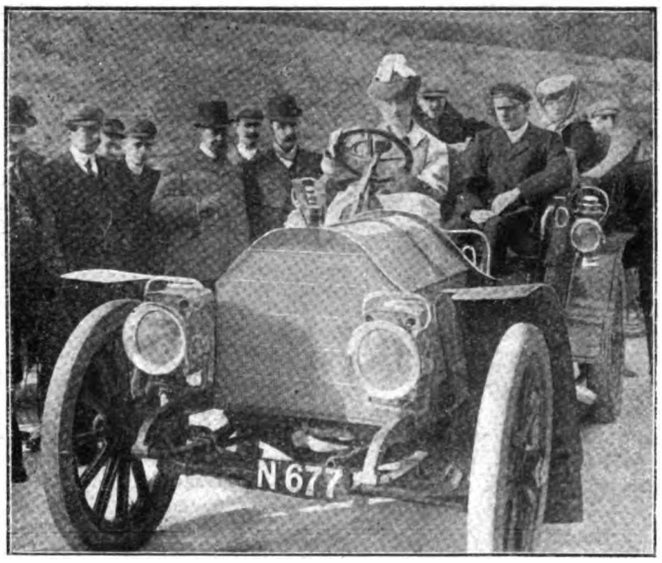
PROFESSOR HERKOMER must really have a chat with his friend Mr. Holman Hunt, who seems to have allowed his keen artistic perceptions to have outrun his utilitarian sense when speaking at the meeting of the Society for the Preservation of Ancient Buildings the other day. In the course of an interesting paper he described the modern motor-car as a rectangular box on wheels—a not very beautiful supersession of the delightful horse. It may have been true in the early days of the motor-car that it was not a thing of beauty, and even that it was positively ugly, but that day has gone, and the automobile is now a very presentable object. Many of the mechanical vehicles are certainly delightful from an art point of view, and Mr. Hunt cannot have allowed his eyes to have full play when in the streets of the town, or he would not have spoken as he did for the benefit of those who would preserve our ancient buildings.

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Gymkhana at Ranelagh.

An automobile gymkhana was held by the Ranelagh Club on Saturday. The Hon. J. Scott Montagu officiated as judge, Dr. G. Hastings and Mr. Claude Johnson were the stewards, and Mr. G. A. Williams, the secretary of the club, starter. In the Coach House Handicap Mr. J. D. Restler (7-h.p. Panhard) won the final heat, Mr. H. Langrishe (10-h.p. Panhard) being second. The Bending Race for Motor Carriages resulted in Mr. A. Rawlinson (30-h.p. Darracq) being the winner; Mr. H. Langrishe being again second. In the final heat of the Race for Motor Carriages, Mr. C. Johnson (12-h.p. Orleans) was first, and Mr. A. Rawlinson (30-h.p. Darracq), second. Mr. A. Rawlinson, on a 15-h.p. Darracq, won the Ladies' Passenger Race, Mr. C. F. Torrey (10-h.p. Wilson and Pilcher), taking second place. The Competition for General Appearance of Car and Occupants resulted in Mr. C. F. Torrey (18-h.p. Brouhot) proving the winner, Mr. Walter Foster (24-h.p. Georges Richard) gaining second honours.

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The Buxton Meet.—Miss Hampson, of Southport, at the Wheel of her 60-h.p. Mercedes.

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The Climb up Snowdon.

Last week we recorded the successful climb up Snowdon by Mr. W. M. Letts, of Messrs. Jarrott and Letts, on a 5-h.p. Oldsmobile. We have since learned that the task before Mr. Letts was complicated by the unusually large wheel gauge of his car, and by the position of the "differential" on the centre of the under side of the car. The position of the differential necessitated the striding of the 2 ft. 7 in. gauge line of the Snowdon Mountain Tram Road unevenly, as, had the motor-car been placed evenly across the line the differential box would have come into constant contact with the rack rail lying from beginning to end of the line in the centre of the track, and thus have thrown the motor-car off. The result of this uneven striding of the line was that, whilst the wheels on one side of the car had ample room on the ballast on their side of the track, the two wheels on the other side of the car were perforce dangerously near the edge of the ballasting, a position of considerable risk, and one which almost led, at one stage of the ascent, to an accident, the results of which can only be imagined.

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A Run Northward.

Mr. Duncan E. Campbell, the managing director of the Northern Counties' Motor Garages, Limited, of Newcastle-on-Tyne, recently took a run from London to Newcastle on a 15–19-h.p. Beaufort Princess car. A 20-h.p. Beaufort tonneau car also accompanied the party. They ran *via* Hitchin and Biggleswade to Buckden, where they stopped at the George and Dragon for tea. Then on to the George, at Grantham, where a halt was called. On Sunday morning they went to Mr. James Smith's garage on the North Road, and filled up with petrol. The only other thing they required was a nut to replace one which had come off one of the bolts supporting the metal shield under the engine. They ran on silently and troublessly to Retford, and thence to Doncaster. Running *via* Wetherby and Boroughbridge to Darlington, they arrived in Newcastle about 7.45 a.m., and found that the 20-h.p. car had arrived about half an hour before them, having come by a longer route *via* York, but had not stayed so long for lunch. The only incident of note on the road was seen between Stamford and Newark, where the new signposts of the County Council were up, with an X for cross roads and a red diamond for dangerous corners. The milestones in that neighbourhood, instead of being of the old fashioned type, namely, a small stone stuck in the grass and barely legible, consisted of two boards shaped V on a post at least six feet high. The boards faced the road, so that vehicles from either direction could read them distinctly without slowing up.

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A Hint to Private Residents.

The travellers also noticed, between Grantham and Retford, a big country house close by the roadside. Opposite the house the road had been sprinkled with some dust-laying material, but what it was they did not have time to discern. There was an old gentleman looking over the wall who was very pleased with the results, as the cars coming along the road created a tremendous dust until they reached this portion, when for fifty yards there was absolutely no vestige of dust of any kind. If people who live close to the roadside find that the dust created by motor-cars is a nuisance, they might take hint from that little incident and thus protect themselves; they would be serving a useful purpose in saving much unpleasantness. For motoring is now inevitable, and all sections of the community should endeavour to make it as comfortable to everyone as possible. If there is to be consideration on the part of users of the road, there must also be something of the same spirit evidenced by those who dwell by the side of popular thoroughfares.

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The Alake a Convert.

The Alake of Abeokuta, whose tour of investigation in this country has been thoroughly comprehensive, took occasion of his visit to Liverpool to have his first motor-car ride. Upon leaving the Liverpool School of Tropical Medicine he and his party entered automobiles and departed for the Corporation Sewage Farm at West Derby. The visitors were accompanied by Alderman Thomas Menlove, chairman of the Health Committee, and Mr. J. A. Brodie, city engineer, himself a practical motorist. The disdainful way in which the Alake declinod to wear the motor-goggles offered to him occasioned much amusement. At first he pushed the proffered goggles from him, and then, having been made acquainted with their special virtue, with a merry twinkle in his eye and a smile playing round the corners of his mouth, he told his interpreter that he could "do without them" (meaning the goggles). He thoroughly enjoyed his ride and will certainly return home with a very superior opinion of motor-cars.

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The Ten Mile Limit in the North.

Two further inquiries under the Motor Car Act have been held during the last few days at Beverley and Todmorden. The Beverley Town Council had applied for a five-mile limit for three places within the borough and a ten-mile limit on all other roads. Earl Russell and Mr. Rees Jeffreys appeared in opposition to the application on behalf of the Automobile Club and the Motor Union of Great Britain and Ireland. The Town Clerk called, in support of the application, the Borough Surveyor and the Chief Constable. Earl Russell, Mr. E. Starkey Wade, of Kirk Ella Hall, Hull, and Mr. F. Lambert, of Beverley, gave evidence in opposition to the application. The

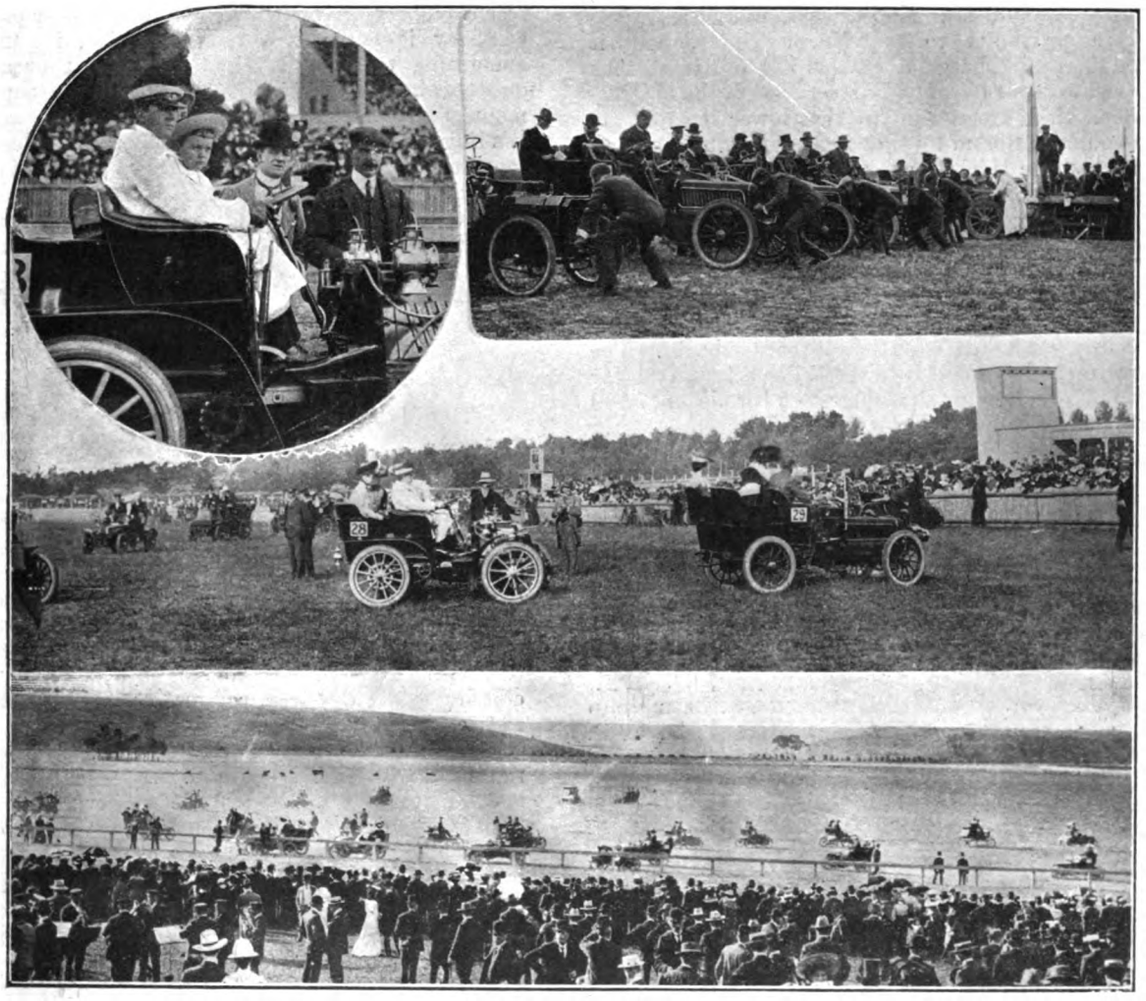
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second inquiry was held at Todmorden, where the Town Council had applied for a ten-mile limit for all roads within the borough. The Town Clerk called, in support of the application, the Borough Surveyor and several members of the Highways Committee. Mr. Jeffreys pointed out that no police witnesses had been called, nor was any evidence forthcoming that the ordinary law and the provisions of Clause 1 of the Motor Car Act had been proved insufficient to deal with the motor traffic passing through the Borough. In opposition to the application were Earl Russell, Dr. Crossley Wright on behalf of the Yorkshire A.C.; Dr. McRoberts, and Mr. Petrie on behalf of the local automobilists; Mr. Herbert Bright (Hon. Local Correspondent of the Motor Union at Rochdale), and Mr. O'Neill on behalf of the Manchester Automobile Club. Mr. Smith Lawson appeared on behalf of the Burnley Automobile Club, and the Halifax A.C. was also represented.

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Necessity for Urgency.

In the early days of motoring—say when Hancock's 'bus was making its daily trips from Stratford to Paddington—the neglect of the authorities to keep the roads in order was one cause of the withdrawal of the vehicles from public service. The great roads used by the stage coaches were, of course, well kept, but the subsidiary arteries of travel were neglected. Subsequent development of railroad enterprise has destroyed the necessity for a general attention to the roads of the country. But the revival of the automobile movement has brought the road question into the domain of local politics, and county and district councils will have to realise that "the state of the roads" is a matter of primary importance when settling their estimates. Surely such lessons can be learned without having to be taught by coroners' juries.



Capt. P. Chirnside on his Panhard. The Starting Competition.
Capt. Chirnside (No. 28) and Mr. T. Rand (No. 29) on the Grass Track.
The Cars arriving at the Maribyrong Racecourse.

A GYMKHANA IN AUSTRALIA.

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The "State of the Road."

While driving a motor-car in the New Forest, G. H. Hart was thrown out, owing to the car being overthrown, and killed. At the inquest a verdict of "Accidental death" was returned, the jury adding a rider drawing the attention of the authorities "to the state of the road." We have no local knowledge on the point, but doubtless the jury were familiar with the condition of the road before passing a rider which reflects upon the way in which the local authorities do their duty. The verdict should bring into prominence the necessity for roads being kept in thorough repair, their surface being regularly inspected and a proper recognition made of their growing importance to the industries and pleasures of the country.

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Motor-Car Imports and Exports.

Large numbers of foreign motor-cars continue to be imported into this country, the number last month being returned at 530, of a value of £224,129. Parts were responsible for £28,216, bringing up the total for May to £252,345, as against £202,499 in the preceding month and £184,045 in May, 1903. So far this year, that is to say, for the first five months, the imports

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stand at £972,518, or approximately £166,000 more than in the same period of last year. It is noticeable from the returns that the cars now being imported are of larger power, and consequently more costly individually than in 1903, for while the aggregate value of the cars imported has increased, the number has declined from 2,569 to 2,454. Passing now to the exports of British automobile productions, the returns are somewhat disappointing, only 30 vehicles being shipped last month, these with the "parts" being valued at £17,123. For the five months ending with May the exports are, however, returned at £123,630, or roundly £13,000 more than in the corresponding five months of 1903.

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Balloon Ascents.

UNDER the auspices of the Aero Club, two interesting ascents were made on Thursday of last week from the Crystal Palace. The first balloon, containing Professor Huntington, Mr. Spencer, and Dr. Knott, was carried by the easterly wind in proximity to the North Tower, and it was only by the speedy discharge of a whole bag of ballast that sufficient lifting power was obtained to steer clear of the obstruction. The balloon then proceeded in the lower current to Sutton and passed over Epsom town and racecourse to Leatherhead, Guildford, and the Hog's Back, but at the height of 6,000 feet a different current of air changed the balloon's direction towards Pirbright. Descending again into the lower current, Aldershot was shortly reached, and a descent effected in the Long Valley. The second balloon, whose occupants were Mr. C. F. Pollock and Messrs. Mecklethwaite and Aitkens, passed vertically over the Tower at the start, and at once rose to a great height, and a course was taken over the southern suburbs. The Thames was crossed at Kew, and then the balloon floated as far as Staines and Ashford. After attaining an altitude of 7,500 feet it descended a little, and encountering a north-easterly breeze, recrossed the river, and proceeded via Chobham and Bisley Ranges until at length it reached Aldershot twenty minutes after its predecessor, and descended on Laffan's Plain.

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An Australian Gymkhana.

THE first automobile sports meeting in Victoria took place on the Maribyrnong racecourse on April 30th, and was a great success, more than 5,000 spectators being present, including many of the leading people in the colony. Dr. D. M'M. Officer acted as judge, Mr. H. J. Maddox and Mr. E. Beauchamp as starters, Mr. F. W. Heath as timekeeper, and Mr. G. R. Broadbent as a lap scorer. Mr. H. B. James was hon. secretary to the meeting. Thirty-five cars took part in the parade with which the gymkhana opened. The voiturette race for cars up to 6½-h.p. was won by Mr. J. R. Crooke on a Locomobile, Mr. S. Day being second on a Humberette. Captain Chirnside's 7-h.p. Panhard was first in the starting competition, Mr. J. Wallace's Benz being second. A similar result was recorded in the heavy car race. The tourist car race brought out seven De Dions, four Humberettes, three Decauvilles, and one each of the following:—Argyll, Panhard, Knowles, Centaur, Benz, Toledo, and Rochet-Schneider. Mr. J. W. Moffatt's 8-h.p. De Dion was first, being followed by Mr. S. Day's Humberette. Mr. T. Rand on his Decauville made a series of evolutions that testified to his ability as a driver, and also won the mixed car handicap and the reversing contest.

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Latest News from Germany.

AS we go to press the news comes to hand that it has been decided, after all, to start the cars in the Cup race at seven minutes intervals, instead of five. The sprinkling of the course with Westrumite, combined with the rain, has rendered the roads somewhat sticky, Edge experiencing a bad side-slip on Wednesday. Salleron, too, is reported to have met with an accident on his Mors car, a road wheel being broken.

The M.M.C.

ON Tuesday, Mr. Justice Joyce heard an application, on behalf of the plaintiff in the debenture-holders' action of Beadle v. the Motor Manufacturing Company, Limited, for the appointment of a receiver and manager of the company. Mr. Byrne, for the plaintiff, stated there was a fear that executions would be levied in London and Coventry. The company made motor-cars, and they had orders in hand amounting to £10,000. It was proposed to appoint Mr. Frank Edward Beadle (a large shareholder and director) to be the receiver and manager, he being a fully qualified man who understood the business. The issue of debentures was not a large one. His Lordship appointed Mr. F. E. Beadle, as asked, and gave the common form judgment in a debenture-holders' action. With reference to this matter the Motor Manufacturing Company, Limited, write:—"We desire to say that the reason for this course is that many of the company's creditors, frightened no doubt by some of the recent failures, have unreasonably pressed for payment. As the company is really in a sound position, its trade debts only amounting to between eight and nine thousand pounds, the directors have considered it advisable to consent to the appointment of a receiver and manager in order to save its goodwill pending a re-arrangement of its finances. Meanwhile work is continuing, cars and motors are being built and sold, and orders booked. It will be remembered that the company did very well last year, and there is not the slightest doubt that it will continue to do so when the present difficulties are settled. Negotiations for an amalgamation are proceeding, which will, if they materialise, make the Motor Manufacturing Company one of the strongest concerns in the country."

THE Manchester Motor Supply Company have removed to more extensive premises at 18, Oxford Street, Manchester.

THE Howick Motor 'Bus Company is a New Zealand concern which has just put a motor-'bus upon the road in Auckland.

THE Kingston Motor Cycling Club has been formed with headquarters at the Anglers' Hotel, Kingston. Mr. P. H. Vickery is hon. secretary.

THE South Western Motor Club is a new organisation intended primarily for motor-cyclists in the south western suburbs of the Metropolis.

THE Maidenhead Bridge Bill to free vehicular traffic crossing the bridge from toll passed its second reading in the House of Commons on Tuesday.

THE Anglo-American Oil Company has decided to make the substantial reduction of 2d. per gallon for their Pratt's "A" grade motor spirit. No change whatever will be made in the high standard of purity that has been reached by Pratt's.

WITH reference to the case Rolls v. Harris reported in our last issue, we would mention that the car in question was not sold as a new one, but as one that had been run a thousand miles, and that each party should have the use of his car pending the exchange.

THE exhibition of the Royal Agricultural Society at Park Royal, Willesden, N.W., will open on Tuesday next and continue throughout the week. The Great Western Railway Company will run a rail motor service every hour between Westbourne Park and Park Royal.

AN accident befell some motorists from London last week whilst driving through the New Forest. The party, consisting of Mr. Westrop, the owner of the car, two friends, and the driver, left Southampton for Bournemouth, and were making the descent of Trons Hill, at Brockenhurst, which has a somewhat steep and curving gradient, when the car skidded. The driver instantly applied the brakes, with the result that the automobile shot into the side of the road and the front part of it was smashed. The occupants were all thrown out and the vehicle overturned. The driver, who hung to the steering-gear, was literally buried in the wreckage, and when recovered he was found to be dead. The others had miraculous escapes.

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GORDON BENNETT RACE.

HOMBURG, WEDNESDAY.

Just as in Dublin a year ago, powerful motor-cars are now to be met at every turn here in Homburg. Visitors have been arriving daily for over a week past, and, although the hotels are far from full, yet there is ample evidence that there will be a huge crowd at the starting point of the great race which will be



M. F. Dufaux, who is representing Switzerland in the Race.

in full swing by the time these lines are read. The competitors and their retinue are all on the spot, and have been cantering over the course daily to make themselves familiar with the sharp turns and its other intricacies. They have, however, not been permitted to indulge in travelling at full speed—this being reserved entirely for the day of the race. The Wolseley headquarters are at Usingen, while Edge is at the Savoy Hotel here in Homburg. The German and Austrian Mercedes cars are quartered at the works of the Oberursel Motor Company at Oberursel.

Extensive precautions have been taken along the entire course to prevent accidents. At all points appearing in any way dangerous military guards are stationed, their to al number being 3,200. About 120 cyclists will lead the competitors



Baron P. De Crawaez—one of the Belgian Team.

hrough the places where the cars are under control. The Park of the Saalburg has been transformed into a "fair-ground," with restaurants and refreshment buffets galore. It is said that provision is being made for the feeding of from 25,000 to 30,000 persons. The grand stands on each side of the road at the starting point are connected by a bridge, and will provide accommodation for about 2,500 persons. Three bands will be in attendance, and will play alternately during the day. The grand stands, the admission to which is £2 10s., are being provided with ten telephone call offices, situated close to them, and spectators will be kept informed of the progress of the race by wireless telegraphy. For those who do not take tickets for the stands, an enclosure, 10 kilometres in extent, has been made round the Saalburg, to which admission can be obtained for £1, while from the stand a path runs through the woods to a point on the course at which it is expected high speeds will be attained. The railway authorities are doing their utmost to rise to the occasion, and a frequent service will be run from Frankfort and Homburg to Saalburg. There will also be a train every ten minutes on the electric railway from Homburg to the starting point and one every quarter of an hour to Dornholzhausen. Most complete instructions have been issued by the police authorities as to the routes to be taken from Frankfort, Homburg, Cassel and other places to Saalburg. Separate routes are indicated (1), for those proceeding by motor-cars and cycles, (2) those going by horse-drawn vehicles or cycles, and (3) for foot passengers. Huge garages have been established near the starting point for both motor-cars and horse vehicles. At the last moment it has been decided to sprinkle the whole of the course with Westrumite.

To-morrow (Thursday) a tour of the course will be made by the officials to see that everything is in readiness. The final order of starting of the nineteen competitors is not likely to be known officially until the weighing in to-morrow. It is, however, certain that Jenatzy, the winner of the race last year, will start first, and that Edge will be second. The only two competing drivers who have previously won the Cup will the lead off in the 1904 contest. On Saturday, the day after the race, a tour of the course will be held by the motorists present. The Saalburg will be left at 10 a.m., and at 1 p.m. a stop will be



M. L. Hautvast—another of the Belgian Drivers.

made for "breakfast" at Limburg No less that sixty-three entries have been received for the track races which are to be held at Frankfort-am-Main on Sunday. The municipal authorities of Frankfort have just presented a cup for one of the touring car competitions.

THE awards in the service test of motor-wagons held in New York from the 1st to the 9th April last have just been announced by the Automobile Club of America. The medal winners are as follows :—First class (to carry 1,000 pounds or under).—Olds Motor Works (petrol), gold medal for the first Oldsmobile van and a silver medal for the second ; Knox Automobile Company, bronze medal. Second class A (to carry 1,000 to 2,000 pounds). —Pope Motor Company (petrol), silver medal, and a bronze medal for the same company's electric vehicle. Second class B (to carry 1,000 to 2,000 pounds).—Cantono Electric Tractor Company (electric), gold medal; Electric Vehicle Company (electric), silver medal, and Rockliff (petrol), bronze medal. Third class (to carry 2,000 to 3,000 pounds).—Consolidated Motor Company (petrol), gold medal, and Knox Automobile Company (petrol), silver medal. Fourth class (to carry 3,000 to 4,000 pounds). Union Motor Truck Company (petrol), gold medal, Fifth class (to carry 4,000 to 5,000 pounds).—Electric Vehicle Company (electric), gold medal. Sixth class (to carry 8,000 to 10,000 pounds) —Fischer Motor Vehicle Company (combination petrol electric), gold medal.

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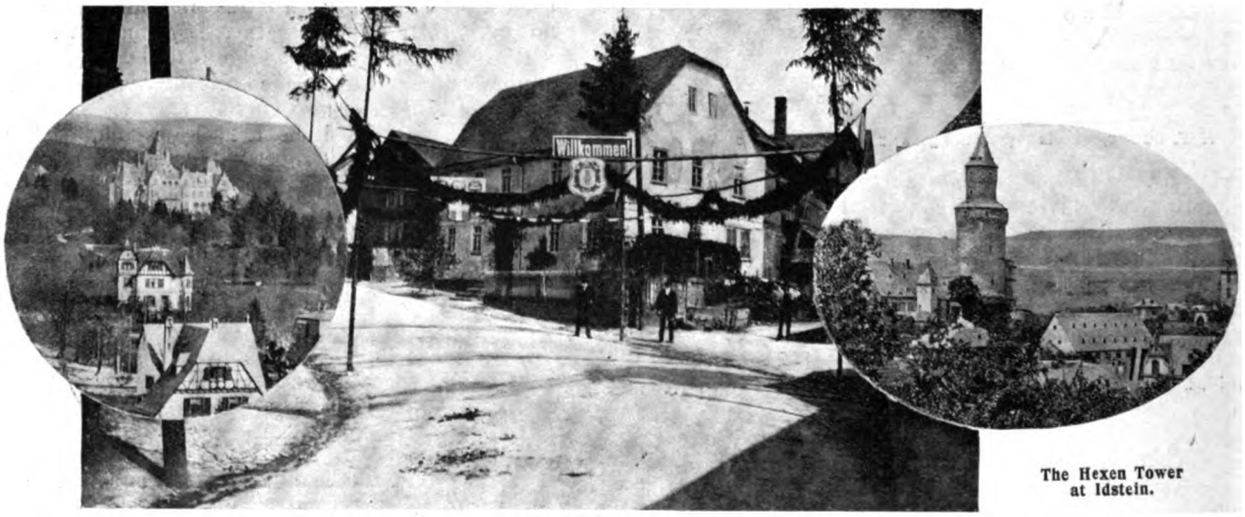
SCENES ON THE GORDON BENNETT COURSE.



The Village of Gravenwiesbach.



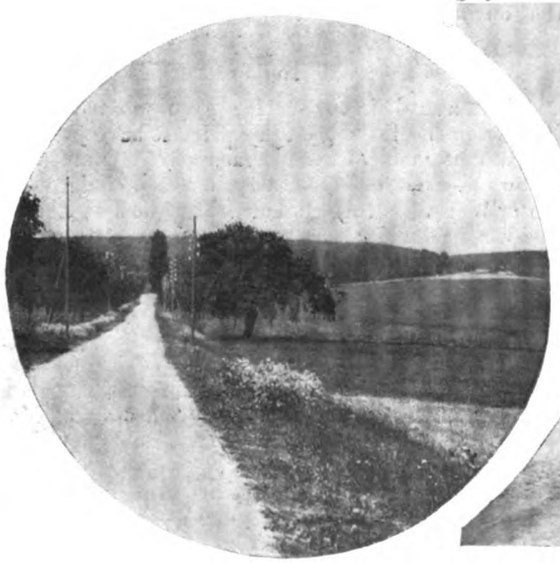
The High Street of Oberursel.



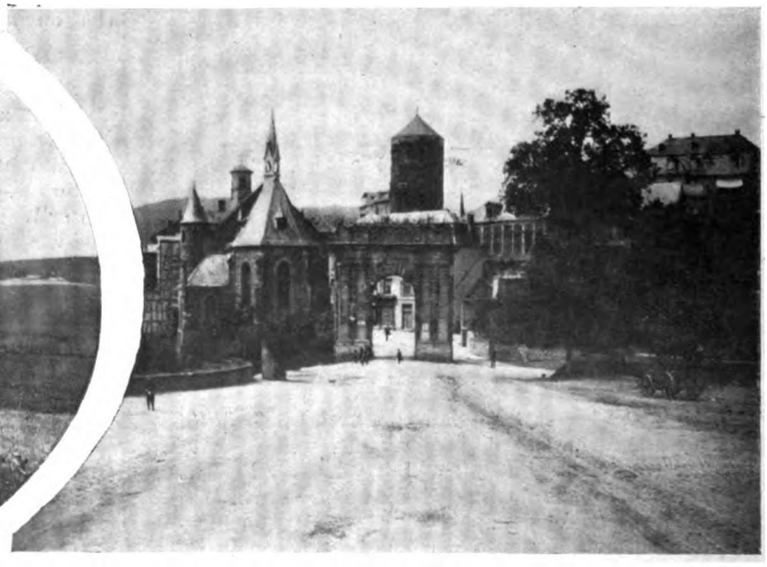
The Friedrichshof Castle at Cronberg.

The Hexen Tower at Idstein.

The Entrance to the Village of Wehrheim.



The Course near Eschenhahn.



The Entrance to the Town of Weilburg.

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THE GERMAN, ENGLISH AND FRENCH GORDON BENNETT TEAMS.



M. JENATZY (Mercedes).



Baron de CATERS (Mercedes).



Herr FRITZ OPEL (Opel-Darracq).



Mr. S. F. EDGE (Napier).



Mr. S. GIRLING (Wolseley).



Mr. C. JARROTT (Wolseley).



M. THERY (Georges Richard-Brasier).



M. SALLERON (Mors).



M. ROUGIER (Turcat-Mery).

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THE "VULCAN" SPEED INDICATOR.

CONSIDERABLE attention has been devoted during the past few years to the production of a reliable device which will indicate the speed at which a motor-car is travelling, and many indicators have been introduced which have met with more or less success and adoption. One of the latest instruments of the kind is that which is being introduced into this country by Messrs. Geipel and Lange, whose name is already well known in connection with the ignition accessories of petrol motor-cars. It consists of a magneto driven off one of the wheels of the car, and a hot wire voltmeter, connected to the magneto by means of a flexible wire, which

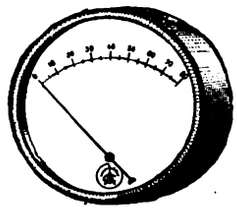


Fig. 1.

forms the speed indicator. The indicator is of the watch pattern of instrument, two inches in diameter and three ounces in weight, and is preferably fitted on the steering wheel, so that it is always immediately under the eye of the driver. One, four inches in diameter, is also made to fit on the dashboard. The dial (Fig. 1) is calibrated to indicate from five to forty-five miles an hour, and as the needle is perfectly dead beat, the speed indications can be read under the worst conditions of vibration. It may be added that the readings are

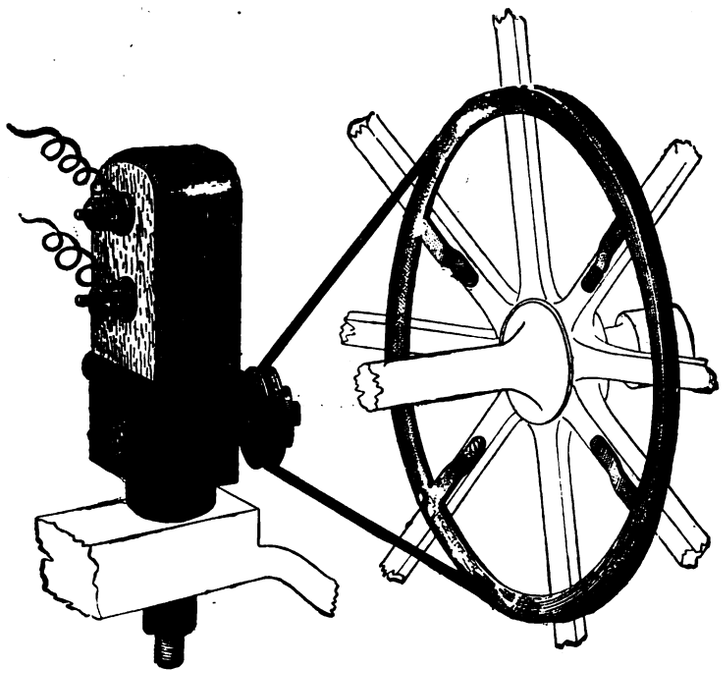


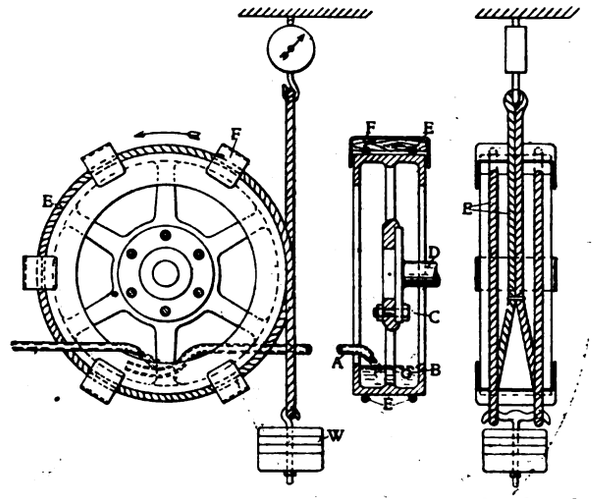
Fig. 2.

equally accurate whether the vehicle is running backwards or forwards. The magneto (Fig. 2), which is also small, measuring 6 in. by 2 in. and weighing 1½ lbs. only, is arranged preferably for fixing on the steering horn of the front wheel, from which it is driven by means of a rubber band passed round a little aluminium pulley fixed on the inside of the wheel. The armature consists of iron only, while there are no moving wires or electrical contacts, as the coils in which the current is generated are placed inside the magneto and are sealed therein by paraffin wax. The magneto is entirely waterproof and can be played upon with a hose without being injured or causing any inaccuracy in the readings The bearings are self-oiling and the whole design of the apparatus is such as to obviate any necessity for attention. The indicator may, of course, be placed in any other position than on the steering pillar, if desired, while the magneto may be driven off one of the hind wheels.

TESTING THE BRAKE HORSE POWER OF PETROL MOTORS.

A SIMPLE and accurate dynamometer for making a continuous brake horse power test of high-speed petrol motors, as employed at the works of the Geo. N. Pierce Company, of Buffalo, U.S.A., makers of the Pierce cars, is shown in the accompanying diagram. The brake pulley C can be made of the same weight as the engine fly-wheel, in which case the flywheel is left off or the pulley can be made lighter and used in conjunction with the flywheel; in either case it is cast hollow, in channel section as shown, with the hub plate drilled to bolt to the crank shaft D. This plate can be cast to suit the requirements of the different engines. A hemp rope E is then wound around the pulley C and held in place by wood blocks F, which in turn are kept on the pulley by steel guide straps. The weight W is suspended from the two ends of the rope, and the folded part of the rope is suspended by a spring balance from a beam or floor overhead.

A pipe A is then provided to furnish the cold water supply into the channel section of the pulley, while a pipe B, with a



feathered edge, is allowed to dip into the water in the channel so that the water as it travels around with the pulley is forced into the pipe B, which carries off the heated water as fast as the cold water is supplied, keeping the brake pulley perfectly cool for any length of time.

To find the horse power developed by the engine:—

W = Total weight on rope.

w = Average pull on the spring balance, which must be deducted from W to get the net load.

r = Radius of brake pulley and rope to point of suspension.

The effective circumference $= 2r \times 3.1416$.

N = Revolutions per minute.

Then:

$$\frac{\text{Net weight} \times \text{circumference of rope in feet} \times \text{revolutions.}}{33{,}000} = \text{H P.}$$

MESSRS. A SIMPSON AND SON, coachbuilders, Clerk Street, Brechin, have added an up-to-date garage to their premises.

IN connection with the comment in our last issue, on the subject of the motor-car in India, Turner's Motor Manufacturing Company, Limited, write to us pointing out that at the present time they have several orders in hand for Turner-Miesse steam cars for India.

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CONTINENTAL NOTES.

The Mont Ventoux Hill-Climb.

The annual hill-climb up Mont Ventoux will be held by the Automobile Club Vauclusien on August 28th next. The test will be divided into two classes—racers and tourists. The racing section will comprise categories for vehicles weighing under 1,000 kilogrammes, and for motor-cycles of not more than 50 kilogrammes. In the touring class the divisions will be single cylinder two-seated cars, two-cylinder three-seated vehicles, and four-cylinder four-seated cars.

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Motor-'Buses for New Caledonia.

Messrs. Turgan, Foy and Company, whose heavy steam vehicles are well known, have lately taken up the construction of petrol public-service vehicles, and have just completed three cars for a service in New Caledonia. They are of the single-deck type, having accommodation for twelve passengers. The motive power is supplied by an Abeille four-cylinder motor of 24-h.p. Four speeds forward—the maximum being fifteen miles per hour



Signor Lancia. Signor Storero. Signor Cagno.

Herr Braun. Mr. Warden. Herr Werner.

THE ITALIAN AND AUSTRIAN GORDON BENNETT TEAMS.

—and a reverse are available, the power being transmitted from the gear box by means of side chains.

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The Touring Competition at Lyons.

The awards have now been made known in the recent touring competition at Lyons organised by the Automobile Club du Rhone for the Rochet-Schneider Cup. The winner is M. Martini, who, with his 16-h.p. Martini car, gained 1,086 points. M. Weitz (20-h.p. Pilain) was second with 1,077 points, and M. Chalencon (24-h.p. Berliet) third with 1,073 points. The next competition for the cup will be held in Switzerland.

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Public Services in Germany.

Quite a number of new public motor vehicle services have lately been inaugurated in Germany, while several projects are under consideration. One has just been started between Triberg and Furtwangen, the cars making two journeys in each direction daily, the time occupied in making the trip, including stops at intermediate stations, being 1 hour 18 min. A service was also inaugurated on the 4th inst. between Brunswick and Wendeburg. At Peine a company has been formed to organise a service between that town and a number of outlying villages not provided with railway communication.

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More Racing in Belgium.

The Automobile Club of Namur and Luxembourg is organising a series of races for July 12th. The events include a series of kilometre speed trials on the road between Gisnes and Ben, and a kilometre hill-climb. They are both open to all classes of vehicles, including motor-cycles, and a special prize will be awarded should the world's record be lowered.

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Another Motor-Bicycle Competition.

The "Auto" is organising another competition for motor-bicycles, to be known as Criterium du 1-3 de Litre. It is to be held from October 3rd to 9th, on similar lines to last year's event. The capacity of the motor is, however, being increased from ¼ litre to 1-3 litre. On the other hand, silencers must this year be fitted to the engines.

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No more Trailers in Vienna.

The police authorities of Vienna have issued an order forbidding the use of trailers in conjunction with motor-bicycles. The regulation is the result of one or two recent accidents.

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The De Dion-Bouton Excursion in the South of England.

The Channel steamer Nord has been chartered specially to bring across from Calais to Dover a number of French motorists and their vehicles for the forthcoming tour in the South of England. So far about fifty motorists have notified their intention of participating in the tour.

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The Mont Cenis Hill-climb.

The Automobile Club of Turin, having secured the necessary official permission for the event, has fixed July 10th as the date of the hill-climbing competition from Suze up Mont Cenis. The available course includes nearly fifteen miles of splendid road, with a gradient of from 1 in 10 to 1 in 7½. Several handsome prizes will be given, and three challenge cups are offered in connection with the trials.

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THE MEET AT BUXTON.

THE popular meet of north-country motorists, so long anticipated, duly came off at Buxton in glorious weather on Saturday last, and was attended with the greatest success. Cars began arriving at the Empire Hotel in the morning, and continued until the evening, when more than eighty were assembled, varying in size and power from the mighty "sixty" to the humble Horbick. By the letters on the cars we were able to perceive that they came from London, Bradford, Nottingham, Lancashire, Salford, Lincoln, Bolton, Yorkshire, Stockport, Chester, Cheshire, Manchester, Derbyshire, Sheffield, and other places. Among the ladies who drove cars Miss Hampson was distinguished on a new 60-h.p. Mercedes with a lovely body made by Messrs. Cockshoot, of Manchester. She was met on the road driving steadily and showing well up to the legal limit. The meet as a matter of fact was remarkable for the number of ladies present, and these all appeared happy and smiling and evidently enjoying the surroundings and their proximity to the numerous cars. Several new cars were present, including the four-cylindered Richardson, a handsome and well-designed vehicle; four "sixty" Mercedes, including those belonging to Mr. Higginbotham, Mr. Cordingley, Miss Hampson, and one driven by Mr. Dobson, who, by the way, has designed a simple method of starting these monsters. In the evening about 250 sat down to dinner at which Mr. Fred Smith presided. The speeches were commendably brief.



Photo by] The Buxton Meet.—The Cars at the Empress Hotel. *[R. Banks.*

Among those present were:—

Mr. and Mrs. Harry Foster, Sheffield, 10-h.p. Wolseley; Mr. and Mrs. Cronshaw and Mr. Hawkins, 15-h.p. Panhard; Mr. and Mrs. W. B. Jevons, Market Rasen, 9-h.p. De Dion; Mr. and Mrs. C. Cordingley and Miss Pursehouse, 60-h.p. Mercedes; Mr. J. Hoyle-Smith, Secretary, Manchester Club, and Mr., Mrs. and Miss King, Manchester, 15-20-h.p. Belsize; Mr. and Mrs. Peter Eadie, Didsbury, 12-16-h.p. Clement; Mr. and Mrs. Armitage, Leeds, 11-h.p. Clement; Mr. Wilkinson, Manchester, 6½-h.p. Stanley steam; Mr. and Mrs. Davison and Mr. Kay's party were on a 14-h.p. Darracq; Mr. and Mrs. J. W. Taylor, Manchester, and Miss Barker, 12-h.p. Darracq; Mr. J. Higginson, Cheadle Hulme, and Mr. A. W. Walton, Ashton-on-Mersey, and Mr. Avondale, 6-h.p. Vinot; Mr. and Mrs. J. Smith, jun., Bradford, 7-h.p. M.M.C.; Mr. and Mrs. Parkyn and Mr. Whitehead, Gee Cross, 8-h.p. M.M.C.; Mr. Gould, Mr. C. King, and Mr. Clark, London, 12-h.p. Gladiator; Mr. and Mrs. J. A. Morris, Altrincham, 16-h.p. Lanchester; Mr. J. C. and Miss Evans, Sheffield, and Mr. Richard, Altrincham, 12-h.p. Darracq; Mr. Ellis, Sheffield, 8-h.p. M.M.C.; Mr. J. Hinde, Mr. Robinson, Mr. Sylvester, and Mr. W. B. Cawood, hon. secretary Sheffield Club, 12-h.p. La Plata; Mr. A. A. Padley, Market Rasen, 11-h.p. De Dion; Mr. Schwabe and Mr. Schwabe, sen., Baby Peugeot; Mr. L. Schwabe and Mr. J. Ash, and Mr. Lee, Manchester, 10-h.p. Panhard; Mr. A. C. Jones and Mr. and Mrs. Kenyon, and Mr. H. Jones, Manchester, 12-h.p. Clement; Mr. Rowcliffe and Mr. B. S. Harbourn, Manchester, 9-h.p. Clement; Mr. and Mrs. Crosslans Taylor, Hilsbury, and Mr. M. Bonnallis, Chester, 10-h.p. Wolseley; Mr. Higginbotham, Macclesfield, Mr. Fernando Guerra St. Santandu, Mr. Crewe, and Mr. Kershaw, 60-h.p. Mercedes; Mr. Parker, Baguley, Mr. and Mrs. Hall, Woodley, 15-h.p. Panhard; Mr. Carter and Dr. Stanton, Market Deeping, 2¾-h.p. Royal George motor-bicycles; Mr. Arrowsmith and Mr. and Mrs. Cranham, Manchester, 12-h.p. Horbick; Mr. Heywood, Middleton, and Mr. Beasley, Rochdale, 5-h.p. Humberette; Dr. and Mrs. Ferguson and family, Manchester, 9-h.p. Clement; Mr. and Mrs. J. Barber, Sheffield, 12-h.p. Belsize; Mr. A. Bennett, London, and Mr., Mrs. and Miss Lawton, Sheffield, 12-h.p. Clement; Mr. F. Lea, Bowdon, 12-16-h.p. Clement; Mr. and Mrs. D. Moseley and Miss Preece, Manchester, 12-h.p. Daimler; Mr. W. S. Foster, Mrs. P. M. Wright and the Misses Nessley, 24-h.p. Georges Richard, Lincoln; Mr. W. Nissler and Mr. W. Percival, Lincs., 8-h.p. De Dion; Mr. P. M. Wright and Mr. and Mrs. J. M. Gay, Lincs., 12-h.p. Georges Richard; Mr. and Mrs. Ware, Nottingham, 12-h.p. Humber; Mr. Tillwright, Rudgate, Leeds, 12-h.p. Lanchester; Mr. F. Smith (President Manchester A.C.), Bowdon, Mrs. Smith and Mrs. Thorp, Warley, York, 24-h.p. Mors; Mr. Hollingbrake and party from Stockport, 12-h.p. Talbot; Mr. and Mrs. J. R. Richardson and Mr. W. S. Richardson, Lincoln, 16-h.p. Richardson; Mr. and Mrs. C. W. Pennell, Mr. W. P. Pennell, and Mrs. Newman, Lincoln, 12-h.p. Richardson; Miss Hampson and Mr. and Mrs. Redfast, Southport, 60-h.p. Mercedes; Mr. H. M. and Mrs. Lowth, Baby Peugeot; Mr. and Mrs. Burley, Sheffield, 6-h.p. La Plata; Mr. and Mrs. Dobson, Manchester, and Mr. and Mrs. Whittaker, Wilmslow, 60-h.p. Mercedes; Mr. H. W. Lee, Mr. Lloyd Jones, and Mr. J. A. Bennett and Mr. Saville, Mr. Higginson, Mr. Hesse, Manchester A.C.; Mr. H. Artenfeld, Bolton, and Dr. Rowcliff, Mr. L. C. Ingram and Mr. Rees Jeffreys, 12-h.p. Durkopp; Mr. Pickford, Mr. Lamb, Sheffield, and Mr. J. E. Kersnaw, Eccles, 20-24-h.p. Spyker; Mr. G. H. Kirk, Mr. Brown, and Miss Crawford, Nottingham, 12-h.p. Georges Richard; Mr. C. Evinson, Mr. and Mrs. Hill, 8½-h.p. Humber; Mr. Orchard, Derby, 9-h.p. Napier,; Mr. Ward, Nottingham, 12-h.p. Humber; Mr. and Mrs. G. Linnell, and Mr. and Mrs. Wade, Market Deeping, 10-h.p. Wolseley. The following members of the Sheffield Club:—Mr. Watts and party, 6½-h.p. Humber; Mr. J. E. Evans and party, 11-h.p. Darracq; Mr. A. T. Blyth, 3½-h.p. Quad; Mr. C. Hatfield and party, 6-h.p. De Dion; Mr. J. H. Rickford and party, 12-h.p. Wolseley; Mr. C. Bradbury, 6-h.p. La Plata; Mr. Beasley, 6-h.p. Wolseley; Mr. Turton-Chatterton, 6-h.p. De Dion, and Mr. and Mrs. B. Shaw, 6-h.p. De Dion. Capt. Lyall and Mr. C. J. Parker, Grantham, and Capt. J. A. Cole, J.P., Roxholme, Chairman of the Lincs A.C., 7-h.p. Panhard; Mr. C. Nelson and Mr. N. Bell, Lincoln, 4½-h.p. De Dion; and several others.

THE local authorities of Barnet are interesting themselves in the speed of motor-cars passing through the area of their jurisdiction.

MR. G. IDEN, late works manager of the Motor Manufacturing Company, Limited, is now trading at the Fleet Works, Coventry, as the Iden Motor Car Company. The firm is making a speciality of both a large and a small car, and already has orders in hand for the higher-powered vehicle.

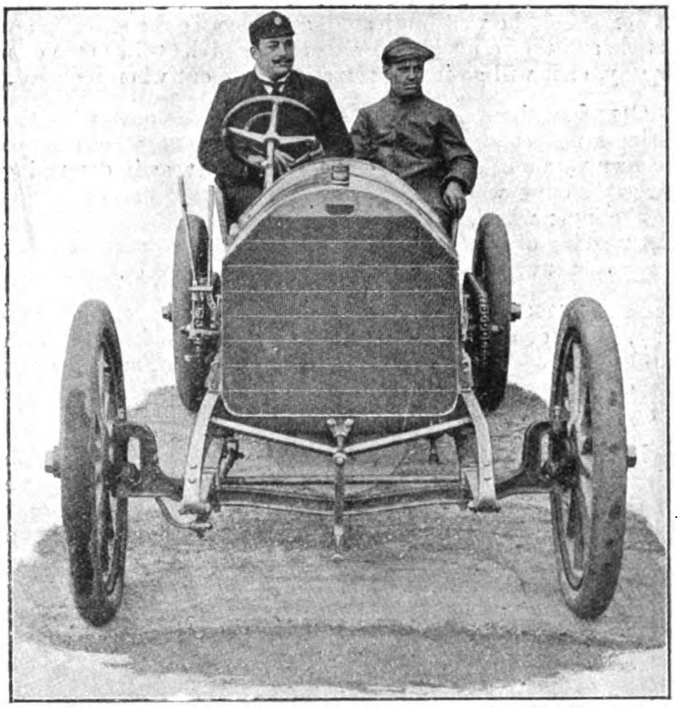
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THE LADIES' AUTOMOBILE CLUB.

THE inaugural meeting of the Ladies' Automobile Club was a great success, over sixty cars being assembled in the open space of Carlton House Terrace, opposite Waterloo Place, W. The vehicles were drawn up in front of the Duke of York's column, and punctually at the appointed hour the procession moved off by way of Pall Mall, past the Horse Guards Parade, round Hyde Park, by the Powder Magazine to Hammersmith Bridge and to Barnes, where tea was enjoyed at the Ranelagh Club. The Duchess of Sutherland headed the procession with her 18-h.p. Mercedes, closely followed by Lady Scott Montagu, Lady Beatrice Rawson, and Mrs. Gerald Leigh, vice-presidents; and Miss d' Esterre Hughes, the secretary, on Lady Violet Talbot's car. Mrs. Manville's car was gaily bedecked with flowers, and the gay dresses presented quite a novel spectacle. There was quite a large contingent of gentlemen, headed by the Right Hon. Henry Chaplin and Mr. C. E. Shaw M.P., the latter on a 24-h.p. Star car.



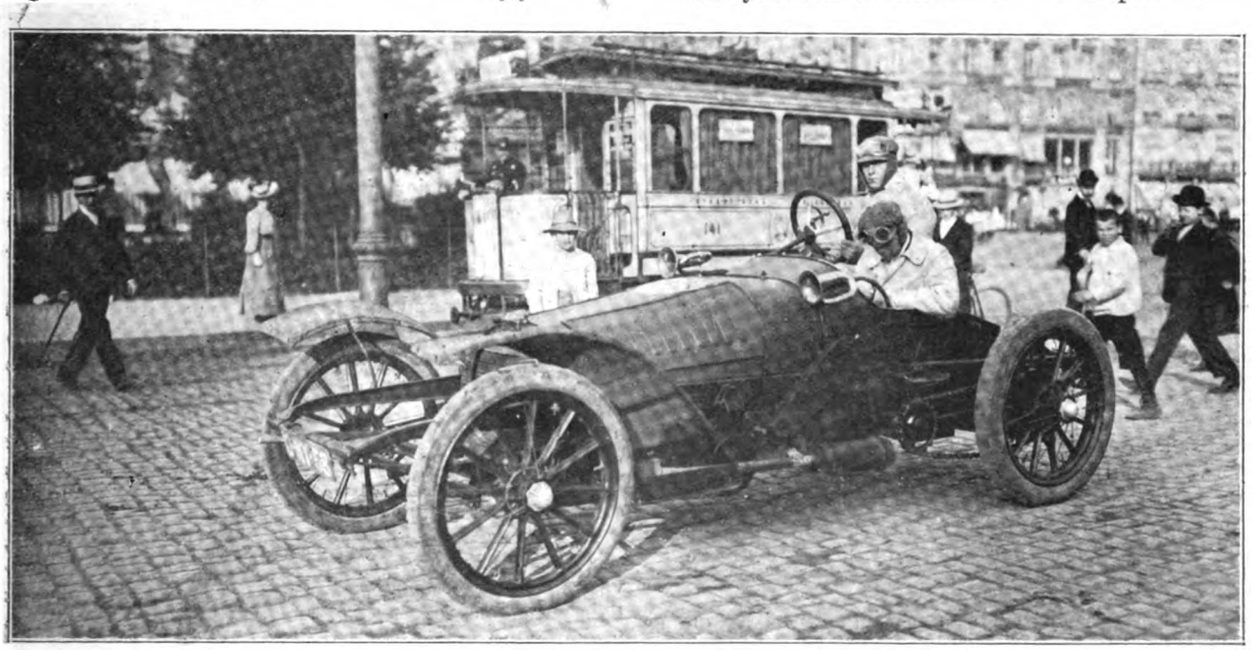
Jenatzy on his 90-h.p. Mercedes.
It will be noticed that the wheels of the car are provided with a novel form of folding mud-guard.



Signor Lancia on his Fiat Car.

THE "Adelaide Advertiser" has been using a squad of motor-cyclists in connection with the despatch of "copy" from local race meetings. The machines were supplied by the Lewis Cycle Works, of Adelaide.

THE Tyre Syndicate, Limited, has been formed with a capital of £1,000.



Mr. C. Jarrott on his Wolseley at Homburg.

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SOME USEFUL NOTES.

MANY cars have a coupling-box in which the clutch-shaft slides, the drive being on a square. It is most important that this box should be well lubricated, as otherwise the shaft is apt to stick, and the result is that either the clutch will not go in properly, or it will go in and refuse to come out when required.

CARS have been made, and some are made now, with the steering arms set straight, so that when the front wheels move they turn parallel. This, of course, is incorrect, as in describing a curve the outer wheel should describe an arc of larger radius than the inner wheel, so that there shall be no slip, and consequent wearing of the tyres. To effect this, the two steering arms are set inwards, and the steering is then correct.

PNEUMATIC tyres are often put down as an expense and worry, but they are not really so bad. If one looks after them and fills in cuts on the outer cover as they appear, and does not use the brakes recklessly, there will not be one half the trouble some people say.

IN choosing a car with a honeycomb cooler, in which the fan is driven by a belt, two points should be noticed. First, the belt should be as thick as possible, as otherwise it is very liable to break; (2), the half-time wheels, if exposed, should be protected with some sort of cover, to prevent the belt dropping between the wheels in the event of it breaking.

CARS are now usually made with a metal shield underneath the engine (sometimes all the way underneath) to protect it from mud, wet, etc., but provision is rarely made for draining off the oil in the crank-chamber. An aperture should be made for this, or a pipe should come from the crank-chamber through the shield.

IF one desires to remove the clutch-spring box on a Panhard, or a car of similar type, do not start by unscrewing the small nuts which secure it at three corners, or trouble will follow. Run the nut on the draw-bolt right up, so that the box is held, then remove the small nuts and slacken back the nut on the draw bolt, and the box will then come off by pressure of the spring.

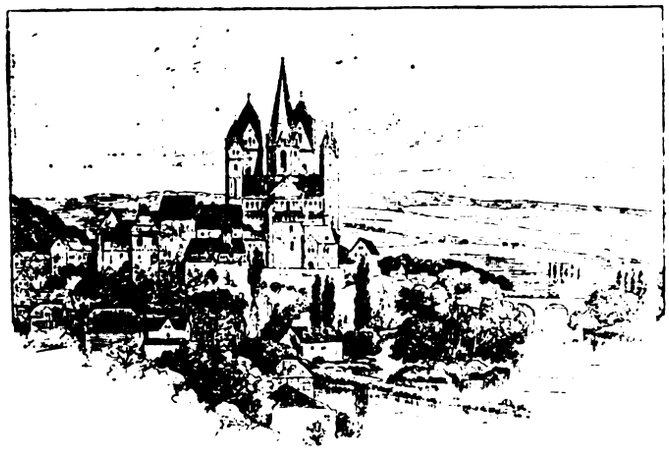
MUCH of the ease and comfort of motoring, especially on tour, depends on the care and forethought which has been bestowed on that too often neglected portion of the car's anatomy, the tool-box, and a glance at the interior thereof will often give the observant critic much insight into the character of the owner. The too familiar cupboard, in which spanners, oil-cans, wire, loose nuts, and—too often—inner tubes as well, wallow in a marsh of spilt oil and grease, sometimes has a variant in a clean and neatly-kept receptacle, in which the orthodox set of tools repose in assorted places, but from which all else that could be useful in an emergency has been carefully omitted.

IT may be well to consider what a well-regulated tool-box ought to contain. Lubricants will, of course, occupy an important place, and an oil-can and grease injector, with reserve stock of oil, grease, graphite, and French chalk, also a small can of paraffin for valve grinding and lamps, and flour emery, will include most things necessary of this kind, a collection which is, if possible, best kept apart from the tools and replacements, in the interests of cleanliness. Screw-top tins, such as used for vaseline, form the best receptacles, on the whole, for such of these as are solid.

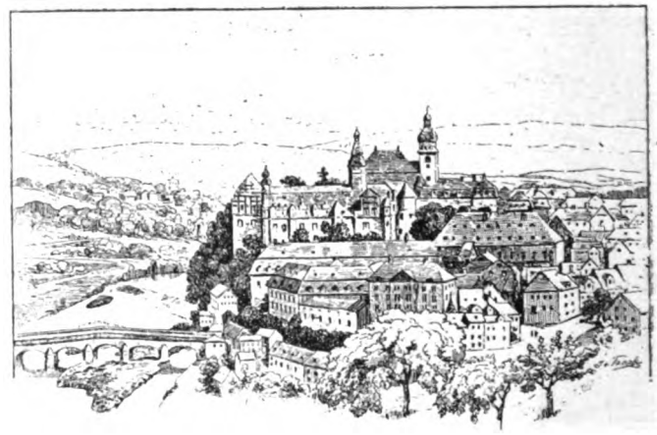
SUFFICIENT spanners are generally supposed to accompany a car, a belief that it is not always superfluous to verify, and a large adjustable spanner, and hammer (unless the same tool serves for both) is always wanted, while a smaller one of the "Clyburn" type, most convenient for awkward corners, should accompany it. It is generally necessary also to have another one thin enough to be used on the lower of two lock-nuts, or such, if small, cannot be properly tightened, while some car-builders have a prefect genius for devising nuts in positions where a specially-shaped instrument is needful to tighten them. Screw-drivers, cutting pliers, a large file, and a watchmaker's file for the coil will also have their places, and a steel "tommy" and 6 in. or 9 in. "Footprint" pipe-wrench should be included. If touring in remote regions is intended, it is useful to have a small vice that can be clamped to the step of the car, which need not take up much room, and it is better to have a knife and scissors in the tool-box than not to have them in one's pocket.

SPARE parts and sundries will vary with the type of car, but plenty of nuts, bolts, and split pins should be carried, and replaced as they are used up, which precaution, though obvious, it seems almost necessary to mention, if experience of its neglect is a guide. Spare sparking-plugs, valves, and valve-springs suggest themselves, as also, in some cases, a spare circulating pump, while the necessary plates and bolts for patching up a broken spring are things very inadvisable to omit in the present state of road management. Asbestos sheet and string, and ready-cut packings, along with copper wire—plain and insulated—and cloths and waste, should all be there, and though it is very improbable that any one of all these multifarious items will be wanted on any particular run, like the Yankee's revolver, "when you want it you want it badly."

FINALLY, tyre-repairing necessaries are a thing apart, and should be kept so, not being improved by rude contact either with tools or oil; and the harmless, necessary voltmeter is safer in the owner's pocket than elsewhere; it is doubtful even whether, in the small sizes useful for ignition accumulators, it can be safely screwed to the dashboard if it is to retain its accuracy, convenient as that arrangement is.



Limburg.



Wellburg. [Automobil Welt.

VIEWS ON THE GORDON BENNETT COURSE.

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IN SUNNY SUSSEX.*

THE motorist goes beyond the ordinary plans of guide book writers. Their daily rambles he compasses before lunch, and ere nightfall he has traversed their itinerary of a week. Hence the route sketches of a few years ago have become of almost antiquarian interest, their practical value being as mythical as the famous Mrs. Harris. The need has arisen for a new order of Knights of the Pen—men of rapid characterisations, of full knowledge, and of native love of the places



Westham, near Pevensey.

of which they write. And, as Thackeray told, in his "Book of Snobs," the Occasion always produces the Man. So far as the county of Sussex is concerned he comes in the person of Mr. E. V. Lucas, accompanied with Mr. F. L. Griggs, whose pencil gives definition to the writing of his collaborator. Two characteristic sketches are reproduced herewith by favour of the publishers.

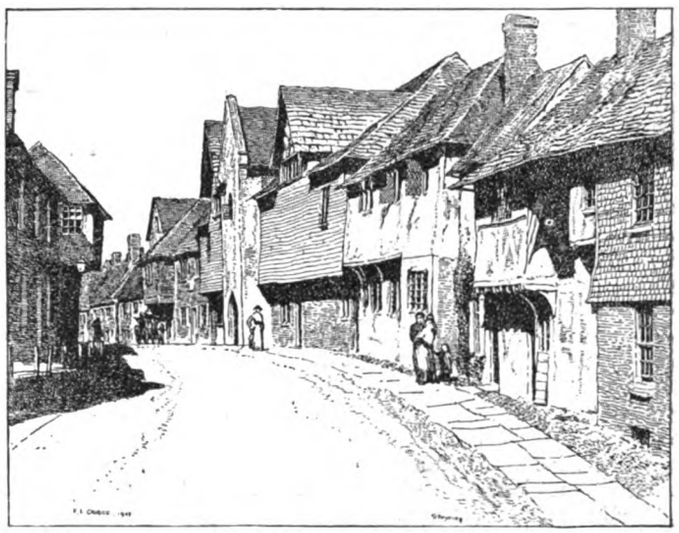
Mr. Lucas enters Sussex from the west at Midhurst, where memories of leaders of the nineteenth century as dissimilar as were Richard Cobden and Cardinal Manning linger in the minds of the older residents. It is the most contented town in the county. From thence the way taken by the author is through Chichester, which some Goodwood devotees would probably be alarmed to know is a cathedral city with a wonderful sense of silence during fifty-one weeks out of the fifty-two; ancient Arundel, as mediæval as in the days of the Plantagenets; breezy Brighton, with its delightful background of the Downs; Lewes, with its pleasant gardens; Eastbourne, the select; Hastings, the popular; and finally emerging from the county at Withyham, on the borders of Ashdown Forest.

Mr. Lucas does not sing needless rhymes as to the glory and the smoke of railways, the throbbing of the automobile, and the weary walking of the pedestrian, or the score of other useless rhapsodies which might have induced him to wander from his subject. He writes only of Sussex, its pleasant pastures, its literary lore, and the men and women who have found a resting-place in its old houses and castles. Of the Sussex Downs he is enthusiastic. They are the "crown" and the "symbol" of the county, and will "probably be the last stronghold of the horse when petrol has ousted him from every other region"—the only reference to the automobile of which Mr. Lucas is guilty.

Brighton is known to everybody. Salubrious, gay, uninteresting, fashionable in the season, and breezy at all times, the "Queen of Watering Places"—as it was first called by Horace Smith in 1813—has a favoured situation. In the days of William Hazlitt and the Lambs travellers embarked from its beach for France, and it was really an adjunct of the Court. But the coming of the train destroyed its distinction—it became *caviare* to the crowd, and the crowd drove away the few. But in modern days its healthy situation has proved a source of profit to its hotels. Herbert Spencer lived there in his later years, and towards the close of his life Mr. Gladstone confessed that a few days at the Lion House on the Front renewed his health as did no other place. In fact, Robert Browning is said by Mr. Lucas to have been the only Englishman of note who never visited the place; and, as we have tested the accuracy of what he writes on many other points, we accept his statement as to the poet. But Brighton is not alone—lying clustering about it are little villages accessible by road, and leading to secluded hamlets away from the clatter of the half-crown tripper. By a hilly road, with the sea in view the whole way, we reach Rottingdean, where Sir Edward Burne-Jones was inspired to paint his "Legend of the Briar Rose," and where William Black's remains sleep in their flower-covered grave. A few years ago we met Mr. Rudyard Kipling motoring to his home between the artist's house and the little churchyard, with a dirty green duck pond before the high wall that hid his house from the gaze of the "absent-minded beggars" and others, who have at length driven the vigorous writer to the seclusion of Burwash. A few explosions more and the motorist will be at Ovingdean, which supplied Harrison Ainsworth with a subject for a novel, and gave him the opportunity to mix his history into a strange medley. All of which is known to Mr. Lucas, as well as many other things not in the nature of a review to disclose.

In the other direction is Shoreham, with its town of bricks and mortar nestling around the old church and the newer colony of railway carriages taken off wheels and set upon the shingle for human habitation—a summer clan of people making sojourn there and finding no mention in this otherwise all observing volume. And at Worthing the author enters into the spirit of the place without mentioning such modern conveniences as the local hotel proprietors, who cater for motorists with an enthusiasm rare even in this rapid age. There is a delightful picture of Rye, the "city set upon a hill," looking wistfully to the sea that will come no more near its walls, but is steadily leaving the little town, which looks as though it were in Flanders.

Sussex is essentially a county of delight to the modern traveller, who can dart along its bye-ways and highways finding contrasts in such places as Bognor, a speck of a town wholly lacking in resource, and Brighton, that almost overwhelms itself with its pushfulness. Pulborough was a Gibraltar of the



Church Street, Steyning

Romans; at Bignor the man of the Twentieth Century is transported to a Roman villa of the days of the Cæsars; at Hastings, old ruins and the day tripper almost jostle each other; at East Grinstead is Sackville College, made famous by Fred Walker's picture, "The Harbour of Refuge"; and, in fact, Sussex, though lacking the majestic grandeur of the Welsh hills or the pathetic splendour of Killarney, is a pleasant county, full of delightful associations and made all the more attractive to the motoring tourist by its quaint inns and friendly hospitality to man and motor.

* "Highways and Byways of Sussex." By E. V. Lucas. London and New York, Macmillan and Company, Limited.

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NOTES ON RE-CHARGING ACCUMULATORS.

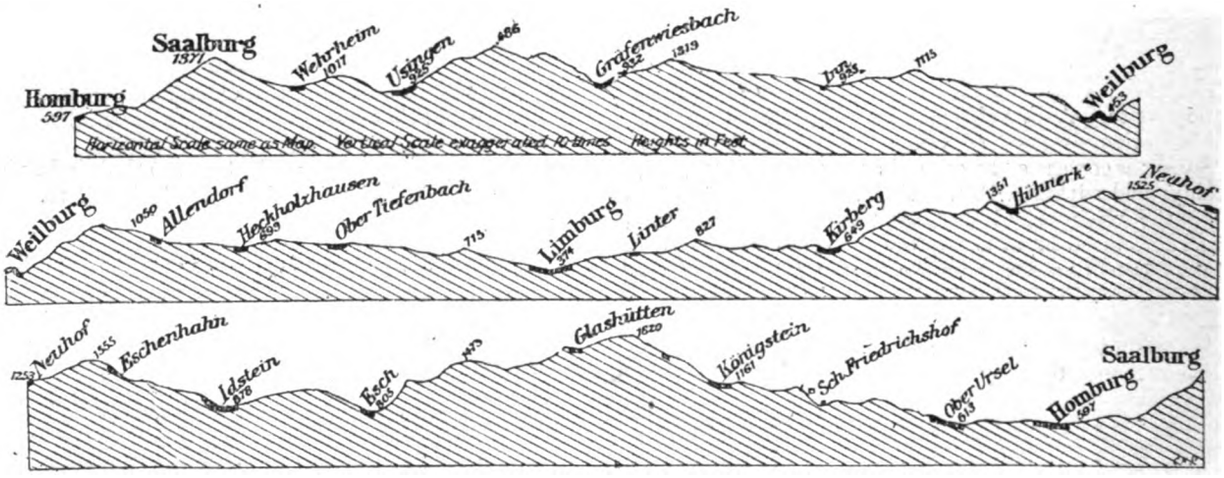
FROM letters which have reached us during the past months, we notice that more attention is being paid to the practical points of re-charging ignition accumulators, but most of our correspondents appear to think that it does not materially signify if a 4-volt accumulator is charged with 5 or 6 volts at the terminals. This, however, is a great mistake, and one which has been the cause of large numbers of accumulators being ruined.

The instances in which this error arises are those in which accumulators are charged from a 6-volt plating dynamo, from three large electric lighting type cells, or from a low resistance primary battery giving 6 volts or more. Now it may be taken as a practical fact that a 4-volt two cell accumulator, which is in good working order, does not require more than 5 volts at its terminals to pass a current through it of sufficient strength to recharge it properly. It should be noticed that the 5 volts must be available at the terminals of the accumulator, as this eliminates any loss of voltage from internal resistance in the charging battery, if a primary battery is being used. But if the charging is being carried out by a 6-volt dynamo there is no internal resistance to speak of, therefore the dynamo voltage must be reduced so that it is only 5 at the accumulator terminals, by inserting a resistance in series. When this has been properly done, and the charging current is flowing through the circuit, it will be found that a voltmeter applied to the two terminals of the accumulator will register 5 volts, whilst the voltmeter reading across the two ends of the resistance will read 1 volt. Each part of the circuit is absorbing the required proportion of the total 6 volts pressure.

Having, therefore, firmly fixed in the mind that 5 volts is all that is required at the accumulator terminals to charge it, we must now explain why this is so, and why any increase of voltage over the prescribed amount should make such a great difference in the current. When a 4-volt accumulator is first put on to recharge, the voltage immediately rises to between 4¼ and 4½ volts whilst the charging current is flowing through it, though it may fall to 4 again directly the current is cut off. As this pressure of 4½ volts is opposed to the charging pressure of 5 volts, there is a difference of only ½ a volt between them, and it is, in fact, only this ½ volt which is necessary to send the current through the accumulator after the opposing voltage has been overcome. This being the case, it is obvious that if the charging voltage is increased to 6 volts the effective available voltage is being increased to three times its previous value, and as the current is directly proportionate to the voltage, the current is increased to three times its value and the accumulator is charged at an excessive and injurious rate.

If the voltage of the accumulator to be charged happens to be very low, perhaps 3·8 volts, and the charging voltage even higher than 6 volts, the excess of current will be very much greater. When charging at 5 volts, if the accumulator to be charged is low in voltage it will receive more current for the first few moments, but the effect of this will be to quickly raise the opposing voltage, whilst the charging battery will fall slightly, and a suitable balance soon arrived at. With 6 volts as the charging voltage it is not possible to get a balance, as the accumulator being charged cannot under any circumstances rise above 4·7 volts.

In order to obtain some practical figures showing the excessive currents than can be obtained by using 6 volts to charge a 4-volt accumulator, we made the following experiments. A 6-volt set of accumulator cells of 10 ampere-hours capacity was connected up to a 4-volt set of the same capacity, to charge them. Immediately the circuit was completed the current was 15 amperes. We then replaced the 4-volt 10 ampere-hour accumulator by a 4-volt 30 ampere-hour size, the current in this case being 6 amperes. Lastly we took three large accumulators of the type used for electric lighting in a house circuit, and connected these up to charge two similar cells in the same set, so that, as before, we had 6 volts to charge 4 volts. In this case, owing to the large area of the plates and the internal resistance of the acid, the current was only 2½ amperes, though a current of 40 amperes would not have harmed the cells. It will therefore be seen that though no harm may be done in the case of cells having a large area, in small cells such as are used in motor-cycles or cars, with very small internal resistance, the current strength will be increased to an enormous degree if too much pressure in volts is available at their terminals.



Profile of the Gordon Bennett Course.

A golden rule to be remembered as a guide is as follows. When charging accumulators allow 2½ volts in the charging circuit for every 2-volt single cell to be charged, and on no account exceed this. When charging is carried out from an electric light circuit with lamps in circuit, no care of this sort need be taken, as the lamps act as an effectual resistance to prevent any possibility of excess of current, more care being needed to see that enough current is obtained than too much.

MESSRS. READ, HOLLIDAY AND SONS, LIMITED, Huddersfield, have sent us a pamphlet descriptive of the new motor spirit, "Motol," they have recently introduced. They claim it to be the result of many experiments made with a view to the production of the best possible spirit for use as a motive power. "Motol," is a carefully fractionated hydro-carbon of practically uniform boiling point, free from all objectionable odour, and which may be vapourised in the motor, under ordinary working conditions, to dryness. The new spirit is manufactured in two qualities, viz., S.G. ·680 "Motol" L, and S.G. ·700 "Motol" H.

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THE HILL-CLIMBING POWER OF MOTOR-CARS.

HILL-CLIMBING power is a characteristic of the motor car about which much interest rightly centres. It is a far more important consideration than the attainment of high speed, and to a certain extent is incompatible with it. The hill-climbing power of many cars has been sacrificed to the speed ideal, and oftentimes to considerations of simplicity and cheapness of construction of the change-speed gear. The capacity of any petrol car to ascend hills is dependent upon (1) the total piston displacement per stroke of the motor; (2) the efficiency of the transmission elements between the motor and the vehicle tyres; (3) the diameter of the driving wheels; (4) the gear, *i.e.*, the ratio of engine revolutions to driving wheel revolutions on the lowest gear, and (5) the total weight of the vehicle loaded.

The relation may be expressed thus:

Hill-climbing capacity $a \frac{D\,e\,g}{W d}$,

where D is the total piston displacement per stroke (account being taken of the number of cylinders); *e*, the total efficiency of transmission as previously defined; *g*, the gear, as specified above; W, the weight, and *d*, the diameter of the driving wheels. This formula may occasionally prove of assistance in comparing the performance to be expected of different vehicles, if like quantities are always expressed in the same units, but, like almost all mathematical expressions obtainable in the present state of the automobile art, it is really of very little value, owing to the following considerations: Piston displacement is a very poor criterion of the energy delivered per cycle by an explosion engine, because different motors of the same bore and stroke vary in regard to their compression spaces; the tightness of their valves and pistons; the degree of expansion of the charge; internal friction; the pressure and temperature at which the charge enters the cylinder; the quality of the mixture; the correctness of the spark position; the adequacy of the exhaust valves and their timing; the silencer back pressure, etc. As it is practically impossible to obtain all this data in suitable units, to determine what effect the different variables would produce and to incorporate them into any usable mathematical expression, we are without any means of comparing what different petrol engines are actually developing per stroke, except by a brake test.

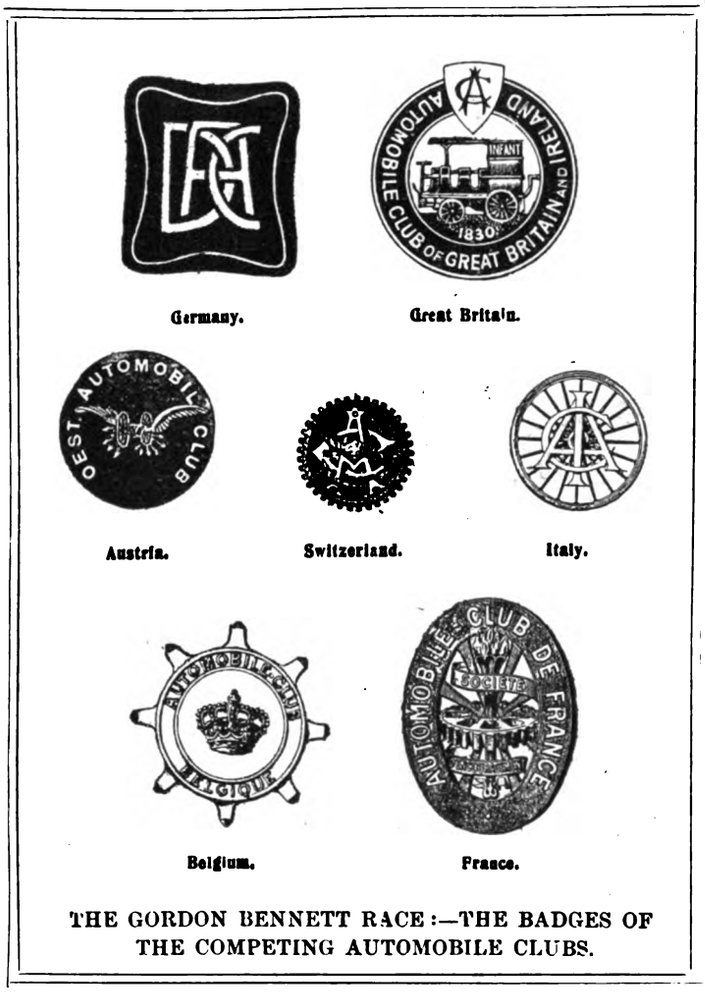
Furthermore, the efficiency of transmission depends upon so many obscure conditions that it can never be determined with any exactness short of an actual test. The losses in clutches, in the tooth friction of spur and bevel gears, in the bearings of transmission shafts and axles, and in the sprocket and chain gear and universal joints are values which vary with the speed and torque existing in the parts concerned, with the alignment of shafts, the correctness of tooth outlines and with the lubrication. Very few, if any, tests of transmission gear efficiencies have been made and given to the public. The transmission efficiency obtained by test for a certain machine when running at a certain speed, of a certain gear, with a known absorption of power, is not necessarily exactly that of the same vehicle when a greater or less amount on power or speed is involved, and is certainly not the same when running on a different gear, owing to there being more or less gears concerned, running at greater or less speeds, and for other reasons. The transmission efficiencies of different individual machines of the same make and model may be widely different, owing to deformation of the tooth outlines of gears or through incorrect pitch, the looseness and consequent misalignment of shafts, or any undue tightness in their bearings, the dragging of idle clutch bands, the stretching of chains, so that their pitch is no longer correct, and differences in lubrication.

Different types of machines, employing widely diverse transmission systems, would naturally be found to possess efficiencies differing very markedly. The American type of light two-seated car, when running on the high gear, must possess a very high efficiency of transmission, as the driving sprocket forms virtually a part of the engine shaft, and there should be hardly any loss between the engine and the tyres, except the chain and sprocket friction, as the rear axle generally runs on ball or roller bearings. Probably no type of automobile which has ever been built wastes less power than such a machine on the high gear. When, however, it is running on the low gear, not much can be said in commendation of its transmission efficiency, as the planetary gear is too often made in the very cheapest manner, and the small internal pinions are believed to constitute an arrangement excessively wasteful of power, although this belief may not be true of all planetary combinations, and in the absence of published tests cannot be definitely asserted. It is at least true that in no type of automobile is the good efficiency of the high gear so strongly in contrast with the inferior low gear efficiency as in the typical American runabout.

However, petrol cars in general have unfortunately a lower efficiency of transmission on the lower gears than on the high speeds. This, while apparently inevitable, is unfortunate for the reason that it is just when a car is operating upon its lowest gear, negotiating a steep hill or a very bad piece of road, that one needs the highest net horse power that the engine can furnish to the wheels, and at that very time we have to be satisfied with the lowest, owing to the gears that are in action and the very powerful torque which is acting upon the transmission shafts tending to increase friction, and to force them out of alignment.

There is no such difference between the high gear and low gear efficiencies in the case of the sliding gear and individual clutch systems as exists among the planetary systems, for in the two systems mentioned there are always the same number of gears in mesh (not considering the reverse), and the change of gear merely produces a change in the relative speed of the driving and driven spur wheels. Furthermore, the sliding gear and individual clutch transmissions are generally more substantially built and less shaky and springy than some of the planetaries.

(To be continued.)



THE GORDON BENNETT RACE:—THE BADGES OF THE COMPETING AUTOMOBILE CLUBS.

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MOTOR CYCLING NEWS.

To the end of May 578 foreign motor-cycles had this year been imported into this country; their value, together with those of parts, amounted to a total of £28,646.

◆ ◆ ◆

On Monday last Signor Horace Toscano left Messrs. Werner and Company's depot in Regent Street, W., *en route* for Newhaven, where he intended to catch the night boat for Dieppe. His object is to establish a motor-bicycle record between London and Rome, and to beat the record between Paris and the latter city. He hopes to accomplish the journey of 2,000 kilometres in six days.

◆ ◆ ◆

The second annual hill-climbing contest of the New York Motor-cycle Club was held on the 30th ult., on Fort George Hill, New York, and brought out nineteen competitors, all of whom rode American-made machines except one, a French 2-h.p. Griffon. The hill is 2,812 feet long, the maximum grade being a little more than eleven per cent. The best time up the hill was made by a boy named Fox. He did it in 59 4-5 seconds, but was disqualified for violating the rules by using the Indian machine of another contestant, that of F. W. Rogers, who won the first prize, his time being 1 min.; G. H. Curtiss on a Hercules was second in 1 min. 2 4-5 secs.

◆ ◆ ◆



A Rexette carrying Five Passengers up Stoneleigh Hill, near Coventry.

◆ ◆ ◆

The following is the official list of the riders completing the distance from London to Edinburgh within twenty-four hours, and thus qualifying for the gold medals and special badges offered by the Motor Cycling Club. This list is compiled after the committee have investigated each claim. Messrs. T. H. Arnott, C. E. Bell, C. W. Brown, D. E. Brown, A. Candler, H. E. Cowles, J. F. Crundall, H. J. Densham, Chester Fox, C. W. Hacking, J. Van Hooydonk, T. Hooydonk, H. P. Maffert, W. J. Milligan, J. H. Reeves, W. A. Sale, F. Silver, L. N. Young, W. H. Wells, H. Williamson, and A. C. Wright. It will thus be seen that twenty-one riders have qualified. Twenty-two were reported at Edinburgh, but one has been disqualified.

◆ ◆ ◆

The 1,000 miles trial of the Auto-Cycle Club has been fixed for Monday, August 15th, and the following days. Last week a meeting was held at the Auto-Cycle Club, with Mr. Robert Todd in the chair, to discuss the plans, and after a variety of opinions had been expressed a majority voted for the 1,000 miles being covered in runs of seventy-five miles out and home. Last year the wet weather and the twelve miles an hour regulation did much to make the event a particularly arduous one, but with a twenty miles an hour rate of speed and fine weather there should be a really satisfactory test possible on the proposed lines. The Trials Advisory Committee is fully representative of the trade and the Auto-Cycle Club and the forthcoming event will be something of importance in the motor-cycle world.

◆ ◆ ◆

The final test for the Edge trophy was held on Saturday last by the Motor Cycling Club between Redbourne and Stony Stratford. Of the twelve competitors left in the contest eleved faced the starter at the early hour of 3 a.m. As compare with the first round a concession was made in allowing the riders to dismount at the turning points. Eight of the riders finished the first hundred miles and six completed two hundred miles. Some had, however, exceeded the maximum speed limit set out in the rules, and were thus liable to be disqualified. Amongst these were Wells, T. Hooydonk and Silver, who decided not to continue. This left in only Johnson, Hulbert and Mays. Unfortunately the latter was not able to start on the third 100 miles owing to the simple matter of a temporarily flooded carburettor. On starting for the last fifty miles it was observed that the back tyre of Johnson's 2¾-h.p. Humber was leaking. Nevertheless he achieved second place in the contest, the winner being F. Hulbert on a 2¾-h.p. Hulbert-Bramley.

◆ ◆ ◆

The Catford Cycle Club held their 18th annual hill-climb at Westerham on Saturday last. The course was from below the cross-roads up to the danger-board, the total distance being 1,200 yards. The motor-cycle events, which were run off first, were divided into two classes—machines having a cylinder capacity of 70 by 70 mm., and those over this measurement but under 80 by 80 mm. Competitors were allowed a running start or a push-off, and pedalling was permitted. In the light class only three riders started, while but two, H. Tyler (Humber) and A. A. Chase (Chase), reached the top, in the respective times of 2 min. 32 3-5 secs. and 2 min. 33 secs. In the heavy class twenty-six competed, including a Cosi car, a two-seated vehicle intended for attachment to a motor-bicycle. The winner was A. A. Chase (Chase), 1 min. 43 secs.; W. W. Genn (Eland) being second in 1 min. 43 3-5 secs.; F. W. Chase (Chase), third in 1 min. 50 secs.; and J. J. Leonard (Lurquin-Coudert), fourth in 1 min. 52 2-5 secs.

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A meeting of motor-cyclists connected with the Lincolnshire Automobile Club will be held on the 22nd inst., to consider the formation of a motor-cycle section.

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The final round of the Peterborough Motor-cycle Club's reliability trial was to be brought to a conclusion on Tuesday. Three hundred and seventy-five miles had been covered by both the men left in, B. C. Holmes (3½-h.p. Vinco Minerva), and T. Woodman (3½-h.p. Lightstrung). On Tuesday morning they rode to Lincoln and back to Peterborough, a hundred miles, but, both being left in, went another hundred miles to Hitchin and back. As both were left in after 575 miles, it was decided to divide the prize. Later this was altered, and a run to Folkingham and back arranged

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On Saturday last the Motor-Cycle Union of Ireland held the second of their series of speed trials on the Velvet Strand at Portmarnock. The programme was made up of three events. Two of these were confined to members of the Union and were run over a distance of one mile from a standing start. The third event was open to non-members as well, and was run over a distance of one kilometre (1,096 yards) with a flying start. Speeds equivalent to thirty-seven miles an hour were accomplished for the standing start classes, and in the flying kilometre the time of the winner was equal to about 42½ miles per hour. Details of the events are appended:—In Class A, F. A. Wallen (Triumph) was first, F. G. Drury (Triumph) being second. In Class B the final resulted in C. B. Franklin (F. N.) being first, H. S. Huet (Minerva) second, and F. A. Wallen (Triumph) third.

Class C, the open event over a kilometre with a flying start, attracted fourteen entrants, the first six being:

L. R. Oswald Sealy, 84 by 84, Excelsior, 54 1-5 secs., 1;
C. B. Franklin, 70 by 80, F. N., 54 4-5 secs., 2;
H. S. Huet, 82 by 82, James, 55 3-5 secs., 3;
F. A. Wallen, 70 by 76, Triumph, 56 4-5 secs., 4;
B. Gannon, 3½-h.p. Riley, 57 2-5 secs., 5;
R. W. Stevens, 76 by 76, Phœnix, 59 2-5 secs., 6.

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HERE AND THERE.

THE Duke of Leeds has just acquired a 16-h.p. Wolseley.

THE County Garage Company, of Carlisle has every facility for the repair and overhaul of cars.

A RACE meeting is being organised by the Irish Automobile Club for September on the Portmarnock strand.

THE De Dion-Bouton excursionists will pay a visit to Sir David Salomons at his seat at Tunbridge Wells in July.

MR. A. DUNCAN, secretary of the South Australian Automobile Club, has completed a motor-car journey of over 600 miles, between Adelaide and Melbourne, in the excellent time of thirty-eight hours.

THE Glamorgan Roads and Bridges Committee on Thursday decided to purchase 500 warning posts, to be erected at dangerous spots on the county roads for the benefit of motorists. The cost, it is estimated, will be about £2 each.

AT the meeting of Wilmslow Council Mr. Wood said the way motor-cars flashed round corners was most dangerous, and action should be taken to limit the speed. The Council unanimously decided at once to approach the County Council on the speed limit.

A PASSENGER and goods service by motor-car has lately been started between Camuy and Aguadilla, Porto Rico.

THE Laffrey hill-climbing trial, which has been held for three years by the Automobile Club Dauphinois, will not take place this year.

A LIGHT racing car fitted with an eight-cylinder air-cooled engine has just been completed by the Marion Motor Car Company, Indianapolis, U.S.A.

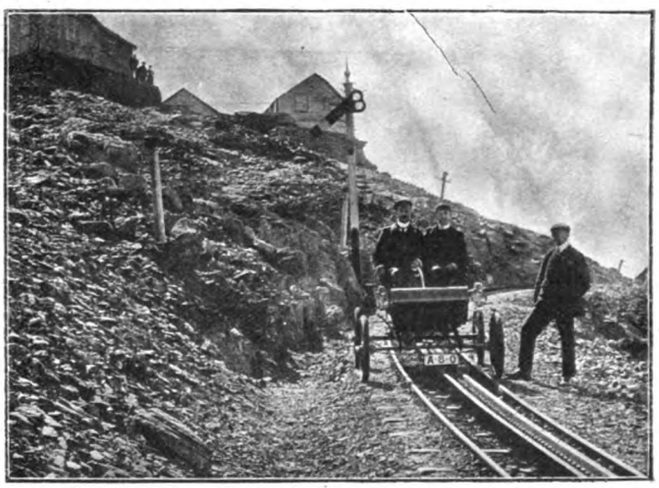
THE exports of automobiles and parts from the United States during April last amounted to £47,351, as compared with only £26,936 in the corresponding month of 1903.

A COMPANY has been formed in New York with the title of the Niagara Falls Automobile Transit Co., to take tourists and excursion parties by motor-car to all points of interest near Niagara Falls.

MESSRS. J. W. BROOKE AND COMPANY, LIMITED, of Lowestoft, have sent us a photo of a racing motor-boat, the "Baby," which they have built for racing purposes on the Norfolk Broads. The vessel, which has proved remarkably fast, doing twelve knots, for such a short low-powered boat, is only 25 ft. long and is fitted with a three-cylinder Brooke 14-h.p. petrol engine.



Photo by] Half Way Up.



At the Top. [Rowlands, Llandudno.

CLIMBING SNOWDON (*See page* 338).

A 250-H.P. racing car is reported to be in course of construction at Detroit, U.S.A., "with a view of setting the world's record on the straight-away and on the tracks so far below the present figures that they will last indefinitely."

MESSRS. FRISWELL, LIMITED, have opened an upholstering and trimming department at their establishment in Albany Street, N.W., and are now in a position not only to carry out repairs to cars, but also to repaint and varnish, and re-upholster the bodies.

A BILL was recently introduced in the Legislature now in session in Quebec providing that every person driving an automobile along any public thoroughfare shall at the request of or upon signal by putting up the hand from a person driving or riding a restive horse or horses or driving domestic animals, whether in the same or in an opposite direction, stop the automobile immediately and remain stationary, and upon request shall stop the engine so long as may be necessary to allow the horses or domestic animals to pass. A penalty not exceeding £4, or in default of payment imprisonment not exceeding one month, was provided. The bill was amended in committee by striking out the clause to compel drivers of automobiles to immediately stop their motor-car, etc., and by fixing the rate of speed on country roads at eight miles an hour. It was then read the third time and passed.

MESSRS. WALSH, NICHOLLS AND COMPANY have opened the Britannia Works, Sedgely Street, Wolverhampton, for the manufacture of bonnets, radiators, tanks, lubricators, etc. The works will be under the supervision of Mr. James Walsh, late of Coventry.

AMONG the American motorists who will tour Europe this summer is Mr. Windsor T. White, president of the National Association of Automobile Manufacturers, and vice-president of the White Sewing Machine Company, the makers of the White steam car.

THE Birmingham Motor Express Company intend to run a ten minutes' service of motor omnibuses between Bearwood and the City. The company will then possess licences enabling them to maintain a five minutes' service between New Street and the top of Hagley Road, six vehicles going to the Bear, and six to the King's Head.

A MEETING of the committee appointed at a recent public meeting in connection with a proposed Aberchirder, Huntly and Cornhill motor-car service was held in the Aberchirder Town Hall last week. Provost Auchinachie presided. Petitions, containing about 1,100 signatures, in favour of the service, were submitted, and the clerk was instructed to forward them to Mr. Moffatt, general manager of the Great North of Scotland Railway.

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leather brake band on my "Ariel" tricycle owing to grease, and on Messrs. Allen's advice have had it replaced with "Mynerine," and it is now perfectly reliable.

I have no interest in "Mynerine," but it is the best material that I have come across for its purpose, and therefore the foregoing may be of service to your correspondent and others who have had trouble in the same direction.—Yours truly,

T. GOLDSWORTHY-CRUMP.

A NEW METAL FOR TANKS.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—It may interest readers of the *Journal* to know that a new metal for petrol and water tanks has just been introduced. It consists of a steel plate covered on both sides with copper, and possesses all the stiffness of the steel with the non-rusting properties of the copper. For extreme lightness, aluminium covered with copper may be had, and may be soldered with ease. These metals or tanks to any design in them may be had from Messrs. Berrie and Company, 13½, East Howard Street, Glasgow. I may say that I have no interest whatever in this firm, but have found the manager most attentive and intelligent in carrying out designs for my experimental work.—Yours truly,

WALTER JAMIESON A.M.I.E.E.

STEAM CARS.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—We have been much interested in the correspondence that has recently taken place in the columns of the *Journal* re the above. We have driven steam cars for about two years and certainly think they are preferable to petrol cars for many reasons. They are certainly far better hill climbers and more reliable on the road. We consider that next to the White steam car, which is a very expensive car, the Toledo is by far the best; it has a semi-flash boiler and there is therefore no trouble with the tubes, as there is with an ordinary tubular boiler, and steam is generated much more rapidly. This car is built much more strongly than most other steam cars, and is therefore a more reliable touring car. We have run 25 miles on one supply of water and 75 miles on one supply of petrol. We think a petroleum burner would be an advantage, but we have up to the present time failed to hear of one.—Yours truly,

THE WATFORD ENGINEERING WORKS.

IRREGULAR IGNITION.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—In answer to H. Douglas' letter in the last issue of the *Journal* I think that he is somewhat mistaken in surmising that the car in question ran the whole of the distance mentioned, viz., twenty miles, on 1·5 volts, as the accumulator evidently stood at a much higher voltage when starting the run. I have known instances when an accumulator showing 4 volts. has been reduced to 2·5 within a distance of five miles, and this without a short circuit. Generally the discharge is very rapid when the voltage becomes reduced, and in all probability the greater part of the run was done on at least 3 volts. But even this would need a coil that would take a very small amount of current. I can remember an instance of trying a coil, made to run on 2 volts only, but never with any great success, owing to the engine misfiring greatly.—Yours truly,

T. J. H.

TREMBLER COILS.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—It may be of interest to some readers of the *Journal* possessing De Dion pattern engines designed to work with non-trembler coils to know that a trembler coil can be used without the trouble and expense of fitting a new contact make. This may be done by bending the existing contact blade so that it presses deeper into the cam notch and screwing down a spare blade on the top of the one in actual use, so as to get double the contact pressure. This ensures a firm contact, and does away with all possibility of misfiring. I recently made this alteration to a 4½-h.p. De Dion engine as a temporary arrangement, but found it so satisfactory that I shall make no further alteration.—Yours truly,

F. J. SIMPSON.

INCONSIDERATE DRIVING.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—I venture to make, through the columns of your *Journal*, an appeal to motor-car drivers who use the Bath road to drive with greater consideration and care when passing through villages, particularly those between Reading and Newbury. There have been several well-grounded complaints of excessive speed when passing through these villages, and quite recently several accidents have occurred.

I also notice a growing tendency to an insufficient use of the horn, the neglect of which is a source of great danger when approaching the many cross-roads and blind turnings in this section of the road.

The practice of obscuring the back identification plate by hanging a spare tyre cover to the back of a car should be put a stop to by owners, being clearly employed with the object of avoiding identification when committing offences against the Act.—Yours truly,

W. WARING.

AHOY POLISH.—In reply to the query in last week's issue for the address of the makers of the Ahoy polish, several correspondents have sent us the address of the Hansa Chemical Works as 46–48, Sun Street, E.C.

THE DE DION VOITURETTE.—One of the readers of the *Journal* in Freiburg (Breisgau) writes:—"As great interest is shown in England in light two-seated cars, maybe, through your kindness, I might learn by means of the *Journal* what the experience is in your country with the 6-h.p. Dion-Bouton voiturettes with only two speeds, in hilly districts." We should be glad to have the experiences of users of this popular vehicle.

BUCHET MOTORS.—Replying to J. F. Gardner, the address of the makers of the Buchet petrol motors is Les Usines Buchet, 15, Rue Greffulhe, Levallois-Perret, France.

THE "G.A." SPEED REGULATOR.—In answer to T. W. L., the agents in this country for the apparatus described in the last issue of the *Journal* are Messrs. Lawrence and Company, 132–138, Latimer Road, London, W.

CUTS IN TYRES.—A correspondent asks if there is any compound on the market for readily filling up small cuts in the outer covers of motor-car tyres.

CHARGES AT HINDHEAD.—"Tourist" writes:—"I have no doubt that many of your readers will be glad to know that the proprietor of the Beacon Hotel, Hindhead, charges 1s. 6d. for a whisky and soda, and 1s. 8d. per gallon for petrol, which they admit is of higher specific gravity than ·720."

ANONYMOUS LETTER TO CHIEF COMMISSIONER OF POLICE.—The proprietors of *The Motor-Car Journal* present their compliments to the writer, and beg to inform him that they consider he is an unmitigated blackguard, whose action is likely to do injury to a valued and honourable member of the Metropolitan Police Force.

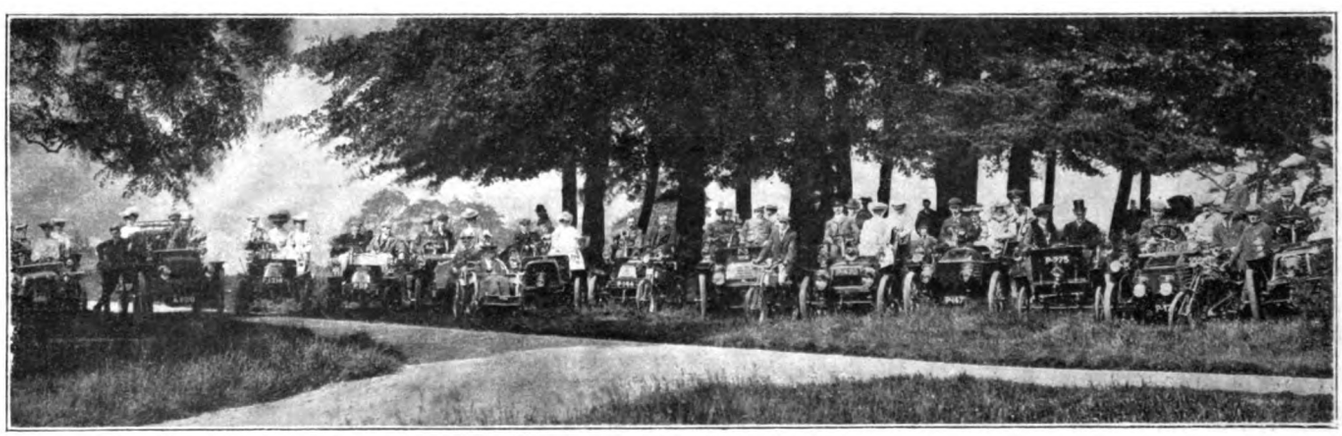


Photo by] The Opening Meet of the East Surrey Automobile Club. (*See page* 357.) [*Surrey Photographic Co.*

THE "Varsity," a social review of Oxford life, is publishing a series of photographs of university motorists, beginning with Mr. C. Gouldesbrough, of Christ Church, on his 12-h.p. Darracq.

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CLUBS AND ASSOCIATIONS.

BERKSHIRE.

THE second of the series of summer "meets" arranged by the Berkshire Automobile Club was held on Wednesday of last week, at Beenham Grange, near Aldermaston, the residence of Lieut.-Colonel W. Waring, hon. sec. of the club. Among those who accepted invitations were Major Thoyts, the Rev. J. D. and Mrs. Ouvry, Capt. E. F. Rhodes, Mr. and Mrs. E. R. Portal, Mr. H. Hill, Dr. and Mrs. Norman Joy, Mr. J. G. Carew-Gibson, Dr. A. Gordon Paterson, Dr. and Mrs. Roalfe-Cox, Miss Wyld, Messrs. C. H. Nash, J. M. Napier, J. S. Scott Smith, E. A. Potter, E. Shrapnell Smith, E. A. Barry, L. Barwell, Dr. Bruce Porter, C. H. Dodd, Gladwin-Errington, E. S. Garcke, J. F. Ochs, R. W. Powys-Lybbe, and Russell Miller. The afternoon was pleasantly spent in the pretty gardens and grounds of Beenham Grange, and in a run up to Beenham House, the residence of Mr. Henry Waring, who conducted the visitors over his famous stables. Returning to the Grange, the visitors were entertained at afternoon tea by Colonel and Mrs. Waring, and soon after the gathering dispersed.

THE AUTOMOBILE MUTUAL PROTECTION ASSOCIATION.

AN extraordinary general meeting of members of this association was held at the offices, 24, Cecil Chambers, Strand, W.C., on Friday, the 10th inst. In the absence of the president, Lord Shrewsbury, Mr. E. Lisle was voted to the chair. The fresh articles of association were submitted and approved, the resolution being moved by Mr. J. D. Siddeley, seconded by Mr. D. M. Weigel, and supported by Messrs. Charles Friswell and Charles Holmes. It was carried unanimously.

The new regulations, *inter alia*, widen the power of the association as regards protecting the trade against alleged master patents, and increase the number of the committee, which will now be styled the council. Power is also taken to appoint a Finance and General Purposes Committee.

The date for the confirmatory special meeting of members was discussed and provisionally fixed for June 27th.

A vote of thanks to the chairman was accorded on the motion of Mr. Geo. Monro, jnn., seconded by Mr. J. T. Overton.

EAST SURREY.

THE opening run of the season of the above club was held on Saturday, June 4th. The members were invited to lunch at Blackstone, Red Hill, the residence of Mr. J. B. Purchase, and about fifty members availed themselves of his hospitality. After submitting to the ordeal of the camera, the members proceeded by various routes to Timberham, Charlwood, the residence of Mr. F. E. Charles, who entertained the party to tea. After spending a very pleasant afternoon the members began to leave for their respective destinations, with many remarks of appreciation at the amount of trouble so cheerfully undertaken to make the outing a success. Among those who took part in the run were:—Major Kingsley O. Foster (President), Mr. and Mrs. J. B. Purchase, Mr. and Mrs. E. K. Purchase, Mr. and Mrs. F. E. Charles, Mr. C. H. Whittington, Mr. and Mrs. A. Gunning Keen, Mr. J. Underhill, Mr. and Mrs. G. H. Bowden, Mr. H. Hughes, Mr. and Mrs. C. F. Wakefield, Mr. F. W. Ellwood, Dr. J. Hewetson and Mr. Frank Watney, Mr. H. Rosling, Mr. A. W. Makovski, Mr. J. Humphrey, Mr. and Mrs. W. Cleaver, Mr. W. F. Garside, Mr. D. J. Barry (Hon. Sec.) and Mrs. Barry.

LEICESTER.

THE Leicester Automobile Club had a run on Saturday to Stratford-on-Avon. The route was through Coventry, Kenilworth, and Warwick. Stratford was reached in good time, and lunch was had at the Red Lion Hotel. In the afternoon a thorough inspection of the town took place. An adjournment was made to the hotel at five o'clock for tea. Mr. King acted as president in the absence of Mr. E. G. Mawbey, whose recent accident and illness were much deplored by the members. A telegram was sent to him at Hunstanton conveying the good wishe of all present at Stratford. A start on the return journey was made at about 6.30, and halts were made at Kenilworth and Warwick to enable the castles at both places to be visited. The run both out and home was entirely devoid of any untoward incident, and the members were well satisfied with their pleasant experience.

LINCOLNSHIRE.

CAPTAIN J. A. COLE, J.P., presided over a meeting of the committee of the Lincolnshire Automobile Club at headquarters on Wednesday week. Dr. Gilpin, Mr. Cyril Nelson, Dr. Lowe, Mr. W. R. Pennell, and Dr. Cragg (hon. secretary) were also present. The following new members were elected:—Mr. W. Haddon Owen (Louth), Mr. R. H. Fowler (Louth), Mr. R. A. Pelham (Gainsborough), and Mr. R. Connell (Gainsborough). Others proposed for election were:—Mr. Hugh Peacock (Gretford Hall), Mr. T. Ives (Lincoln), Captain E. Tatchell (Grantham), and Mr. F. H. Atkinson, M.D. (Grimsby). The question of alcohol being a duty free spirit for commercial purposes was brought up by Dr. Lowe, and it was stated that the various Chambers of Commerce and Agriculture were showing an interest in the matter.

A letter was before the meeting from the Motor Union concerning the question of universal lighting of vehicles, and the model bye-laws were considered. The secretary was instructed to reply stating that the club was in sympathy with the movement.

For the convenience of members attending the County Agricultural Show at Grimsby, it was decided to communicate with the secretary asking for the provision of a suitable enclosure for the cars on the show ground, where they could be left for inspection by the public.

A run to Wisbech, on the invitation of Mr. Goddard Jackson, was under consideration, and was deferred for a time, as were other fixtures at the end of the season.



Photo by] The First Meet of the Stockton and District Automobile Club. *[E. Thirlwell and Co.*

EASTERN COUNTIES.

THE second run for the season of the Eastern Counties' Automobile Club took place on Saturday afternoon, and was from Ipswich to Felixstowe. At three o'clock a fine array of automobiles was drawn up in Northgate Street, almost opposite the residence of the hon. secretary of the Club (Mr. C. K. Moseley), who had made efficient arrangements for the occasion. The motorists present included Messrs. Godolphin Milbank (10-h.p. Argyll), John Bennett (12-h.p. Ryknield) O. T. Cooke (8-h.p. Darracq), G. C. Ching (7-h.p. Primus), E. C. Sayer (Royal Enfield quad), C. D. Castell (8-h.p. Rex), B. B. Booth (9-h.p. De Dion), Dr. H. L. Heath (3½-h.p. Bat), J. R. Egerton (8-h.p. De Dion), Dr. Longworth (2¾-h.p. Rex), C. J. Edwards and H. Kettle, both with 10-h.p. Georges Richard. The road was good as far as Walton, where it became bumpy and stony, and the party had a most enjoyable run to Felixstowe, which was performed to the fraction of a second within the legal limit in regard to speed. Proceeding at once to the Felix Hotel, the motorists and their friends partook of tea. A run followed as far as Mr. Felix Cobbold's house, back by the front at the top of the cliffs, and thence round the Ordnance Hotel and along the Undercliff Road to the foot of Bent Hill, where a hill-climbing test was essayed. It was a stiff and difficult test, moreover, for no "run" could be got at the steep and winding ascent, so that a start had to be made from "stop." Mr. Moseley "reversed up"; Mr. Egerton did likewise, carrying four passengers; and most of the others succeeded in making the climb, though two had to be pushed from behind. Only one failed altogether.

CONVICTIONS AGAINST MOTORISTS.

Place.	Summoned for	Fine.
Clerkenwell	Driving to common danger	£5.
Shoreham	Insufficient lighting of plate	11s.
Brighton	Dangerous speed	40s.*

*Notice of appeal given.

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RULES FOR SMALL CAR TRIALS, 1904.

1. The trials are to be under the Competition Rules of the A.C.G.B.I., and will consist of twelve non-stop runs of approximately fifty miles each, starting from and finishing at the same point. A fifty mile non-stop run shall be made in the afternoon, for six days, a total distance of about 600 miles, and every car in order to be eligible for any award must complete the whole of the 600 miles.

The trials shall be confined to cars costing not more than £200.

There shall be four classes :—

Class A.—Not exceeding £125.
Class B.—Exceeding £125, but not exceeding £150.
Class C.—Exceeding £150, but not exceeding £175.
Class D.—Exceeding £175, but not exceeding £200.

No fore-carriage, tricycle, or quadricycle shall be allowed to compete in the trials, and the decision as to what is a fore-carriage, tricycle, or quadricycle shall rest entirely with the committee.

Entries will only be accepted from manufacturers or their nominees. No manufacturer shall enter directly or indirectly more than two cars, which, unless there is more than 20 per cent. difference in volume swept by the piston, shall then be run as a team; that is to say, each car shall be awarded marks equal to the average marks gained by the two cars.

The entrance fees for the various classes shall be as follows :—

Class	A	£10
„	B	£12
„	C	£14
„	D	£16

The entrance fees shall be paid not later than 12 noon on Saturday, July 23rd, 1904. After that hour the entrance fees shall be increased 25 per cent. per week or portion of a week. No entry can be received after 12 o'clock on Saturday, August 13th, on any consideration.

Owners shall state on the entry forms the bore and stroke and number of cylinders, and after the trials these measurements may be checked by the judges; the cylinders shall be opened up for this purpose by the owners.

If possible, there will be a timed hill climb on every day of the trials. A car carrying more than two passengers throughout the whole of the trials shall be credited with an increase in speed over that actually shown on the hills amounting to 12½ per cent. for each such additional passenger carried.

The Committee will give awards on the recommendation received from the judges appointed by the Club, as follows :—

(*a*) The first award in respect of non-stop runs in each class shall be given to the car which makes the greatest number of non-stop runs. If there be more than one car or team in a class making the same number of non-stop runs, the award shall be given to the car or team which is credited with the highest average speed on the hills in the trials.

(*b*) A car which occupies more than twenty minutes before any run in repairs, replacements, or adjustments is precluded from receiving any award in the non-stop competition.

(*c*) A car which is stopped for more than twenty minutes for repairs, replacements, or adjustments on the road during any one run is precluded from receiving any award in the non-stop competition, except in case of repairs wholly connected with tyre trouble, which shall cause that car to forfeit its non-stop for that run, but shall not disqualify it for the non-stop award.

(*d*) Cars not ready to start by 11 o'clock in the morning for the first run of the day or by 3 o'clock in the afternoon for the second run of the day and cars not completing the 100 miles by ten minutes past 7 o'clock in the evening of every day for Classes B, C, and D, or by 8 o'clock for Class A, will be disqualified from all awards, and must take no further part in the trials.

The awards for the non-stop trials shall consist of certificates in the form of a report of the performance in respect of every competing car which completes the whole of the distance of the trials. The certificate shall state the order of merit of the car in its class.

There shall be further awards, to be given at the discretion of the judges, which shall consist of gold, silver, or bronze medals, accompanied by a certificate stating the ground upon which the award is made and the class in which the car is entered.

OBSERVERS.

Every vehicle will carry an official observer, for whom a front seat must be provided, and the cars shall be under observation continuously throughout the whole period of the trials.

The club will, as far as possible, obtain independent hon. observers, but the manufacturers must be prepared to furnish one observer in respect of each car entered by them.

All competing vehicles shall be within the gates of a place to be hereafter named by 12 o'clock noon on Saturday, 27th August, 1904. Any car arriving at the gates after that hour shall only be allowed to take part in the trials on payment of a fine of £10 up to 5 o'clock on the evening of that day, and no car arriving at the gates after that hour will be allowed to take part in the trials under any consideration whatever.

The first run shall start at 8 o'clock on the morning of Monday, August 29th, 1904, and the last run shall be on Saturday, September 3rd, 1904.

CLAIM AND COUNTERCLAIM.

AN action was heard before the Lord Chief Justice in the King's Bench Division, on the 7th instant, brought by Mr. W. Mourilyan, of Richmond, against Mr. Joseph Wass (trading as Wass and Company), motor-car repairers and dealers, of Eton Street, Richmond, for wrongfully using the plaintiff's car while the same was in the defendant's care at garage.

Mr. T. Hollis Walker appeared for the plaintiff and Mr. Harper for the defendant.

After witnesses had been called on both sides the Lord Chief Justice, in delivering judgment, said he had a very strong suspicion that the car had been used more for Mr. Wass's purposes than the case made out by Mr. Harper would admit. His Lordship was, however, not satisfied that the car was in a substantially worse condition after it had left the defendant's control. His Lordship entered judgment for the defendant for the amount of his counterclaim for goods supplied and repairs done.

POLICE TRAPS.

THE Kingston police have set up different traps for motorists on the Kingston side of the Reservoirs on the Portsmouth road. There are at present two, one from Cleveland Road to Uxbridge Road, and another one from Palace Road to St. Leonards Road, and *vice versa* in each case.

IT was very interesting the other day to watch the making of a police trap on the Saint Albans road, about three-quarters of a mile beyond Barnet, and this side of the sign post pointing "5½ miles to Elstree." The inspector and policeman in uniform, and the individual in civilian dress helping with the tape measure, were somewhat disconcerted when we watched their operations. Due care in passing the point should be observed by motorists.

CASES DISMISSED.

BEFORE the Lowestoft County Bench, Mr. Harold Chamberlin, solicitor, Great Yarmouth, was summoned "for that he being the driver of a motor-car unlawfully did drive at a speed exceeding twenty miles an hour at Pakefield on May 23rd." A similar summons was preferred against Mr. Hy. Melville Simons, 41, Cadogan Gardens, London, S.W., in respect to the same date. P.C. Clarke said on the day in question, about 2.53, he was at his station at Pakefield for the purpose of timing a motor-car. A green car passed his station at 2.53. That morning witness timed his watch by the Pakefield Post Office clock, and later on he met P.C. Bloomfield, and they compared watches, and found they were the same. At 7.30 the same evening witness met P.C. Bloomfield again, and on again comparing watches they were found to be alike. Witness had measured the distance from Kessingland police-station to Pakefield and found it to be 2 miles 303 yards. P.C. Bloomfield assisted in the measurements, which were taken by a 20-yards line. After hearing evidence and Mr. Chamberlin's defence, the Bench retired, and on their return Col. Leathes said they felt that there was not sufficient evidence on the question of timing. It was not for the Bench to suggest stop watches, but it was for the police to suppress the fast driving that continually took place. The case against Mr. Simons was then withdrawn.

MR. CLAUDE WATNEY was summoned by the Guildford police for failing to give warning of his approach in accordance with the regulations of the Local Government Board. The prosecution stated that he passed in between two cars going at double the speed of either of them and dashed past four cross-roads outside Guildford without giving any warning. Mr. Staplee Firth defended and the case was dismissed.

MOTOR-CAR OR MOTOR-CYCLE.

A CASE of considerable interest to motorists has been heard at Highgate Police Court, when Mr. Thomas Belvoir, of Melrose House, New Southgate, N., appeared in answer to three adjourned summonses, charging him, as the driver of a motor-car, with carrying an identification mark which did not conform in lettering and numbering with the provisions set out in Schedule 4 of the Motor-Car Order of 1903; with driving a car which was not registered; and with fraudulently using a mark for identification. It was alleged that defendant held a licence to drive a motor-bicycle or tricycle, and that he converted the motor-tricycle (still bearing the plates intended for a motor-tricycle) into a motor-car by removing the front or steering wheel of the tricycle and affixing a fore-carriage to it. The defendant contended that the machine was not a motor-car, and the summonses were adjourned in order that the Bench might see it. He now produced the machine. Sir Francis Cory-Wright said he understood the defendant's contention to be that, if the machine in its present condition was a motor-car, he was guilty of the three charges. The defendant replied that that was so, with the exception that he had no fraudulent intention.

Sir Francis Cory-Wright said the Bench found defendant guilty on the first summons. Without going into the question of whether the machine was a motor car or not, it was a carriage with four wheels, and as such should have had a plate with letters 3 in. high, which it had not. They found him guilty on the second summons because, though it was true that he had registered a bicycle, the machine he was riding was not in substance and in fact the machine which was registered. They also found him guilty on the third summons. On each summons he would be fined 20s. and costs, making a total of £4 7s.

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THE

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COMMENTS.



AGAIN the Gordon Bennett cup is within French territory, and motorists will rejoice at the way the coveted trophy is travelling through Europe. France was the first holder; next Great Britain; then Germany; now it goes again to France, and in following the sequence it should be a British victory next year. Those who believe in omens may take comfort in that reflection. We would congratulate both M. Thery and his country upon his victory—a victory all the more conspicuous by the way in which the holder of the cup struggled to retain his position. Later the rules of the contest may be reconsidered, but the immediate duty of all sporting Englishmen is to raise the cap with "Vive Théry" in honour of a driver whose skill came as well through the test as did the character of his car.

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Panic Headlines.

IT is really time that newspapers like the "Express," that have rendered service to motoring in the past, should be a little reasonable in the headlines with which their columns are embellished. On the morning of the great race in Germany our contemporary came out with the headlines

"MOTOR RACE OMENS."
"TRIAL SMASHES AT HOMBURG."
"FIRST DEATH."

Such a sensational introduction to the event of the motoring year is hardly likely to do the sport any good, and, fortunately, the actual incidents of the day proved how false was the impression apparently sought to be conveyed. Among the few motorists who seemed to have seen the lines some indignation was felt, and had such absurd innuendoes appeared in any recognised journal of opinion official notice might have been taken of the incident.

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No Royal Road.

HIS MAJESTY THE KING and party arrived at Wellington College half-an-hour late on Saturday last, owing to two breakdowns. The more serious delay occurred in Church Lane, East-hampstead, and was due to ignition failure. Three royal mechanics wound the starting handle without result, while the entire Royal party looked on, smilingly assisted by a group of children who had gatherad to cheer their progress. Some yards down the road a master was with difficulty restraining thirty odd boys, whose loyalty had to remain dormant that extra twenty minutes, though their curiosity was unassuaged. The King and Queen, with the Archduke John, had just entered the car of the Prince and Princess of Wales, who stood disconsolate on the road, when the engine of the Royal car suddenly responded and a re-transfer of passengers was effected. The Queen did not change back again, but completed the outward trip, and made the whole of the run back to Windsor in the Prince's car. Notwithstanding these mishaps, at least three hours were saved over any other method of travel which might have been adopted.

Encouraging Amateurs.

A HILL-CLIMBING trial will be held by the Yorkshire Automobile Club at Pot Bank, near Harrogate, on the 2nd prox. Every member who enters will be required to drive his own car, and the results must not be used for advertisement. This regulation as to members driving their own cars is designed to prevent the entry of vehicles driven by those who are really professionals, and should add to the interest and pleasure of the Meet so far as the amateur drivers are concerned. There is thought to be a tendency among some drivers to tour the country seeking what racing trophies they can devour—a course of action likely to discourage the amateur side of the sport, hence the rules drawn up by the Yorkshire Club for their forthcoming contest.

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Trouble on the Continent.

THE Marquis of Northampton, who presided over the jubilee dinner of the Royal Hospital for Incurables on Tuesday night, explained that he had feared he would have to telegraph from a German prison his inability to attend. On the frontiers of France and Germany he was arrested by a German soldier, with drawn sword, for committing the very grave offence—of which, needless to say, he did not imagine he was guilty—of going too fast through a populous village on his motor-car. Having paid a large fine, he escaped from Germany and got into France, but there he had a worse experience. A bicyclist took it into his head to see whether his machine or the speaker's 40-horse-power car was the stronger, and came off second best. For a time his lordship thought he would be incarcerated in a French prison for manslaughter, but fortunately he escaped that danger, and got home just in time to attend the banquet.

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Wire for Motorists.

AT one time the police of Bucks placed a tree trunk across the road to obstruct the passage of motorists; now some miserable person at Slough has improved upon the device. On Sunday night Mr. F. Partridge, of the Holland Park Motor Co., was returning to London from Maidenhead, when near the town of Slough he saw a stout wire stretched across the road at a height which would have caught his face, but for the fact that he raised his arm, striking the wire. Alighting from his car he discovered that the wire had been attached to telegraph poles on either side of the road, and that he had indeed had a very providential escape. The matter is being taken up by the Motor Union as well as by the local authorities, and we trust the offender will be caught and deservedly punished.

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Speed in Devon.

RELATIVE to the Motor Car Act, 1903, the Bridge, Main Roads, and County Buildings Committee reported to the Devon County Council at their last meeting that they had had before them the replies of various District Councils to the circular issued by direction of the Council at the meeting in December. Many of the replies contained suggestions for pro-

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hibiting and restricting the use of cars on specified highways or parts of highways, and specified places in which the speed of motor-cars should be limited to ten miles an hour. In view of the variety and extent of the proposals, the committee had thought it desirable, before making any definite recommendation to the Council, to refer the replies to a sub-committee for detailed consideration. Mr. Hurrell said it was thought it might be better to rely on the Act rather than to impose a speed limit. The number of motor-cars licensed in the county was 153, and motor-cycles 183. The Rev. W. D. Pitman said it was better to rely on the Act. Motor-car drivers would soon find out what roads they could go over in the country parishes. As to loss of life, that was not likely to occur in the rural districts. In the urban districts it might be different. He thought they would be perfectly safe under the Act. The report was adopted.

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Municipal or Private Enterprise.

SEVERAL municipalities are now considering the question of organising motor omnibus services and of inserting in their Parliamentary bills a clause giving them powers to initiate such public conveniences. At the last meeting of the Worthing Town Council, the Finance and Parliamentary Committee was instructed to prepare a report on the subject for the information of members of the Council, and the way in which the proposal was received showed how sympathetic were the local rulers to the idea. Granted that automobile public services are possible and payable, the question of municipal trading is opened up and controversy begins. That is a question of policy with which the *Journal* has nothing to do; suffice it that the initial capital is enough to give experiments a fair chance of success, and that the management is unhampered by the squabbles of party which have wrecked even more promising schemes.

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Considerate Driving.

IN our correspondence columns last week, Lt.-Col. W. Waring, the hon. sec. of the Berkshire Automobile Club, made an appeal to drivers of motor-cars to pay regard to the ordinary courtesies of the road. We trust the appeal will not be in vain, not only as it affects the Bath road but also other great arteries for the circulation of traffic. It is the duty of motorists to go slowly through villages and to give audible warning of their approach. To drive as quietly and as rapidly through hamlets is an offence of which no self-respecting driver is guilty, and it is monstrous that the automobile movement should be discredited because of a few mad-headed persons.

The Van Trials of the A.C.G.B.I.

WE understand that another alteration in the date of the motor van trials to be held by the A.G.G.B.I. next year has been made, and that they are now definitely fixed for April 1st, 1905. The Expert and Technical Committee of the Club are to be congratulated on thus postponing an event which would have clashed with the official exhibition of the Automobile Mutual Protection Association, which will be held from March 18th to 25th. Many firms who contemplate entering for the trials will be showing duplicates of their vehicles at the Exhibition, so that the two events will have a useful continuity interesting to the public and valuable to the trade.

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Proposed Revision of Racing Rules.

THE Automobile Club of France is being urged to convene a conference of the national clubs of each country with a view to suggest to Mr. Gordon Bennett (not Gordon-Bennett) some alterations in the rules affecting the contest which bears his name. It is suggested that the race should be not only a trial of speed and trustworthiness but also a test of the motor and the car. Hence the further proposal that the cars engaged should be of a type required by the public for ordinary carriage purposes. If this idea is carried out, the race could be run at moderately fast speeds, and by eliminating the dangers much expensive organisation would be avoided. Something of a combination between the reliability trials of the A.C.G.B.I. and the Continental races extending over, say a week, would prove acceptable to those suggesting the change, and there is much to be said in favour of a revision of the conditions at present controlling the great event.



Thery, the Winner of the Gordon Bennett Race, on his Georges Richard-Brasier Car.

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Tours v. Races.

IT must be confessed that people generally are not anxious, having seen one Gordon Bennett race, to see another. Those who witnessed the struggle in Ireland did not swarm across the Irish Sea to witness an equally keen struggle in Manxland, nor did they show any enthusiasm for seeing the race in Germany—apart from the pleasure of a Continental trip. Therefore high-speed racing cannot be defended on the ground of public interest. The development of the monsters which now participate in such trials has served its purpose, while the cost of organisation for such a race is absolutely prohibitive to any but wealthy firms. On the other hand, there is a growing demand for touring cars, and in a competition in which such had fair play

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steadily increasing number of entries might be expected. That a great impetus would thus be given to the automobile industry is indisputable.

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Another International Cup Race.

THE conditions governing the race for the Vanderbilt Cup were decided upon at a meeting of the Racing Board of the American Automobile Association held on the 7th inst. They are substantially as follows:—The cup is to be known as the William K. Vanderbilt, jun., Cup. It is to be raced for annually, beginning in 1904, the first race to be held on October 8th. The entry list will close on September 8th. The distance is to be not less than 250, and not more than 300 miles. In 1905 and thereafter the race is to be held on some date between August 15th and October 15th. After the first race challenges must be forwarded before March 15th. No postponements on account of the weather will be permitted after a date has been selected by mutual agreement between the holder of the cup and the challengers. Members of all clubs recognised by or affiliated with the American Automobile Association or the Automobile Club of France will be eligible for the race, but not more than ten cars from one country will be permitted to compete. The races in 1904 and 1905 must be held in the United States, and after 1905 in the country in which the cup is held. A fee of £60 for each car must accompany challenges. To each starter one-half the fee will be refunded. The road racing rules of the American Automobile Association will govern races held in the United States, and the road racing rules of the Automobile Club of France will govern races held in other countries.

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Some of the Conditions.

THE race each year will be in immediate charge of a commission. This year the commission will consist of the Racing Board of the A.A.A.; in 1905 it will be the same, with the addition of the donor, who this year is a member of the Racing Board, and one member of the A.C.F. In succeeding years, when the race is held in the United States, the Commission will be the same as in 1905, and when held abroad it will consist of the donor, one member of the A.A.A. Racing Board and the Sports Committee of the A.C.F. Competing cars must weigh not less than 881 nor more than 2,204 pounds, and must carry two persons seated side by side, each weighing at least 130 pounds. The start, in the order of drawing, will be at sixty second intervals, and time will be taken from departure to finish. The vehicle making the least elapsed time will be the winner, and need not necessarily be first to finish. The time for each vehicle will be taken from the moment it is scheduled to start, whether it is then ready or not. In the first race the start will be made as soon after daybreak as possible. No postponements are to be made for any cause. Competitors will assume all expenses incidental to their individual participation and will be held liable for civil suits or damages caused by themselves. The race must take place on highways that are in general use, and under no consideration may any part of it be held on a track.

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Helping Visitors.

IN response to several letters lately received from the Colonies and the United States, we are glad to say that the A.C.G.B.I. is now assisting motorists from the great English-speaking peoples visiting the Old Country in the way of number plates, etc. Provided sufficient notice is given Mr. Orde, the secretary of the club, he will have the necessary licence plate and number obtained ready for the motoring visitor on arrival on English shores. The make of the machine, its horse-power, colour, and similar details should accompany the intimation to Mr. Orde, at 119, Piccadilly, London, W., that his services in that direction will be welcome.



The Kaiser receiving M. Brasier and the Officials of the French Club after the Race.

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Reckless Driving.

THANKS to one or two members of Parliament having nothing better to do, the question of motor-cars has been before the House of Commons in several ways during the last few days. Dr. Farquharson has been asking the President of the Local Board to do something to relieve the London suburbs from the annoyance of vehicles that "poison the air with the fumes of petroleum, and destroy the vegetation of trees and hedges by clouds of dust." Mr. Long does not see his way to any effective action in the direction suggested by the learned doctor, although he hinted a reply that a stricter observance of the existing law on the part of drivers of motor-cars would probably be useful in this connection. This point is brought home to motorists very closely by the conviction on Monday of a French driver at the Hay-

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wards Heath Petty Sessions for driving to the public danger. This driver was fined £20 and £10 costs, with the alternative of two months' imprisonment. It was alleged that he travelled at a rate of thirty-five miles an hour, and had caused two accidents on the journey. Although the statement that he was travelling thirty-five miles may have been an exaggeration, the fact that the accidents had been caused cannot be gainsaid. We believe this gentleman, or one of a similar name, has already suffered for his motoring enthusiasm, and that he should continue such a foolish course is one of those scandals which bring discredit on the whole movement. Owners of cars have a duty to the general body of motorists as well as to themselves, and should prohibit their men from driving in such a way as to become a nuisance, if not actually a danger.

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A Census of Accidents.

CAPT. DONELAN is another Parliamentary enthusiast who keeps his eye upon motor cars, and who wants to have a record of accidents caused by such vehicles. Mr. Long has no information on the subject, and we believe there is little probability of any adequate return being issued; but Mr. Scott Montagu is also exercising his vigilance in the matter, and has asked that if a return of the number of motor-cars accidents be given another showing the number of accidents caused by horses and horse-drawn vehicles should also be compiled. We endorse his view that one return should not be given without the other, for without such a basis of comparison no trustworthy deductions can be drawn from the figures. The fact, however, that M.P.s are so anxiously watchful with regard to automobiles should be another reason why motorists generally should conduct themselves with something like decorum on the public highways.

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Cars in Ceylon.

WRITING at the end of May, a reader in Ceylon sends the result of a census of automobiles that has been made in the island, from which it appears that seven cars had been imported up to then, and that double that number was on order. Of motor-cycles no fewer than seventy-two were already in use in the island, and eleven were on order, so that by the time these lines appear in print more than a hundred automobiles of one kind and another will be doing service in Ceylon. A Motor-car Committee has been formed in the island, and holds its meetings at the Auditor-General's Office, under the presidency of the Hon. F. R. Ellis.

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Queer Notions of the Layman.

EARL RUSSELL gives an instance of entire failure to judge the speed or control of motor-cars by persons who are not accustomed to them. He was motoring down the descent from Hindhead to Tilford the other day, and passed two men talking together by the side of a wall. One of them called out something, and, wishing to see what he really wanted, the motorist pulled the car up within twenty yards of him, and backed up to him to ask what it was. He already looked somewhat ashamed when he realised the complete control the car had been under, and said that he was only warning the driver against the corner fifty yards ahead, which he thought Earl Russell was approaching at a reckless speed. His Lordship asked whether the fact that he had stopped dead thirty yards short of the corner did not induce him to think that he must have been mistaken in thinking the car was not under control. He somewhat grudgingly admitted this, and Earl Russell proceeded. Had he, however, not stopped and spoken to the man, no doubt he would have told everyone, and believed, that he had seen a large motor-car dashing recklessly down hill in a narrow lane in a manner which must have caused a serious accident if there had been any obstruction.

Motors at the Harbours.

ACCORDING to the bye-laws of Dundee Harbour, motor vehicles are prohibited from entering the sheds at the docks for any purpose. But as several of these are now in use in the city for trade purposes, this question has been brought under the consideration of the Trustees. Regulations regarding the matter have been prepared, and will be submitted to the Works Committee for consideration. There are many places in the country where new regulations will have to be framed in view of the advance of the comparatively new method of locomotion. We trust the business men on the various harbour and similar boards will recognise the necessity of doing all they can to facilitate the adoption and extension of motor vehicles in the transport of goods.

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Reporting the Race.

THE way in which the newspaper correspondents were able to despatch the times taken on the various circuits in the Gordon Bennett was very different to the difficulty of obtaining imformation in the Manxland trials. The London Press reported the race very fully, the correspondent of the "Morning Post" specially distinguishing himself by the conscientious care with which he interspersed some valuable statistical deductions in a vivid account of the great race. Generally speaking, the daily Pressmen seem to have controlled the desire for sensation in their anxiety to be accurate—a tendency that is becoming the rule.

THE directors of the Begbie Manufacturing Company, Ltd., are paying an interim dividend at the rate of 10 per cent. for this year.

ON Wednesday Dr. E. Lehwess was fined £50 at the Old Bailey, after pleading guilty to an attempt to bribe a sergeant of the Metropolitan Police.

ON Wednesday afternoon Mr. D. M. Weigel started from London for a 2,000 miles non-stop motor run on a 20 h.p. Talbot car. The intention is to run to Perth and back twice, and then journey to Portsmouth, returning again to London for the finish.

MR. AND MRS. GRANVILLE KENYON, of the Oaklands, Bromley, held an "At Home" on Saturday last to the members of the West Kent Club. There was a numerous attendance, there being about twenty cars present, and a most enjoyable afternoon was spent.

AT 3 p.m. on Monday last one of the Londonderry steam wagons left Seaham Harbour, Durham, for London. The vehicle, which was carrying a five-ton load, reached the Metropolis on Wednesday evening, the only stops *en route* having been those to pick up water and relays of drivers.

THE outfit of an automobile is not complete without a set of box spanners. They are most convenient in awkward places, and in any case a more steady pressure can be exerted. The studs holding valve-covers have frequently been broken through their nuts being strained at unevenly with an ordinary open spanner.

A GREAT deal of interest is being evidenced by American motorists in a series of tests being made with a new fuel for petrol motors, which is being manufactured by the Energine Co., a concern recently formed in Cleveland. The company has completed a refinery, and is said to be now producing about 200 barrels of the product per day. The new fuel is a laboratory product, petroleum, of course, being the base. It is described as being more highly refined than petroleum spirit, and as leaving no odour or carbon after being exploded. The manufacturers claim that the explosive mixture produced is much more powerful than that derived from petrol, and, although the new product costs more than the familiar spirit, it is claimed to be more economical in the long run.

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The Gordon Bennett Race.

HOMBURG, Thursday, June 16th.

EXCITEMENT over to-morrow's race is at a high point. The town is full of visitors, and the main thoroughfares present continuous streams of privately-owned motor-vehicles, while every now and then a racing car comes snorting along. The day began early with the arrival of the Kaiser and Kaiserin, and shortly afterwards the Kaiser went over a part of the course on his Mercedes car, and inspected the arrangements at the starting-point. In the afternoon His Majesty received the members of the International Automobile Commission at the Saalburg, and subsequently drove into Homburg and dined with the German Club at the Kurhaus. There was a great concourse of visitors at Saalburg the whole of the day. The tram-cars were crowded and the beer garden adjoining the stand was filled with hundreds of people of all nations, making the place a miniature Babel. The grand stand which has been built on either side of the roadway at the starting point is now practically complete. The structure, which will accommodate between four and five thousand people, is of a most substantial and ornate nature; it is ornamented with beautiful statuary, and is draped and trimmed and decorated with evergreens and gold medallions. Unfortunately, however, though it is situated on the crest of an incline, it does not command an extended view of the course. Indeed, the cars will be lost to sight almost before anything approaching speed can be achieved. On being started they will dash down a slight gradient and disappear on negotiating the first bend on the road to Wehrheim, scarcely a mile from the starting point. There is some compensation, however, in the fact that the Saalburg is not a control, so that those who take up a position there will not only witness the start and finish of the race, but will see the competing cars come coursing up the hill from round a wide curve as they complete each circuit.



Thery, the Winner of the Race.

Edge has been very unfortunate in his preliminary canters over the course. A week ago to-day the crank shaft of his engine broke just inside the central bearing. A new one was at once wired for and arrived post haste on Sunday night. The six-cylinder Napier racer was also brought over as a reserve, the car being driven by road from Rotterdam by Clifford Earp. The new shaft was fitted as quickly as possible, and Edge was again on the road on Tuesday. Jenatzy has been absolutely living on the course, which he is stated to have covered no less than fifty times. Some friction is said to exist between him and the German Daimler Company as to the terms on which he will drive their car. The authorities have just arrived at a decision which motorists here consider will considerably increase the risks in the race. It had been intended, in cases where more than one car arrived at a control simultaneously, to only permit them to resume racing within two minutes of each other. It has, however, been resolved to do away with the interval, and the cars which arrive together will be re-started simultaneously.

The exact length of the circuit is 137 kilometres, 400 metres (85⅞ miles), of which 7½ miles are taken up by controls. As the course has to be covered four times, the total distance run will be 549 kilometres, 600 metres (343½ miles). The time of the stoppages at the different controls has now been fixed. At each start the time will be entered on printed forms which will be placed by the officials in a tin box fixed to each car. At the close of the race these papers will be taken out and examined. The following are the times of stoppages at the various controls:—

Control.	Stoppages.
Usingen	5 minutes.
Weilburg	7 „
Limburg	10 „
Idstein	8 „
Esch	5 „
Königstein	7 „
Oberursel	6 „
Homburg	8 „

The operation of weighing in the different cars was taken in hand this morning. For some reason great reticence was shown to the Press as to the locality of the weigh-bridge; but the place eventually turned out to be in a small side street known as the Elizabethenstrasse, close to the volunteer fire brigade station, where apparently no arrangements had been made to restrain the crowd. The operation was not without its incident—one which promised to be rather exciting and serious, but fortunately was quickly ended. The cars had to be weighed with empty tanks, and several of the competitors allowed the petrol to run down the gutter. No attempt had been made to prevent smoking, and it was not surprising that a match carelessly thrown down should ignite the petrol. Immediately there was a flare up in dangerous proximity to the Napier and Opel-Darracq cars. A general stampede ensued among the spectators, but those in charge of the cars stood their ground and put their shoulders to the wheels. In a few seconds the cars were out of danger, and the flames soon burned themselves out. Mr. Edge's car was slightly scorched, but in no way damaged. Curiously enough, while before the fire there was a sad want of organisation, after the blaze the police authorities went to the other extreme, and it was with difficulty that we, as well as other members of the Press and also many of those connected with the cars, were allowed to get anywhere near the cars. A feature of the weighing in was that five of the competitors brought two cars each to the scales, viz., Jenatzy, Jarrott, Thery, Salleron and Rougier, one vehicle having plain tyres and the other anti-skid bands, in case the course should be in a greasy state.



The Gordon Bennett Cup.

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A protest was lodged against the Austrian Mercedes cars as not being in accordance with the rules and regulations of the race, one point being that there was no seat for the mechanician and the other that the manometer was identical with those on the German Mercedes. The seats were added and the manometers complained of removed and peace and contentment reigned once more. M. Dufaux was not weighed in, his car having met with an accident to the steering gear. There was not time to get a new part from Geneva, so, to the great regret of everybody, Switzerland will not be represented in the race.

Appended is a table showing the order in which the competitors will start to-morrow, and the weight and other particulars of their cars :—

THE COMPETITORS AND THEIR CARS.

Order of Starting.	Driver.	Car.	Country.	H.P.	Ignition.	Transmission.	Tyres.*	Weight Empty.
								Kilos.
1	Jenatzy ..	Mercedes	Germany	90	Magneto	2 Chains	C	999
2	Edge ..	Napier ..	England	80	Accum.	Cardan	D	982
3	Werner ..	Mercedes	Austria ..	90	Magneto	2 Chains	C	998
4	Lancia ..	Fiat ..	Italy ..	75	,,	,,	M	1005
5	Thery ..	Richard-Brasier	France ..	80	,,	,,	M	988
6	De Crawhez	Pipe ..	Belgium	75	Accum.	,,	C	1007
7	Dufaux ..	Dufaux	Swiss ..	90	Double	,,	M	Not weighed
8	De Caters	Mercedes	Germany	90	Magneto	,,	C	1001
9	Girling	Wolseley	England	72	Accum.	,,	D	995
10	Braun ..	Mercedes	Austria	90	Magneto	,,	C	1001
11	Storero ..	Fiat ..	Italy ..	75	,,	,,	M	1006
12	Salleron ..	Mors ..	France	100	,,	,,	M	1005
13	Augieres ..	Pipe ..	Belgium	75	Accum.	,,	C	994
14	Opel ..	Opel-Darracq	Germany	80	Double	Cardan	C	1006
15	Jarrott ..	Wolseley	England	96	Accum.	2 Chains	D	992
16	Warden ..	Mercedes	Austria	90	Magneto	,,	C	1007
17	Cagno ..	Fiat ..	Italy ..	75	,,	,,	M	1006
18	Rougier ..	Turcat-Mery	France	90	,,	,,	M	1000
19	Hautvast	Pipe ..	Belgium	75	Accum.	,	C	1002

* C. Continental. D. Dunlop. M. Michelin.

THE RACE.

HOMBURG, June 17th.

Like thousands of others, we anxiously peered through the window at daybreak this morning in quest of the state of



The Scene at the Weighing In at Homburg.

the weather, which proved, if anything, too warm for both the drivers and spectators. At 4 a.m. Homburg was all astir, and from thence onwards vast numbers of people flocked to the Grand Stand at Saalburg from all points of the compass. Jenatzy was the first to put in an appearance, being on the course an hour and a quarter before the time for the start. The Emperor, wearing the uniform of a Hussar, accompanied by the Empress, arrived at eighteen minutes past six o'clock, at which early hour the Grand Stand was practically empty. A few minutes after he had entered the Royal box Prince Henry of Prussia, who had driven over in his car, joined the party. The Duke of Ratibor, President of the German Automobile Club, received their Majesties, who were accompanied by Prince and Princess Frederick Charles of Hesse, while among the other distinguished spectators were the Princess Henry of Prussia, the Grand Duchess Anastasie of Mecklenburg-Schwerin, the Duchess of Mecklenburg-Schwerin, the United States Ambassador to Germany, Prince and Princess Salms, Colonel Holden (Chairman of the Automobile



The Fire at the Weighing In.

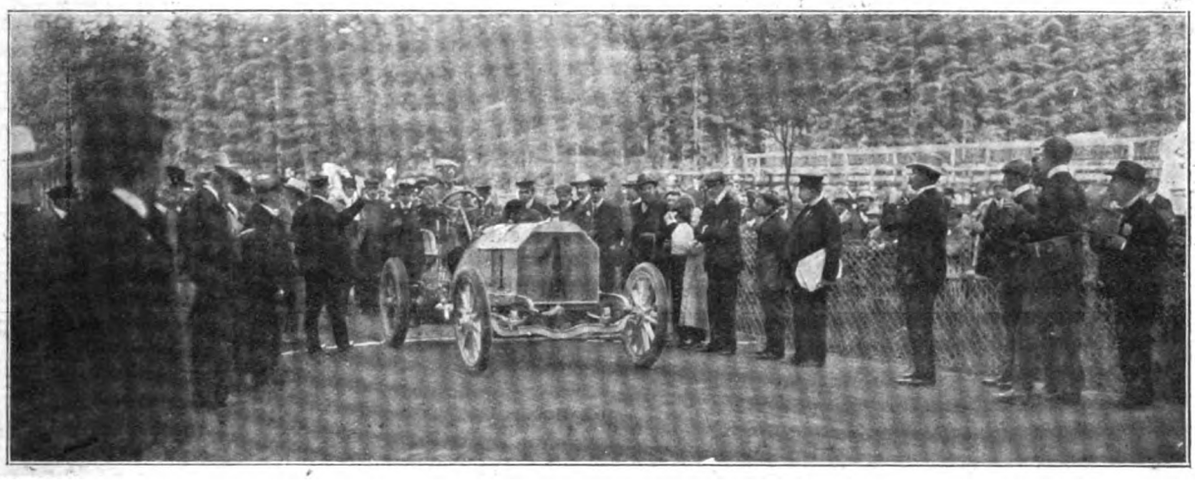
Club of Great Britain), and the Baron de Zuylen (the President of the French Club). Altogether it may safely be said that never has there been such a brilliant assembly at an automobile meeting as at the 1904 Gordon Bennett Cup race.

Although the time-keepers' box was exactly opposite that of the Kaiser, the cars were started two hundred metres before that point, so that they might attain some speed in passing the Grand Stand. This, however, was scarcely possible, as the start was on a gradient sufficiently steep to prevent the drivers getting on to top speed until after passing the stand. The first to start at the sound of a ceremonial fanfare was Jenatzy, the front wheels of whose powerful Mercedes car rested just behind the white starting line, some few hundred yards below the apex of the Saalburg Hill. At one minute to seven Jenatzy adjusted his goggles and seated himself in his car with his mechanician, and shook hands with his numerous friends. As the red flag was lowered the car leaped forward and careered up the hill past the grand stand, its driver saluting the Emperor with his right hand, and vanished down the hill. Jenatzy started off two seconds in front of time, the error being due to Baron von Molitor, who held the red flag, having mistaken the instructions of M. Tampier, the official timekeeper of the French Automobile Club, to whom the German Club had entrusted the timing. As soon as he had gone Mr. Edge, looking composed and neat in a white jacket with a blue cap, brought his car up to the line. At seven minutes past seven the flag fell a second time, and the Napier car flew up the hill, amid cheers from the English present. Werner, on an Austrian Mercedes, was third, and Lancia, on a Fiat, fourth off, while Théry and de Crawhez followed, both failing to get their fourth speeds in before cresting the hill. The seventh place was Dufaux's, who, as already recorded, was unable to start, owing to an accident to the steering gear of his car. De Caters, who was due to start eighth, met with some delay owing to a sparking plug having got fouled, which necessitated his getting down and wiping it. It was not till after Girling, the ninth man, had started that he got off, having lost 14 m. 30 secs. Braun, Storero, Salleron, Augieres, and Opel followed in order, those at the starting point

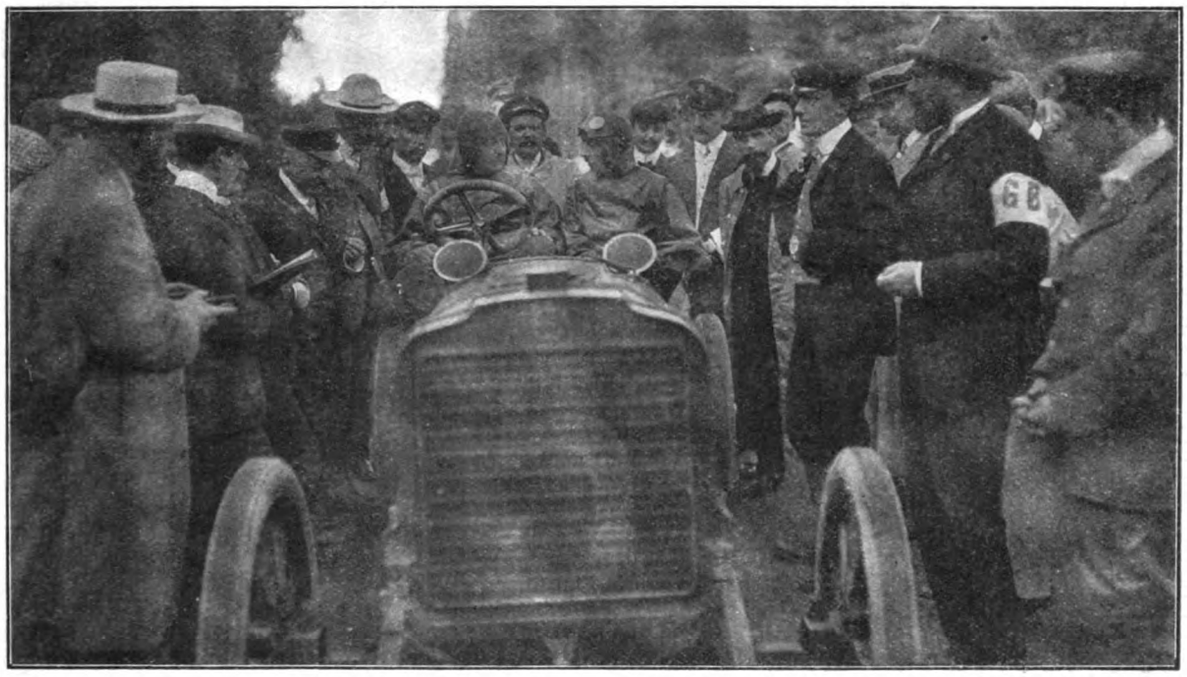
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THE GORDON BENNETT RACE.



Jenatzy on the point of starting.



Thery at the starting point.

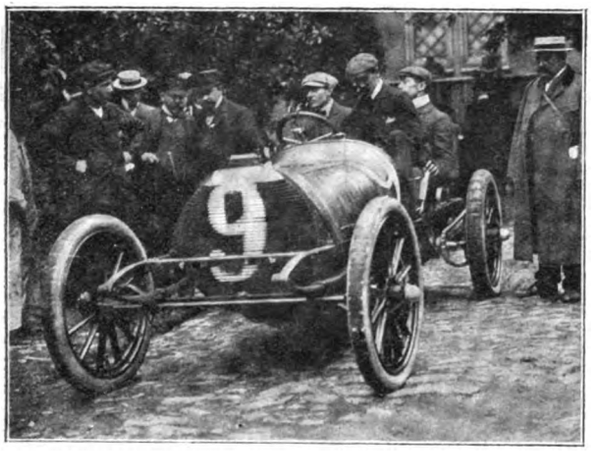


Opel leaving the starting point.

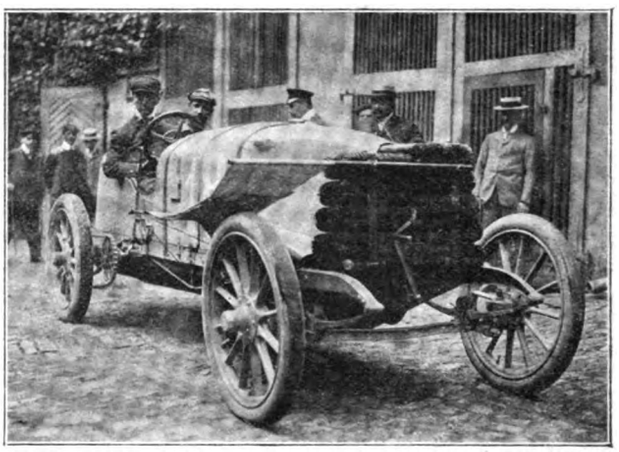
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being enveloped in their exhaust. Opel made a false start, and nearly knocked over the timekeeper. Jarrott was next away, receiving the heartiest reception so far accorded. Warden and Cagno followed, and Rougier was the recipient of many good wishes and handshakes up to the very moment of setting off. Hautvast, the last man, was despatched at one minute before nine o'clock. The start was a somewhat dull affair, the usual preliminary incidents alone relieving the monotony, but the Kaiser watched it with great interest, making comments to the Minister of the Interior and the president and members of the Race Committee.

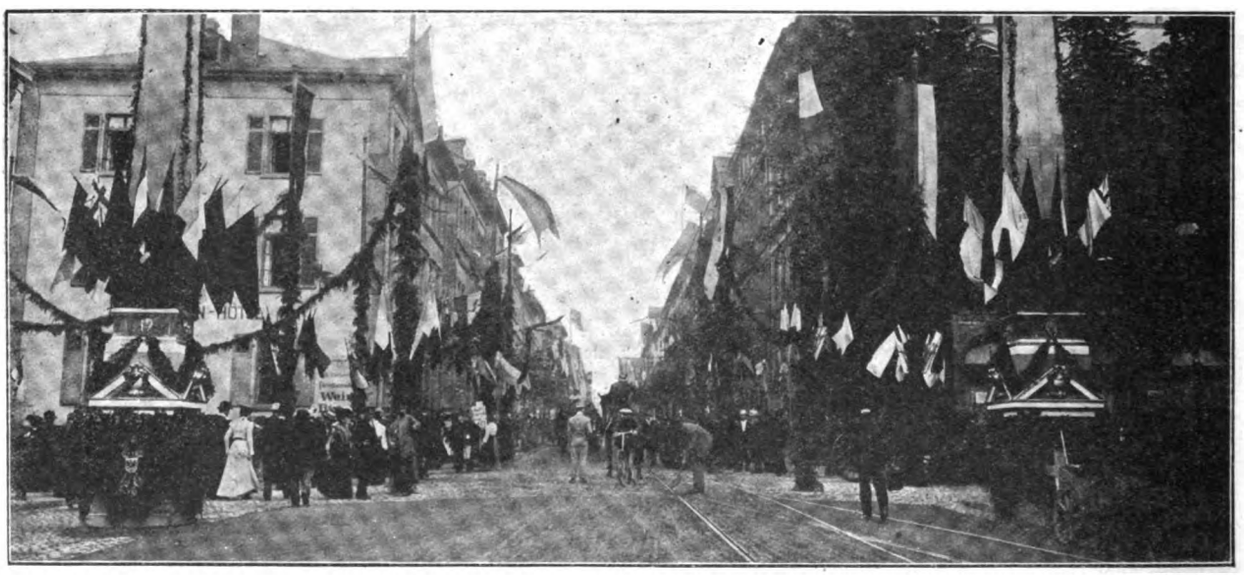
a hundred yards further on. It was reported by telephone that the roads were in excellent condition, and, thanks to Westrumite, free from dust. It had been arranged that the approach of the cars should be heralded by a bugle, other bugles higher up passing on the news to the successive stands. The last man had only been gone twenty-four minutes when the bugler heralded an approaching car. It was Jenatzy, who had completed his first round in 1 h. 26 min. 56 sec., after deducting 56 minutes for controls. He swept by the Grand Stand at a speed of about fifty miles per hour amid lusty cheers. He had an exciting incident at Wehrheim owing to a locomotive obstructing his



Girling on his Wolseley.



Rougier on his Turcat-Mery.



The Gordon Bennett Decorations at Homburg.

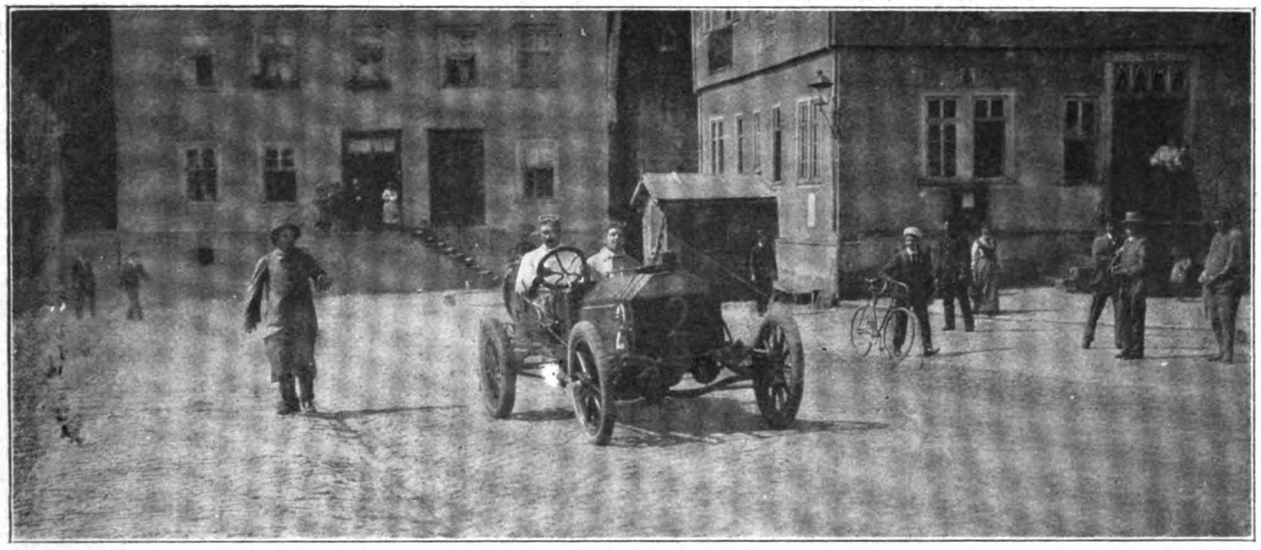
Once the drivers were despatched there was a somewhat tedious wait of about twenty minutes, during which scarcely any news was received. The interval, however, gave us time to discover that the best point for seeing the race at Saalburg was the small uncovered and unreserved stand just on the turn of the hill two hundred yards north of the Grand Stand. From this point, facing east, there was a capital view of the start and of the cars gathering speed as they rushed forward and rounded the turn that begins the steep descent towards Wehrheim. Down this slope the eye could follow each car till it disappeared behind the overhanging trees half a mile away to emerge into view

passage at the level crossing. He had to slow up, and claims to have thereby lost a minute. Edge followed twelve minutes later, but the next arrival was Théry, who had thus overtaken Werner and Lancia—the latter having had to stop at Idstein owing to a puncture—and was travelling splendidly. Girling came next, followed quickly by De Caters. Salleron had improved his position, while among those who had fallen behind were De Crawhez, Warden, and Augieres. As each car passed the net time was officially hoisted on a white board erected on the bridge spanning the course. At 10 o'clock the Empress

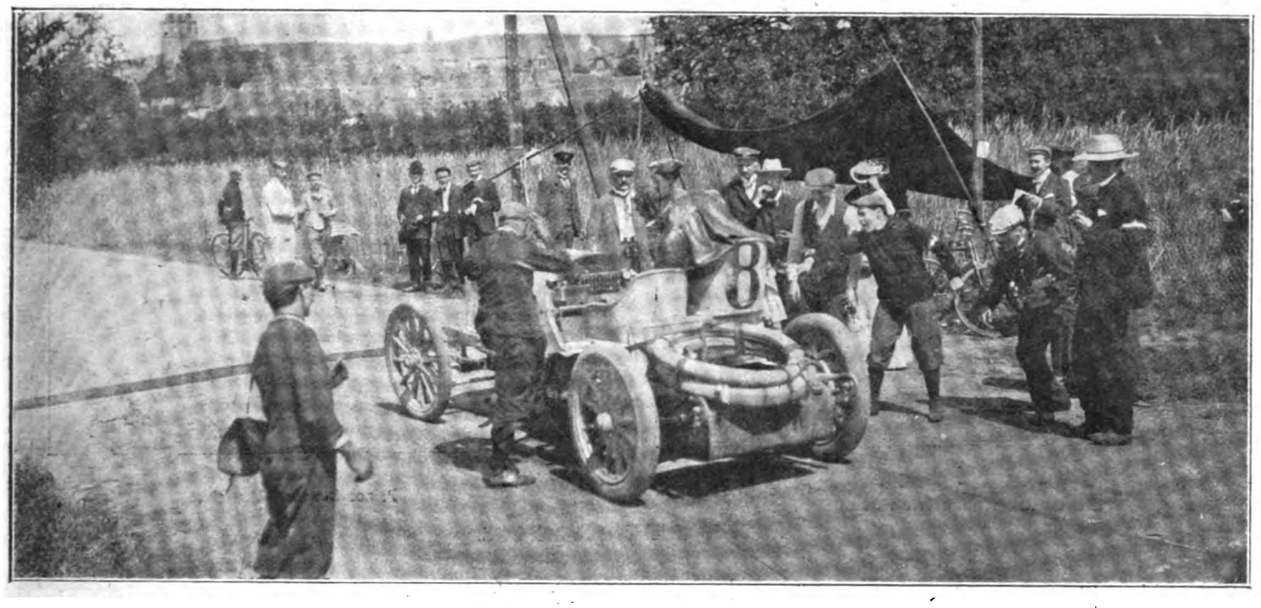
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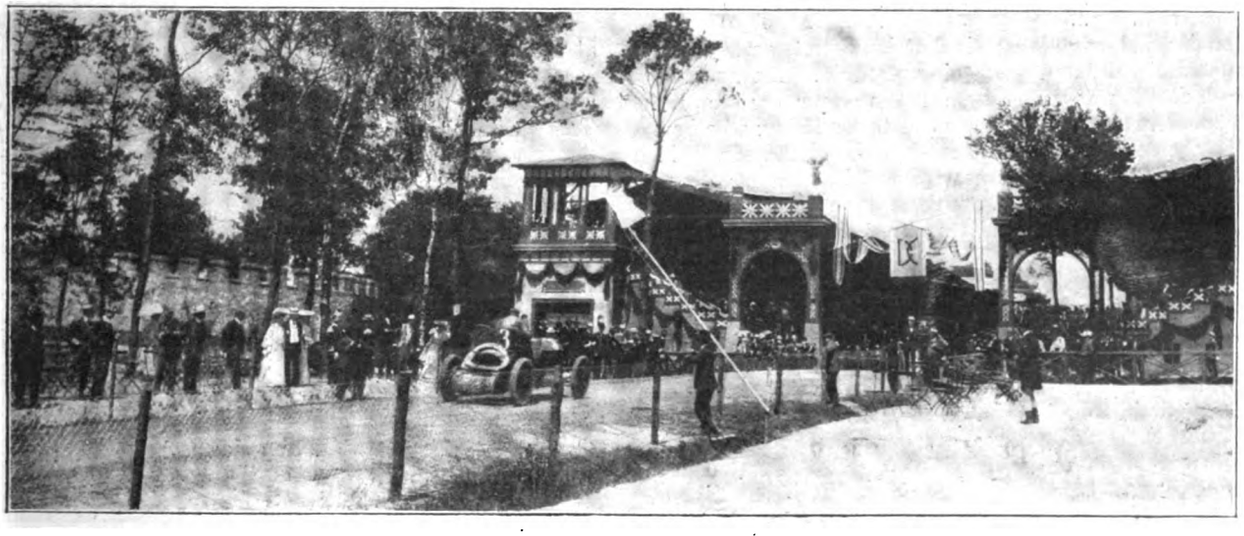
THE GORDON BENNETT RACE.



Edge passing through Usingen.



D. Caters at the Usingen Control.



Werner on the point of completing his first circuit.

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returned to Homburg, but the Kaiser remained an interested spectator, and in the course of the morning, accompanied by Prince Henry and Baron de Zuylen, he walked as far as the bend, whence the cars could be seen coursing on their way to Wehrheim. At the end of the first circuit the order of the leaders was Jenatzy, Théry, Edge, Girling, and Jarrott, the English team thus running well together. The first round was completed by all the competitors except Opel, who broke his cardan shaft at Usingen, a few miles from the start. Fortunately he escaped with nothing worse than a severe shaking.

FIRST ROUND.

The hour at which the various competitors completed the first round, and the times occupied, are shown below :—

Order of Starting.	Driver.	Hour. a.m. h. m.	Net Time occupied. h. m. s.
1.	Jenatzy	9 23	1 26 56
2.	Edge	9 35	1 31 44
5.	Théry	9 51	1 26 57
3.	Werner	10 8	1 58 41
4.	Lancia	10 11	1 54 53
9.	Girling	10 18	1 32 55
8.	De Caters ...	10 21	1 43 15
12.	Salleron	10 43	1 36 53
10.	Braun	10 48	1 56 24
11.	Storero	10 53	1 42 24
6.	De Crawhez ...	10 59	2 28 32
15.	Jarrott	11 2	1 35 18
17.	Cagno	11 23	1 42 22
19.	Hautvast... ...	11 41	1 46 47
16.	Warden	11 41	2 7 14
13.	Augieres	11 36	2 23 7
18.	Rougier	11 54	2 6 0

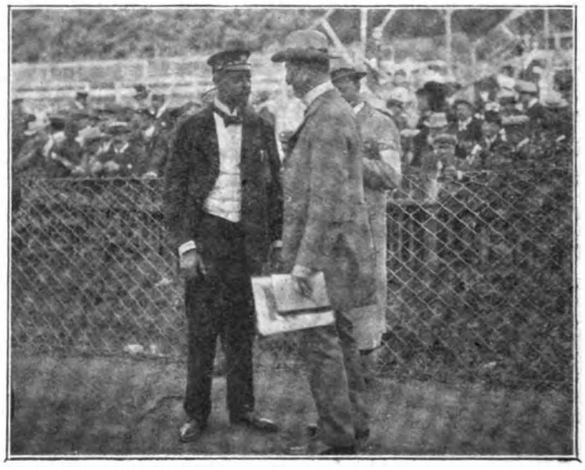
Ere Rougier had completed his first lap Jenatzy was back from his second circuit, and was going strongly. An anxious wait followed, for it was close upon half-an-hour ere another of the early starters appeared. It proved to be Théry, who had thus passed Edge. Girling was the next to arrive, followed within two minutes by Lancia. About noon the Kaiser left for Homburg for lunch, and at a quarter to one there was a sort of luncheon interval, the people on the grand stand apparently having got tired of waiting in the broiling sun, the seats on the stand becoming empty. Werner, who had had to stop to change a tyre, was next in; Edge followed thirty minutes later, he having been delayed by tyre troubles. He completed the second circuit in 4 h. 1 min. 54 sec., and went by the Grand Stand at six minutes past one about two hundred yards behind De Caters, who completed the second circuit in 3 h. 32 min. 52 sec. Edge was evidently doing his utmost to regain lost time, and one of the most exciting and dangerous incidents occurred when he and De Caters raced abreast along a stretch of road for eight miles. It was at the end of the second round that the board showed that Théry had run into first place with a lead of nearly two minutes. When the news became known, the French spectators became wildly excited, and prepared to give their hero a rousing reception on his next round. De Crawhez had fallen further back, and Warden suffered from tyre troubles, and Salleron met with a serious delay on this round owing to a similar cause; Jarrott, too, was unfortunate, for he had to stop to adjust his chain, after which the governor of his engine broke. The news also came in that Augieres, who had experienced ignition troubles which kept him back all the time, had retired.

SECOND ROUND.

Order of Starting.	Driver.	Hour. h. m. a.m.	Net time occupied. h. m. s.
1.	Jenatzy	11 47	1 28 29
		p.m.	
5.	Théry	12 13	1 26 45
9.	Girling	12 48	1 34 25
4.	Lancia	12 50	1 42 13
3.	Werner	12 57	1 52 47
2.	Edge	1 6	2 36 8
8.	De Caters ...	1 6	1 49 26
10.	Braun	1 26	1 41 38
11.	Storero	1 33	1 43 5
12.	Salleron	1 42	2 3 46
15.	Jarrott	1 55	1 57 32
17.	Cagno	2 3	1 44 19
6.	De Crawhez ...	2 12	2 16 37
19.	Hautvast.	2 22	1 44 23
18.	Rougier	2 27	1 37 0
16.	Warden	2 34	1 57 17



The Kaiser with Baron de Zuylen and suite en route from the Grand Start for a better view of the Race.



Prince Henry of Prussia.

ROYALTY AT THE RACE.

It was exactly 2.21 that Jenatzy made his next appearance at the Saalburg. Having regard to his times in the previous laps it was evident that he had experienced trouble, but it transpired that his delay was but a brief one—to fill up with petrol. When Théry came in 18 minutes later, thus improving his lead over Jenatzy to 10 minutes, the Frenchmen set up a deafening cheer. It became more and more evident that the race had resolved itself into a keen duel between Théry and Jenatzy, and the spectators, who had become very weary, now watched the contest with renewed interest. Warden, whose car got into a ditch near Eschenhahn, but without serious injury, decided to retire owing to a leak developing in his radiator. Storero also abandoned owing to a broken sprocket wheel. Girling experienced a serious delay in this round at Homburg, due, as was eventually discovered, to a block in the petrol pipe. Up to that point he had retained the third position, and was going well. The stop brought him down, however, to the seventh place in the third round, at the end of which the order (net times) of the first four was Théry, Jenatzy, De Caters, and Cagno.

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RESULTS OF THIRD ROUND.

Order of Starting.	Driver.	Hour. p.m. h. m.	Net time Occupied. h. m. s.
1.	Jenatzy	2 21 ...	1 37 46
5.	Théry	2 39 ...	1 29 56
4.	Lancia	3 34 ...	1 48 27
8.	De Caters	3 36 ...	1 33 31
2.	Edge	3 40 ...	1 37 41
3.	Werner	3 47 ...	1 53 56
9.	Girling	4 0 ...	2 15 54
10.	Braun	4 0 ...	1 38 29
12.	Salleron	4 32 ...	1 53 50
17.	Cagno	4 43 ...	1 53 50
15.	Jarrott	4 52 ...	2 0 20
18.	Rougier	4 54 ...	1 30 53
19.	Hautvast	5 9 ...	1 51 26
6.	De Crawhez ...	5 30 ...	2 21 52

The Kaiser was back again on the grand stand at 4.30, and as the time for Jenatzy's arrival was approaching, presuming he had not met with any delay, interest in the race was again at a high pitch. At 4.45 a bugle sounded, and as a car hove in sight, the crush on the grand stand began to look dangerous. It was Jenatzy, who, as he swept across the finishing line at the centre of the Grand Stand, received a splendid reception. But had he won? Théry had still twenty-eight minutes before him, and he passed last time ten minutes ahead of his rival. Five

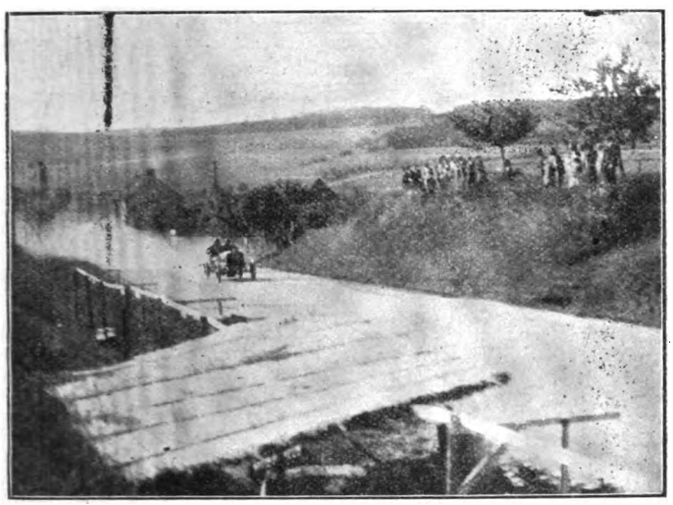


Photo by] Théry travelling at full speed near Usingen. [Mr. Frederic Coleman.

o'clock came, but no Théry. A minute later a bugle sounded and a deafening roar arose as Théry rounded the bend, the winner by 11 min. 20 sec. The people on the stands were wild with excitement. It was altogether a remarkable scene. Théry, on arrival, drove up the course, saluted the Kaiser amid a thunder of cheers, then again with roses in his hand. Théry, whose running had been uneventful, appeared quite fit, though he said he had had nothing to eat since the start. The Kaiser afterwards held a reception in the Royal box of the officials of the A.C.F., including the Baron de Zuylen and the Chevalier René de Knyff. M. Brasier, the designer of the winning car, who was standing in front of the Royal box, looking very pleased, was assailed by his compatriots, who shook him enthusiastically by the hand. Then the Kaiser beckoned to him, and received him in the Royal box. M. Brasier afterwards called for three cheers for the Emperor, which were lustily responded to by all the French present, who were all much exhilarated by the recapture of the cup. Gallic cheers followed for Théry and the Emperor, who shortly afterwards left the stand with the Empress and his retinue. This was the signal for a general exodus, the Grand Stand was rapidly emptied, and the interest in the race was over. Every one, except a few faithful followers of each nationality, seemed to have forgotten about the remaining competitors, who kept on dribbling in at rather scattered intervals.

Soon after Théry's arrival Hautvast came through and started on his last round. His car was now going well, and his final lap proved the fastest of the four. About twenty minutes later De Crawhez came in at the end of the third round, and as the race was practically over decided to give up. There was now a long wait, De Caters arriving at 6.13, and the others following at intervals of from five to ten minutes. The first Englishman home was Girling, at 6.55 p.m., Jarrott coming in last but one at 7.36, meeting with a hearty reception from the British visitors, who had waited until the end. Jarrott's delay was due to a leaky radiator, while Cagno had been stopped on account of his tyres. Shortly before eight Rougier arrived, and thus the 1904 Gordon Bennett race was at an end. As the cars finished the race they were boarded by an observer and driven to Homburg, where they were re-weighed. Edge, who had had bad luck throughout, did not finish his last round owing to an accident to his clutch near Wehrheim.

LAST ROUND.

Order of Starting.	Driver.	Hour. p.m. h. m.	Net Time Occupied. h. m. s.
1.	Jenatzy	4 45 ...	1 28 13
5.	Théry	5 2 ...	1 26 22

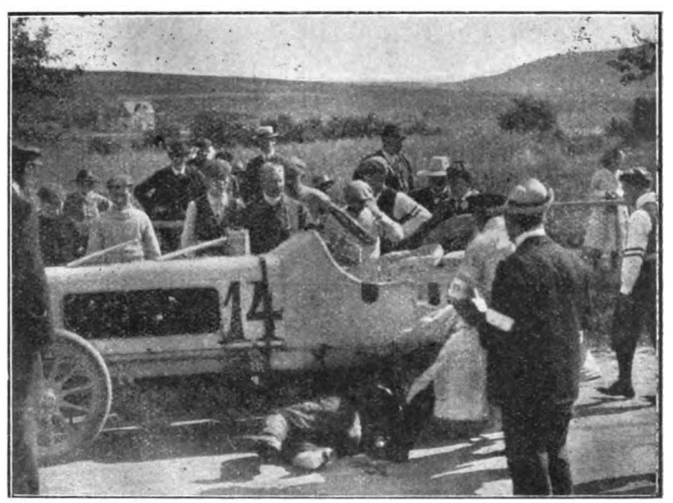


Photo by] Opel breaks down near Usingen. [Mr. Windsor T. White.

8.	De Caters...	...	6	13	...	1	41 6
4.	Lancia ...	...	6	22	...	1	52 18
3.	Werner ...	...	6	30	...	1	46 47
10.	Braun ...	...	6	39	...	1	43 15
9.	Girling ...	...	6	55	...	1	59 38
19.	Hautvast...	...	7	2	...	1	39 58
12.	Salleron ...	...	7	9	...	1	40 40
17.	Cagno ...	...	7	23	...	2	13 20
15.	Jarrott ...	...	7	36	...	2	3 39
18.	Rougier ...	...	7	48	...	2	33 51

On the termination of the race, the definite results of which will not be known until to-morrow, the Emperor sent a congratulatory telegram to President Loubet, who suitably replied. The course was admittedly a difficult one, and in more than one part actually dangerous. The wireless telegraphic system proved useless, and the telephone arrangements broke down. The German Automobile Club is, however, to be deservedly congratulated on so vast a meeting, which happily passed off without serious accident of any sort.

THE OFFICIAL RESULTS.

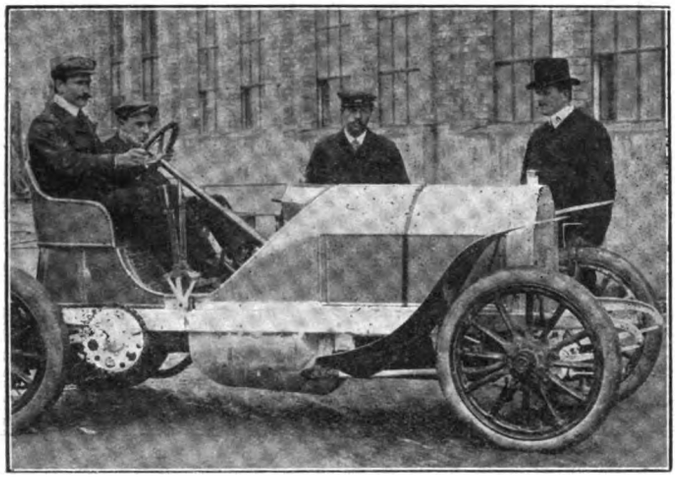
HOMBURG, June 18th.

The International Gordon Bennett Commission met this morning under the presidency of the Duke of Ratibor and con-

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sidered the protests that had been entered, but which have not been made known. It is reported that De Crawhez lodged a protest against Salleron, arising out of his driving. After the meeting the following official announcement of the result of the race was made :—

No.	Driver.	Car.	Country.	Total Time. h.	m.	s.
1.	Thery ...	... G. Richard-Brasier	France	5	50	3
2.	Jenatzy ...	... Mercedes	Germany	6	1	28



De Caters on his 90-h.p. Mercedes.

3.	De Caters ...	... Mercedes	Germany	6	46	31
4.	Rougier ...	... Turcat-Mery	France	6	47	11
5.	Braun ...	... Austrian Mercedes	Austria	6	59	49
6.	Hautvast ...	... Pipe	Belgium	7	2	36
7.	Salleron ...	... Mors	France	7	15	15
8.	Lancia ...	... Fiat	Italy	7	17	54
9.	Girling ...	... Wolseley	England	7	22	54
10.	Cagno ...	... Fiat	Italy	7	23	36
11.	Werner ...	... Austrian Mercedes	Austria	7	32	14
12.	Jarrott ...	... Wolseley	England	7	36	52



Jarrott as he appeared at the Starting Point.

All three French cars came in, this assuring them the Montagu team prize as well as the Cup. Out of the English, German, Austrian, and Italian teams, two cars each finished, while of the Belgian team only one is in the classification. Théry, Jenatzy, De Caters, Girling, Jarrott, and Rougier went through without a puncture. Théry's average speed works out at 88½ kilometres (55⅜ miles per hour). Girling's average was 47½ miles an hour, and Jarrott's 46 miles.

An interesting summary of the net times per circuit of the first four is given below. The times of the English competitors are also added. A reference to the table will show what splendid running both the French and German drivers made. Théry's time for the first and second laps showed a difference of only twelve seconds in favour of the second lap. The third took him a fraction over three minutes more, while the last round was the quickest of the four.

No.	Driver.	1st Lap. h.	m.	s.	2nd Lap. h.	m.	s.	3rd Lap. h.	m.	s.	4th Lap. h.	m.	s.
1.	Théry	1	26	57	1	26	45	1	29	56	1	26	22
2.	Jenatzy	1	26	56	1	28	29	1	37	46	1	28	13
3.	De Caters	1	43	15	1	49	36	1	33	31	1	41	6
4.	Rougier	2	6	24	1	37	—	1	30	53	1	33	51
9.	Girling	1	32	54	1	34	25	2	15	54	1	59	38
12.	Jarrott	1	53	18	1	57	32	2	0	20	2	3	39
—	Edge	1	31	41	2	36	8	1	37	41		—	

Five races have now been held for the Cup, the results of which are tabulated below : -



Mr. H. Austin inspecting Girling's Car at Usingen Control.

Photo by [*Argent Archer.*

Year.	Course.	Distance. Miles.	Winner.	Car.	Time. h.	m.	s.	Average Speed. m.p.h.
1900	Paris-Lyons	346	Charron	Panhard	10	36	23	38·5
1901	Paris-Bordeaux	366	Girardot	Panhard	11	24	59	39·5
1902	Paris-Innsbruck	384	Edge	Napier	10	41	58	34·
1903	Ireland	352	Jenatzy	Mercedes	6	39	0	49·
1904	Saalburg-Limburg-Saalburg	343½	Thery	Richard-Brazier	5	50	3	55⅜

The weather has quite changed, for while yesterday was fine and excessively hot, to-day the rain has come down in torrents, and the tour of the course which it was intended to hold was made only by a very few of the visitors. As a result of the continuous downpour a general exodus has taken place. Most of the competing firms are preparing to take back their cars, and comparatively few of the drivers are staying to take part in the races at Frankfort-on-Main to-morrow. To-night a banquet was held at the Kurhaus, at which the representatives of the various foreign automobile clubs were the guests of the German Club. Prince Henry of Prussia presided. After the toasts to the Kaiser and the President, Théry's health was drunk, the hero of the occasion responding briefly and modestly to the good things that had been said of him. Afterwards there were fireworks and illuminations.

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Although the race was run off without serious accident, a fatality occurred on the course near Saalburg on the 16th inst., the Mercedes car of Baron Leitenberger, of Vienna, skidding at a sharp corner. The car overturned into a ditch, and the Baron his wife and the mechanician were all injured. They were taken to the hospital, where the former succumbed the next morning.

FOLLOWING THE RACE IN LONDON.

While the racing monsters were speeding over the Taunus course, a crowd of enthusiastic British motorists were watching the progress of the contest as recorded on a large screen at the A.C.G.B.I. in Piccadilly, W. By this means telegrams from the representatives of the Club at the starting point came with pleasant frequency, giving the times that the various competitors completed their circuits, which were promptly translated to the screen. At one point there was a cessation of news, explained by a later message that the club secretary had been enjoying a good lunch. News of mishaps to Edge lowered the hopes of those who predicted British success, while the steady running of Girling, who obtained the third place in the second lap, occasioned much delight. A report that Jenatzy had killed a man was the sensational item of the day; but this was, happily, unfounded, and general comment was made on the way the cars kept in the running.

All along it was seen that Théry was likely to be the winner, and Mr. J. T. Overton, whose firm has the English agency for the Georges Richard-Brasier cars, was warmly congratulated as each lap showed the French representative gaining on the German holder of the cup. When the result was declared the band, which had performed a selection of music during the day, struck up the Marseillaise, the French flag was hoisted on the club-house, and, with a sporting instinct, the members cheered the name of Théry, who had ridden such a good race.

Unfortunately for the deductions we had drawn from the positions of the cars on the screen as the race was in progress, we discovered, when the special report on previous pages arrived, that the order of starting announced on the cards supplied at the Club had not been followed. Thus the value of the enterprise was destroyed, although the pleasure of the day remained.

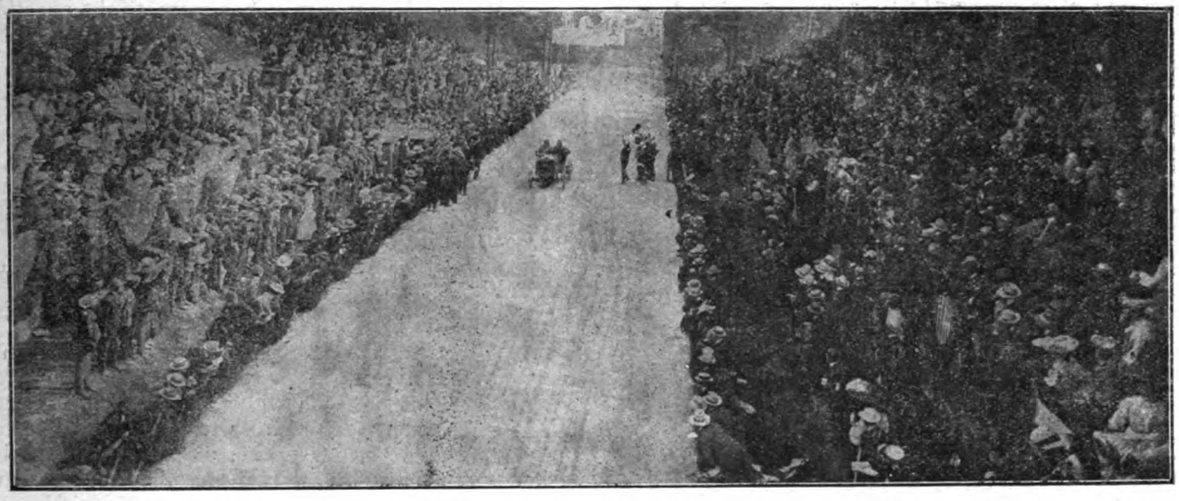
HOW THE NEWS WAS RECEIVED IN PARIS.

PARIS, Saturday.

Théry's victory in the Gordon Bennett Cup race has given immense satisfaction in Paris. It was a bitter disappointment to Frenchmen when the trophy was wrested from them, and now that it is once more in their possession they will make a supreme effort to retain it. As soon as the news was known at the Club-house of the A.C.F. the French flag was hoisted, and the exterior of the building on the Place de la Concorde illuminated. The sporting papers brought out special editions, giving the result of the race, and these were bought up rapidly. At the Georges Richard Works, at Ivry, great excitement prevailed when the announcement of Théry's victory was made. The men were allowed to cease work, and quickly the exterior of the factory was decorated with flags.

A few particulars of the winning car may not be without interest. The frame is of pressed steel. The four-cylinder engine develops from 80 to 85-h.p. The valves are all mechanically actuated, and the ignition is by magneto. A special form of automatic carburettor is employed. The power is conveyed through a leather-faced cone clutch to the gear box, which gives four speeds forward and a reverse, with a direct drive on the top speed. From the differential shaft side chains transmit the power to the rear road wheels. The frame is carried on long springs, provided with a special cushioning device known as the Truffault.

Up to the time of the Eliminating Race in France the name of Théry was not a very familiar one, although those who have been connected with the automobile movement in this country since the early days of the Act will remember him as one of the expert drivers of the little 5-h.p. Decauville at the show in the Deer Park, Richmond. Since then Théry has put on flesh and is now a heavy weight. His principal successes, previous to taking part in the eliminating trials, had all been accomplished on voiturettes. His racing career dates from 1898, when he drove a Decauville voiturette in the Paris-Amsterdam race. In 1899 he competed in the Tour de France race, and finished second in his class. In 1900 he won the Coupe des Voiturettes from Bordeaux to Perigueux. The following year he finished fifth in the light-car section of the Paris-Bordeaux race. In 1902 he started in the Paris-Vienna contest, but broke his brakes in descending a steep hill near Arlberg, the car turning over. Later in the same season he met with a spill in the Circuit des Ardennes. He, however, finished the 1902 racing year by winning the Gaillon kilometre climb in record time, being the first driver of a light car to reach a speed of 120 kilometres per hour. Last year he finished fourth in the light car section of the unfortunate Paris-Madrid race. Besides being an expert driver, cool and daring, he is a thorough mechanician, having passed through the workshops, and was, therefore, familiar with every part of his car.



Thery Finishing.—The Scene at the Saalburg.

AN Austrian chauffeur named John Pfabigan died in hospital at Newport, Mon., on Tuesday morning from injuries received in a motor-car accident. Deceased was driving a car down a hill near Caerleon when he applied the brake too quickly, with the result that the car overturned and Pfabigan was pinned beneath it.

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THE DELAHAYE PETROL CARS

WE are able this week to illustrate the friction clutch used on the Delahaye cars, the British agency for which has lately been secured by the Saxon Motor Company, Limited. The clutch is of the simple conical type and is notable for an original method of securing the leather friction covering to the cone. The latter is cast with eight depressions

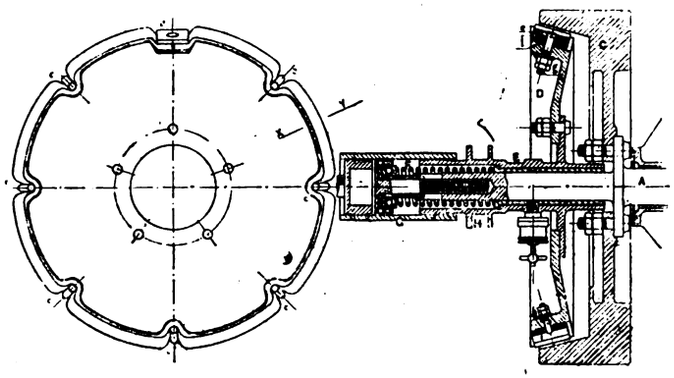


Fig. 1.—End View and Cross Section of the Delahaye Clutch.

n its outer surface and is provided with a leather band, which is drawn into these depressions by T bolts. The heads of the bolts are below the surface of frictional contact. The two ends of the clutch are held by a bolt of special form, the head of which is wider than the others. The advantages of this method of securing the leather covering are that it is held very firmly and can more readily be renewed than when riveted to the cone,

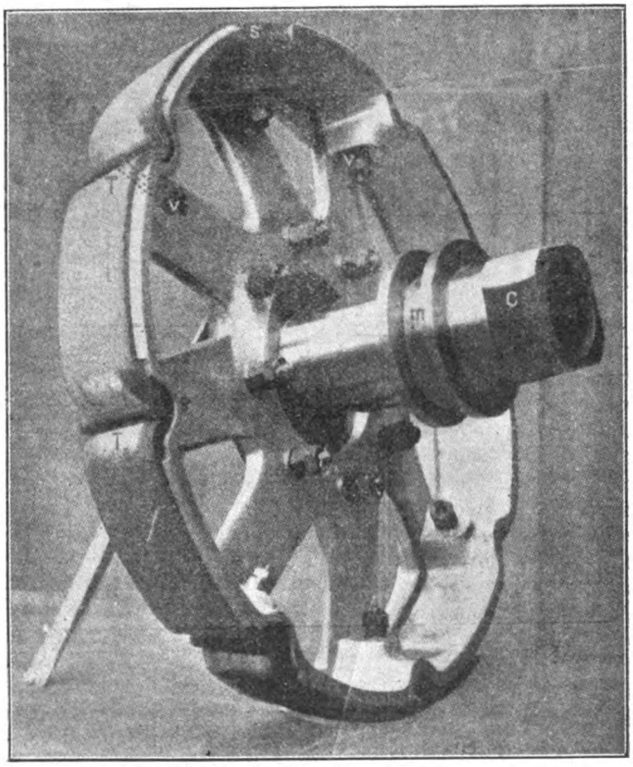


Fig. 2.—General View of the Delahaye Clutch.

without taking off any shaft or large part of the car. The spring is also arranged in a rather original way. An extension is screwed into the end of the crank shaft, and this extension carries near its outer end an adjustable threaded collar and a ball thrust bearing, against which the spring presses. The spring is surrounded by a sleeve, to which the clutch cone is bolted, and presses at the forward end against the end of a bushing within this sleeve.

The 12-h.p. Delahaye car is provided with a twin-cylinder vertical engine (100 mm. by 140 mm.), while those of the 16-h.p. and 24-h.p. vehicles have four cylinders. The lever controlling the ignition is so arranged that as the latter is retarded an exhaust-valve lifter is brought into play, thus facilitating the work of starting the motor. The cars are driven by side chains, and in the 12-h.p. and 24-h.p. types the gear box does not enclose the differential; in this way, by increasing the length of the shaft between the gear box and the differential, any desired length of frame for side-entrance cars can be obtained.

CONTINENTAL NOTES.

A Motor-Bicycle Trial at Cannes.

Sixteen riders competed in the Criterium de Motocyclettes held by the "Cote d'Azur Sportive." The run was from Nice by a round course to Cannes, the total distance being 113 kilometres. The points taken into account in making the awards were regularity of running, speed on the level and on hills, and the facility of starting. Of the sixteen competitors eleven finished, the first place being secured by Lamberjack, on a 2¾-h.p. Griffon, and the second by Gaillet on a 2¾-h.p. Werner.

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Tyre Protection.

M. Paul Meyan refers once more to the question of the use of old tyre covers in a recent issue of "La France Automobile." His 24-h.p. car, with passengers and petrol, etc., weighs about 30 cwt. He runs with an old cover on the off-side rear wheel, and detachable anti-skid protector of leather on the left rear wheel. On his way back from Italy the protector was renewed at Marseilles, after which he drove a total distance of 2,346 kilometres (1,460 miles), without a puncture. He has not worn out a cover or air tube since February 1st in covering 7,100 kilometres (4,430 miles), whereas last year in the same time he wore out four covers and eight or nine inner tubes.

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Motor-Omnibuses in Germany.

A service of electrical motor-omnibuses, in which the current is conveyed to the motors by means of overhead wires, is on the point of being established between Johannisthal and Nieder Schöneweide. The 'buses, each of which will accommodate sixteen persons seated and six standing, are being made by the Allgemeine Electricitats Gesellschaft, of Berlin, and are designed to attain a maximum speed of 12½ miles an hour. The introduction of motor-omnibuses is merely a temporary expedient, as an electric tramway is to be constructed to connect the districts in question as soon as the local conditions permit of the work being executed. Probably the experience with the 'buses may be such as to cause the local authorities to alter their plans.

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A Touring Competition at St. Etienne.

Twenty cars left St. Etienne on the morning of the 12th inst. for Clermont-Ferrand, the first stage of the two-days' touring competition organised by the Automobile Club Forezien. The distance was 235 kilometres, which was successfully covered by all but three of the competitors. The first to reach Clermont was M. Jolhois on a Peugeot. The return trip was made on the 13th inst., eleven being classified, the first place being taken by M. Perret on an 18-h.p. Peugeot, and the second by M. Laperto on a 20-h.p. Automoto.

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The Circuit des Ardennes.

The Gordon Bennett Cup race over, attention is now being centred on the Circuit des Ardennes, which is to be run off next month. A slight change has been made in the course, which will enable the race to be run over a distance of 600 kilometres (about 373 miles) without a single stop, and without any controls. The new circuit comprises a total of 59½ kilometres (about thirty-seven miles), which, added to the 85½ kilometres (about fifty-three miles) of the old circuit, gives for each lap a

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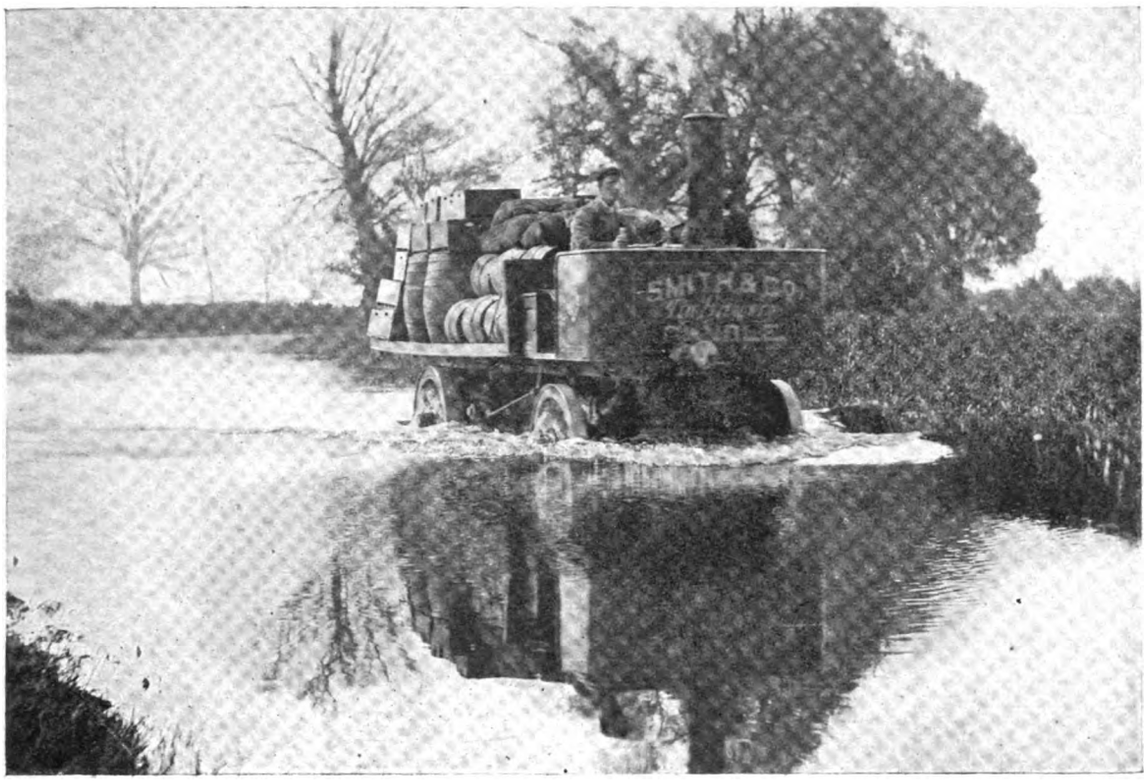
course of about ninety miles. The route of the old circuit has been almost entirely repaired, especially in the following places :—The turning at Longlier, rounded off last year as far as the top of the hill; a short but rather stiff road leading to Léglise; the whole of the forest of Aulier as far as Habay-la-Neuve; and further on the rapid descent in the turning of the route from Martelange to Bastogne. The last part of the road leading to Neufchateau has also been put in good condition. The bad turning at Recogne has entirely disappeared. Altogether over fifty entries have so far been received for the race.

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Starting Big Motors.

The German Daimler Company are now fitting their 60-h p. Mercedes cars with a special starting arrangement. The device, which is stated to greatly facilitate the starting of these monster engines, is actuated by rack and pinions attached to the four cams of the exhaust valves. A straight forward movement of the rack revolves the pinions and lifts the valves by means of a worm inside the casing of the plungers.

miles. This proved a victory for Henze on a Cudell; time 8 min. 10 sec.; Gleich (Adler) being second, and C. Lorenzen, of London, on a Beaufort, third. Event No. 3 was a five-mile race for light cars weighing 400 kilos and over, with one or two-cylinder motors up to 14-h.p. inclusive; open to amateurs; besides the driver, an adult passenger had to be carried. This was won by Fritz Opel on an Opel-Darracq, his time being 8 min. 10 secs. The fourth race was one of ten miles for large alcohol driven two-seated cars weighing over 650 kilos, up to 40-h.p.; open to amateurs; W. Poege on a 60-h.p. Mercedes secured the first place in 12 min. 29 sec., thus securing the prize offered by the Kaiser. Some excitement was caused in this event by Fritz Opel, who finished second, running off the track. The fifth event was an eight-mile contest for heavy two-seated cars, weighing over 650 kilos, up to 24-h.p. inclusive; open to amateurs; it resulted in a victory for Fritz Opel (time 11 min. 5 sec.). Race No. 6 was for touring cars over 1,000 kilos, up to 30-h.p. inclusive, with



One of the Lancashire Steam Motor Company's Standard 4-ton Lorries traversing a Flooded Road near Oundle.

Track Racing at Frankfort.

In connection with the Gordon Bennett week the Frankfort Automobile Club held a meeting on the Oberforsthaus trotting track, at Frankfort-am-Main, on Sunday. There was a general exodus from Homburg either by motor or train, and when we arrived we found all Frankfort on its way to the park for the great automobile meeting. The afternoon's sport was tame after Friday's big contest, but the scene was charming, the green course, with its background of pine forest, being thronged with a gaily dressed crowd. Among the spectators were Prince and Princess Henry of Prussia. Considerable interest was shown in the events even by the English visitors, as for the first time one or two British cars were among the competitors. One lap of the track is equal to one mile, that is 1,609 metres. The first race was for motor-cycles; open to amateurs; the machines to be started by pedalling and without assistance from anybody; distance, three miles. The winner was Nicodemi on a Puch machine; time 4 min. 49 sec. The second event was an alcohol competition, open to alcohol-driven cars weighing 400 kilos and over, up to 15-h.p.; to be driven by professionals; besides the driver an adult passenger had to ride in the car; distance five

compete touring carosserie, for four persons; open to amateurs; besides the driver a passenger had to be carried; distance ten miles. This was a well-contested event, Adam Opel on a 26-h.p. Opel-Darracq being first in 15 min. 24 secs., and P. Martin on a Coventry Daimler second in 15 min. 28 secs. The last event of the day was the race for the Peter Cup, which is limited to amateurs and cars weighing over 650 kilos., up to 60-h.p. inclusive. Besides the driver, a passenger had to be carried; distance ten miles. The contest provided the excitement of the afternoon, one of the cars missing a sharp turn on the loose sand of the course and waltzing wildly round in the adjoining meadow; fortunately no serious accident resulted. The race was won by M. Poege, on a 60-h.p. Mercedes, in 12 min. 12 sec., Opel being second in 12 min. 17 sec. and Branda (Darracq) third in 15 min. 35 sec. The cup has to be won twice in succession by the same driver on a German track before it finally lapses into his possession. As Poege won the race last year, the cup now becomes his own property. Between the contests Thery took his car round the course to the sound of the "Marseillaise" and enthusiastic cheers.

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THE HILL-CLIMBING POWER OF MOTOR-CARS.

(*Concluded from page* 351).

THE impossibility of exactly comparing petrol engines on the basis of their piston displacement, and the total lack of information which exists regarding transmission efficiencies, render any attempt to predict the hill-climbing power of cars almost futile. Some conception of the relative grade negotiating capacity of two cars may, however, be obtained by the use of the formula with the transmission efficiency ignored or estimated. The result will be what has been called an "educated guess," and that is the kind of figuring that we shall have to be satisfied with in connection with petrol cars for some time to come. If one has a machine of satisfactory hill-climbing powers, but is contemplating the purchase of another vehicle, it would certainly be worth the time and trouble involved to apply the formula to his old car and then to the contemplated purchase, and, if the result was much smaller in the case of the latter machine, to hesitate a little before buying.

It must be perfectly obvious that any machine, which has an engine capable of giving any net power, and a transmission system of any efficiency at all, must theoretically be capable of climbing any hill in case the gear be low enough. This is practically true to a considerable extent. Many a poor hill climber may be made a good one by a reduction in the number of teeth in the driving sprocket or an increase of those of the chain wheel on the axle, but this increase of hill climbing ability will inevitably be at the expense of the maximum speed of which the vehicle is capable. Hill climbing power may always be indefinitely increased with a corresponding diminution of speed capability, and on the other hand speed may be largely augmented, up to the point where air resistance becomes the governing factor, with a corresponding reduction in ability to overcome grades. It is rather astonishing that the owners of machines which are ineffectual hill-climbers but speedy on the level are not willing to sacrifice a little of their swiftness in order to successfully meet severe grades. Almost every owner accepts his machine as geared at the factory and prefers to discard the car rather than to invest in new sprockets, and thus lose his fear of hills.

Of course a point may be reached in gear reduction for hill climbing at which it becomes useless to carry the process further, and this is the point at which the driving wheels begin to slip on fairly good footing. The slipping point for a certain tyre is determined by the weight which it is carrying. In order to increase the traction and defer the slipping point, the vehicle weight should be largely concentrated upon the driving wheels; but of course the application of this rule is greatly restricted by the undesirability of unduly overloading one pair of tyres, and also, perhaps, by the dangers of increased skidding said to arise from an unequal weight distribution. The typical European touring car has sometimes been criticised on the ground that too little of its weight is carried by the driving wheels, on account of the engine being placed directly over the front axle and nothing being directly supported by the traction wheels, except the tonneau load and perhaps a tank and the silencer.

The majority of cars of the American type, remarks Mr. A. L. Clough, in the "Horseless Age," carry a greater proportion of their total weight on the driving than on the steering wheels, and some of them perhaps carry the weight somewhat too far toward the rear. In quite a number of these cars, particularly those using the double opposed horizontal type of engine, the longitudinal centre of gravity must be nearly midway between the axles. A great many people appear to think that this is the proper place to have it, in order to secure the greatest degree of immunity from skidding. Failure of traction on good footing is a phenomenon not very commonly met with, and loss of adhesion in sand or mud would in some cases find a doubtful remedy in any increase of weight applied to the slipping wheels.

There is a tradition current that heavy cars are poorer hill-climbers than light ones. This or the very opposite may be true according to circumstances. The fact is that two machines having equal gears, wheel diameters and transmission efficiencies will possess hill-climbing capabilities in proportion to their respective "abilities," or, in other words, in proportion to their respective effective horse power per unit of weight. The truth of the statement will thus depend upon which type, the heavy or the light, can show the greatest engine power relatively to its weight. This will generally be the type in which, other things being equal, the motive power plant has the greatest "weight efficiency," that is, the greatest effective power considering its weight. Now, it is a fact that in general the heavy vehicles, such as touring cars, carry multiple cylinder engines and the two-seated cars make use of single cylinder motors. Several considerations render it possible to build a substantial multi-cylinder engine of higher weight efficiency than can be obtained in a single-cylinder construction. Owing to the nearly constant torque produced by a three or four cylinder construction, a relatively small flywheel is required, and this is a material saving, as the flywheel forms a large fraction of the total weight of a moderately speeded single engine. The crank shaft of a four cylinder motor being under the influence of a nearly constant torsion of constant direction, rather than the intermittent torque of changing sign characteristic of the single cylinder, may be safely reduced in cross section, and its weight relatively reduced, despite its somewhat greater length. Weight per horse power can be saved in some other directions. Then, again, the four-cylinder engine requires only one carburettor, one silencer of moderate size (both of which are in use without cessation), and one circulating pump, and the proportion which the weight of these accessories bears to the



The above illustration depicts the two Milnes-Daimler petrol motor vans recently put in service by the Midland Railway Co. in London. The vehicles are kept at work practically day and night, a double shift of drivers being employed.

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whole motive power weight is smaller than with the single-cylinder construction. Cars making use of multiple engines certainly ought to show greater "ability" than those using the single type, whether they be classed as heavy or light vehicles.

The number of "gears" or "speeds" which a car should possess is a matter of continual discussion among automobilists, and there are many pros and cons, but when the matter of hill-climbing capability is under discussion there is little doubt that, aside from all considerations of cost, a three or four-speed gear is very advantageous. The main thing is to be sure that the lowest gear is chosen low enough for the very worst conditions. Where only two speeds are provided for, there is a temptation to make the low gear somewhat higher than it ought to be, so as to render travelling less annoyingly slow at times when the high gear fails to carry. When the road is just difficult enough to preclude the use of the high, the engine is very lightly loaded on the low, and, unless it has good throttle control, will make bad work of it. Under these particular conditions one is really using an engine of two or three times the capacity necessary, and one is always wishing that the low gear was a little higher. When, however, the worst is encountered one may be inconsistent enough to wish that the low was lower. The middle or intermediate gear is just what is wanted to fill the gap. Then one may be contented to make the low gear as low as it ought to be, to meet all emergencies, knowing that it will rarely be called into requisition. The fact that a three speed sliding gear transmission device need not cost so very much more than one of two speeds, and a four speed gear of this type not so much in excess of the three speed arrangement, is likely to make this system the popular one in the future. No one who has ever used a three or four speed gear is likely to be satisfied with any two speed arrangement.

One important characteristic of any motor, as far as its hill climbing capability is concerned, is its ability to give its full power per stroke, even if slowed down almost to the stopping point. Such a motor will often "hang on" and successfully negotiate a hill upon which another may fail. Tightness of the piston and valves, correct spark position, a carburettor capable of giving a uniform quality of gas at all times, and plenty of flywheel capacity, are the important requisites for the attainment of this condition. Even if the piston fits badly the charge may be drawn properly and a sufficient compression realized when at high speeds, as so little time is allowed for leakage; but when the speed is extremely low the full amount of the charge is not sucked, especially if the inlet valves are automatic, and so relatively long a time elapses during the compression stroke that quite a little of the induced charge escapes around the rings or through leaky valves, and the charge that remains never reaches the intended compression pressure. The energy per stroke is therefore much diminished, the motor loses a little of its speed each revolution, begins to labour, and finally stops long before it would be expected to do so from considerations of size and design.

Unless an efficient automatic ignition regulator forms a part of the engine it is very difficult to keep the ignition time correct at low speeds; and if not so maintained, the motor rapidly loses its speed and stops either owing to a spark so early occurring as to cause negative work to be done on the piston, or so late as to uselessly transfer most of the energy of the charge into the silencer.

There are many carburettors still in use which, while producing a mixture of reasonably constant quality within quite a range of gas demand, produce a very weak mixture at very low speeds. Since the amount of petrol passing the spraying nozzle in a given time is dependent upon the degree of vacuum surrounding it, and this is proportional to the speed of the entering air (the contraction of the air passage remaining constant), it is plain that at very low speeds, when the velocity of the entering air is small, the supply of petrol may become inadequate to form a rich mixture because the vacuum, increasing as it does more than directly with the air velocity, will then be insufficient to cause as active spraying as necessary; while at high air velocities more than enough may be sprayed.

It is only when a correctly adjusted automatic air intake is provided which increases the degree of contraction inversely to the velocity of the entering air that a perfect mixture may be obtained at all speeds. Somewhat similar results may be obtained by increasing the petrol flow at very low speeds, or an auxiliary air intake may be used which opens as the gas demand increases and thus corrects the excessive richness of the charge likely to be drawn at high speeds. A motor which, through any of these causes, does not run well at low speeds, will force its operator to make an early change of gear when climbing hills and will "pick up" slowly if it is once slowed down. If the operator waits too long before abandoning the high gear, he is likely to find that in the stroke so much momentum has been lost that the middle speed will not carry and he is forced to resort to the lowest gear.

The last recourse in hill-climbing is the use of flywheel momentum to urge the car along by degrees. When the lowest gear fails to carry the only thing one can do is to speed the motor to the limit, engage the clutch and proceed until the motor is just about to stop; then disengage the clutch and apply the brakes and repeat the process, gaining a few feet at each repetition. This treatment is abusive in the extreme to all mechanical parts of the machine and is at best a desperate expedient.

HOW TO ENJOY MOTORING.

MR. F. T. SHOLES, vice-president of the Automobile Club of Cleveland, U.S.A., gives the following valuable advice on how to enjoy motoring. A great share of pleasure in owning and operating an automobile, and certainly a large part of the economy in doing so, depends upon one's mechanical tastes applied in the same manner that a lover of good horses cares for his stable, and it is generally admitted that machinery seems to respond to sympathetic care quite as readily as intelligent animals. A driver of either may enjoy a fast run and daring feats of skill with the same care and judgment without creating "doctor bills" in one case more than in the other, and with the factor of salvage very much in favour of the automobile. It is the careless or reckless driver who pays well for his pleasure.

One car that I personally know of was discarded by its owner on account of "troublesome repairs." It passed into the hands of a mechanically-inclined and enthusiastic buyer and cost him one tyre and £5, besides petrol and oil, for a year of hard, steady running. Another has been used continuously by the same owner, who has kept close account of his expenses, for three years, at an average cost of £30 per annum, including tyres, insurance, rent of stable, petrol, oil, and all expenses, as well as professional overhauling of the machinery during each of the last two years to keep everything tuned up for efficient work to the owner's ideas. Others of my friends have not fared so well, but in nearly every case this result is traceable to some distinct lack of proper care, as the manufacturers are generally keen to recognize a legitimate defect when it occurs, and are more than willing to replace anything of that character gratuitously.

Do not run your car beyond absolute control at any time and do not play "stunts" with it, like putting on full power immediately after starting, or try to stop with brake and reverse within one or two lengths of the car. Start, drive and stop as the good locomotive engineer does, so that your passengers realize nothing but the pleasures of delightful motion; and, when you put the car in the motor-house after your trip, give it a small share of the same kind of attention you would give your favourite horse at such a time.

HAVING the points of a sparking plug too far apart is liable to cause great difficulty in starting. This, of course, is particularly noticeable in single-cylindered engines, as in multi-cylindered motors the engine may get fairly started by the other cylinders. Small De Dion cars which have steadily refused to start have gone off first turn after the plug points were put closer together.

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MOTOR CYCLING NEWS.

THE return just issued shows that during the five months ending with May last 321 motor-cycles were exported from this country, their value, together with those of motor-cycle parts, amounting to £14,789.

◆ ◆ ◆

THE growing popularity of motor-cycling in South Africa is indicated by the news of the formation of the Johannesburg



Motor-Cyclists to catch Motorists.—One of the Police Motor Cyclist Corps, whose duty it is to prevent furious driving in Lincoln Park, Chicago.

Motor-Cycling Club, the object of which is to promote runs to various parts of the Transvaal. The first official run of the club took place on May 29th, from Johannesburg to Rosherville, a small place about five miles away.

◆ ◆ ◆

THERE seems to exist in the minds of many motor-cyclists an impression that there is no necessity for a motor-cycle to carry a registration number on the back provided the front plate is carried longitudinally and is numbered on both sides. Mr. C. G. Gray, the hon. sec. of the Motor Cycle Union of Ireland, was invited to wait on the Assistant Commissioner of the Dublin Metropolitan Police with respect to this subject, and it was impressed upon him that there is no doubt about the law on the point. The information will be embodied in the next circular to the members of the Motor Cycle Union; but, in justice to other motor-cyclists who are not as yet members of the Union, it is as well that this view on the part of the authorities should be made known to the public generally.

◆ ◆ ◆

AFTER the two riders left in in the Peterborough Motor-Cycle Club's reliability trial, Mr. B. C. Holmes, riding a 3½-h.p. Vinco-Minerva, and Mr. T. Woodman, 3¼-h.p. Lightstrung, had decided to divide the prize, as announced last week, the committee resolved that another run should be made, and this, to the relief of both men, who were getting heartily tired of having nothing happen, decided the event, for Woodman punctured, thus leaving Holmes the winner at 625 miles. Mr. Holmes is the manager of the Peterborough depot of Heighton's, Limited, the maker of his machine.

◆ ◆ ◆

THE Federation of American Motor-cyclists has made a radical move with a view to attaching a more definite meaning to a motor-cycle record than at present exists, owing to the fact that the weight of a machine is not restricted in racing. The majority of the American records were made on a ponderous four cylinder motor-cycle built for racing only and of no practical use for ordinary road work. The Federation passed a resolution at its last meeting, requesting the National Cycling Association to accept no records made on machines weighing over 110 pounds.

◆ ◆ ◆

A MOTOR-BICYCLE endurance test is about to be held by the National Federation of American Motor-cyclists. The contest proper will cover a period of six days, as follows:—July 2—a run from New York to Albany. July 3—Albany to New York. July 4—One hundred miles paced regularity run. July 5—Tests in New York, comprising hill-climbing trials and starting, stopping and slow speed tests. July 6—A run from New York to Wilmington, Del. July 7—Wilmington, Del., to Cambridge, Md. There will be three classes of awards, for, respectively, those who participate in the events of July 2, 3, 4 and 5, for those who participate in the events of July 5, 6 and 7, and for those who take in the entire programme.

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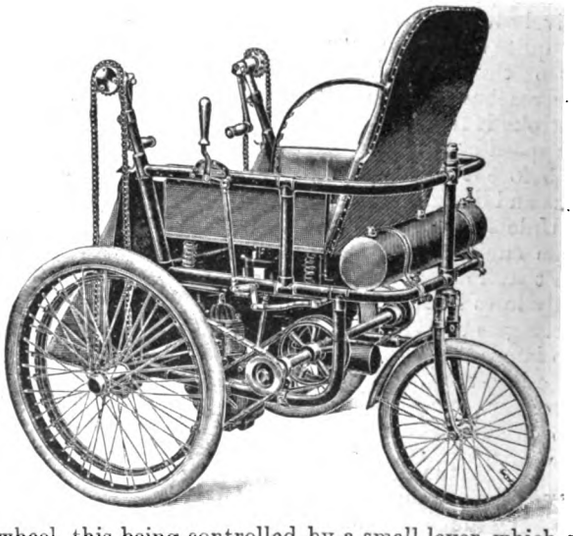
THE Archdukes Joseph Ferdinand and Heinrich Ferdinand of Austria are now ardent motor-cyclists. They have each recently acquired Laurent-Klement double-cylinder motor-bicycles.

◆ ◆ ◆

MR. J. E. YOUNG, Salem, Madras Presidency, India, who has one of the Singer gear-driven motor-bicycles, writes that he has now run his machine over 1,050 miles, over roads which would surprise many riders at home. "My longest rides were 103 miles, 83 miles, and 68 miles, the last with a lady in a trailer over a hilly and bad road innocent of culverts. It would have surprised you, I think, to see the machine with trailer and passenger splashing in the muddy nullahs, throwing up a beautiful fountain of water, and bouncing out on the other side."

◆ ◆ ◆

A GERMAN firm, Herr R. Assmann, of Mannheim, has lately brought out the motor-tricycle, specially designed for the use of invalids, illustrated herewith. The power is supplied by a 2-h.p. air-cooled engine arranged under the seat. The crank shaft carries on its end a wide pulley, the power being transmitted by a flat belt to a small countershaft at the rear. On the latter are mounted fast and loose pulleys, so that by shipping the belt a free engine can be obtained at any time. From the countershaft the power is transmitted by light belts to pulleys attached to the front wheels. The steering is actuated through the single



back wheel, this being controlled by a small lever which can be at the rider's left or right hand as desired. Speeds up ten miles per hour can, it is claimed, be attained by the tricycle, which is fitted with the hand-driving gear usually provided on this class of machine, so that the rider may help the motor on stiff gradients, or propel the tricycle home in case of failure of the engine to work.

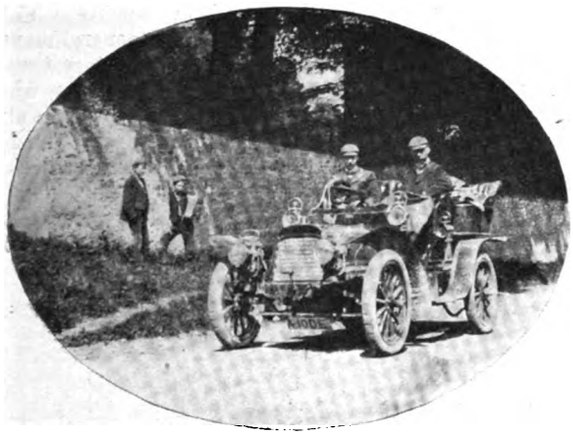
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HERE AND THERE.

COL. LORD BINNING has just acquired a 12-h.p. Wolseley shooting brake.

A SECOND motor-'bus has commenced running between Old Steine, Brighton, and Hove.

THE Gardner-Serpollet Company have lately completed a 40-h.p. steam landaulet for General Friedericksz, of St. Petersburg.



A 20-h.p. Spyker Car at Lyme Regis.

MESSRS. MARTIN SMITH AND COMPANY, LIMITED, has been registered with a capital of £2,000, to carry on the business of manufacturers of and dealers in motor-cars, etc.

MESSRS. H. E. AND F. MORRISS, of Stroud Green Road, London, W., who are devoting much attention to the repair of steam cars, have just issued a very complete catalogue of replacement parts and accessories for this type of automobile.

THE Sale Electrical Installation Company, of 43, School Road, Sale, near Manchester, have a garage with accommodation for several cars, and keep a staff of mechanics for repair work. Plant for the charging of accumulators has also been installed.



The first Important Curve on the Gordon Bennett Course near Saalburg.

THE Automobile Club of America has issued its 1904 handbook. The membership list contains 544 names, including 106 associates. Of the active members all but thirty-five are owners of cars, and more than a score are possessors of several vehicles each.

THE North British Rubber Company, Limited, have received an order to supply Clincher-Michelin motor tyres for one of the King's cars. In the Glasgow to London non-stop run, a car fitted with Clincher-Michelin tyres obtained the only gold medal awarded in Class B.

MESSRS. W. M. CAFFYN AND SONS have opened a well-equipped motor garage at 12, The Colonnade, Eastbourne.

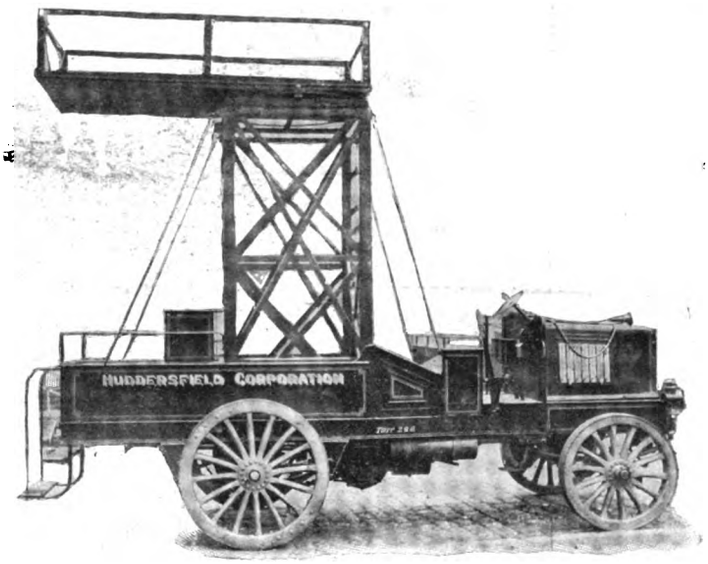
MESSRS. GEORGE POLKEY, LIMITED, have appointed Messrs. Hendry Bros., 28–34, Robertson Street, Glasgow, their sole agents for Scotland.

THE Laystall Motor Engineering Works have been opened by Messrs. F. T. Bersey and Company, at 27 and 29, Laystall Street, Rosebery Avenue, E.C.

A SERIOUS fire has occurred at the South Hants Motor-Car Company's works, Broad Street, Portsmouth. All the office books and fittings were destroyed and the company will be pleased to receive copies of catalogues and lists.

THE Chief of the Police at St. Louis has issued an order for the enforcement of the regulation requiring automobiles to carry drip pans to prevent petrol and oil from dripping to the street. The penalty for neglect is a fine of from £1 to £20.

THE accompanying illustration shows a Tower Wagon operated by petrol motor, which has recently been supplied by the Thornycroft Steam Waggon Company, Limited, to the Huddersfield Corporation, for the purpose of inspecting the overhead conductors connected with the electric tramways. The



motor is of 20-h.p., and the fully loaded vehicle is capable of a speed of twelve miles an hour. The illustration shows the vehicle fitted with steel tyred wheels, but these, we learn, are merely temporary, the solid rubber tyred wheels not having arrived at the time the photograph was taken.

THE London Stereoscopic Company, Limited, have published an album of sixteen photographs of scenes in the Isle of Man during the recent eliminating trials, by Mr. Elward Kennard. Mr. Kennard in a few words of introduction pays a tribute of praise to the warm hospitality of the Manxmen towards the motorists.

The closing of the first course in the Y.M.C.A. school of automobile instruction in Detroit, U.S.A., was celebrated the other day by a banquet, at which the Educational Director, Mr. W. B. Van Akin, acted as toastmaster. The principal address of the evening was made by Dr. Rudy, the Chairman of the Automobile Committee of the Y.M.C.A. He stated that the course of lectures just completed was only a preliminary one, and that next autumn, when the school reopens, the number of students will be much larger. The school will then be divided into classes, the first being for beginners, the next a machinists' class for all who successfully pass the examinations in the first class and for others who are of mechanical bent and have some knowledge of machinery; a third class for persons who wish to learn to drive motor-cars, and a fourth class in thermo-dynamics.

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THE Gratze Patents and Engineering Syndicate, Limited, has been formed with a capital of £5,000, to carry on the business of manufacturers of speed indicators, etc.

THE proceedings at the Speech Day at Wellington College were delayed owing to the break-down of the motor-car in which the King and Queen drove over from Windsor.

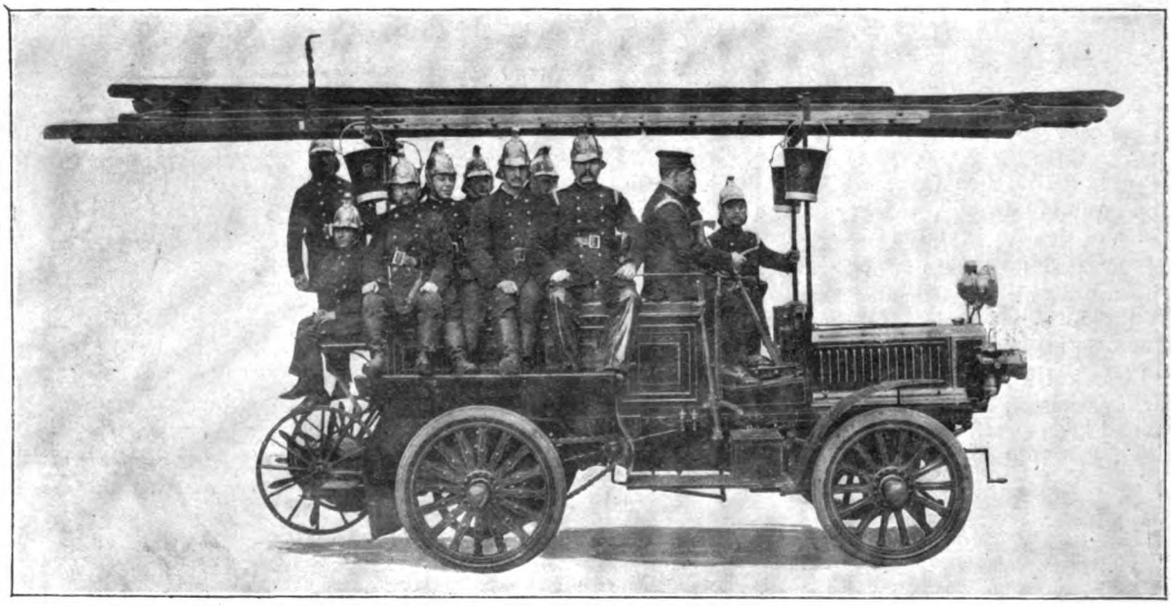
MR. KARL AUFHOLZ has taken over the management of the Balcombe Motor Company, Balcombe Street, Marylebone, N.W. This company has a large and up-to-date garage open at all times, day and night, capable of storing up to twenty cars.

MESSRS. CHENARD AND WALCKER inform us that Mr. Walter Gutmann (late manager of the Weston Motor Syndicate, which has gone into voluntary liquidation), of 2, Bury Street, St. Mary Axe, E.C., has been appointed sole agent for their cars.

MR. J. D. BISHOP, motor-car agent, of Albert Street, Barrow-in-Furness, has sent us a sample tube of "Auto-Grindene," a preparation designed to do away with the trouble and inconvenience hitherto associated with valve grinding. A tube can easily be carried in the tool box and is always ready for use, being invaluable when a valve has to be replaced on the road. It is supplied in two sizes—for motor-cycles and cars.

THOSE who are interested in the new Palmer cord tyres will be pleased to hear that the Palmer Tyre, Limited, had the option of fitting some of the cars representing Great Britain and Ireland in the Gordon Bennett race. It is much to their regret that they could not do this, owing to the fact that the special size required had not previously been made by them. The time between the trials at the Isle of Man and the race was not sufficient to allow them to complete the new plant and tests necessary for a new size.

THE works of the Ryknield Engine Company, Limited, at Burton-on-Trent have been visited by a party of directors and officials of the North Staffordshire Railway, among them being Mr. Tonman Mosley (chairman), Mr. Phillips (general manager), and Mr. Crosbie Dawson (engineer). Special interest was displayed in the first of a new type of four-cylinder car which is now approaching completion. Orders for this type have already been placed by Lord Burton for a shooting brake, and by Sir Oswald Mosley for a landaulette. The company has decided to have the cylinders for their cars cast separately next year, instead of in pairs as at present, and they will therefore be able to add a 15-h.p. three-cylinder car to the existing types of two-cylinder 10-h.p. and four-cylinder 20-h.p.



A Durkopp Fire Salvage Wagon, recently introduced by the Motor-Car Emporium, Ltd. The vehicle was undergoing tests by Members of the London Fire Brigade when the Photograph was taken.

MESSRS. QUIBELLS, LIMITED, has been registered with a capital of £500 to acquire the business known as "Quibells," and to carry on the business of manufacturers of and dealers in motor-car houses and motor-car and motor-cycle accessories, makers of motor and other cycles, etc.

"ENTIRELY new method of locomotion just discovered (patented). Steam, electricity, and all artificial forces dispensed with. Any vehicle propelled, any speed, and immediately controlled by this wonderful invention, simply by geared mechanism by hand of driver. No vibration. Absolutely safe." Such is the announcement we find in the advertisement columns of a daily paper.

A COMMITTEE of civil engineers appointed by the Roads Improvement Association to consider the construction of new and the maintenance of existing trunk roads, has resolved (1) that a central department should be established to determine the direction and control the construction of new trunk roads. (2) that the central authority should exercise control over existing trunk roads, with power to determine their width and the frontage lines of buildings on such roads. Provided always that no new building shall be erected within fifty feet of the centre of a trunk road, and the local authority shall pay suitable compensation for unoccupied land within the existing fences.

AT the meeting of the Highways Committee of the L.C.C. the clerk of the Council reported that he had from April 20th to June 4th, 1904, registered 506 motor-cars and 365 motor-cycles, thus making the total number of cars and cycles registered up to the last-named date 3,420 and 2,428 respectively. He had also issued during the same period 1,338 licences to drive motor-cars or cycles, and general identification marks for motor-cars had been assigned to seventeen manufacturers or dealers, the total number of licences and general identification marks issued being 8,533 and 264 respectively.

THE Northampton Accumulator Company has commenced the manufacture of the "N.A.C." accumulators at West Bridge Works, Northampton. Mr. A. Schanschieff, whose name is well known in connection with storage battery work, is the company's chief engineer. An illustrated catalogue has just been issued describing the battery for lighting purposes, also for motor-cars and electric traction service. The battery is claimed to be the outcome of twenty years' experience, and the plates are said to possess all the advantages of pasted plates, though they are as solid as those of the Planté type. Full working instructions appear in the list, and particulars as to capacities, weights, and prices are tabulated.

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CORRESPONDENCE.

INCONSIDERATE DRIVING.

To the Editor of *The Motor-Car Journal.*

Sir,—A recent case illustrates the wide divergence of opinion which may exist as to the speed of a motor-car at a given time. A Member of Parliament was summoned for driving at an excessive pace. With the merits of the case, which was dismissed, I have nothing to do. There were three witnesses for the prosecution. One of them deposed that the defendant was going at the rate of 25 miles an hour, another "at the speed of an express train," and the third described the pace as "very fast, about 14 miles an hour." The first witness was a policeman, the second a potman, and the third an electric tram-car driver.

I have no doubt that each witness stated what he honestly believed to be true, and herein lies the great difficulty of motorists, who, however moderate their pace, are nevertheless often assailed with reproaches and even abuse when they are proceeding with the greatest regard for the convenience of others, and in the event of an accident bystanders are always ready to affirm that the motorist was proceeding at some unreasonable and frequently impossible pace.

No doubt, in the instance I have cited, weight was given to the evidence of the tram-car driver, who was an "expert" witness, but it might have been very hard on the defendant if a person who knew nothing about pace had chanced to be the third witness.

A short time since I was gliding down a slight hill which joins four roads, with my clutch out, at the rate of about five miles an hour, whereupon an individual angrily demanded what I meant by "tearing down the lane at 20 miles an hour," and I have not the least doubt that had the slightest accident occurred this person would have cheerfully gone into the witness box to swear in all good faith that I was dashing along at 20 miles an hour.

That many motorists are reckless and inconsiderate cannot be denied. It is therefore necessary that evidence as to speed should be very carefully weighed, lest the man who habitually drives carefully be punished by reason of unreliable testimony.—Your truly,

W. J. Bosworth, Colonel.

SOLID TYRES.

To the Editor of *The Motor-Car Journal.*

Sir,—Could any of your readers give me their experience with the De Nevers solid tyres? I have had so much trouble with pneumatic tyres since I commenced motoring a few weeks ago, that I am inclined to make the change. The chief point I wish to consider besides comfort is, how much do the tyres reduce speed in hill climbing? It would not matter if the speed were slightly lower on the level. My car is a 10-h.p. two-seater, and is rather heavily built, weighing over 11 cwt.—Yours truly,

F. A.

ENGINE STARTING DIFFICULTIES.

To the Editor of *The Motor-Car Journal.*

Sir,—I have a two-seated car made by the Speedwell Company, with a 6-h.p. De Dion engine and carburettor. The motor has run very well for a thousand miles or so, but now I have the utmost difficulty in starting it. The only way I can get it to go is by putting petrol in at the sparking plug, then it will start off at a furious rate, although I cannot regulate it. The compression and everything appear to be all right. My idea is that the carburettor has gone wrong. I have had it out on several occasions but it appears in good order. I should be very pleased, as an old reader of your valuable *Journal*, if you could advise me on the matter.—Yours truly,

F. Crossley.

[Our correspondent's difficulty is, in all probability, due to a slight sticking of the inlet valve; this would cause great difficulty in starting, although, once started, the motor would run all right. If this were the cause, it would be impossible to get a good suction by turning the starting handle, as it is not possible to turn this quickly enough to overcome the sticking.]

THE WORKING COSTS OF MOTOR-WAGONS.

To the Editor of *The Motor-Car Journal.*

Sir,—Referring to "Scott's" letter in the last issue of the *Journal*, I, too, would be glad if some reader could say if it is possible to get a petrol motor for a timber merchant's business to carry loads of one and a half to two tons of long material in rather hilly country. A reasonable-priced vehicle that could be worked with moderate expenses is what I require.—Yours truly,

Timber Merchant.

CUTS IN TYRES.

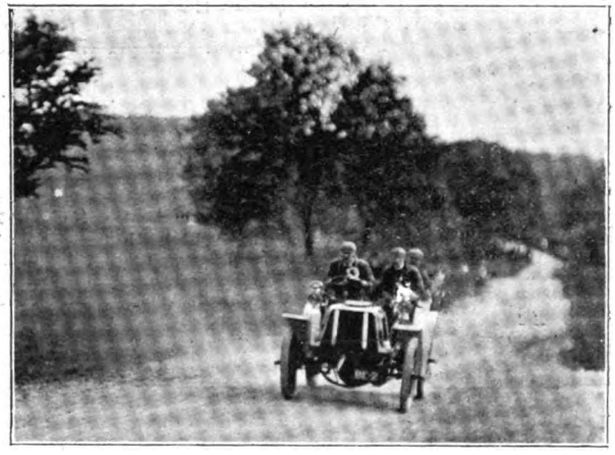
To the Editor of *The Motor-Car Journal.*

Sir,—Regarding the enquiry in the last issue of the *Journal* as to cuts in tyres I find the following treatment very satisfactory. Jack up the wheel and sit flat on the ground with the wheel between knees; then with a long French nail pick out all flints and dirt and use "Patcho," pushing it with the nail well and deeply into the cuts; do this slowly, allowing the "Patcho" to congeal. By the time you have been round the wheel once you will notice the "Patcho" has shrunk, then press in a little more where required, and allow the wheel to remain off the ground for an hour.—Yours truly,

A. 445.



Mr. W. S. Richardson on the 18-h.p. Richardson Car at the Starting Point.



Sir Hickman Bacon on his 12-h.p. Panhard.

THE HILL-CLIMBING COMPETITION OF THE LINCOLNSHIRE AUTOMOBILE CLUB. (*See page* 380.)

THE GROWTH OF MOTOR KNOWLEDGE.

To the Editor of *The Motor-Car Journal.*

Sir,—For some time the belief has been gaining ground that the steadily-increasing use of motor-cars should be accompanied by a corresponding growth of knowledge concerning them. No attempt is made now to deny that the automobile is a machine—sometimes a fairly simple one, at others an exceedingly complicated one—nor to shrink the logic of that admission, to wit, that at least a modicum of mechanical knowledge must be possessed by those entrusted with its care and management. That we are, as a nation, gifted with more than ordinary mechanical knowledge has been often proclaimed. But in hugging this belief we are apt to forget that a faculty lying dormant is of little practical value. The man who has a strain of mechanical ability in his make-up, but who has never had occasion or seen fit to use it, is not a safe person to entrust with a machine which may at any time need the attention of a practical man—one able to make an adjustment, or discover and remove a source of trouble which would otherwise seriously interfere with the working of the vehicle.

Requirements of this kind exist whether the person concerned be owner of the car or merely in charge of it. In the latter case the possession of some mechanical knowledge is reckoned on as a matter of course. Without it he could not obtain, much less retain, his position. But with the owner it is frequently very different. He may—in fact, in most cases he does,

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prefer or is obliged to drive the vehicle himself, and the question that interests him is, how much mechanical knowledge and ability is required of him? Many agents, through lack of courage, dodge this question, and instead of pointing out the necessity of acquiring at least a superficial knowledge of the engine, transmission gear, ignition system, etc., in order to drive it intelligently, they gloss over this phase and permit the purchaser to delude himself with the belief that he has but to touch the button and the machine will do the rest. Of course, this belief is certain to be shattered, but the awakening is not a pleasant one. It has been predicted by more than one close observer of the automobile movement that its ultimate effect will be to make us a nation of mechanics. The bulk of the motor-cars of the future, they point out, will go into the hands of people of moderate or limited means. Naturally, as has already been pointed out, they will familiarise themselves with the working of the machines, and learn to adjust and keep them in order. Whether this will be a difficult or an easy task will depend upon circumstances—upon the inherent ability of the student. At the present time the educational movement is spreading and gaining strength in all parts of the country. People are interested in the automobile, and that they seek practical knowledge on the subject is evidenced by the success of the few motor-car schools that have so far been established in this country.—Yours truly,

T. M. M.

SPARKING TROUBLES.

To the Editor of *The Motor-Car Journal*.

Sir,—I should be glad if you, or any readers of the *Journal*, could give me any help in connection with the trouble I am experiencing with the engine of my single-cylinder car. I find that sometimes the first spark from the sparking plug is a very good one, but that the succeeding ones gradually get weaker. Is this the fault of the accumulator, coil, or the sparking plug? I found this the case lately with a new De Dion plug, and finally had to put back the old one in order to get the engine to start.—Yours truly,

F. J. I.

[The most probable cause of the trouble lies in the accumulator, as the spark being good at first and gradually getting weaker points to the accumulator being exhausted, though it has enough pressure to start. The result should be the same with both the new and the old plug; but, as "F. J. I." found the engine would start with his old plug and not with a new one, this result is most likely due to the fact that the points of the old plug were in better adjustment to suit the power available, which would be weak. The voltage of the accumulator should be tested with a 4-volt lamp. If the lamp glows brightly for a few moments and then gradually dies away to a dull red, the accumulator requires charging.]

COST OF MAINTENANCE.

To the Editor of *The Motor-Car Journal*.

Sir,—I am a doctor and am perfectly ignorant of motor-cars, and I wonder if you will be good enough to give me some information, as everyone tells one something different. If I bought a small car and looked after it myself—by this I mean, going and taking lessons in driving and in regard to the internal anatomy of the beast—about what should it cost p.a., leaving out boy's wages and stable, and of course petrol? The hills in my district are pretty tall; what h.p. ought I to have? I suppose 6-h.p. would hardly do, would it? I should want a car to carry three on emergency (my little girl as third). I have no wish to travel a hundred miles an hour, and should use the car partly for my practice and also for afternoon runs, and possibly once a year on a tour. What about tyres? Are not solid best? I am a bad hand at mending punctures on my bicycle. About buying a car, I would like to give about £100, but would go a bit over if necessary. Can one, a novice like myself, dare to buy second-hand? Finally, what car would you suggest, and about what would its life be, and would it be better to wait till next year in the hope of cheaper cars?

I fear me I have dosed you with questions, and I am afraid you will consign me to a place where motor-cars are no more and petrol is kept outside in the cool; but my excuse is that a novice in motoring is helpless. Each car, *re* advertisement, is the best, and when one's resources are limited a mistake to begin with would settle one's chance of driving at all.—Yours truly,

Perplexed.

STEAM CARS.

To the Editor of *The Motor-Car Journal*.

Sir,—I should be very pleased to hear of any English firms making a simple and reliable steam car. My idea of such would be a steel channel frame, with either a simple or compound vertical engine working under the bonnet in front; from the engine the power transmitted to the live axle by a universally jointed driving shaft; flash generator and paraffin burner fixed below the driving seat; tonneau body which could be made removable for a light van for trade purposes. There need not be a lot of unnecessary complications, which only add to expense and often puzzle people. The weight not to exceed 15 cwt., and price not more than £250. I think there is a great time coming for steam, if engineers will only give their mind and make a properly constructed car. Petrol cars are not altogether liked by the public, and all sorts of nasty remarks are passed on them; a good many people cannot stand the vibration.—Yours truly,

Lancelot Wood.

A Benz Car Query.—F. C. B. writes:—"Can anyone advise or suggest an improvement for quietening a two-cylinder 16-h.p. Benz car with horizontal 1902 engine and four speeds? The top speed and next speed are fairly quiet, and the two bottom speeds rather noisy."

Speed Indicators.—Replying to Mr. Francis Chapman, all particulars of Dr. Winter's speed indicator can be obtained from Mr. C. J. Pafford, Southey Street, Penge, S.E.

An oil container belonging to a motor-lamp has been taken to Mr. R. Baines, 41, Chester Road, New Ferry. It was found on Cheshire roads.

CLUBS AND ASSOCIATIONS.

SOUTH-EAST ESSEX.

The inaugural meet of the newly-formed South East Essex Automobile Club was held at Bridge House, Prittlewell, when 14 cars and 11 motor-cycles attended. The brilliant weather rendered the meet even more successful than was anticipated by those who were responsible for the formation of the club, and the cheerful sunshine was a most happy augury for the club's future. Much to the regret of the committee, it was found impossible to send invitations to all the motorists in the district, but it is hoped that this will not deter them from attending any future functions which may be organised to forward the sport of motoring. Noticeable among the gathering was the number of ladies. It is the intention of the club to hold weekly meets in various localities, and any information with respect to the same, or any other matters connected with the club, can be obtained from the Hon. Secretary, Mr. R. L. Curtis Bridge House, Prittlewell. Among those members present at the inaugural meet with cars and cycles were the following:—Messrs. Baersalmon, Burrup, Calder, R. L. and A. P. Curtis, Cripps, Crane, Crookham, Drury Ellis, Foster, Green, Herrtage, Jarratt, Jewell, Kerridge, Lister, Morgan, Parsons, Sloman, Spencer, Warnery, and Winter.

LINCOLNSHIRE.

Although the wind was rather boisterous, the sun shone brilliantly all day, and the periodical run of the members of the Lincolnshire Automobile Club to Market Rasen on Thursday, last week, on the invitation of Mr. and Mrs. A. A. Padley, took place under pleasant conditions. In connection with the run Mr. Padley had arranged an interesting hill-climbing competition, and gave two prizes—a motor timepiece to the first and a motor jack to the second. Upwards of thirty cars attended, and twenty-four of them took part in the competition. Bully Hill, where the event took place, is over one-third of a mile in length, with a gradient, in places, of one in six. The following were the leading times:—

Mr. W. S. Foster, Lincoln, 24-h.p. Georges Richard, 1 min. 35 sec.
Sir Hickman Bacon, 12-h.p. Panhard, 2 min. 4 sec.
Mr. W. R. Pennell, Lincoln, 10-h.p. Locomobile, 2 min. 5 sec.
Mr. W. S. Richardson, Lincoln, 18-h.p. Richardson, 2 min. 5 sec.
Mr. F. Richardson, Sibsey, 10-h.p. Wolseley, 2 min. 6 sec.
Mr. C. W. Pennell, Lincoln, 12-h.p. Richardson, 2 min. 6 sec.
Mr. Jeffrey, Gainsborough, 12-h.p. Darracq, 2 min. 7 sec.
Mr. R. M. Wright, Lincoln, 9-h.p. Clement, 2 min. 20 sec.
Mr. W. Nissler, Lincoln, 8-h.p. De Dion, 2 min. 22 secs.
Major Goddard, Lincoln, 12-h.p. Richardson, 2 min. 27 sec.
Mr. J. S. Nainby, Thorganby, 7-h.p. Panhard, 2 min. 42 sec.
Dr. P. Sharp, Brant Broughton, 12-h.p. Richardson, 2 min. 43 sec.

Three cars, a 12-h.p. Gladiator, 6-h.p. De Dion, and 8-h.p. De Dion, were in difficulties, and the first two were assisted, while the latter returned, and afterwards accomplished the distance in 2 min. 38 sec. Mr. A. A. Padley officiated as starter, Mr. W. B. Jevons, of Market Rasen, and T. E. Foster, of Lincoln, as timekeepers, and Messrs. G. and S. Charlton-Jones, of Holton Hall, and Mr. Seagrave, of Lissington, as stewards. After the competition the members returned to Hill House, where they and their friends were entertained to tea. The run was one of the most enjoyable the club has yet held—the competition, of course, adding much to the interest of the gathering.

THE LADIES' CLUB.

The first annual general meeting of the Ladies' Automobile Club of Great Britain and Ireland will be held at Claridge's Hotel, on Thursday, the 30th inst., at noon. A "biograph tea" has been arranged for the same day at 3.15 p.m. The exhibition will include the Gordon Bennett Race of 1904, many pictures taken during the Homburg week, and also a picture taken from Hyde Park Corner, of the L.A.C.G.B.I. on the 9th inst. On Monday, the 4th prox., there will be a club run to The Hall, Bushey, Herts. It is suggested that members should go to Bushey *via* Chipping Barnet and Elstree and return *via* Watford, Stanmore and Edgware.

SCOTTISH.

A club meet and picnic of the Western Section of the Scottish Club took place at Turnberry, Ayrshire, fifty miles from Glasgow, on the afternoon of Saturday last. The members of the Turnberry Golf Club had kindly granted permission to have the cars placed within their enclosure and the privilege of the links to any members who desired to play golf. There was a fair turnout of cars. The lunch had been

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brought on the cars, and the members lunched *al fresco* on the links, after which the afternoon was spent on the course, golfing or otherwise, or on the seashore, as the various members and their friends were inclined.

DERBY.

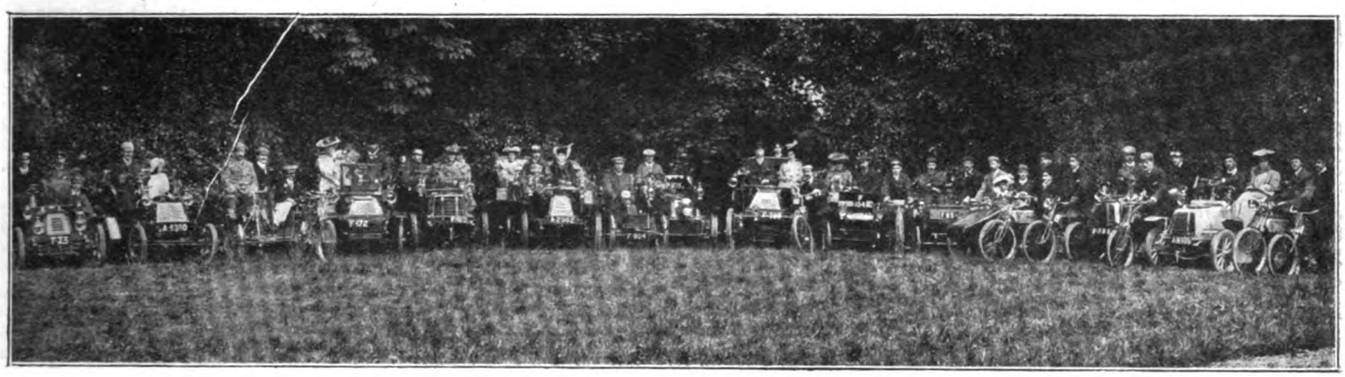
THE Derby Automobile Club paid a visit to the Ryknield Works, at Burton-on-Trent, on Wednesday of last week. The first car arrived about 3 o'clock, and by 3.30 about fifteen cars had arrived, carrying about thirty of the members and their friends. On the completion of the tour round the works, an enjoyable run was made to Mr. Clay's residence, eight miles from Burton, where the members and their friends were entertained to tea.

SOUTH WALES.

AN interesting gathering of motorists took place at Tintern and Chepstow on Saturday, when the South Wales and Monmouthshire Automobile Club met the Gloucestershire and Herefordshire Automobile Clubs. Lunch was taken at the Beaufort Arms Hotel, Tintern, and tea at the Beaufort Arms Hotel, Chepstow. Over twenty were present at the rendezvous.

NORTHAMPTONSHIRE.

EARL FITZWILLIAM has been elected president of the Northamptonshire Automobile Club, the vice-presidents of which include the Hon. L. C. Brassey, Major Payling and Major Wickham. Mr. E. H. M. Wood is the secretary, and the committee consists of twelve members, with two trade representatives. The headquarters are at the Great Northern Hotel, Peterborough. The opening run took place on June 2nd, to Buckden, resulting in a very successful turnout for the inaugural meet, and everything went satisfactorily. The runs are arranged to take place on every alternate Thursday and Saturday, that of to-day being to Wisbech. The captain of the Thursday runs is Dr. Croxford, and the Saturday runs Mr. F. W. Southwell. The committee are anxious to arrange inter-club meets with any automobile club in the surrounding counties, and the secretary would be pleased to hear from any club with that object.



The First Meet of the South-East Essex Automobile Club.

SHEFFIELD.

THE second annual hill-climbing competition promoted by the Sheffield and District Automobile Club was held on Saturday afternoon from Grindleford Bridge up to near the top of Padley Wood, the distance being a little under two miles. The first twelve in the competition were as follows :—

		Marks.	Miles per hour.	Time over Course. min. sec.
1.	F. Churchill (14-h.p.), Hallamshire ...	1349	13·0	6 54·6
2.	A. S. Fawcett (15), Darracq	1339	13 48	6 40·4
3.	S. W. Fawcett (24), Darracq	1233	13·18	6 49·6
4.	F. Churchill (10), Hallamshire	1187	13·56	6 37·6
5.	Brook Shaw (6), De Dion	1133	10 9	8 14·8
6.	J. E. Evans (12), Darracq	1095	10·3	8 44·0
7.	J. F. Pickering (10), Norfolk	965	10·08	8 55·2
8.	H. Cooper (10), Wolseley	904	9·7	9 12·4
9.	G. W. Grazsbrook (16), Dennis... ...	874	11·66	7 43·4
10.	Ben Hind (9), Clement	860	9·25	9 44·0
11.	Jas. Barber (12), Belsize...	855	8·3	10 51·2
12.	Harvey Foster (10), Wolseley	835	10·08	8 55 0

From the above it will be seen that the local cars—the Hallamshires—had a very good time, Mr. Frank Churchill taking the first prize with a 14-h.p. car, and being placed fourth with his 10-h.p. Hallamshire, which covered the distance in the fastest time. Messrs. Durham, Churchill and Co. are to be congratulated on such a result.

CASES DISMISSED.

AT Barry Police Court, Mr. Thomas Sidney Jones, Cardiff, was summoned for driving a motor-car to the danger of the public at St. Nicholas. P. C. Davies, stationed at St. Nicholas, said he saw the car going towards Cardiff at the rate of sixteen or eighteen miles an hour, and telephoned to the constable at Ely, who stopped the car, and was given the name and address of the driver. Mr. A. M. Ingledew, who defended, contended that the summons was for furious driving to the public danger at St. Nicholas, where the constable admitted no one was in danger. The magistrates, after consultation, dismissed the case. Following this result summonses against Mr. Ernest Reginald Moxey, of Penarth, and Mr. Geofrey Watson, of Newport, for alleged similar offences, were not proceeded with.

AT York Castle on Saturday Pierre Auzeas, chauffeur to Mr. Cecil Cochrane, Gosforth, Newcastle-on-Tyne, was summoned for having driven a motor-car at a speed exceeding twenty miles an hour at Dringhouses, York, on the 8th inst. Police-sergeant Henderson said that the car covered a measured quarter of a mile in 36 sec., equivalent to a speed of twenty-five miles an hour. For the defence Mr. Cochrane gave evidence, and said he told the police-sergeant he did not think they were going at twenty-five miles an hour, as the car was deranged, and one of the cylinders working extremely badly. His driver was an extremely careful man, and in a tour of 2,400 miles had not had the least trouble with the authorities. His honest opinion was that they were travelling about eighteen or nineteen miles an hour. He submitted that the police method of timing, in which an officer had not only to record the time but watch the traffic and pull up the car, was unreliable. The Bench, by a majority, decided to dismiss the case.

THE borough surveyor of Swanage has appeared in the local court as witness against Mr. Alan Hickman, of Coventry, giving evidence that he drove for a measured distance of 550 yards on the promenade at a speed of thirty-two miles an hour. A civilian, who was on a bicycle, also gave evidence to the effect that the car was going at a terrific speed, and in his opinion to the danger of the public. Mr. Staplee Firth appeared for the defence and the Bench dismissed the case.

AT Swansea County Petty Sessions, Mr. Alex. G. Moffatt was charged by the Mumbles police with obstructing a footpath with his motor-car on Monday the 30th ult. John Atkins said defendant drove his motor-car for about twenty yards along the pavement within six inches of his (witness's) door. The road was being macadamised at the spot. On his return journey he did the same thing. Mr. Paton, for defendant, said Mr. Atkins had an animus against motor-cars, and tried to get up prosecutions against them. The magistrates dismissed the case.

CLAUDE WATNEY, 20, Charles-street, Berkeley-square, London, was summoned at Guildford for driving a motor-car in London Road without giving audible and sufficient warning of its approach, on the 29th May. Mr. Staplee Firth defended, and pleaded not guilty. P.S. Hall said at 4.20 on the day in question he was in London Road, opposite Waterden Crescent, when defendant's car passed at a fast speed in the direction of London. The speed increased, and, as he passed Waterden Road crossing, it was quite 15 or 16 miles an hour. Two other cars were coming along, and the driver of the car in question passed between them at about double their speed. The other two cars were going in opposite directions. There was no hooter sounded within his hearing, or any other warning given. The character of the neighbourhood was such that a car going at the speed mentioned should, in his opinion, give some audible warning. By Mr. Firth: He had no evidence of identification. Mr. Firth said the case was disposed of, because the sergeant could not prove defendant was driving, and he quoted the section of the Act dealing with the matter. The Chief Constable asked the Bench to allow him to put in a letter from the defendant, but Mr. Firth said he could not allow it, as the writing of it could not be proved. He did not know the handwriting. The Chief Constable said he should ask the Bench to adjourn the case if Mr. Firth insisted. The letter was in answer to one he had written. Mr. Firth said he found, by looking at the letter, that it was not written by Mr. Watney at all, but signed Claude Watney per J. L., and yet they wanted to put it in.—The Mayor said they must dismiss the case, as the sergeant had very honestly said he could not prove that defendant was the driver.

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AT Chepstow, on Tuesday, the Hon. C. S. Rolls was summoned to answer a charge of driving a motor-car to the danger of the public at Chepstow on Whit-Monday last. Mr. Rolls was on his way with a friend, Mr. Cawthra, to visit Tintern Abbey, and, according to the police evidence, the car was driven through the crowded streets of the town at a dangerous speed. Mr. Staplee Firth, solicitor, who appeared for the defence, called both Mr. Rolls and Mr. Cawthra, who swore that the car was driven with care, and that the police signal referred to was given in such a manner as to suggest that it was merely intended to warn the motorists to drive slowly along the street. The magistrates ultimately dismissed the summons.

MR. LOUIS SINCLAIR, M.P., Netherall Gardens, Hampstead, was summoned at Stratford for driving a motor-car in a manner dangerous to the public. He was also summoned for failing to give information which would lead to the identification of the driver. Mr. Blanchard Wontner prosecuted; Mr. F. P. Sutthery defended. Constable Dilcock said that on May 20th, at 10.20 p.m., he saw a motor-car going over East Ham railway bridge at about twenty-five miles an hour. Both summonses were dismissed.

GLASGOW TO LONDON TRIAL: HILL FORMULA.

MR. ALEC GOVAN of the Hozier Engineering Company, Limited, has sent the following letter to Mr. Robert J. Smith, the Secretary of the Western Section, Scottish Automobile Club.

Sir,—We would respectfully beg leave to point out that the formula by means of which the number of marks awarded for hill-climbing was obtained, is far from giving just results. In the formula, no note is taken of the relationship of car weight to total weight. Now we take it the function of a motor-car is to carry a load and other things being equal it will readily be admitted that the best car is the one that can can carry the greatest welght on the lowest weight of car. hence the desire for lightness of car. This desideratum is not recognised at all in the formula as, other things being equal, as many marks would be gained by a car weighing say 20 cwt. and carrying 7 cwt. of a load as could be got by a much more ideal car carrying 20 cwt. on a tare of 7 cwt. Yet to get this more perfect car, it would be necessary to make compromises—sacrifices of efficiences, etc., which might tell very heavily against such a car if judged by your formula only.

As an example of how unjustly the formala works out, compare the following results of a light and a heavy car as given in the public report:—

10-h.p., car weight 13 cwt., load carried 8¾ cwt., time 58 sec.
16-h.p., car weight 21½ cwt., load carried 7¼ cwt., time 81½ ses.
Marks gained—First car, 2,152; second car, 2,395.

The former went up without a hitch. The latter had to be pushed up by a mechanic on the car; yet it gained 243 more marks than the first—an Argyll.

Here we have a lowered light car carrying 1½ cwt. greater load in a third less time gaining fewer marks than a heavy slower and greater powered car carrying a smaller load and having to be pushed part of the way by one of its passengers.

In the one case the useful load—the only part that should be considered is forty per cent. of the total, in the other only 25 per cent. Again the light car made 8 34 miles per hour against 5·96 of the heavy car and the light car gained 12-b.h.p. against 16-b.h.p. of the heavy car, while the light car cost £350 against £470 for the other. Yet the heavy car is awarded 343 more marks or a 11 per cent. more to a car that had to be pushed with its small load at a slow speed despite its great engine power.

That the formula is faulty surely needs no further proof, otherwise we might point out that in the first term (w × 60 × L) the constant 60 is much too great according to our experiments. Again in the third term (w × v2) by 22. We cannot tell the reason for "W" having a place at all as, if this is intended what it seems, to be a measure of wind resistance then instead of W, there ought to be some measure of the area exposed to the wind, or a constant only.

CLAIM FOR REPAIRS.

BEFORE the Lord Chief Justice, in the King's Bench division last week was the case of the British Automobile Commercial Syndicate (Limited) v. M'Creery. In this case the plaintiffs sued Mr. R. M'Creery, of 16, Albemarle Street, St. James', S.W., to recover £35 for repairs done to a 7-h.p. Panhard motor-car. The defendant denied liability. Mr. M'Call, for the plaintiffs, said the defendant was a wealthy American gentleman interested in the motor industry and motor driving. In August, 1901, defendant borrowed the motor-car in respect of repairs to which the present claim was made, from Lord Carnarvon, and after a tour on the Continent he sent it to the plaintiffs to be repaired. On December 17 the repairs were completed, and the car was to be delivered on the 18th. While the tank of the car was being filled with petrol in order that it might be ready for delivery a workman upset a lamp which caused a fire and destroyed the body of the car. The plaintiffs had insured not only their own cars but those entrusted to them for repair, and a claim was made upon the London and Liverpool and Globe Insurance Company for the damage to this car. The plaintiffs said they could put the car into proper working order again for £175, and the insurance company agreed to pay that sum Under these circumstances Lord Carnarvon elected to accept the car in the condition in which it was and to receive £175, which amount the insurance company paid to him. The amount for repairs before the fire still remained due, however, but the defendant declined to pay, as he said he had received no benefit. That, however, the learned counsel submitted, was no answer to the action. Several witnesses were called for the plaintiffs, and the defendant and other witnesses gave evidence. His lordship held that the work had been practically completed when the fire took place, and therefore the plaintiffs were entitled to recover. He accordingly entered judgment for the plaintiffs, with costs.

A QUESTION OF BRAKES.

AN important point was decided by Mr. Lane, K.C., at the West London Police Court on Saturday. Messrs. Pickford and Co. were summoned for not having two efficient brakes on their light locomotive, in accordance with the requirements of the Act of Parliament and the regulations of the Local Government Board.

The evidence for the prosecution was to the effect that there was only one brake, a shoe brake to the back wheels, and that this did not constitute two independent brakes. Mr. Staplee Firth appeared for Messrs. Pickford and Co., and argued that the brake usually used for motor-cars of this type was the steam engine, and that that was a much more effective brake than any friction brake that could possibly be applied. Evidence was given of the mechanical construction and of the fact that the steam engine could be used as a very powerful brake, and Mr. Lane held that the steam engine on the motor-car, including the valve arrangements and the reverse gear, constituted a very satisfactory brake for the motor-car, and the case was dismissed.

THE ENDORSEMENT OF LICENCES.

AT Dewsbury, Mr. C. A. Ridgway, magistrates' clerk, stated that in the recent motor-car case in which Mr. T. N. Wendell Holmes was fined £10 and costs for driving a motor-car in a manner dangerous to the public, he failed to ask for the production of the driver's licence that it might be endorsed, and he now asked that it should be produced. Mr. C. L. W. Nicholson, for the defendant, said that he had the licence with him, but claimed that the case having been dealt with they had now no power to endorse the licence. Mr. Holmes had been called upon to pay £16, which was a heavy fine for a first offence, and through his collision with the Ravensthorpe Brass Band there were now four or five actions against him pending in the County Court. Had he been asked to produce the licence at the hearing of the case the fine might not have been so heavy, and he asked, if the magistrates now decided to endorse the licence, that they would remit part of the fine. It was extraordinary that the Motor Car Act should have been drafted in such a loose and lax manner, for as he read it the magistrates had no power to endorse a licence for a first or second offence. The magistrates decided to endorse the licence, and refused to remit any portion of the fine.

CONVICTIONS AGAINST MOTORISTS.

Place.	Summoned for	Fine.
Coventry	Driving to common danger	£5, etc.
Stoke	Dangerous driving	£2.
Longton	,, ,,	20s.
Clerkenwell	,, ,,	£5.
Wallasey	,, ,,	20s.
Mortlake	No identification plate	1s.
Guildford	Not giving audible warning of approach	10s.
Hayward's Heath	Furious driving	£20, etc.
Birmingham	,, ,,	£5, etc.
Stratford	,, ,,	£5.
Thorne	No light	15s.
Norwich	Driving carelessly while drunk	Three weeks Imprisonment and £13 11s.
Saxmundham	Above legal limit	£1, etc.
Macclesfield	No trail light	5s., etc.
Lindsey (Lincs.)	No light	5s., etc.
Plymouth	Furious driving	£2, etc.
Cambridge	No light	£2.
Northampton	Reckless driving	£5, etc.
Stoke-on-Trent	,, ,,	£2.
Andover	,, ,,	£5, etc.
St. Neots (7 cases in one day)	,, ,,	£5.
Bamber Bridge	,, ,,	40s.
Lowestoft	No licence	4s. 6d.
Bray (Ireland)	Failing to pull up after accident	20s.

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THE

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COMMENTS.



AT the Royal Agricultural Show last week we had an interesting conversation with a colonial reader of the *Journal*, Mr. James Trackson, of the firm of Messrs. Trackson Bros., Brisbane, who has been in this country for some time enquiring into the various types of heavy motor-vehicles suitable for use in the wool-growing districts of Queensland. Mr. Trackson, who claims to be one of the pioneers of the motor-car in Australia, has recently organised a company in Brisbane under the title of Trackson's Transports, Limited, for the purpose of establishing a service of motor-wagons and road trains to act as feeders to the railways. As a consequence of the recent drought, the roads in Queensland have been practically closed to traffic, and much delay has occurred in getting wool and other products to the railways. The services which are shortly to be started will cover a distance of over 200 miles, and in many parts the vehicles will have to make their way across what are known as bush tracks. After many tests, Mr. Trackson has selected the "Little Giant" motors of Messrs. W. Tasker and Sons, Limited, and is taking out about a dozen of these for service in Australia. He has also recently subjected one of the steam wagons of the Yorkshire Patent Steam Wagon Co. to a very exhaustive trial, as a result of which he has also ordered a couple of vehicles of this type. The trial took place on the 4th ult. on the hilly roads between Leeds and Pontefract, when a 4-ton vehicle successfully carried a load of five tons a distance of twenty-one miles in three hours on a consumption of 165 tons of gas coke and 120 gallons of water. So satisfied was Mr. Trackson with the test that it is more than probable that the first order for two wagons will be quickly followed by others. The illustration on page 399 shows a couple of the "Little Giant" road trams intended for Queensland being taken out for their final test ere being handed over to their purchaser, who is seen at the wheel of the first engine.

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Dangers to Motorists.

IN Ireland the piece that invariably projects from the rear of carts used in the country districts for the conveyance of timber and similar material is a source of danger to which prominent attention was drawn when the Gordon Bennett race was held in that country. In a lesser degree many of the vehicles met with on English roads are dangerous to passing traffic, as they are apt to take up an unsuspected distance on the road when being turned. What this danger really is was apparent from the accident which has lately happened to a motorist at Hornby, near Lancaster. He was driving carefully along the road when a carter pulled his horse nearer the hedge to allow the car to pass. Unfortunately, the automobile struck the end of the cart, and was overturned, the driver being killed on the spot. At the inquest, the coroner, in summing up, said the accident had evidently happened through the driver trying to get nearer the side of the road as the car was passing. This caused the wheel and end of the cart to project farther into the road at the crucial moment. The collision snapped the steering-rod and the axle, and the car got beyond control and turned over, the driver being killed immediately. The jury returned a verdict of "Accidentally killed."

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Further Inquiry Necessary.

THERE is assuredly a good case for a thorough inquiry into vehicular traffic of every kind. For not only are many horse-drawn vehicles used in rural districts cumbersome and dangerous, but the operation of byelaws in the great centres of population is not altogether satisfactory, even in London, where covered vans have now to be provided with a side window from which the driver may seem to have an outlook upon the passing world. But many of these devices are mere compliances with the regulations without regard to common sense, and the sooner some definite authoritative investigation takes place the better.

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Hotels and Cars.

HOTEL-KEEPERS have too often a mean trick of charging motorists at a greater rate than ordinary tourists for accommodation of exactly the same order. It is a piece of scheming which the ingenuity of the official automobile organisation has not yet frustrated; nor is it likely to do so. An interesting ruse has been adopted by at least one motorist, who, when within reasonable distance of the town at which he is likely to spend the night, telephones to the management and fixes the rates he is to pay. These, of course, are settled without any knowledge of the wealth usually associated with the motorist, and only the chagrin of the hotel manager has to be faced on arriving at the destination. But it is not every man who can face that.

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Hereford and the Trials.

AS was anticipated in the *Journal* a fortnight ago, the town of Hereford will be made the centre of the small car trials to be organised by the A.C.G.B.I. in the autumn of the present year, and the town authorities are placing a drill hall at the disposal of the Club. This will have electric light and an efficient water supply, so that it is likely that the headquarters will have all the accommodation necessary for such an important event as these trials are likely to be. If it is found possible, there will be several circular routes of fifty miles, each of which will have to be traversed twice during the trials. There will also probably be three timed hill climbs, these taking place on ascents with no greater gradient than one in seven. The technical secretary is busily engaged in arranging the details, and the event should do much to further the movement so far as South Wales and the Midland Counties are concerned.

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Traffic in the Streets.

A CORRESPONDENCE is going on in the Birmingham papers with regard to motor-cars and traffic, a subject which is likely to become of increasing importance in that city during the next few weeks. Several experts who have written to our contemporaries are urging that the three classes of traffic now found in our streets, viz.:—1, slow and cumbersome railway lorries; 2, the horse 'buses and similar traffic;

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3, the automobile and faster horse traffic; each should be recognised and certain streets prohibited to unsuitable traffic during portions of the day. Mr. C. D. Falcke suggests that in the case of Birmingham the slow traffic should not be allowed in the streets after an appointed hour. The second should be compelled to keep in close proximity to the footpath, thus allowing the quicker traffic free access along the centre of the roadway. These suggestions are all applicable to other towns, and those responsible for local government should give careful heed to proposals of this kind.

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Success of an Appeal.

THE appeal against the conviction of a motorist reported on another page is the first appeal to Quarter Sessions under the Motor Car Act, 1903. It is worth noting that the Court appears to have taken a judicial view of the necessity of proof of public danger in alleged offences under Section 1 of the Motor Car Act, 1903. It is also clear that the Bench thought there must be very strong evidence positively showing danger to the public before a conviction under this section ought to take place, particularly having regard to the subsequent endorsement of the licences which must necessarily follow on any such conviction. There are several other ways in which furious driving or driving too fast can be adequately dealt with, and this decision indicates that the recent tendency of magistrates in Petty Sessions to try any offence by a motor-car as an offence under Section 1 is a practice which ought not to prevail, and indeed should only be taken in exceptional cases where serious danger has in fact been caused, and ought therefore to be exceptionally punished according to the provisions of this section of the Act.

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Park Royal and the Agricultural Hall.

AS the "Daily Telegraph" remarks, the attendance of the public at the Show of the Royal Agricultural Society at Park Royal "was the disappointing feature of the meeting." Much discontent was also felt at the little business done by exhibitors, and altogether it would appear that Park Royal has fallen far short of the cheerful anticipations of those who pioneered its establishment. Last year the attendance, excluding season ticket holders and the like, was 65,000; this year it fell to 52,900. At Cardiff, three years ago, it was three times this total. Compared with these results the increasing success of the Cattle, Horse and Dairy shows held at the Agricultural Hall, London, is all the more notable. The truth is that the position of the latter, its popularity with everyone interested in the modern developments of industry and agriculture, and its convenience of access are points that have also contributed to the prestige of the Automobile, cycle and similar shows that are annually held there, to say nothing of the military tournament and other displays favoured with Royal patronage. Looking round at the exhibitions that have been held in and about the Metropolis during recent years, the Agricultural Hall is evidently the only *locale* where unqualified success has been enjoyed. Hence the booking in advance for next year, already exceeding the state of things at the corresponding date for any previous display. Prospective exhibitors should make early application.

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Children and Cars.

THE journal that has offered a prize to the youngster compiling the longest list of motor-car numbers does not deserve the thanks of parents or motorists. It is a silly proceeding to encourage children to rush into the roadway to take the numbers of passing cars, and many have already had narrow escapes. The old game, not yet played out, of lads throwing their caps under cars, was bad enough, but this new notion is even worse, for girls and timorous boys are participants in the game. Dogs add something to the worries of driving an automobile; these children are equally a nuisance, and the sooner our contemporary closes the competition and awards the prize the better.

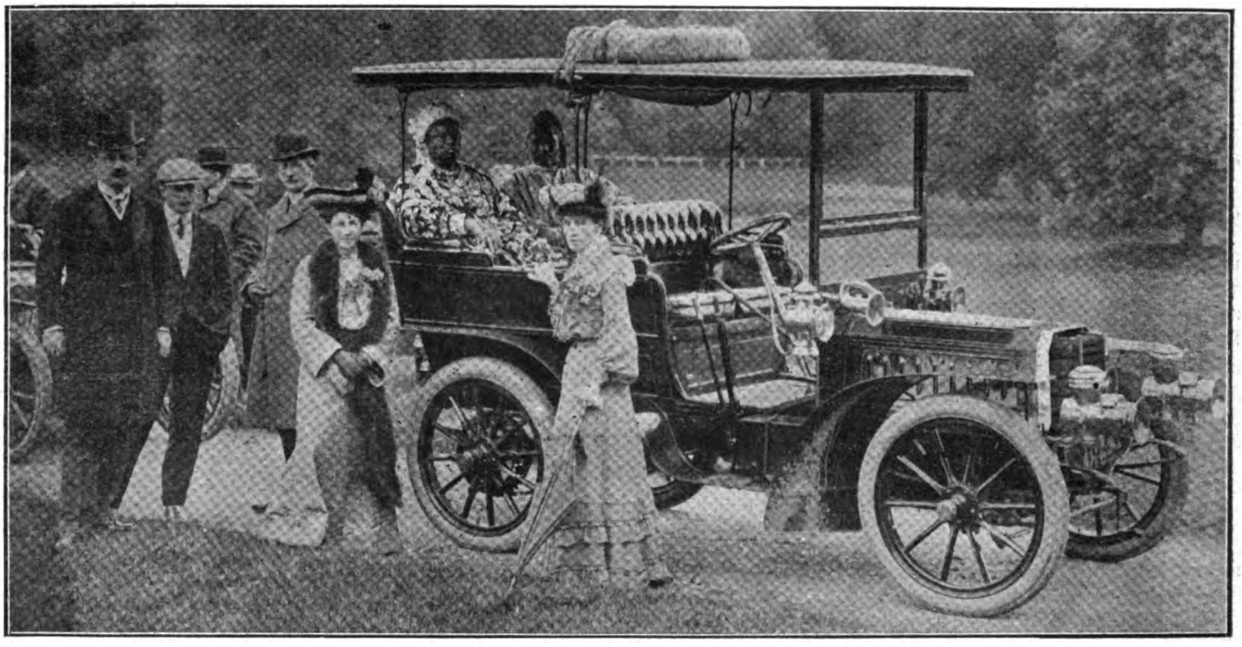


Photo by] The Alake of Abeokuta on Lord Hastings' 16-h.p. Gladiator at Dereham. (*See page 386.*) [*Gavin, Norwich.*

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A Word of Caution.

AN American contemporary in a recent issue sounds a useful note of warning which may well be repeated here. It appears that quite a number of serious accidents have occurred of late in the United States which may be ascribed to what might be termed repaired patchwork. A car altogether too light in its original construction has been time and again strengthened and repaired by its owner. Parts that proved too light have been replaced by heavier metal, until the total weight of the vehicle has been raised one or two cwts. Some of the crucial parts, however, like wheels and axles, have remained unchanged, and in consequence are carrying additional weight when their original load was far beyond the factor of safety. The overworked metal gives way under some unusual strain, and a

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dangerous spill is the result. A motor-car of too light design for durability and safety cannot be rendered safe and durable by patching. Unless great care is used in handling it and only moderate speeds are indulged in it will fail at some critical moment as certain as there are laws that govern the strength of materials and the strains to which these are subjected in road work.

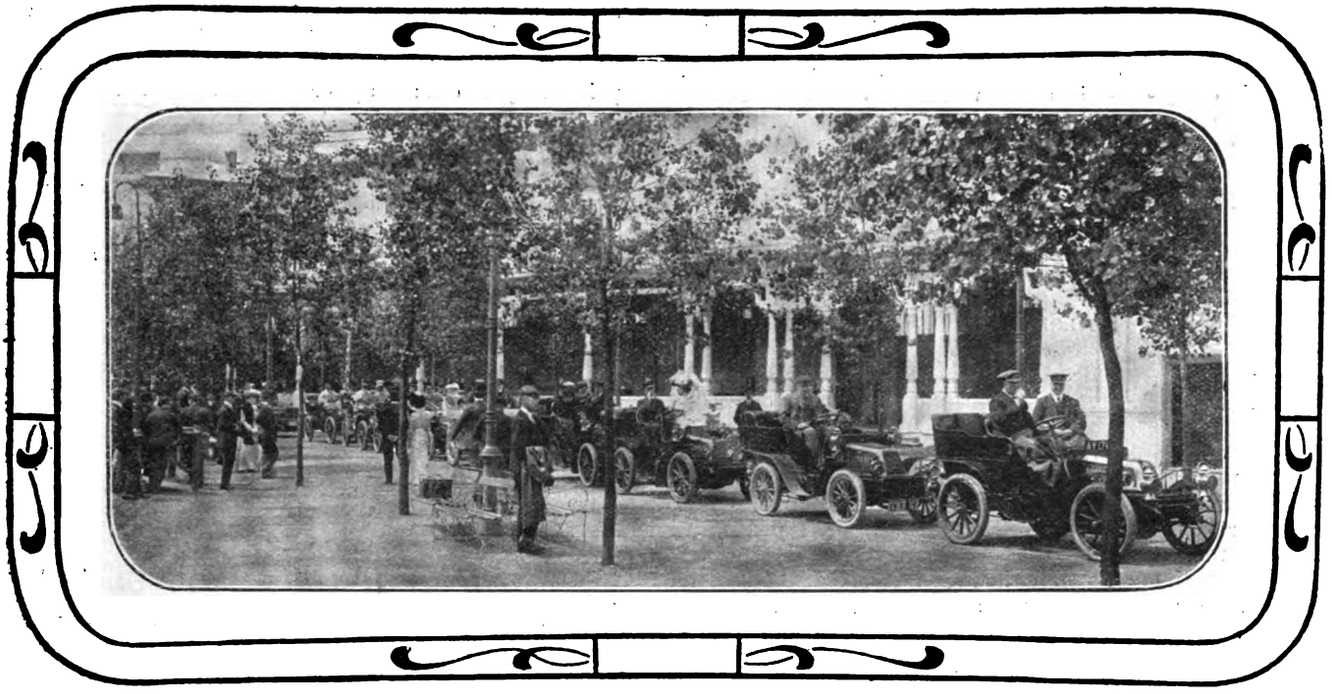
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A Lecture at Bombay.

MR. ERNEST ESDAILE has been lecturing at the Bombay Town Hall on "Why Motor Cars." In making his introductory remarks the lecturer said the Automobile Club of Great Britain and Ireland discovered that in England motor-cars were not popular, and upon investigation they came to the conclusion that the reason was ignorance. Upon this they asked Mr. Esdaile to go to the manufacturers, obtain pictures of the different kinds of cars, and give a popular lecture. The lecturer said at one time he asked a man in the street what a motor-car was, and the man replied "An evil-smelling pastime for the well-to-do." Now, he could say upon the best medical authority that the effluvia arising from the motor-car petrol is a very fine disinfectant. Continuing, he said the motor was almost an unknown luxury in England before 1896. When he found that he had to come out to Bombay he thought it would be best to bring some duplicate views which he had now got an opportunity to exhibit to the public of Bombay under the auspices of the Bombay Motor Car Company, Limited.

Bexhill Automobile Meet.

FOR August Bank Holiday and the two following days an automobile meet and races will be held on Lord de la Warr's track at Bexhill, under the auspices of the A.C.G.B.I. Since the last races the track has been lengthened, and, instead of racing down the track as they did two years ago, it is intended for the cars to race up, finishing at the top of Galley Hill, where a grand stand will be erected. The races will be confined to touring cars carrying their full complement of passengers, and there will be various classes, according to their respective prices. The suggested programme is that on Monday, the 1st August, there will be a meet of the cars in the morning, prizes being given for the most elegant motor turn-out. The races will commence at two o'clock, and will be run off in heats of two cars at a time, from a standing start, the one arriving at the winning post first to be winner. Tuesday will be confined to finishing off the heats, and the finals will also be run. On Wednesday it is proposed that in the morning there will be a battle of flowers and a parade of the cars, prizes being given for the most attractively decorated cars. In the afternoon there will be a motor gymkhana, and in the evening there will be a parade of artistically illuminated cars. A meeting of the town has been called together and various committees have been appointed. The townspeople have taken the matter up most enthusiastically and have already subscribed towards the prize-fund between £250 and £300. Mr. Loveland, of Bexhill-on-Sea, is the secretary, and will be pleased to send entry forms, on application, to readers of the *Journal*.



The Meet of the Nottinghamshire Automobile Club at Trent Bridge. (*See page* 401.)

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The Protection Association.

AN extraordinary general meeting of the Automobile Mutual Protection Association was held at Cecil Chambers, W.C. on Tuesday, under the chairmanship of Lord Shrewsbury. The new regulations were finally adopted, the special resolution being proposed by Mr. J. D. Siddeley, seconded by Mr. E. Lisle. The following were elected members of the council:—Messrs. Mawdsley Brooke, Albert Brown, Lt.-Colonel Elton-Burroughs, Charles Friswell, Charles Holmes, E. Lisle, J. J. Mann, John Marston, W. H. Maudslay, W. Lloyd McBride, A. Rawlinson, Bernard Redwood, J. R. Richardson, J. D. Siddeley, and Henry Spurrier, jun. A vote of thanks to Lord Shrewsbury was passed on the motion of Mr. Geo. Monro, jun.

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Leather and Motors.

THAT leather is a necessity to the motor trade seemed abundantly plain at the Agricultural Hall Show, says the "Leather Trade Review," and it was also very satisfactory to find there are some members of the leather industry who are determined to be early in the field for the business. In addition to the question of leather clothing, travelling requisites and upholstery required for motor work, there seems another outlet which bids fair to absorb quite a quantity of leather. We allude to the leather covers, or "treads," for the protection from puncture and wear of the expensive rubber tyres. Chrome, "raw hide" and sole leather were all in use in some shape or another. The most popular form of

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leather cover appeared to be a chrome leather band left full substance in the middle and skived off at the edges. A "tread" of stout chrome leather was also attached to the actual cover by several rows of metal rivets, the projecting flat heads of which form a splendid wearing surface. We learnt on enquiry at the exhibition that in France quite a big trade has been done during the past few years in these leather tyre covers, and that in one case a large extension of works has had to be carried out to cope with the demand. It is claimed for the leather tyre cover that, in addition to its being unpuncturable, it prevents the dangerous side-slip, and does not affect the resiliency of the rubber tyre. We heard it hinted by one tyre expert at the Agricultural Hall that there was a difficulty in getting a regular supply of suitable chrome leather in England for the purpose. Our contemporary rather hesitates to believe this, although admitting that the same complaint has been made by people who cut up the leather for motorists' clothing.

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Petrol Supplies.

NOW that we are in the full height of the motoring season, we would strongly recommend motorists, when starting out on a journey, to do so with full petrol tanks. The current demand for spirit is severely taxing the capacity of makers, and although every effort is being made to keep dealers fully supplied, yet delays are in some cases unavoidable, and in more than one country town south of the Thames lately, on making a stop for additional supplies of petrol, we have been met with the reply "sold out." Just now the arrival of the van loaded with cases of petrol is one of the most welcome events of the day to motor-car agents, not only in the country, but in the London district.

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The Alake as a Motorist.

ALREADY we have referred to the first motor-car trip of the Alake. He has just had a second experience of the pleasures of motoring, having been driven from Norwich to Elsing on his way to the Norfolk Agricultural Show at Dereham. Great enthusiasm reigned in Norwich during his visit to the ancient city and a large crowd witnessed his departure in a 16-h.p. Gladiator car belonging to Lord Hastings and driven by Mr. Hubert Egerton. To him the Alake expressed his keen pleasure in motoring. Possibly the next incident in the visit of our dusky friend will be the purchase of a car; and then there will be glorious doings in Abeokuta.

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Motor-cars for Municipal Officers.

WE have pleasure in publishing an article warmly commending the use of motor-cars by municipal officers, written by Mr. E. George Mawbey, the Borough Engineer and Surveyor of Leicester. As recorded recently, he met with an accident owing to forsaking the motor-car for the more primitive form of locomotion, but we are glad to learn that a fortnight's stay at Hunstanton has enabled him to return to Leicester in good condition. With Mr. Mawbey in the photograph on the opposite page are Mrs. Mawbey, Miss Mawbey, and his son Maurice, the latter of whom, with Mrs. Mawbey, are members of the Leicestershire Automobile Club, of which the writer of our article is the popular president.

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The Maximum Penalty.

THE chairman of the Enfield magistrates has publicly stated that the magistrates of the Edmonton division had been seriously considering the advisability of imposing the maximum penalty upon all motorists brought before them in order that they might protect a helpless public against a real danger. Only in cases where extenuating circumstances could be successfully pleaded would any consideration whatever be shown. There is no doubt that the recent fine weather has brought out a goodly crop of motorists, some of whom, exulting in the warm sunshine, have travelled far and fast. Moderation should be exercised, and then toleration may be expected.

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The use of Identification Marks.

MOTORISTS, both amateurs and traders, cannot be too careful in dealing with the identification marks allotted by local authorities. A motor-cyclist who borrowed a "number" from a fellow motorist has just discovered that such a proceeding may be associated with considerable expense. He has been summoned, firstly, for fraudulently using the identification mark, and secondly, for using an unregistered automobile, the penalties and costs amounting to considerably more than the expenses of registration and number plate. But, in addition to the prosecution of the borrower, the police summoned the motorist who lent his number, and he, too, was ordered to pay a fine. We would ask motorists to remember that just as the licences issued are to be regarded as personal permits only to be used by the persons whose names they bear, so the registered numbers applied to automobiles are only to be used on the car or motor-cycle described in the registration. Otherwise trouble will result. We shall be glad to hear from readers who find any difficulty in interpreting the Act, so that obscure points may be cleared up for the benefit of all.

THE Mercedes Co., Ltd., has been registered with a capital of £350,000.

THE Sheffield and Lincolnshire Clubs are meeting at Ollerton to-day (Saturday).

CAPTAIN SIR WROTH LETHBRIDGE, Bart., has accepted the chairmanship of the Somersetshire Automobile Club.

AN effort is being made by the Amusements Committee of Hastings to secure an automobile race meeting for the town early in August.

EARL RUSSELL'S appeal against his conviction by the Winchester magistrates has been dismissed at the Hants Quarter Sessions.

A REPORT is current in Paris that the Richard-Brasier car on which Thery won the Cup has been sold to an American millionaire for £2,800.

IN consequence of the great demand for the *Motor-Car Journal* Identification Card, we have decided to supply parcels of half a dozen on receipt of three-halfpence to cover cost of postage.

ANSWERING Mr. Cathcart Wason in the House of Commons, Lord Balcarres has announced that steps were being taken in conjunction with the police to prosecute any person infringing the rule which limited the speed of motor-cars in the Mall to ten miles an hour.

REFERRING to Mr. Govan's letter in our last issue we understand that the Committee of the Scottish Automobile Club (Western Section) in dealing with the report of the cars which required assistance on the hill, decided that the marks gained on the basis of the formula were to form no portion of the results contained in the certificates applicable to those vehicles which are issued, and that finally, no marks were allotted in respect of the hill-climb in these instances.

MR. A. ROSSI, of Britannia Road, Fulham, S.W., has designed a motor-car house, built in sections and bolted together so that it can be easily erected as a tenant's fixture. The floor is well raised from the ground, being built upon heavy joists. Stout weather-boards cover the roof and casement windows increase the effective appearance of the house, which is a distinct advance in construction at a decline in price. Motor-cycle houses are also made by Mr. Rossi, whose catalogue reveals his ideas of economy in cost as well as excellence in design.

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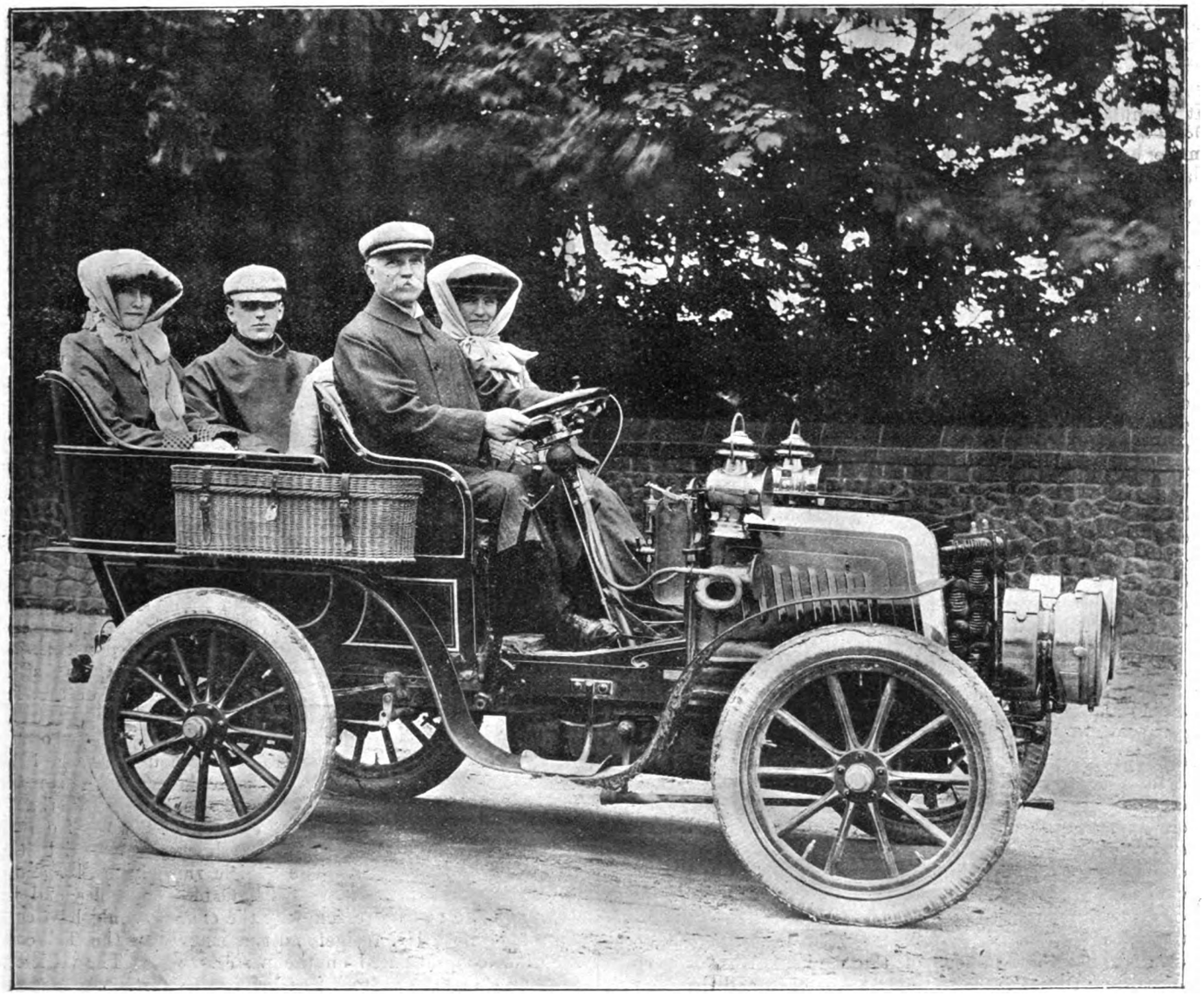
MOTOR-CARS FOR MUNICIPAL OFFICERS.

By E. George Mawbey, M.Inst.C.E., President of the Leicestershire Automobile Club.

TWO or three months ago the Editor intimated to me his desire to publish in the *Motor Car Journal* an article on the value of motor-cars for municipal officers. Owing to pressure of work, carrying out an electric traction scheme for Leicester, which will clear the streets of the vagaries, heavy strain and insanitary conditions peculiar to the working of over 400 tramway horses and many other more or less to be pitied animals used by private owners for the convenience (or otherwise) of mankind, I have not before found time to comply with this request.

Very few people seem to have any misgivings or objections about engineering officials recommending the substitution of electric traction for horse-drawn cars, hackney carriages, etc., for the use of the masses of the people; but it is a more delicate matter to recommend the providing of officials with up-to-date mechanical means of locomotion, although the motor-car of to-day offers at once undoubted facilties for saving of time, together with the means for greater personal supervision of work, and increased efficiency of a municipal officer in many ways. This is a subject all the more difficult of approach when officials are already liberally provided with horsed conveyances, and this being so in my case, and having thought myself in a four-wheeled carriage almost as safe as being in a tramcar, is perhaps another reason for my delay, notwithstanding the fact that I am a strong believer in, and a hearty supporter of automobilism, no less for the purposes of work than for pleasure.

I have, however, now been aroused out of my inattention regarding this article by being the other day, together with the chairman and vice-chairman of the Leicester Tramway Committee, suddenly hurled out of this comfortable and apparently safe low-built four-wheeled carriage on to a tramway track.



Mr. E. George Mawbey, M.Inst.C.E., President of the Leicestershire Automobile Club, on his 12-h.p. Darracq.

The horse took fright, got absolutely beyond control immediately smashing down a lamp post, and in another moment leaped short round, overturned the carriage, kept on his own legs, and tried to whirl round over us whilst on the ground, which I managed to get up and prevent by securing him before serious damage was done to the plucky coachman, who was just being dragged round helpless under the fore-carriage.

Having in consequence to remain several days in bed, with badly bruised ribs and other little defects, sternly brought me to the conclusion that I should, after all, have been vastly safer in a motor-car, and this I can say after having had between two and three years' experience, owning and driving three different

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types of cars for private use, and after many years' experience of horses.

I am, therefore, taking the first opportunity during convalescence of dictating a few notes of my views upon this subject.

Naturally ratepayers would be apt to resent the providing of municipal officers with motor-cars if looked at from the "luxury" point of view; but as the novelty wears off and they become convinced that it is not only no more expensive than the antiquated style, but enables officials to see more often and keep a tighter grip upon and better control of their out-door staffs and works, thereby saving the cost of the car many times over, local authorities will become alive to the advantages of not allowing their chief officials to contribute to the damaging and fouling of the surfaces of their roads and streets by horse locomotion. And it may be truly said that there is no better or quicker way of inspecting roads and streets than with a motor-car, instead of having to rely too much on foremen, for the running of a car is itself an excellent indicator of the condition of the surface. It should be mentioned that several municipalities and other local authorities have already provided their chief officials with motor cars.

I can speak, also, strongly in favour of the use of a car from a health point of view, for I have benefited greatly from the bracings up I have been able to get at week ends with our own car, which I believe has been a great factor in enabling me to get through the heavy amount of special engineering and other work which, as is well known, I have had in hand.

The drawback to cars for business purposes has until recently been their cost and unreliability. This is now, however, being rapidly surmounted, thanks largely to the reliability trials of the A.C.G.B.I. and affiliated clubs.

It must also be said that a large percentage of the disappointing stops on the road are due entirely to the neglect of simple details requiring far less attention and trouble than the feeding and keeping of a horse in a healthy running condition. The carrying of a reasonable stock of the small spare parts would in many instances also avoid delay.

The cost of cars should not now prevent their adoption, and they can be obtained of any size and power suitable for the area to be covered and the work to be done.

Any car can now be fitted with a movable canopy top, or more substantial removable covering, which makes it quite as comfortable for winter use as a closed carriage.

Another proof of the advantage, superiority and economy of cars when there is plenty of work to do is the fact that so many doctors and commercial men have adopted them in preference to horses.

To any brother engineer and surveyor who may wish, and is permitted to have a car for his work, I would say that it will be far the most economical and satisfactory in every way to purchase a perfectly up to-date, solidly-built car of ample power for his work, instead of starting "on the cheap," and to employ an ordinary but reliable driver-mechanic to take care of it, clean it, and execute all the usual running repairs, for which he will have plenty of time at his disposal, and he probably could in some cases be also utilised for other light and suitable duties.

It may be said that this paper is short of information as to the cost of running and upkeep of the car, but this varies so much according to the make and care taken of it, and the miles run, that such estimates would be very variable. Still, many examples may be found in the different motor journals. I might, however, mention that I have found the cost of petrol and lubricating oil for a 12-h.p. double-cylinder car to be about 1d. per mile, and the cost of tyres and non-skid appliances is, roughly speaking, for such a car, something like 2d. to 2½d. per mile; but this must not be taken as applicable to all districts and conditions, and it would be less for smaller cars, which would be powerful enough for comparatively small towns and districts.

Perhaps it is only due to here acknowledge the fact that my appreciation and advocacy of automobilism was given birth to three years ago, when I was installed the President of the Incorporated Association of Municipal and County Engineers, and when the annual meeting was held in Leicester, on which occasion the members of the A.C.G.B.I. and its Nottingham and Midland branches kindly sent me over forty motor-cars, by which a large number of our members were conveyed on their various visits in Leicester and the surrounding districts. This event, which was the outcome of a suggestion of Mr. E. P. Hooley, C.E., County Surveyor of Nottinghamshire, and Mr. A. R. Atkey, hon. secretary of the Nottingham Club, resulted in making many staunch and influential supporters of the cause, some of whom have become enthusiastic motorists either on their own account or by the wisdom of their local authorities, and it is to be hoped that ere long many others will be joined to our ranks.

A 2,000-MILE MOTOR RUN.

MR. D. M. WEIGEL and the 20-h.p. Talbot car have both stood the strain of a 2,000 miles motor run which has struck the popular fancy in a way that has added to the respect of the man in the street for the man in the car. To keep the engine of a motor-car running for 2,017 miles—and it might still have been running but for an editorial order—is a feat that has led a wondering crowd to inspect the vehicle as it stands in the show room of the British Automobile Commercial Syndicate in Long Acre, W.C. Since his return to town after his long journey—seemingly made all the longer by the regard paid to the legal limit of speed—Mr. Weigel has been resting, and long interviews as to his experiences have been out of the question. But a few details will be of interest.

The start was made from London on the afternoon of Wednesday in last week, and after a continuous journey of twenty hours Perth was reached, where the Lord Provost and a large contingent of city councillors awaited the coming of the car. While the travellers washed the engine was kept running and the return southward was shortly after begun. London was reached again without incident, and by 3 a.m. on Sunday morning the car was in Perth for the second time, after having encountered bad weather in the north of England. Fortunately the climatic conditions improved on the homeward journey, and at Northallerton, shortly before nine o'clock on Sunday night, the engine was reported to be going better than ever. The car reached London early on Monday morning, when the run was continued to Portsmouth, the return to London being signalised by one of the tyres puncturing on Hammersmith Bridge. Seeing that the Clincher tyres had run more than 2,000 miles such an incident did not detract from the merit of the journey.

Altogether 2,017 miles were covered, the journey occupying five days and four hours—in all 124 hours, during 107 of which Mr. Weigel was at the wheel. At the end of the run there was little wonder that he felt stiff in the hands and that his knees wanted a variation in exercise. Apart from the physical discomfort associated with such a trial there were really no incidents. The vehicle ran splendidly, and but for the fact that the self-imposed limit of 2,000 miles had been covered there was no reason why the engine should have ceased running. Both Mr. Weigel and the makers of the Talbot car are to be congratulated on the performance. The vehicle was actually chosen from stock just before the start.

The cup, presented by Sir Thomas Dewar, which Mr. Weigel thus secures, is to be held by him until some other driver eclipses his record. It is being held by three trustees—the Earl of Shrewsbury, Sir Alfred Harmsworth, Bart., and Sir Thomas Dewar.

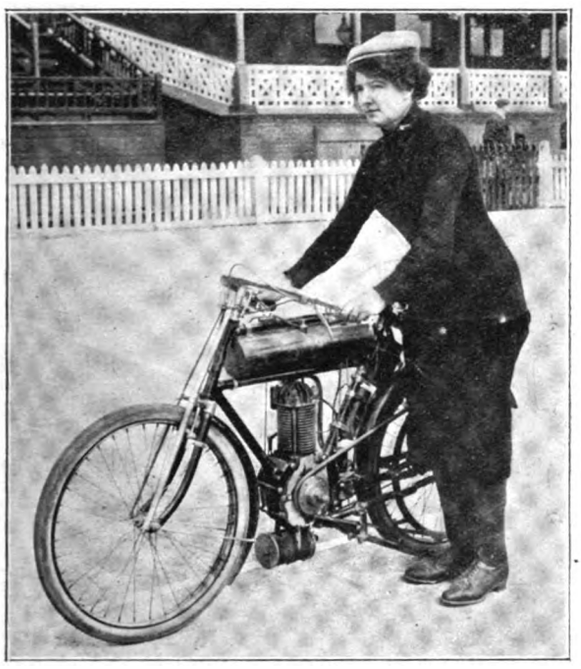
MR. H. G. SWEETMAN, of Reading, has opened a motor garage in the High Street, Theale, Berks, where he is stocking petrol and attending to motorists night or day.

MR. F. S. DIMMOCK, of Bridgetown, Barbadoes, imported the first motor-car into the island in July of last year. Since then he has imported two others, and now Mr. F. N. Martinez has returned to Barbadoes with a 12-h.p. Darracq car, so that the prospects of automobilism in the island are looking rosy.

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MOTOR CYCLING NEWS.

THE accompanying illustration depicts Miss Maggie Foster, a well-known cyclist, and her Bat motor-bicycle. We understand that she intends to attempt to beat several records in the



near future, and as she has ridden a mile on an ordinary bicycle in one minute fifty-one seconds, some relatively fast times may be expected.

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MR. G. P. MILLS, of Nottingham, who holds the pedal bicycle record from Land's End to John o' Groat's, left Land's End at eight o'clock on Thursday morning, the 23rd ult., on a Raleigh 3-h.p. two-speed motor-bicycle, and reached John o' Groat's at eleven o'clock on Saturday morning last, accomplishing the 880 miles in a little under fifty-one hours. The previous record was sixty-four hours twenty-nine minutes.

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THE Motor Cycling Club will hold a 100-mile passenger trial to-day (Saturday) at Godstone. The course will be twenty-five miles out and home, to be traversed once before lunch and once after, any stop, other than those occasioned by traffic, to disqualify the competitor. The weight limit has been extended to four cwt., but machines must be fully equipped for the full 100 miles journey. In the event of a tie, a series of eight consecutive starting and stopping tests will be made. Ladies only are to be carried as passengers.

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THE Auto-Cycle Club has now practically decided to run its trials this year in the form of a 1,000-miles tour throughout England, going out by the East Coast as far North as Scarborough and returning via the West of England. The start will take place from the Club's headquarters in Down Street, Piccadilly, W., on Monday, August 15th, finishing at the same place on Saturday, August 20th. All classes of motor-cycles are eligible to take part in these trials, but manufacturers will not be allowed to enter more than three machines in any one class, each of which must be of a different type. The following are the differences which will be recognised :—

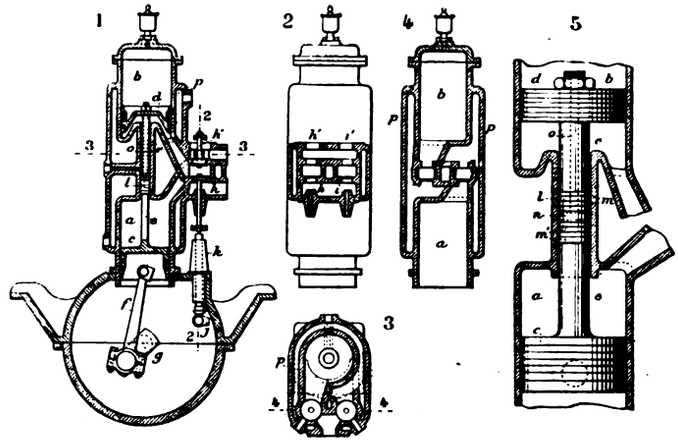
Transmission-belt, chain, gear, two or more speeds.
Cylinder capacity machines with engines not exceeding 70 by 70.
Machines with engines exceeding 70 by 70 but not exceeding 76 by 76.
Machines with engines exceeding 76 by 76 but not exceeding 80 by 80.
Machines with engines exceeding 80 by 80 but not exceeding 85 by 85.
Or their equivalent volumes swept out.
Weight. There must be a difference of at least 30 per cent. in weight to constitute a new type of machine.

A class for private owners will be included, but this will only be open to riders who were members of the club prior to June 25th. In this class a medal will be awarded instead of a certificate. The rules and the system of checking throughout will be very strict, it having been decided that any machine which does not arrive at the destination for that night by a given time, must be withdrawn, and will not be allowed to complete the journey.

A DOUBLE-ACTING PETROL ENGINE.

M. A. ELDIN, of Lyons, has sent us the accompanying five drawings and particulars of a double-acting petrol engine he has lately constructed to the designs of M. A. Bon. Many inventors have devoted attention to this question of a double-acting internal combustion engine, but the chief difficulty has been in obtaining a stuffing-box capable of withstanding the high temperature, the explosion taking place on both faces of the piston giving rise to great heat. Referring to the drawings, of which Fig. 1 represents a vertical section of the motor; Fig. 2 a section through the valve chambers, on the line 2 2 of Fig. 1; Fig. 3 a sectional plan on the line 3 3; Fig. 4 a vertical section through 4 4, Fig. 3; and Fig. 5 an enlarged section of the stuffing-box, it will be seen that the cylinder casting forms two cylinders, a b, in line with one another, and the two pistons, c d, in them are rigidly coupled together by a rod, e, which passes through a stuffing-box, o, arranged between them. The design of the stuffing-box is unusual, and takes the form of a long cylinder of small diameter, in which an enlarged collar, l, on the rod works as a piston. Leading into this tube is an oil feed, which not only serves to lubricate the stuffing-box but the main pistons also. Each cylinder has its own set of valves, which are operated in the usual way by two to one gear driven off the crank shaft, and the explosion occurs in them alternately. The engine operates on the usual Otto four cycle, so that in its single form two impulses are obtained during every alternate revolution.

Amongst the chief drawbacks that have hitherto been inherent in double-acting petrol engines of this kind are that the connecting-rod and its bearings are alternately placed in compression and in tension, and that it is necessary to employ some kind of stuffing-box for the piston rod to pass through. The motor illustrated herewith is stated to have been subjected



to a series of successful trials, and among the advantages claimed for it are a reduction in the dimensions and weight as compared with an ordinary two-cylinder engine.

THE Automobile Handbook for the members of the A.C.G.B.I. and the Motor Union has been issued this week, and contains much information of interest to automobilists, and a guide to touring in the United Kingdom and places abroad. The selected itineraries for motorists touring in France have been carefully prepared, and the summary of some of the chief points connected with British highway law will be of service.

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AUTOMOBILE TOURING.

TOURING by automobile is one of the most enjoyable recreations of modern times. It is in some respects comparable to yacht cruising, but fortunately it is open to a much larger class. There is hardly an owner, even of that class of car not specially built for touring, who does not venture on a trip occupying several days during the summer or autumn months. One often meets with the expression "touring fad," intended to convey the idea that automobile touring will command popular interest temporarily only. While this may prove true with regard to certain outgrowths of the touring movement, automobile touring itself will undoubtedly remain, as there is nothing to take its place. There is no comparison between touring by rail and steamboat lines and that by motor-car. The former mode of travel may be most convenient to those who want to make a trip to the large cities, but most owners of automobiles at periods of leisure during the warm season long to get out into the country, where they may enjoy the healthful, invigorating air and "nature's beauty undefiled." For exploring sections of the country noted for their scenic attractions the motor-car is unequalled.

The great advantage of automobile touring over railway travelling is the independence it gives the tourist. He starts and stops at any convenient time of the day, and when he finds a place particularly to his liking he remains as long as he pleases, dividing his time between the different places visited according to their degree of interest to him.

THE suggested motor-car service at South Molton, Devon, is not likely to become an accomplished fact this season.

THE Midland Automobile Club had a very successful run to the British Camp Inn, Malvern, on the 18th ult. Members and their friends numbered about forty, and there were twenty cars.

THE Garrard Mfg. Company, Limited, have sent a copy of their Motor Book for the current season, this being the sixth edition of a very useful pamphlet issued by the makers of the Clement-Garrard motor-cycle. It has detailed drawings of the various parts of that machine, and also of the Garrard Suspended Tricar, together with useful notes on driving. These will be of interest to many, while the French and English equivalents for the names of the interchangeable parts of motors add a distinct value to the work.

CONTINENTAL NOTES.

A White Steam Car in Germany.

Prince Henry of Prussia is shown in the accompanying illustration on a 10-h.p. "White" steam touring car, seated beside Mr. Walter C. White, who is driving the vehicle. The photograph was taken during the Gordon Bennett race week in Germany. His Royal Highness and Mr. Ellison Armour, of Chicago, took a day's run on the car with Mr. White and Mr. F. Coleman, starting from the Schloss Wolfsgarten, the hunting lodge of the Grand Duke of Hesse, a few miles south of Frankfurt. The party ran over a mountain range and through some beautiful country, and on the return journey covered a measured distance of forty-four kilometres over very poor roads, including the ascent and descent of a range of mountains, in exactly sixty minutes, a good performonce for a 10-h.p. car.

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The 1905 Gordon Bennett Course.

The *locale* of next year's Gordon Bennett race is already beginning to attract attention. It is reported that an excellent course, 100 kilometres long, has been discovered between Aix-en-Provence, Sainte-Marie, and Salon, in the South of France.

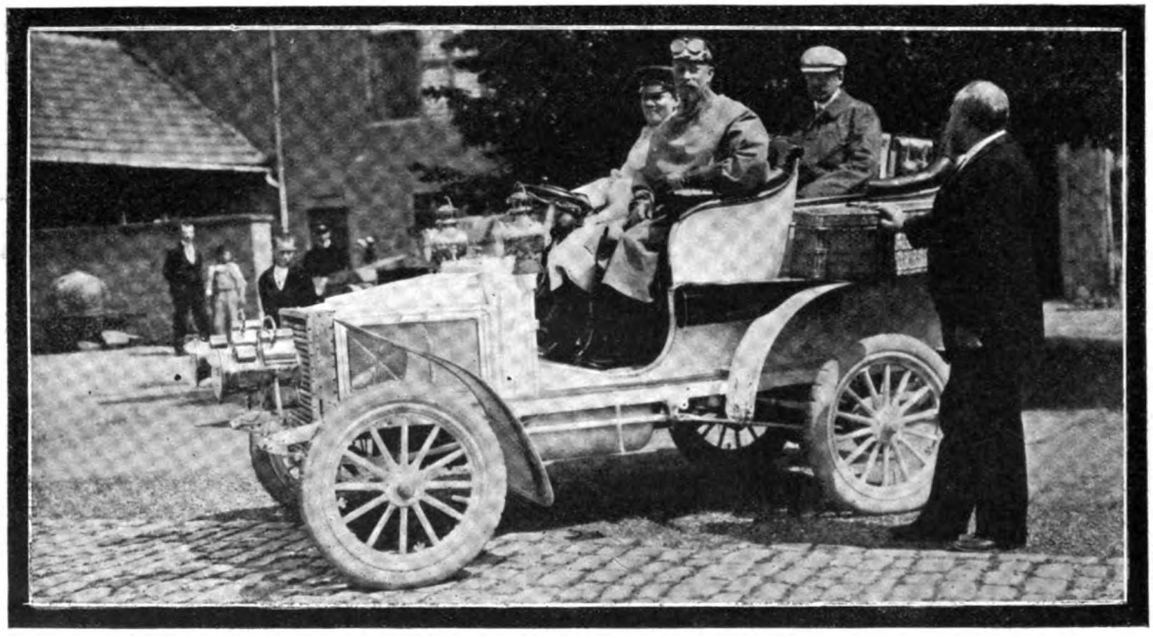


Photo by] Prince Henry of Prussia on Mr. Walter C. White's Steam Car. [Mr. Frederic Coleman.

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Thery's Return to Paris.

Thery, the winner of the Gordon Bennett race, accompanied by M. Brasier, arrived in Paris on Thursday afternoon of last week. After calling at the Georges Richard works at Ivry they drove on to the club-house of the A.C.F., in the Place de la Concorde, where they were accorded a most hearty reception. The Comte de la Valette acted as spokesman for the A.C.F., while M. Max Richard, on behalf of the Chambre Syndicale de l'Automobile made a short speech congratulating both the designer and the driver on the success of their vehicle in the great international event.

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More about the Gordon Bennett Winner.

Thery, who is the hero of the hour in Paris, has fallen into the hands of the inevitable interviewer. It appears that he is only twenty-five years of age, yet turns the scale at over fifteen stones. For six years he was in the employment of the Decauville Company, and only joined the Georges Richard Company in November last. Thery, who only made four circuits of the course prior to the Cup race, states that he felt he had, barring accidents, won the contest at the end of the third round, and as

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a consequence drove with extra caution in the last lap. His liveliest impression during the event was an intense thirst. A subscription is being organised for Thery in commemoration of his victory, and already over £230 has been received.

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Germany and the Gordon Bennett Race.

Rumours are current to the effect that the Daimler Motoren Gesellschaft will not compete in next year's Cup race, unless it can send a team of three cars; but, in view of the fact that there are several other concerns in the Fatherland capable of building racing cars, the report is hardly anything more than a *canard*.

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A Novel Speed Indicator.

A demonstration was recently given at the police headquarters in Berlin of a novel speed indicator devised by Herr Hans Dahl, the well-known Norwegian artist. The apparatus was fixed to a military Durkopp car early in May. Since then the vehicle has covered some 2,000 kilometres, the instrument working irreproachably the whole time. Herr Dahl groups the speeds, allotting to each group a different coloured disc, which is also inscribed with figures. Speeds up to eighteen kilometres an hour are represented by a white disc, those of 18-27, 27-36, 36-45, 45-56, and higher speeds by green, yellow, red, blue, and black discs respectively. The discs are attached to the front of the car, and the colour easily catches the eye of the motorist, who thus sees at a glance the rate of travelling at any given moment. At night the discs are lighted up from within.

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The French Motor-Car Trade.

The French Chambre Syndicale de l'Automobile has suffered the loss of the Marquis de Dion as president. At the annual general meeting recently held he declined renomination, but the Chamber insisted unanimously in making him an honorary president. M. F. Max Richard has been elected in his place, and Messrs. A. Peugeot and Mors were chosen as vice-presidents. The Chambre has now 177 members, who include all the prominent motor manufacturers in France.

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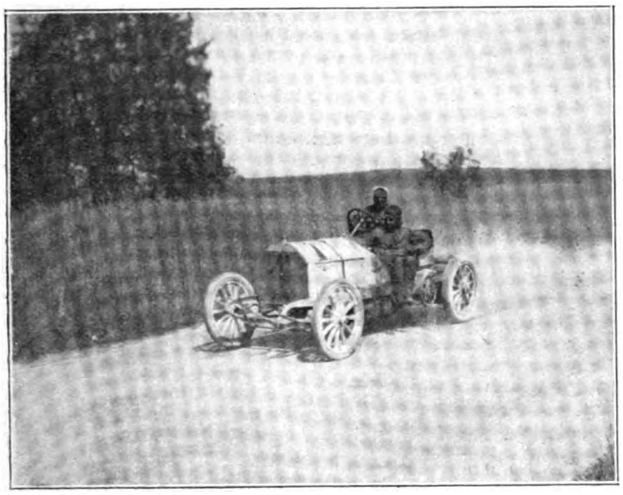
Motor-Wagons for the French Army.

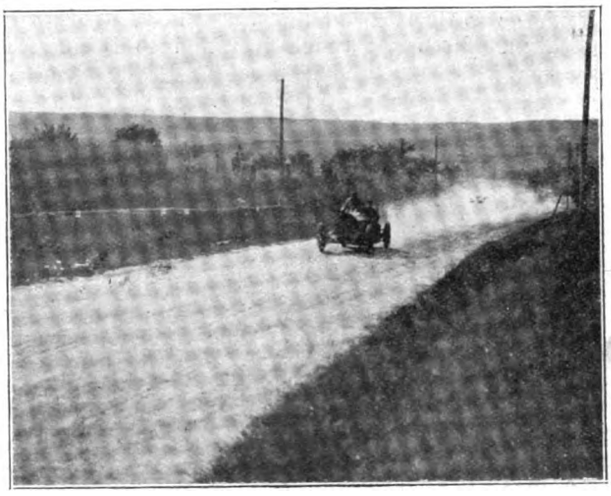
The French Ministry of War is organising a competition of motor-vehicles suitable for use in the Commissariat department of the army. The price of the vehicles is not to exceed £340, and the three cars adjudged to be the best by the jury will be purchased by the authorities. The trials will be held over a period of eight days in the neighbourhood of Paris at a date yet to be fixed, a total distance of 510 kilometres having to be covered. The vehicles may be propelled either by steam or by motors using petrol, alcohol, or ordinary petroleum. The total weight of the vehicle with its load (which must be at least 1,600 kilogs) is not to exceed 3,400 kilogs. The engine must be at least 12-h.p. at a maximum of 1,000 revs. per min, and a top speed of 16 to 18 kilometres per hour is required. The points to be taken into account in making the awards will be—(1) power of the engine and its simplicity and accessibility; (2) cooling or condensation capacity; (3) fuel and lubricating oil consumption; (4) losses in transmission; (5) losses due to wheel and tyre resistance; (6) efficiency of brakes; (7) manœuvring capabilities; (8) hill-climbing qualities; (9) relation of load to tare weight; (10) average speed; and (11) price. Unfortunately British makers will not be permitted to compete in the trials, the authorities having decided to restrict them to French-built vehicles.

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Another "Automobile Week."

The Automobile Club Dauphinois of Grenoble is arranging to hold an "Automobile Week" from the 27th to the 31st July next. According to the preliminary programme that has been prepared, the meeting will commence by a reception at Grenoble on the 27th inst. On Thursday, the 28th inst., there will be a touring competition over a 190 kilometre route extending from Grenoble to the Col de la Dent du Chat and back; on Friday, the 29th inst., a tour of 320 kilometres, from Grenoble to Laffrey (where the times on the hill will be taken), Le Lautaret and back to Grenoble. A series of 500-metre speed trials is to be held at Uriage-les-Bains on the 30th inst., while on the following day there will be a gymkhana in the grounds of the Uriage Thermal Establishment.





Photos by] Jenatzy nearing Usingen Control. Werner in Full Flight. *[Mr. Windsor T. White.*

THE GORDON BENNETT RACE.

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A New Dust Preventer.

The Association Générale Automobile is interesting itself in a new dust-preventing preparation invented by a merchant at Nantes. Bitumen forms the basis of the new compound, which is employed in the same way as Westrumite, compared with which, however, it is claimed to be less costly. Some trials with the new product are shortly to be made at Montmorency.

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Motoring in the Alps.

Captain Deasy and M. Martini left Martigny on Tuesday morning with three passengers and a quantity of luggage on a 16-20-h.p. Martini car for a motoring tour in the Alps. Starting at fourteen minutes past four o'clock, they proceeded to cross the Col de la Forclaz, 5,694 feet high. The feat, which was successfully accomplished, is one that has never before been attempted by a motor-car. The route is a most difficult one, comprising gradients of one in six and a half ascending, and one in five and a half in coming down.

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A 294-MILE NON-STOP BY A "LONDONDERRY" STEAM WAGON.

AS has been previously stated in our columns, the Marquis of Londonderry, K.G., has taken up the manufacture of steam motor-vehicles at his engine works at Seaham Harbour, Durham. The works have already turned out a number of wagons which have proved highly successful, and as negotiations are at present being carried on between the Londonderry principals and several high authorities, the manager of Lord Londonderry's works, Mr. J. Donovan, and his assistant, Mr. E. G. Allison, were deputed to undertake some severe test which would prove the state of perfection to which the "Londonderry" steam wagon had been brought.

Motor-car reliability trials creating at this time a great amount of interest, it was decided that a non-stop run with a fully-loaded wagon from Seaham Harbour to Whitehall, London, would be a satisfactory test of the general construction, reliability and economical running of the vehicle. One of the standard type of commercial five-ton tipping wagons had just been completed, and this vehicle was selected for the undertaking. On four days previous to the date selected for start ng, the machine was run a total distance of 220 miles, was carefully examined on the fifth and sixth days, and at 3 p.m. on Monday, the 20th ult., the vehicle was dispatched on its great task. The route lay from Seaham Harbour, through Stockton to Darlington,



where drivers were changed and the fire cleaned, eight minutes elapsing from arrival to departure. From Darlington the vehicle proceeded to Doncaster, where fresh drivers were waiting, only three minutes being occupied in the change. On leaving Doncaster, the vehicle passed through Retford, Newark, Grantham, etc., on to Stamford, which place was reached at 2.25 a.m. on Wednesday, the 22nd ult. Drivers were again changed at this point, and twenty minutes were occupied in cleaning out the fire and filling up the water tanks. On leaving Stamford the vehicle entered on the last hundred miles of its journey, and proceeded via Biggleswade, Hitchin, etc., to London.

Shortly after passing Biggleswade, the vehicle was joined by Major F. Lindsay Lloyd, Secretary H.M. War Office Mechanical Transport Committee, who rode a considerable distance on the wagon. The speed at this time is given as 8½ miles per hour, and it may be mentioned that the vehicle travelled on the fast gear from Doncaster to London. On reaching Finchley Road, on the outskirts of the City, the speed of the vehicle was reduced to 1½ mile per hour whilst negotiating the congested traffic, and the vehicle arrived at Whitehall at 9 p.m. on Wednesday, the 22nd ult. The most careful examination of the mechanism proved that the vehicle had carried its load safely a total distance of 294 miles—only stopping to change drivers and pick up water—without even a nut or split pin having started. The total time occupied from start to finish was 54 hours, and after taking into consideration the fact that water was very difficult to locate *en route*, the performance of both the machine and drivers is excellent. Ordinary gas coke was used on the journey, and the consumption on the run works out at 1 cwt. for every eleven miles, including the coke used in cleaning the fire at intervals.

As we have already mentioned, the vehicle was one of the Londonderry standard vehicles, and was not specially constructed for the great task it was called upon to undertake. The boiler is of the fire-tube type, and the engines are of the horizontal compound pattern fitted with flat or locomotive side valves. As each relay of drivers rode upwards of ninety miles non-stop on the vehicle, its general convenience in handling and ease in riding may be readily judged. The machine is gear driven, and the ingenious arrangement for keeping the gears in perfect mesh under all circumstances is one of the special features of the machine. The accompanying illustration shows the vehicle on the first stage of its successful journey.

SOME USEFUL NOTES.

WITH the opening of the touring season, and in view of the unusually large number of inexperienced motorists who are just commencing to assume control of cars, there is one point to which attention may be opportunely called just at this time, namely, that safety of operation is the prime consideration to be sought. Not only must the safety of the occupants of the car be carefully guarded, but this care must extend to all other users of the highway. The precautions required to secure it are not only obviously necessary from personal considerations of life and limb, but the reputation of the motor-car is at stake, and its future development largely depends upon a public demonstration of what is a fact—that automobiles are inherently the safest mode of road conveyance. It may be said with a full degree of assurance that there are only two functions of a motor-car in the failure of which serious danger may lie. These are the steering and the braking functions.

IF the brakes of a car are efficient, it may be brought to rest within the space that the careful driver always allows as a margin of safety, and if the steering gear is perfect, any car may always be guided into the path of safety. A car which may be promptly stopped and accurately guided is never a source of danger of itself. That it may be thus controlled depends upon two things: the intelligence of the driver and the integrity of the mechanism which effects these two all-important functions. It is far more important, on grounds of safety, that a new driver should be able to stop his car, than that he should be able to start it. He should be as quick in applying his brakes upon a sign of danger as he is to close his eyes at the near discharge of a gun, and the two actions should be equally automatic, and should need no conscious direction of the will. He should be as able to locate both brakes in the dark as he is to "find his way to his mouth," and there should be as little mental effort required for one as for the other; for it is only when these actions become purely sub-conscious that complete safety is assured. The instructor should train his pupil in the use of the brakes before he gives him any instructions as to clutches or the throttle, for in most modern cars the clutch takes care of itself when the brake is applied, being automatically disengaged.

THE next most important thing for the new motorist to learn is the steering, and as this cannot be mastered unless the vehicle is in motion, it should be practiced at low speeds until it can be performed with accuracy and promptness, and without the necessity of any mental process being performed between the direction desired and the wheel movement. As long as there is any conscious thought of which way or how far the wheel must be turned to secure a desired result, a motorist is not qualified to drive the car at high speed, or through crowded or difficult roads. The essence of safe motor-car operation lies in the automatic and instantaneous response by the driver to visual stimuli relevant to the steering and guidance of his car.

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HERE AND THERE.

A MOTOR-CAR club has been formed for Somersetshire. One is also in course of formation in Cumberland.

THE Marquis of Ailsa has just acquired a 12-h.p. Wolseley car through Messrs. Rennie and Prosser, of Glasgow.

THE Right Hon. the Earl of Lonsdale has ordered a 20-h.p. Hotchkiss car from the British Automobile Commercial Syndicate, Limited.



Mr. R. T. Pryor, one of the Founder Members of the Hertfordshire Automobile Club, on his 14-h.p. Crypto Car.

THE officials of the North of Scotland Railway Company are considering the advisability of establishing a motor-car service between Alford and Strathdon.

PERMISSION has been accorded by the Southampton Harbour Board for the trial of motor-boats proposed to be held in Southampton Water on July 26th and 27th.

A MOTOR-CAR driver who was alleged to have been driving in a manner dangerous to the public has had his licence suspended by a Metropolitan police magistrate for three months.

AMONG the birthday honours, the baronetcy bestowed upon Mr. Alfred Harmsworth might be regarded as a recognition of automobilism as well as of journalism. We congratulate Sir Alfred.

BY eighty-five votes to sixty-nine, the House of Commons has decided not to pay the out of pocket expenses incurred by Mr. Joseph Taylor in connection with the Maidenhead Bridge agitation.

THE Daimler Motoren Gesellschaft, the makers of the Mercedes car, which has hitherto had its headquarters at Cannstatt, has now removed the whole concern to the new workshops which have recently been completed at Unterturkheim, near Stuttgart.

AS a result of the success of the "Motobloc" cars shown for the first time in this country at the exhibition at the Agricultural Hall in March last, Messrs. Montague Hawnt and Co. are, we learn, arranging for the introduction, about September next, of a four-cylinder 16-20-h.p. car on similar lines.

FROM Messrs. Mecredy, Percy and Co., Limited, comes a book of over 100 pages on the mechanism of the De Dion-Bouton motor-cars, with admirable instructions as to driving the same by Mr. R. J. Mecredy. It is a revised edition of an earlier volume, and we note that the chapters on the care of the car and roadside troubles have been so much elaborated as to give the book a value to owners of any automobile.

A NUMBER of gentlemen in Penicuik have been interesting themselves in the question of providing a motor-car service between West Linton, Penicuik and Edinburgh, and as a result a car will be hired for a month on trial. It is expected that the journey between Penicuik and Edinburgh, which is nine miles by road and over fifteen by rail, will be completed in thirty minutes, or twenty minutes under the railway company's time.

THE first entries for the W. K. Vanderbilt, jun., cup race were two White steam-cars.

FOR the third year in succession E.I.C. plugs were fitted to the cars which represented England in the Gordon Bennett race.

MESSRS. HUMBER, LIMITED, have issued a new pamphlet containing a series of letters of approbation from owners of the Humberette.

IN the 1905 Budget of the Swiss Ministry of War provision is made for a sum of £600 to be expended in an experimental military motor-wagon.

MR. A. S. ROSS has acquired large works and a garage at 61, High Street, Bloomsbury, W., where he will have facilities for every class of motor-car repairs.

MR. J. A. CUNDY has opened a garage and motor repair depot at 4, The Broadway, Barnes. He has an inspection pit and is well equipped for repairs to all classes of automobiles.

THE Lacre Motor Company, Limited, have arranged with their agents to inform them as to police traps, which will be posted in the garage in Poland Street, W., every Friday and Saturday.

MESSRS. MERRYWEATHER have lately completed a steam motor fire-engine for the Heston and Isleworth District Council. They are also building a similar engine for service at Bassein, British Burmah.

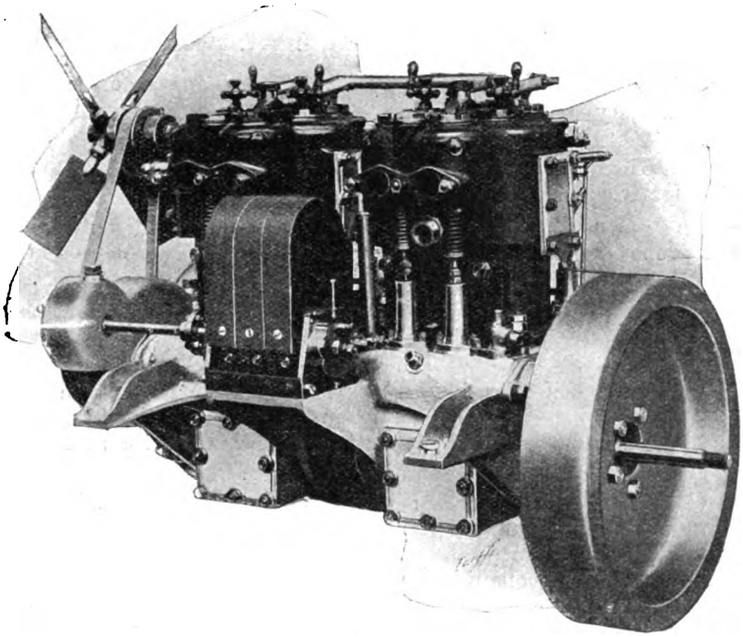
THE illustration herewith is an interesting one, inasmuch as it shows a unique vehicle just supplied to Mr. Harry Rich, of Redruth, Cornwall, by the Duryea Company. It may almost be termed a collapsible carriage; as shown it is "opened out" to its fullest capacity and will carry six people, two on the back seat, two on the front, and two on the principal or driver's seat in the middle. When four persons only are carried they can sit either in front or behind, and the third seat and foot board are then folded up so snugly that their presence is hardly perceived, whilst when two persons only require to use the car, the second seat is folded up in a similar way and the vehicle is to all intents and purposes a standard two-seated phaeton. While dealing with the Duryea Company's cars we may mention that on Thursday, 16th ult., two of the new British-built Duryeas carried out a record drive to Land's End. One was a 12-h.p. doctor's phaeton with two on board, the other a 15-h.p. car with three passengers and baggage. They reached Land's End before 8 p.m. within half an hour of each other, having covered 303 miles of the hilliest country in Great Britain in a little over 16 hours' driving time. The



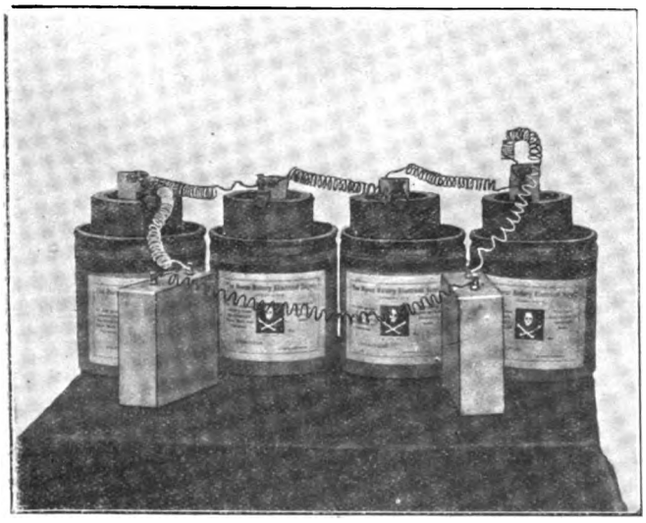
phaeton left Land's End at 12 30 the next day, and, travelling by a different route, was in Coventry again by 4.30 on Saturday, the 18th ult., having covered 667 miles in three days' driving. The other car covered 560 miles in the three days and was in Coventry again on the morning of Sunday, the 19th ult., after a journey of 607 miles. We need hardly add that the performance is an excellent one, especially when it is remembered that the distance is about 60 per cent. more than the Edinburgh-London run, whilst the nature of the Devon and Cornwall roads is an infinitely more trying test for a car than anything experienced on the Great North Road.

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THE accompanying illustration of the engine of the Richard-Brasier car driven by Thery to victory in the Gordon Bennett race is not without interest at the present time. Messrs. Mann and Overton, the British agents for these cars, inform us that the cylinders, which are cast in pairs, are 150 mm. bore by 140 mm. stroke. The crank chamber is a solid casting bored out at



each end to provide hand-holes, and to receive a central plate in which are carried the bearings of the crank shaft. The latter is made out of solid metal, the cranks being set at an angle of 180 degrees. The cylinders are made of cast-iron and bolted to the crank chamber. The valves, which are interchangeable and mechanically operated, are set on opposite sides of the engine, one cam shaft driving the inlet valves and the governor and the other the exhaust valves, the magneto and the fan drawing air through the radiator. The governor, which is enclosed, acts on two throttles recessed into the head of the cylinder between each pair of inlet valves. All the parts are capable of very fine adjustment, so that the best results can be obtained with the least possible weight.



Four Boron Cells charging two 30 ampere-hour Accumulators.

THE Boron Primary battery for accumulator charging was first introduced to the public in the year 1894 by Mr. Henry Warren, Principal of the Liverpool Research Laboratory. The battery as it now presents itself, since its constant evolution, stands as a double fluid cell composed of a specially-constructed carbon cylinder, so formed as to practically overcome polarisation, at the same time entirely dispensing with the carbon plates with which the old form of cell was constructed. The preparation of the carbons is carried out under a scientific process, and is the result of several years' research, involving the use of the costly element boron. The depolariser consists of salt (preferably of sodium bichromate) which, on account of its great solubility, and at the same time the high percentage of chromic acid it contains, is admirably adapted to the purpose. The cell when mounted measures about seven inches by five inches and weighs, when fully charged, approximately eight pounds. The practical E. M. F. is about two volts, whilst the output of current can be extended to twenty amperes. The battery can be left charging accumulators any length of time without damaging the latter, no resistance being required, the batteries being so constructed as to render it impossible to overcharge the accumulators. They can thus be used and afterwards put aside with solution in them for an indefinite length of time without any deterioration.

THE long-distance non-stop craze has spread to America, where Mr. Chas. G. Wridgway, who will still be remembered by many motorists in this country, has lately completed a 500-mile non-stop journey on a 24-h.p. Peerless car.



The Peter Union Trophy won at the Frankfort Track Race Meeting by Herr W. Poege

MESSRS. MOSS AND WOODD, the agents for the Orion motor-vehicles, have removed to larger and more convenient premises at Bannister Road, Kensal Rise, N.W., where a garage and accessory stores are also being established.

THE Town Council of Cardiff are proposing to restrict the speed of motor-cars passing through the town to ten miles an hour, and we are glad to see that Mr. Powell, the assistant secretary of the South Wales Club, is writing to the local Press with proposals.

RECENT additions to the ranks of the Automobile Club include the Duke of Beaufort, the Marquis of Northampton, Sir Thomas Gooch, Bart., Sir Sidney H. Waterlow, Bart., Sir Reginald Cathcart, Bart., the Hon. J. H. T. Byng, Mr. Waldorf Astor, and Mr. D'Oyley Carte.

POT BANK, where the Yorkshire Automobile Club is holding its hill climb, is situated on the road leading from Beckwithshaw to Killinghall, and is approached as follows:—On leaving Harrogate, proceed up Harlow Car road until Moor Park is reached, then take a sharp turn to the right which leads to the Beckwithshaw-Killinghall road, proceed about half a mile, when Potbank will be found, this being the first steep hill down after leaving Moor Park.

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FRICTION AND LUBRICATION.

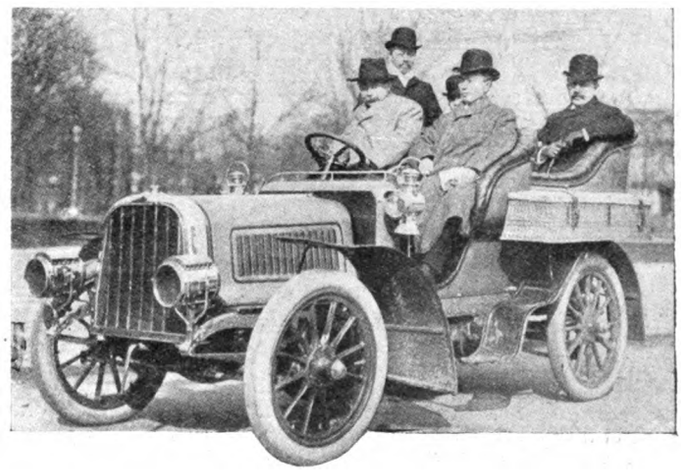
LUBRICATION may be described non-technically as the art of making things work smoothly. It is a wide term, covering human as well as mechanical relationships, between which there is a close analogy. The necessity of making things work smoothly is apparent to all, and nowhere does this apply with greater force than in the vitals of a motor-car, where lack of smoothness in working is a sure cause of trouble and expense. It is a fair question to ask, for the average owner of an automobile, why won't things work smoothly without lubrication? The answer is found in that natural resistance to motion which is commonly called "friction." This it is the object of lubrication to eliminate as far as possible. Friction can never be entirely vanquished; if it could, then perpetual motion would result as a natural consequence, since once the starting inertia of a body had been overcome, it would continue to move indefinitely.

To appreciate lubrication, the enemy—"friction"—should first be studied. Its laws are few and simple, and may be divided into two classes—static and dynamic. The first deals with the friction of rest, and is given by some the not inappropriate name of "Stiction." Belts and friction clutches come under this heading. The second deals with the friction of motion, with which automobilists are more particularly concerned. The friction of motion may be sub-divided into rolling and sliding friction. The former relates to ball and roller bearings, the latter to plain bearings. In rolling friction the balls or rollers act in a manner closely analogous to the lubricating medium of a plain bearing by keeping the working surfaces apart. If it was possible to make a ball or roller bearing with absolutely no sliding friction, the use of a fluid lubricant might be safely dispensed with, but there is sliding between the balls or rollers themselves, or between them and the cage employed to keep them in position. The amount of sliding friction is lessened when intermediate balls or rollers are used, but it is not entirely eliminated. The extra complication and cost of these bearings qualify their other advantages, and the friction of a well-designed plain bearing, properly lubricated and protected, is very much smaller than many people imagine.

Although the amount of friction is generally stated to be independent of the extent of surface in contact, for practical reasons, this old law needs qualification. If the surface is large, the pressure per unit area is correspondingly small, and may be quite insufficient to squeeze out the film of lubricant—hence the active surfaces are kept at a respectful distance. But with relatively small wearing surfaces the pressure on the lubricant is proportionately greater. The surfaces possess a more penetrative power, which—if it cannot be checked—will squeeze out the lubricant and permit physical contact. This may become so intimate as to start the force of cohesion, with "scoring," or tearing of the surfaces, as an immediate result. The principal object of lubrication is to prevent such a result. Forms of lubricators (or devices for feeding the lubricant to the working surfaces) are almost innumerable. Much ingenuity has been displayed in their construction, with the object of securing a regular feed and avoiding stoppages, which might have very disastrous consequences. A lubricator consists of a reservoir and one or more feeders. It may be portable, as in the old-fashioned oil can, which is perhaps the most elementary form of lubricator. Usually the lubricator is fixed close to the bearing it is to serve, or, shou'd this be inaccessible, it may be fixed at a distance, and a connecting pipe used. The use of an oil-can is extremely wasteful in lubrication, and should the interval between successive feedings be too long, permanent injury to the bearing is likely to result. The same general conclusion applies to all devices which depend for their action upon human adjustment and attention, and I have no hesitation in affirming, remarks Mr. R. Davidson in the "Automobile Magazine," that to expect the user of a motor-car to regularly fill and periodically inspect and adjust a lot of lubricators is highly unreasonable and foolish. Even with a careful driver some lubricators may be overlooked—or in the act of filling them foreign substances may get in—besides, the filling operation is messy and disagreeable, and therefore likely to be postponed, as all unpleasant things are, until the last moment. In preparing a car for service, attention to lubricators forms no small part, and could this be entirely done away with, the time would be shortened and the pleasure of using a motor-car greatly increased.

Speaking broadly, there are two systems of lubricating a bearing. In the first the rate of feeding is adjusted as far as practicable to the actual requirements. In the second the bearing is liberally flooded and the large surplus recovered for use again.

Oil may be supplied to bearings either by the splashing of the mechanism in a bath of oil, or by the oil being pumped over the bearings. Both ways have the advantage of starting and stopping the lubrication simultaneously with the running of the machinery, and without the intervention of the driver, which is a correct principle. The waste of oil is extremely small (if the case is made properly), and consequently the best quality of oil does not become an expensive item when one gallon of it will be ample for 1,000 miles of travel. Splash lubrication answers well in some cases, where all the bearings are in a position to benefit by the splash distribution, but this is not always the case, and the violent agitation of the supply of oil tends to preserve in suspension any fine solid particles of dirt or metal, which should



The Japanese Ambassador to the United States at the wheel of his car.
[*Motor News York.*

be allowed to settle, after which they can be readily removed For the above reasons the writer is somewhat in favour of pumping the oil under pressure. A force pump working under the extremely favourable conditions of dealing with lubricating oil will run practically without attention, and its action may be instantly tested at any time when running, by momentarily pressing a button. The next step is to insure that the oil which is pumped is going to all the bearings. One pump is enough, only the motorist must be sure each bearing gets a proper share of what is pumped. One arrangement is for the pump to deliver the oil into a distributing main fitted with branch pipes, which connect with the several bearings. The objection to this is that some of the branch pipes may become fouled after prolonged use, and the remainder of the branches will obligingly take their brothers' share. Or, if some of the branch pipes are longer than others—which is practically inevitable—the short ones take more oil than the longer ones. This means that the circulation in the larger pipes is less vigorous, and this is the first step to becoming sluggish and finally stopping altogether. Such an attempt at equal sharing or communism must fail, and there is only one effectual remedy for it, which is to compel each of the branch tubes in turn to take the whole of the oil delivery for a fraction of the time, instead of attempting to take a fraction of the delivery all the time. From this conclusion it is a short step to construct such a distributor and to make it do the work required of it.

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THE ROYAL AGRICULTURAL SHOW.

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THERE was a fairly representative exhibit of heavy motor-vehicles and several newcomers in the field of agricultural motors at the Royal Agricultural Show at Park Royal, Willesden, last week; but, unfortunately there was again a dearth of visitors, disappointing both to the organisers and the exhibitors.

The only exhibits of motor-cars for pleasure purposes were those of the Thornycroft Steam Wagon Company and Messrs. Mulliners, Limited, Birmingham. The exhibit of the first-named included well-finished examples of the Thornycroft 10-h.p. two-cylinder and 20-h.p. four-cylinder petrol tonneau cars. Messrs. Mulliner had on view several examples of cars made by Messrs. Berliet, of Lyons, and Messrs. Vinot and Deguingand, of Paris, two French types as yet little known in this country. The Berliet cars run closely on Mercedes lines, being fitted with four-cylinder engines developing from 20 to 25-h.p., and side-chain transmission. The Vinot-Deguingand cars are also of the chain-driven type, and are made with engines of 14–18-h.p. and 10–13-h.p. The body work, by Mulliners, was of a very high order, and in some respects on novel lines, a notable example being a char-a-banc with detachable rear seat for extra passengers. Messrs. Hayes and Sons, of Stamford, exhibited a petrol motor-van to carry from 10 to 15 cwt. at speeds up to twelve miles per hour. The motive power is supplied by a 12-h.p. V-shaped engine, located in the fore part of the frame. The change-speed gear, giving two forward speeds and a reverse, is entirely contained in a case surrounding the differential gear on the rear live axle. The motor drives by pinions at half its speed a universally-jointed shaft, which, at its rear end, carries a couple of bevel pinions, either of which can be made to mesh with bevel rings on the rear axle, the whole forming a very compact arrangement, which is stated to have given excellent results in practice.

Passing to the exhibits of steam wagons, a firm which made its *debut* in this branch of engineering was Messrs. Bomford and Evershed, Limited, who had on view a 5-ton vehicle, the feature of which is the employment of a locomotive type of boiler located transversely across the frame. The engine is of the horizontal compound type, with Joy valve gear. The transmission is on novel lines; two speeds are provided, the power on the high gear being transmitted direct from the engine shaft by a single chain to a differential shaft directly over the rear axle, pinions on the end of the differential shaft meshing with internally-toothed rings bolted to the rear road wheels. We hope to describe this wagon more fully in a later issue. The display of the Wantage Engineering Company comprised one of the "Wantage" standard 4-ton steam lorries, fitted with a water-tube boiler in the fore part of the frame. The engine is of the horizontal compound reversing type, the cylinders being 3½ in. and 6¼ in. in diameter by 6 in. stroke. The transmission is by gear wheels and side chains. A wagon of this type is claimed to be capable of carrying a load of four tons, on fairly good roads, a distance of fifty miles in a day of twelve hours, at an approximate weekly cost of £3 12s. 1d., this including an allowance of 5 per cent. on the initial cost for depreciation. In addition to one of their 5-ton vehicles, Messrs. Fodens, Limited, introduced for the first time a light-weight tractor. This is on similar lines to their motor-wagon, but of smaller dimensions, it being designed to haul, instead of carrying, a load of five tons. A tipping cart and a 5-ton lorry comprised the exhibit of Mann's Patent Steam Cart and Wagon Company, Limited, whose vehicles were described in our report of the exhibition at the Agricultural Hall in March last. The Yorkshire Patent Steam Wagon Company contented themselves with a single example of their 5-ton steam wagons for agricultural or general purposes. This type of vehicle is one which is meeting with considerable success, not only at home, but in the Colonies. Messrs. J. and F. Howard, in their extensive exhibit, included one of their 5-ton steam wagons, of which an illustrated description was given in the *Journal* for February 6th last. Messrs. Wm. Glover and Sons, Limited, attracted attention to their stand by reason of a 6-ton steam motor-wagon, with special watering-van body. The *chassis* of the vehicle is the work of Messrs. Musker, of Liverpool, and contains a number of interesting features, to which we may refer on a later occasion. The motor fire-engine department was represented by Messrs. Merryweather and Sons, Limited, who had on view a self-propelling steam engine, capable of attaining a speed of thirty miles per hour.

The Thornycroft Steam Wagon Company had a novel exhibit in the form of one of their standard four-ton wagons fitted with a steam cream-separating plant to enable farmers to have cream separated at their doors, the vehicle taking away only the cream, so saving the cartage of milk. In addition to several motor wagons, Messrs. Jesse Ellis and Co.'s exhibit comprised a steam motor-'bus designed to carry twenty-four passengers in two compartments.

Messrs. Aveling and Porter, Limited, are among the latest builders of traction engines to introduce a miniature engine to come within the limits specified by the Light Locomotives Act. The engine, which has been named the "Little Favourite," is designed to haul a load of 4 tons at speeds up to six miles an hour; it is mounted on laminated steel springs, and is fitted with winding drum and powerful brakes. Needless to add, the details all bear indications of the careful work turned out by this old-established firm. Messrs. Wm. Foster and Co., Limited, Lincoln, also exhibited a light steam tractor designed to work under the provisions of the Act. It is provided with a single cylinder engine and two speeds. Close by was to be seen one of the attractions of the show, viz., a Pedrail steam tractor. This had been constructed by Messrs. Foster for Diplock's Patent Traction Engine Haulage Syndicate, Limited, and was similar to the traction engine referred to above, except that the hind portion of the engine was not mounted on the usual wheels, but on Diplock's Pedrails, which have already been illustrated in these columns. The "Little Giant" tractors of Messrs. W. Tasker and Sons, Limited, were shown in several forms and sizes, they being made of 4 and 5 nominal horse power, and with single cylinder and compound engines. As mentioned elsewhere in the present issue, a number of these handy machines are being sent out to the wool-growing districts of Australia. Messrs. Wallis and Steevens, Limited, in addition to traction engines and threshing machines of various sizes, were also among the exhibitors of miniature road locomotives for hauling purposes, their engine being of 5-h.p., and mounted on springs both at front and rear.

The Agricultural Motor of the Ivel Agricultural Motors, Limited, again attracted considerable attention, and succeeded in winning the silver medal of the Royal Agricultural Society. In its latest form it is fitted with a 20-h.p. petrol engine and two speeds forward and reverse. It is designed to draw any agricultural implement used in the cultivation of the land and can also be used for pulling loads on the road or for driving all kinds of stationary machinery, such as a threshing machine or chaff cutter. A new tractor, more on the lines of a steam motor-wagon than a traction engine, was the "Simplex," shown by Messrs. F. C. Southwell and Co., The vehicle, which is designed to haul wagons on the road and for pulling ploughs and reapers, &c., on the land, is fitted with a water tube boiler and a novel form of four-cylinder engine of 20-b.h.p. Two speeds are provided, the drive from the engine shaft to the differential shaft being by spur gearing, and thence by side chains to the rear road wheels. Another new agricultural tractor was that to be seen at the stand of Messrs. Ransomes, Sims and Jefferies, Limited. It is driven by a 20-b.h.p. four-cylinder vertical petrol motor fitted with rotary magneto ignition and connected by a friction clutch to steel gearing enclosed and running in oil in a gear box. A transverse shaft from the gear box drives the road wheels by means of chains. The gearing is arranged to give three speeds, viz., 1¾, 3¼ and 6½ miles per hour, and to reverse at each of these speeds by the driver from the seat. The machine is designed to haul ploughs, cultivators, and reapers. For use for driving stationary machinery the shaft is extended through the gear box to the back of the tractor and carries a transverse pulley. The makers claim that the tractor is capable of ploughing about five acres in ten hours with a three furrow plough on a consumption of petrol at the rate of 1½ gallons per hour, or of hauling loads of 7 tons on a level road at the slow speed, or 3 tons at the fast speed. Mr. John Scott, of Edinburgh, had on view two forms of his agricultural motors. These take the form of miniature motor-cars on iron wheels and tiller steering. They can be used as wagon tractors on the road or connected up to ploughs or reapers on the land. One machine was fitted with a 14-h.p. double-cylinder vertical petrol engine, and the other with a four-cylinder one of 20-h.p., both driving through a clutch, change speed gear, and chains. A new agricultural motor, which appears to have many points in its favour, was that exhibited by Messrs. H. P. Saunderson and Co., of Bedford. This is a two-wheel tractor designed to be attached to any agricultural implement or used as a fore-carriage in place of the front wheels of any existing road vehicle. The motive power is supplied by a 10-h.p. vertical double-cylinder engine, designed to use either heavy oil or petrol, and connected by universal-jointed shafts and pinions to the front wheels in such a way that the latter serve both for driving and steering.

The Shrewsbury and Challiner Tyre Company, Limited, brought to the notice of visitors their specialities in the way of motor-car tyres, including an example of the 5 in. "Giant" solid rubber tyre for public service work, and a new combination pneumatic wheel with solid rubber tread. Messrs. Smith, Parfrey and Co. also had a large array of wheels, including a number of the artillery type for motor-cars and wagons, arranged for pneumatic, solid rubber, and steel tyres. The De Nevers grooved solid tyre of Messrs. Liversedge was to be seen at the stand of Mr. J. E. Hayes. The Goodrich solid rubber side-wire tyres were well displayed by Messrs. W. and T. Connolly, Limited, the exhibit of which included a 6-in. tyre, and also a twin tyre for use on public service vehicles. The North British Rubber Company, Limited, had a large exhibit of rubber goods, among which the Clincher solid rubber and pneumatic tyres naturally found a place.

Messrs. Ransomes, Sims, and Jefferies displayed various sizes of their petrol motor lawn mowers, which have already been described in these columns. Similar machines of 2¾-h.p. and 3½-h.p. were shown by Messrs. Thos. Green and Son, Limited. Among miscellaneous exhibitors whose names are well known in the motor world were the Vacuum Oil Company, Limited, and Messrs. W. H. Willcox and Co., Ltd., the latter's display including not only lubricating oils, but also pumps, lubricators, and many other automobile accessories.

IT is proposed to hold a "paper chase" for motor-cars on Saturday, the 23rd inst. The start will be made from Esher, on the Guildford road. The hares will be given a start of about fifteen minutes, over a course of about thirty miles, each one taking a separate route. The hares will from time to time at cross roads leave stretches of the road (limited to a mile) with no paper, and it will be necessary to pick up the trail again in order to resume the chase. Lieut. G. Windham, of Battersea Rise House, Clapham Common, S.W., is organising the event.

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CORRESPONDENCE.

THE POLICE AT SLOUGH.

To the Editor of *The Motor-Car Journal.*

Sir,—With reference to the outrage on the Bath road, which occurred on Sunday, the 19th ult., I happened to be spending the day in Slough. Knowing that the police authorities there are very keenly on the alert to trap law-breaking motorists, I walked down the road to where I knew a plain-clothes policeman is generally stationed to take the number of any unsuspecting motorist who may be, in his opinion, travelling at a greater rate than the prescribed limit, and, as usual, the "gentleman in blue," but now attired in an ordinary lounge suit and white waistcoat, was comfortably reclining on the grass in a very secluded spot, quite unseen by any motorists coming up and down the road until directly opposite.

I then took up a position a few yards further on, and watched this gallant officer's proceedings; and whilst there a great number of cars passed us (it being Ascot Sunday), many of whom I recognised, but, apparently, none of them transgressing the law, as I saw no entries made in "Robert's ledger."

I purposely haunted the vicinity during the day, and each time the disguised policeman was "on duty," either seated in the grass or sometimes walking up and down the road swinging a cane, apparently the least interested person in the passing cars.

For the benefit of fellow-motorists I would say that a constable in plain clothes is stationed almost every Sunday at this spot, which is situated at the junction of the two parishes of Langley and Slough, directly opposite the convent, which is on the left-hand side of the road leaving Slough for London. The road here is slightly down-grade, running into quite open country; and it is, I know from experience, a great temptation to let a car out. I have no sympathy with the driver who tears through this town because of its fine road surface, heedless of other legitimate users of the highway, and I regret to say that I have seen many such, my only object in writing this being to warn other careful drivers who may be taken unawares, when the speed at which they are travelling is perfectly safe, and to suggest that the Buckinghamshire police might be much more profitably occupied in endeavouring to catch the "fiends who stretch wires across the road."—Yours truly,

Horace B. Cook.

THE WEIGHT OF CARS.

To the Editor of *The Motor-Car Journal.*

Sir,—I have been looking for some time for a reliable car to carry two or four passengers at what I consider a reasonable price, about £250, and have found considerable difficulty in making a choice. What I find so puzzling is the extraordinary discrepancy in weight, horse-power, and price between a two and four-seated car.

There is no difficulty about getting an excellent voiturette of 6-h.p., weighing about 8 cwt., and costing from £150 to £175; but directly a tonneau is added, the weight jumps up to some 13 cwt., and the price is nearly doubled, but not the horse-power. If it takes 6-h.p. to propel a car weighing 8 cwt., and carrying two persons, how can 8-h.p. be expected to propel 13 cwt. and four persons? There is nothing like the same discrepancy between the 10 and 12-h.p. cars either in weight or price.

I venture to think that manufacturers might, with advantage to themselves and the public, turn their attention to the production of a good substantial car of 8 to 10-h.p.—if possible, with two cylinders—weighing from 10 to 12 cwt., according to the horse-power, and about £250 in price.—Yours truly,

A Constant Reader.

A HINT *RE* TYRES.

To the Editor of *The Motor-Car Journal.*

Sir,—I have found out a tip which I think would be of interest to other readers of the *Journal* who have had occasion to use the Dunlop gaiters, which, by the way, I have found to last longer than the raw hide ones. The vendors of these gaiters supply a stranded wire lace to fasten the gaiter on; these laces take all the paint off the wheels, and if the gaiter has to come off to repair a puncture, the wire lace has to be destroyed to get it undone. I have found that raw-hide laces (the same as used for lacing belts in mills, etc.) do away with all trouble. I ran one of my wheels with the gaiter laced with the rawhide laces over 500 miles recently, and had to take it off three times for punctures. The laces are still as good as when first used, and have done no damage to the wheel.—Yours truly,

BA 64.

STEAM CARS.

To the Editor of *The Motor-Car Journal.*

Sir,—I read in the *Journal* of the 18th inst. a letter from the Watford Engineering Company, in which they mention that a good paraffin burner is required. I might say I run a Stanley car fitted with a paraffin burner and have obtained excellent results. I can easily do twenty miles on a gallon. I bought this car from Mr. Wilkinson, of Manchester, and am more than pleased with it. I have tried several of these light steam cars, but have not the slightest hesitation in saying that for easy riding, speed, and general reliability there is not a car in its class to touch it. I also drive a petrol car, and am as much interested in one as the other.—Yours truly,

Paraffin.

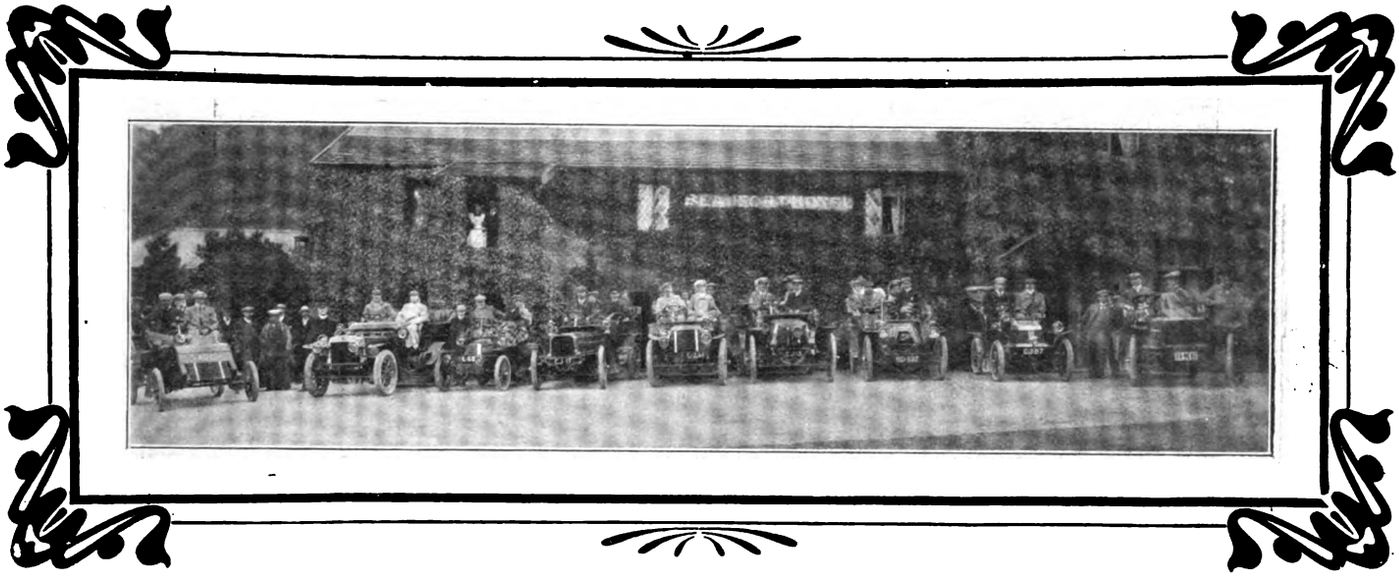


Photo by] **The Joint Meet of the Herefordshire, Gloucestershire and South Wales Automobile Clubs at Chepstow.** *[H. J. Unwin.*

TYRE PROTECTION.

To the Editor of *The Motor-Car Journal.*

Sir,—I notice in the "Continental Notes," in the last issue of the *Journal*, a paragraph concerning the use of old tyre covers as a protection against puncture and wear. Would it be troubling you too much to inform me how they are applied? I presume the beaded edge of the old cover must be cut off, as it would be impossible to fix two beaded edges in the clinch. I fancy I recollect seeing a diagram in one of your back numbers as to the method of fixture; if so, would you be good enough to send a copy containing the instructions for fixing?—Yours truly,

B. H. Flint.

[Some time ago Mr. Paul Meyan pointed out that he used old outer covers superimposed on his ordinary covers; we believe his method was to use old covers of a larger initial size than his covers proper, and attach them by inserting them between the latter and the rims. It has since been pointed out that an old and therefore stretched cover of the same initial size as the normal cover may be used by cutting off its edges and simply placing it over the latter when this is deflated, and then blowing up hard; but this method of attachment was found not sufficiently secure. The obvious extension of the idea was to sew straps to the old covers and

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secure these to alternate spokes in a manner that will suggest itself to anyone. Any saddler can sew on the half dozen or dozen straps for a few shillings, and the old cover so secured is perfectly firm. Even if it is badly cut the cuts do not gape (though it is advisable to place canvas behind them), and of course there is no wearing surface equal to that of a properly vulcanised rubber one. Owing to the severance of continuity between the attached cover and the ordinary cover puncturing objects that pierce the former are turned at the surface of the latter. The straps should be sewn inside the cover, and there should be one pair of straps for every spoke to make the job a success.]

HINTS *RE* BENZ CARS.

To the Editor of *The Motor-Car Journal*.

Sir,—Having seen several inquiries recently in your columns regarding improvements in 3½-h.p. Benz car, I think the following will be interesting to some readers of the *Journal*. I had occasion whilst staying in Herne Bay to go to Messrs. Root and Clarke's for petrol, and Mr. Clarke, of that firm, very kindly interested himself in my car. He suggested various improvements, and, as I knew him to be reliable, I entrusted my car to him. After a few days he completed the alterations, and the marvellous results far exceeded my anticipations. Its hill-climbing powers have been wonderfully improved, and it now takes hills on second speed, where formerly we had to have recourse to the crypto, and that working with difficulty. The general speed has been correspondingly increased, and the other day my wife, two children, and myself went two miles on the flat in 5½ minutes.—Yours truly,

F. Palmer.



Cudell Car on the Banks of the Rhine a Cologne.

REVISING THE GORDON BENNETT RULES.

To the Editor of *The Motor-Car Journal*.

Sir,—Many suggestions are now being made with regard to alterations in the rules governing the Coupe Internationale, and we now read that at the conclusion of the great race at Homburg, on June 17, the Industrial and Races Committee of the British Automobile Club hesitates to challenge the winning club on the ground that it wants the rules altered to suit its own convenience. It is suggested that the event shall not only be a trial of speed, but also a test of the efficiency of the motor and the car.

What will France and Germany think of such a proposition? Are they likely to consider it for a moment? I think not.

To those who witnessed the race at Homburg it can leave no room for doubt that if a car can travel faultlessly and with almost mathematical precision of time for 350 miles at an average speed of over 60 miles an hour over extremely heavy and mountainous roads, when every part of the mechanism of the motor and the tyres are under the greatest strain which can be imposed upon them, it is sufficiently clear that the great speed attained must have been inseparable from reliability. What constitutes reliability? I fain would suggest that a car is not more liable to break down from excessive than at moderate speed; but from my own personal observation I am convinced that a car is just as likely to break down over a long course travelling on her first as on her second speed in all grades; and, of course, such chances are naturally enhanced when going "all out," whether it be a touring or a racing car.

The Races Committee, I am inclined to think, are on the wrong lay, if this constitutes their prime contention.

What is more necessary than the abandoning of high speeds crowded into short hours is the conditions under which the various cars are qualified to enter.

Let us take the case of France, for instance. No less than ten firms, representing an aggregate of twenty-nine cars, struggled for three places in the Coupe itself. Germany, Austria, Italy, and Switzerland (which unfortunately did not run) are all represented by one make—notwithstanding that each firm conformed to the prescribed rules—and it would have been a triumph for Germany whichever of these machines got home first.

The principle laid down in the rules that each and every part of the car shall be made in the country which it represents is now considered to be wrong and obsolete, since it gives certain makers undue advantage over others, for what proof have we that "all" the parts *are* made in that particular country? Who superintends the construction of the parts? Not only should the various parts be made, but they also should be designed there.

It is quite an easy matter for a great firm to dump down machinery in a foreign country which is not sufficiently developed in this industry to represent itself, if it will give that firm a ten to one chance of winning the race.

I therefore boldly suggest that nearly half the countries represented in this year's race had no moral or competitive right to be there at all (although I frankly admit that I was from a sporting point of view glad to see them), since their cars were not entirely the result of their own creative efforts, but mere copies of a famous make, built to order.

What does this mean? Suppose, for instance, Austria or Italy had won the race. What would have been the result? Germany would naturally have claimed the glory, and the country which won the reputation. The analogy is this, that it would have given a tremendous impetus to the nation, and placed it on a high pinnacle of fame which it never had legitimately earned and did not scrupulously deserve. It is the creative faculty embodied in a product which alone ought to count in its acceptance. An international expert committee should be appointed to approve designs or cars intended for the race, which designs or models built from them should have been prepared by naturalised persons in the country which it is to

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represent, and, although this method suggests complication, it would nevertheless be fair for all, and the race would always be won on its merits.

France, I believe, would be the first to encourage such a change, seeing that she is supreme in the motor industry, and has suffered in reduced chances of winning more than anyone else.

But to abandon the pure speed element reminds me of a certain great European nation who some years ago proposed disarmament because (it was rumoured) it could not comfortably keep pace with the cost. No, if the progress of France and Germany is too rapid for us, English manufacturers must arouse themselves from their lethargy and achieve something which will place us in the first flight with Continental enterprise, as the coveted trophy appears to be many summers off our grasp now.

M. Georges Prade condemns the condition under which the Gordon Bennett is contested, but offers no solution. He argues that the cars at the French eliminating trials had one chance in ten among themselves, whereas the Pipe and Fiat cars had three chances for three cars, which would give them thirty times more chances than any of the French firms in the actual race. This in itself is obviously unfair, and is considerably magnified when we find that Austria, Italy, and Switzerland were to all intents and purposes representing Germany. Therefore it is not so much the restricting of competitive firms in any one country, as M. Georges Prade contends, but that each respective country's creative faculty shall design as well as manufacture all the parts.—Yours truly,

OWEN JOSEPH.

THE GORDON BENNETT RACE.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—Now that the Gordon Bennett Race is over and the results are published, I do not think it would be an unfavourable moment to consider the matter of the selection of the English cars.

Firstly, regarding Edge. After the bombastic letters which he sent to the press prior to the race he must feel particularly humiliated at his performance. I would not criticise hardly if it were not for the fact that he deliberately laid himself open to criticism in the event of his not being successful. The two Wolseley cars—the cars he sneered at—the cars he said were no good, both finished in the race, when he on his Napier hopelessly broke down.

Perhaps Mr. Edge will have learnt that nothing disgusts the sporting Britisher so much as bombast and shouting *before* a race. Wait until it is over, and if there is anything to puff oneself about let it be shown then. The "sporting protest" raised by Edge was too commercial in its insincerity to blind the eyes of anyone; but that which *did* disgust us more than anything was his unwarrantable attack on the Wolseley cars and drivers, remembering the fair manner in which the Wolseley firm has always acted, and remembering how much Edge is indebted to them for his previous success. No, Sir, Edge has not played the game, and the sooner he owns up, the better he will be liked.

In contrast to his action was that of Jarrott, who. I see from the papers, actually took Edge round the course on his racing Wolseley when Edge's car was lying useless with broken crank and shaft. A friend of mine asked Jarrott why he did this, and he remarked that as Edge had not had an opportunity of knowing the road he (Jarrott) wished to do everything in order that England should make as good a show as possible. Remembering Edge's remarks on Jarrott and his car, I marvelled at the sportsmanship of the man.

The selection of the team was the right selection. Girling drove splendidly, and Jarrott also put up one of those automobile fights for which he is renowned in England, and especially on the Continent.

Edge drove well and made a good race until he broke down. In fact, the men were the right men, the cars might have been better, but the luck was not with us; but the great failure was undoubtedly Edge who we did at least expect to finish after the performance of his car in the Isle of Man.—Yours truly,

F. GRAHAM SHARP.

SPARKING TROUBLES.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—In reply to "F. J. I.," would you kindly permit me the following suggestion? The cause of the sparking trouble mentioned is doubtless due to the faulty nature of the accumulator. I have experienced the same trouble, but have now overcome all this by charging the accumulators myself, instead of trusting to the town mains or would-be electricians. I should strongly advise "F. J. I." to procure a set of Boron primary batteries. They have removed my difficulty, and possibly others may have had the same experience.—Yours truly,

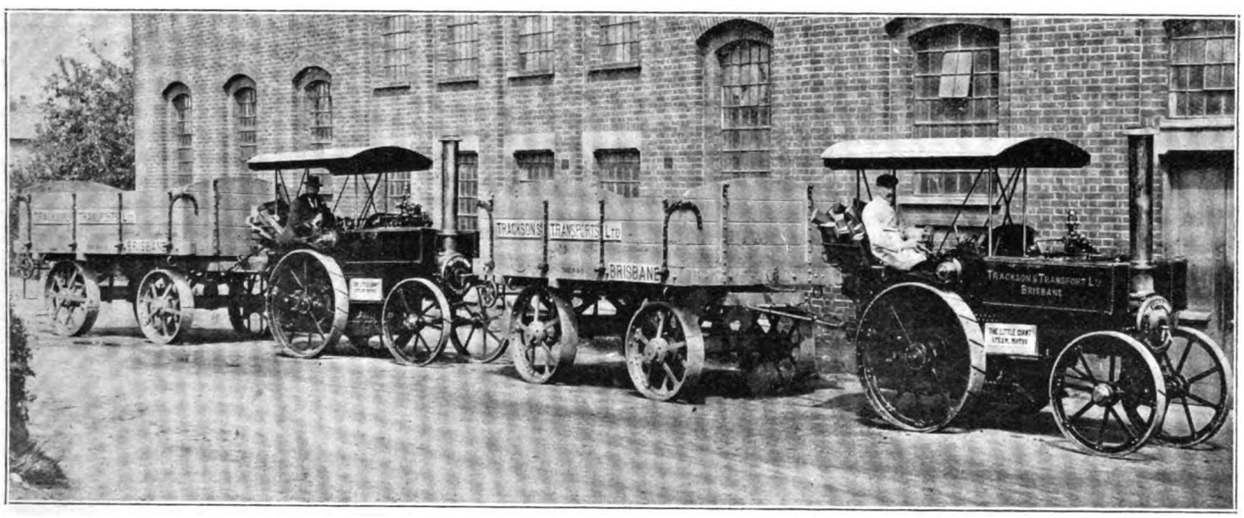
DUVAL LAMPSON.

THE GLASGOW-LONDON HILL CLIMB FORMULA.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—I notice in your issue of June 25th a letter written by Mr. Govan, of the Hozier Engineering Co., Ltd., to the secretary of the Western Section of the Scottish Automobile Club. In this he complains that the formula used in the Glasgow to London Reliability Trial for the hill climb is not a just one. I cannot see what his object is in wishing for a ratio between the weight of car and weight of load introduced into the formula, but certainly the load itself is a factor which should be considered. I do not see that the best car is the one that will carry the most weight on a given weight of car, as this means scrimping material in some part or other and leads to unreliability. Experience has shown that the most reliable cars have not proved to be the lightest per horse power, but rather those of heavier construction. The figures he gives for loads are curious and it would be interesting to know how they are made up. The four passengers in the Argyll car weighing 8¾ cwts. would be worth seeing, especially as we know from the reports in the papers that one of them, the driver, was "a mere boy." If the figures he gives, 13 cwts. and 21½ cwts., represent the weights of the cars without petrol, oils water, cushions, tools, and spare gear, I think he is wasting valuable space, as all these are necessary to the car while running and cannot be considered as part of the load, and his deductions are therefore wrong. Referring to his complaint about the third term in the formula $\frac{W \times v^2}{2}$, if he cannot tell the reason why "W" is inserted perhaps he will explain why he accepts v^2. as correct,—Yours truly,

W. A. LAMBIE.



Two of the "Little Giant" Road Trains for Service in Queensland. (*See page* 383)

CUTS IN TYRES.—In reply to "a correspondent who asks if there is any compound on the market for readily filling up small cuts in the outer covers of motor-car tyres," E.Y. 29 suggests Patcho.

TRACK RACING AT FRANKFORT.—The Beaufort Motor Company write us with regard to the performance of their Beaufort car at the Frankfort races on the 19th ult., when the vehicle ran third, as follows:—"We were greatly handicapped owing to our having tested the car with alcohol of a different sp. gr. to that supplied by the race authorities; the alcohol we had been using previous to the races worked exceedingly satisfactorily with our new carburettor constructed for alcohol, but on the race course the judges had every drop of this emptied and refilled by spirit supplied by them. This took place less than a hour before the race, and it was impossible to so adjust the carburettor, in the short time available, as to secure the previous satisfactory running of the engines."

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CLUBS AND ASSOCIATIONS.

SCOTTISH (EASTERN DISTRICT).

THE Eastern District of the Scottish Automobile Club met on Saturday afternoon at Abbey Green, Jedburgh, the residence of Dr. Blair. The weather was dull and cold, but irrespective of this, there was a good turn-out of Edinburgh and Border motorists, including the secretary, Mr. G. Macmillan, Edinburgh, with his 30-h.p. De Dietrich; Mr. W. H. Sleigh, Edinburgh, 25-h.p. Humber; Major Murray Thriepland, St. Boswells, 10-h.p. Panhard; Mr. Sinclair, Grahamslaw, 16-h.p. Napier; Mr. Ballantyne, Lasswade, 22-h.p. Daimler; Dr. Blair, Jedburgh, 10-h.p. Wolseley, etc. The company were afterwards entertained to lunch by Dr. Blair, when about sixty sat down in a marquee on the lawn. After lunch the health of Dr. Blair was proposed by Major Murray Thriepland, and the doctor in reply said he thought their club had done a great deal to assist manufacturers to show them cars that could go at any speed. They did not want unreasonable speeds, but what they wanted to aim at was that they should be supplied with a reliable car, so that when they went out they could get comfortably back again, and also that the tyres should be very durable and reliable. He thought that the encouragement which they as a club ought to give in future should be on these lines. The company were photographed, and afterwards visited the beautiful abbey and other places of interest in the ancient Royal burgh.

SOUTH LINCOLNSHIRE.

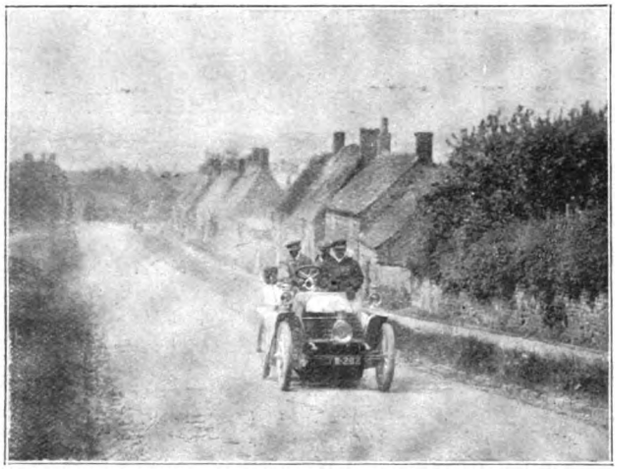
A VERY successful meet of the above club took place on Thursday of last week, when the members and friends were entertained in sumptuous style by the chairman of the club, Dr. Miller, and Mrs. Miller. The weather was beautifully fine, and there was a large muster of motorists present. Gleed, J.P., Mr. F. P. Curtis (Boston), Dr. Reckitt (Boston), and the Rev. M. Wilkins (Croft). Other motorists included Mr. F. Jecook (Gainsborough), on an 8-h.p. Dennis; Mr. G. Garnett (Gainsborough), on an 8-h.p. M.C.C.; Mr. W. A. Tomlinson (Sleaford), on a 5-h.p. Bardon; Dr. E. H. Cragg (the club secretary, Billingborough), on an Enfield quad; and Dr. White (Swineshead), on a 2¾-h.p. Humber cycle. Captain Gleed also invited several gentlemen connected with the county authorities, including the Chairman of the Holland County Council, the Chairman of the Spalding Rural District Council, the Chairman of the Witham Outfall Board, the Superintendent of Police for the district, and several others. An *al fresco* tea was served to the guests on the lawn, and an interesting photograph was taken of the cars assembled in front of the house.

HEREFORDSHIRE.

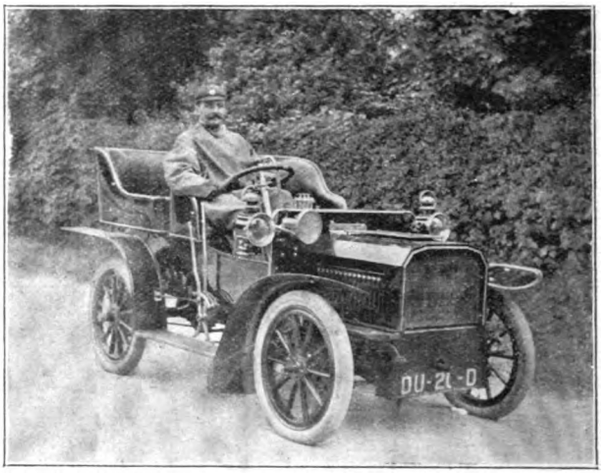
As we briefly chronicled last week, the Herefordshire, Gloucestershire, and South Wales Automobile Clubs had a very successful inter-club run to Tintern. The arrangements made by Mr. A. Arthur Dale, hon. secretary of the Gloucestershire Club, were excellent, he having had a list of the day's arrangements printed for every member, another printed form for every seat at lunch, and large notices prohibiting smoking in the immediate vicinity of the cars. Lunch was taken at the Beaufort Hotel, Tintern, after which short and appropriate speeches were made by Mr. Hereford, president of the Herefordshire Club, Mr. Wyatt, president of the Gloucestershire, and Mr. Neale, hon. secretary of the South Wales.

PETERBOROUGH.

ON the invitation of Lord and Lady Lilford, the members of the Peterborough and District Motor Club had an opportunity of visiting Lilford Hall, their Northamptonshire seat, on Thursday, the 23rd ult. There was a capital muster of members and friends at headquarters at 2.30 p.m. to



Mr. H. Foster's 10-h.p. Wolseley on Rockingham Hill.



Mr. C. Evinson on the 8¼-h.p. Humber.

THE NOTTINGHAMSHIRE AUTOMOBILE CLUB'S 100 MILE NON-STOP RUN.

A splendid tea was provided in a spacious marquee, and about sixty sat down thereto, after which came the inevitable operation of "facing the camera." A start for home was made shortly after six o'clock. Altogether a most enjoyable afternoon was spent, and the Wrangle meet will long be remembered as a "red-letter" day by all who were present thereat.

Subjoined is a list of the cars and motor-cycles attending the run:—Mr. and Mrs. W. B. Jevons, Market Rasen, 9-h.p. De Dion; Mr. and Mrs. A. A. Padley, Market Rasen, 6-h.p. De Dion; Dr. South, Boston, Baby Peugeot; Mr. and Mrs. A. Beales, Spalding, 8-h.p. Dennis; Mr. A. Green, Spalding, Baby Peugeot; Mr. H. Pilley and friends, Boston, 6½-h.p. Peugeot; Mr. and Mrs. C. Holland, Boston, 4½-h.p. De Dion; Mr. S. G. Lovell, Stickney, 5½-h.p. Wolseley; Dr. and Mrs. Crompton, Benington, Baby Peugeot; Mr. and Mrs. F. Richardson, Sibsey, 10-h.p. Wolseley; Mr. and Mrs. A. H. Holland, Boston, 2-h.p. Minerva tri-car; Dr. Pilcher, Boston, 2¾-h.p. motor-cycle; Mr. F. Saul, Wrangle, motor-cycle; Mr. E. Saul, Wrangle, motor-cycle; and Dr. Allan, Wainfleet, motor-cycle.

LINCOLNSHIRE.

PARK HOUSE, Donington, the picturesque residence of Captain and Mrs. Gleed, was the meeting-place of the Lincolnshire Automobile Club on the afternoon of Thursday, the 23rd ult., and those who attended the gathering spent a most enjoyable time. Between thirty and forty motorists accepted the invitations issued by the host and hostess, and of these close upon twenty found it convenient to attend. The 12-h.p. Wolseley, which Mr. T. W. Mays, of Bourne, has recently acquired, came in for a considerable share of admiration, as did also the 12-h.p. Richardson cars, of which there were four. These were driven by Messrs. Ben Smith (Horbling), C. W. Pennell, J.P. (Lincoln), Dr. Sharp (Brant, Broughton), and Major F. H. Goddard (Lincoln). Peugeots were also *en evidence*. In addition to two 8-h.p.'s, driven respectively by Dr. W. J. Gilpin, of Bourne, and Mr. Chaderton Johnson, of Boston, there were four "Babies," belonging to Captain participate in the run. These included Mr. Percy Mays and Miss C. Mays (Bourne), on a 2¾-h.p. Vinco tricar; Mr. S. Heighton (Peterborough), on a 1¾-h.p. Humber; Mr. W. E. Wadsley (Bourne), on a 2½-h.p. Vinco cycle; Mr. P. R. Heighton and Mrs. Dempsey (Peterborough), on a 4-h.p. Rex; Mr. R. C. Holmes and Miss E. Knowles (Peterborough), on a 3½-h.p. Vinco tricar; Mr. W. Bassett (Peterborough), on a 2¼-h.p. Vinco cycle; Mr. Bowler Gibson and Miss Gibson (Bourne), on a 3½-h.p. Vinco tricar; Mr. F. T. Heighton and Mrs. Heighton (Peterborough), on a 3½-h.p. Vinco tricar; and Mr. W. R. Heighton, on a 2¾-h.p. Vinco cycle. On arrival at Lilford Hall the party were shown over the beautiful grounds. A stop was made at Oundle, where the motorists had tea at the Talbot Hotel. The run home in the evening was conducted under the most pleasant conditions. Needless to say, the outing was immensely enjoyed, the delightful weather largely contributing to the success of the trip.

The members had another meet on Sunday to Hunstanton. Unfortunately it was a stormy day. The party met at Lynn, and then went on to their destination by way of Sandringham; Hunstanton was reached about noon. The Station Hotel was made the headquarters of the party during their stay.

EASTERN COUNTIES.

A VERY successful run of the Eastern Counties' Automobile Club was held to Clacton-on-Sea on Saturday under very favourable climatic conditions. The rendezvous was the open space in front of the G.E.R. station at Manningtree, and those taking part were:—Mr. Egerton, with Mr. and Mrs. Cobbold, in an 8-h.p. De Dion; Mr. R. B. Booth, 9-h.p. De Dion, with Mr. E. P. Ridley, hon. solicitor of the club; Mr. F. A. Snowden, 16-h.p. Argyll; Mr. H. Bloomfield and Mr. Wright, 10-h.p. Boyer; Mr. and Mrs. Godolphin, 6-h.p. De Dion; Mr. C. K. Moseley, hon. secretary, and Mr. L. W. Cotman, 6-h.p. De Dion; Messrs. O. T. and M. Cook, 9-h.p. Darracq; Mr. and Mrs. E. L. Rowe, 5-h.p. Peugeot; Mr. Forbes Gower,

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with Mr. and Mrs. L. Vulliamy and Mr. Braithwaite, 15-h.p. Darracq Dr. Longworth, who had come on from Grantham to attend the meet, on a 3-h.p. Rex bicycle; Mr. Robert Page, 7-h.p. Panhard; Mr. J. F. C. Hossack, 8-h.p. M.M.C., with Mr. Pritchard; Mr. Page Wood, 10-h.p. Peugeot.

The start was made by Mr. Page Wood at 3.15 p.m., and the route was through Lawford, Horseley Cross, Little Bentley, Weeley, and thence to Clacton. An excellent tea was provided at the Grand Hotel. The hon. solicitor acted as leader in Mr. Hossack's M.M.C.; an excellent return home being made through Ardleigh and the picturesque Dedham Valley.

NOTTINGHAM.

Success attended the reliability trials of the Nottingham A.C. on the 23rd ult., nine out of the twelve starters making non-stop runs. Mr. W. F. Foster, a prominent motorist and member of the club, had offered a silver challenge cup for the best performance on a non-stop run, and the course selected was that from Nottingham *via* Melton Mowbray, Oakham, and Uppingham, to Kettering and home again, a very hilly and trying course indeed. There are several very steep hills, including Kettleby, where the recent hill climb was made by the Club, and Rockingham, near Kettering, and up which all the cars were timed as a factor in the contest.

The manager of the exhibition at Trent Bridge had allowed the start to be from the grounds of the exhibition, and by 10.45 all the cars were in, and an appearance competition was held, Mr. E. H. Joule, 12-h.p. Darracq, winning. The lowest powered cars were got away first, the 4½-h.p. Renault, driven by Mr. S. Harvey, leaving at 11 a.m. The next went at 12, the 8½-h.p. Humber, Mr. C. Evinson, and then cars were started every few minutes. Excellent times were the order, but three cars in particular met with bad luck. The 24-h.p. Simms had serious tyre trouble at starting time, and then, when at Langham, near Uppingham, the fan gear struck work and the driver had to spend twenty-five minutes over it, so retired, as there appeared to be plenty of non-stoppers. The 16-h.p. Georges Richard had tyre trouble following engine trouble, a "short" across one of the compression taps causing trouble. The driver, Mr. F. Hardy, decided to retire rather than make a bad time. Mr. Ross Browne also was unfortunate. He had a bad puncture in his 12-h.p. Georges Richard, but got a new tube in in nine minutes without a jack. He then went on to Kettering, but on the home journey his propeller shaft loosened out, and that detained him; engine troubles followed this piece of bad luck. He, however, pluckily got through, having had two bad punctures. The cup will be awarded by the Committee, who will consider the whole performance. The complete list is as follows, but the three cars not making non-stop runs are marked with an asterisk (*). The table is made up in the order of time taken on the run:—

Name and Car.	Time on hill. M. S.	Time on run. H. M.
E. H. Joule, 12-h.p. Darracq	2 25¼ ..	3 55
R. M. Wright, 9-11-h.p. Clement	2 29⅗ ..	4 2
J. C. Bennett, 12-h.p. Georges Richard	3 8⅘ ..	4 3
C. Hardy, 14-h.p. Daimler	2 31⅘ ..	4 5
A. B. Gass, 10-h.p. Georges Richard	3 3 ..	4 18
W. H. Warburton, 12-h.p. Georges Richard ..	2 44 ..	4 32
C. Evinson, 8½-h.p. Humber	2 35 ..	4 40
H. Foster, 10-h.p. Wolseley	3 50⅘ ..	4 51
F. Hardy,* 16-h.p. Georges Richard	2 8⅘ ..	5 35
Ross Browne,* 12-h.p. Georges Richard ..	2 59¼ ..	5 52
S. Harvey, 4½-h.p. Renault	4 4 ..	7 28
E. H. Arnott,* 24-h.p. Simms (retired).		

BERKSHIRE.

The third summer meet of the Berkshire Automobile Club was held on Saturday afternoon at Ockwells Manor, near Maidenhead, by invitation of Mr. and Mrs. E. A. Barry. There was a sharp shower about midday, but later the weather cleared, although at times the clouds were threatening, and the run to Ockwells and back was on the whole enjoyed. Among the members of the club present (most of them accompanied by ladies) were Dr. Roalfe Cox, Dr. A. Gordon Paterson, the Rev. J. D. Ouvry, Lieut.-Col. Waring (hon. sec.), Mr. E. Shrapnell Smith, Dr. Norman Joy, Mr. J. G. Carew-Gibson, Mr. C. H. Dodd, Mr. E. A. Potter, Mr. R. W. Fowys-Lybbe, Mr. Simon, Mr. J. Hopkins Walters, Mr. W. H. Taylor, Mr. Vallange, Mr. Wombwell, Mr. Hawes, and Mr. Selkirk. The party also included other guests of Mr. and Mrs. Barry. Dr. A. Gordon Paterson has been elected on the Committee of the Club, who at their next meeting on the 13th inst. will consider further applications for membership.

MIDLAND.

On the 23rd inst. the Midland Automobile Club will hold a hill-climbing handicap at Sunrising Hill, Kineton. The prize will consist of a cup presented by the president, Mr. J. Broughton Dugdale, J.P., and entries should be sent to the hon. secretary of the Midland Automobile Club, Grand Hotel, Birmingham, not later than the 19th inst.

LEICESTERSHIRE.

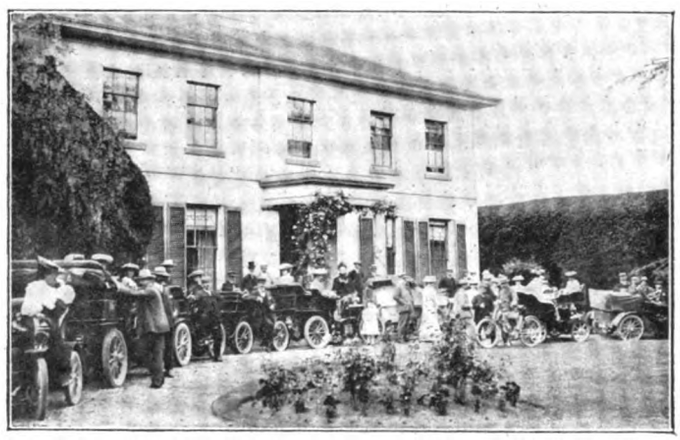
By the kind invitation of Colonel and Mrs. L. L. Powell, the members of the Leicestershire Automobile Club attended a garden party at The Elms, Melton Mowbray, on Saturday. Twenty-two cars and a motor-tricycle took part in the run, and there were about seventy guests. The automobilists arrived at Melton about three o'clock, and partook of tea at half-past four, after which tennis and other games were indulged in. After tea a letter was read from the president (Mr. E. G. Mawbey) regretting his absence owing to his recent accident, and Colonel Powell despatched a wire to Mr. Mawbey wishing him a speedy recovery. Mr. King proposed the health of Colonel Powell, and that gentleman suitably acknowledged the compliment.

WEST SURREY.

On Saturday last members and friends of the West Surrey Automobile Club met to the number of fifteen at Chiddingfold, where tea was provided at the Rose and Crown. The party included Mr. and Miss Crothers, 9-h.p. Darracq; Miss Houghton, 4-h.p. Peugeot; Major Matson, 6-h.p. Benz; Mr. and Mrs. Pullman and Mr. R. Crothers, 15-h.p. Durkopp; Mr. and Mrs. Wrigley and party, 12-h.p. Clement; and Mr. Buttemer, 10-h.p. Decauville. Mr. R. Crothers acted as photographer to the party, the group being joined by Mr. Halahan's Paris-Madrid Wolseley, though without its owner. The latter has, we hear, undertaken to supply and put down Westrumite on the roads in the village at his own expense, the district authorities having refused a proposal on the part of the club to bear part of the cost of a trial on some road in their district.

CASES DISMISSED.

Mr. Walter Munn was summoned at Basingstoke for driving beyond the legal limit. The car was stopped as he approached the village of Hook. There was the usual trap of two plain-clothes men and one policeman in uniform. He demanded to see the watches, and found the watch was a common Swiss stop watch, and on comparing it with his own it, in one case, showed a variation of three-fifths of a second, and in the other stopped correctly, but almost invariably started backwards. He informed the sergeant that if he summoned him he should claim his watch was not a reliable timekeeper. At the court, the police produced two watches; one they stated had been held by the first and the other by the second man.



The Meet of the Lincolnshire Automobile Club at Park House, Donington.

Mr. Munn informed the Bench he could show them these watches were not reliable, and that they started back instead of starting forward. On comparing the two watches there was a variation between them. He also pointed out that according to the police evidence there was only a difference of twenty-five yards between the second and third man, and that the car was pulled up easily in ten yards, and, therefore, it was obvious the car could not have been travelling at twenty-six miles per hour. The Bench dismissed the case.

A novel point was successfully raised at the Garstang (Lancashire) Petty Sessions by Mr. Willey, of Leeds, who defended Mr. Henry Caress, summoned for furiously driving a motor-car. He contended that the summons was bad on the ground of duplication, disclosing, as it obviously did, two offences, namely, furiously driving and endangering the lives of the public. There was no such offence as furiously driving under the Motor Car Act. The offence, if any, was negligently or recklessly driving in a manner dangerous to the public. The Bench upheld this objection, and dismissed the summons.

Mr. Hughes, of Bedford, was summoned by the Royston police for driving a motor-car at a speed and in a manner which was dangerous to the public, and was also summoned for refusing to stop when a police constable signalled him to do so. Mr. Staplee Firth defended, and the Bench dismissed the case.

William Archdale, Rosneath, Bassett, was summoned at Southampton for driving a motor-car in Millbrook Road, on the 23rd ult., at a greater speed than twenty miles an hour. P.C. Goodridge timed defendant, who covered 220 yards in 20 seconds, which was at a speed of 22½ miles per hour. Mr. Goodwin took the objection that under this section notice had to be given to defendant that proceedings were going to be taken against him, and this had not been done, but the Bench were against him. Defendant estimated the speed he was going at as 19 miles an hour, but it was impossible for a motorist to tell whether it was 19, 20, or 21 miles he was going at unless he sat

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with a watch in his hand. He only warned one car. The Bench retired, and the Chairman afterwards said there appeared to be such a small margin that they would give the defendant the benefit of the doubt, and the case was dismissed.

CLAIMS FOR DAMAGES.

BEFORE Mr. Justice Grantham and a special jury, the case of "S. F. Edge (Limited) v. Allen" was heard. When this case was called on, Mr. Justice Grantham asked if any of the jurymen were motorists. Two jurymen having stood up, Mr. Justice Grantham said, I will tell you why I ask. I tried an action against a motorist, and the jury were discharged, and we afterwards found out that the three gentlemen who held out were motorists. The jury was sworn, including the two motorists.

The action was brought by S. F. Edge (Limited) to recover damages from James Allen, for injuries to a motor-car, alleged to be due to the negligence of the defendant's driver of a mail van. The defence was a denial of negligence, and a plea that those in charge of the motor-car were negligent. Mr. Colam appeared for the plaintiffs, and the defendant was represented by Mr. Morton Smith. The plaintiffs' case was that on the 4th April, 1903, a car belonging to the plaintiffs, driven by Miss Dorothy Levett, whilst driving through Rosebery Avenue, was run into by a mail van driven by one of the defendant's servants. The car was practically wrecked. The defence was that the car was driven at an excessive speed, and the collision was entirely due to the driver of the car, as it was impossible for the defendant's driver to get out of the way. The case having been fully argued the jury found for the plaintiffs, assessing the damages at £55, £45 15s. having been the actual cost of the repair of the car.

BEFORE Judge Baker at the Louth (Lincolnshire) County Court last week Frederick Allbones, of Grimsby, claimed £20 from Arnold Ellett, of Louth, for damages to plaintiff's motor-car. The jury found for plaintiff £5 12s. 3d. damages.

ALLEGED OBSTRUCTION OF THE HIGHWAY.

ISAAC SOLOMON, of Winchmore Hill, was charged at the Hatfield Petty Sessions with obstructing the highway at North Mymms on May 15th. The complainant, a motor-cyclist, of Barnet, stated that as he was riding his machine along the North Road on May 15th, he overtook defendant, who was driving a dog-cart. Solomon was on his wrong side of the road; and after complainant had sounded his horn he pulled right across the road. The defence was that the pulling across the road was an endeavour to get on the correct side. The case was dismissed.

"NOT PROVEN."

AT Haddington Police Court, on Monday, the hon. secretary of the Eastern Section of the Scottish Automobile Club, Mr. George Macmillan, was charged with having driven a motor-car at a speed exceeding twenty miles an hour. He pleaded not guilty. A police inspector deposed that in August last he had measured off a mile on the Post Road with a tape line at a point west of Tranent. On the day in question, he, with another police constable, watched the car approach. It did a mile in 1 min. 50 secs., or about 33 miles an hour. He timed the car with a stop watch owned by himself. A policeman gave corroborative evidence, and the agent for the defendant asked this witness to read the watch, which was produced, Witness said it was standing at 18 mins. 31½ secs., whereas the correct time was 2 mins. 31½ secs. This, the agent held, showed that the witness had a knowledge of the second hand but not of the minute hand. Witness admitted that he did not understand the mechanism of the watch. Mr. Macmillan said that this was the first time he had had the car out. On the measured mile he had to go slowly several times on account of horse vehicles. He was perfectly "flabbergasted" when the police told him what rate he had been going. Mr. Wilson, civil engineer, deposed that a tape line was the last thing in the world with which a particular distance of this kind should be measured. Mr. McDonald, advocate, said it was impossible, in his opinion, for the policeman to tell the exact time when the car started on the measured mile while they were standing at the termination. In his opinion, the watch was not trustworthy. He had examined it, and he found that the hand sometimes did not go properly back to zero. The sheriff held the charge not proven.

A CONVICTION QUASHED.

BEFORE the Quarter Sessions for the county of Sussex, held at Horsham, Mr. Lumley Smith, K.C., Judge of the City of London Court, chairman, the appeal of Mr. David Singer against a conviction by the magistrates at New Shoreham was heard. Mr. Moresby White (instructed by Messrs. Firth and Co.) appeared on behalf of the appellant. Mr. Boxall, K.C., and Mr. Horton Smith represented the respondent magistrates. Mr. Boxall, K.C., in opening the case, stated that the defendant had driven a motor-car in Southwick, near Brighton, on Sunday, April 17th, 1904, at a very furious rate. The road through the village had several turnings into it, and was about 30 ft. wide, with tram lines in it. There were houses on both sides, and in some places there was no made-up footpath between the houses and the roadway. There was a good deal of traffic, it being about four o'clock in the afternoon, a number of children were at the time leaving Sunday-school. There had been a long hearing of the case at New Shoreham on May 2nd, and the Bench had then unanimously convicted Mr. Singer. A number of witnesses gave evidence which bore out counsel's opening statement. Mr. Moresby White then called Mr. Singer, who stated that he was not driving at more than ten to twelve miles an hour when the policeman stopped him. Four other occupants of the car also gave evidence to the effect that there were no cabs, cyclists, or vehicles in the road, and no children or pedestrians in the carriage way. Mr. Moresby White pointed out the absence of all evidence of actual danger to any single person. Section 1 of the Motor Car Act, he said, was a criminal section, and strict proof of public danger was necessary before the Bench would be justified in convicting. Nobody had been called or had complained, and there was nothing but the merest inference of danger put before the magistrates by the prosecution. After a short retirement for consideration, the chairman stated that the Bench had decided to quash the conviction and allow the appeal, and gave the appellant costs against the magistrates who had convicted him.

POLICE TRAPS.

A MEASURED distance on the Brighton road at Sutton has led to the summoning and conviction of several motorists.

MOTORISTS driving between Berkhamsted and Tring should beware of several police traps.

THE police have a measured 220 yards near the village of Wallop, on the Salisbury and Andover main road.

CONVICTIONS AGAINST MOTORISTS.

Place.	Summoned for	Fine.
Marlborough Street, London	Driving dangerously	40s.
Andover	,, ,,	£4.
Belper	Not giving audible warning of approach	£2.
,,	Not stopping when requested	£2.
Berkhamsted	Furious driving	£2.
Walsall	Unilluminated back number	40s.
Camberley	Driving dangerously	20s.
Epsom	Eight cases of furious driving	£3 in each case.
Guildford	Driving without licence	£1.
Mortlake	Reckless driving	£5.
Neath	Driving to danger of the public	10s.
Mark Cross	No licence	10s., etc.
Beaconsfield	Reckless driving	£3 7s. 6d.*
Slough	Negligent driving	25s.
Folkestone	Furious driving	5s.
Kingston	Dangerous speed	£3.
Dublin	,, ,,	£5, etc.
Cowbridge	Furious driving	15s.
Worcester	,, ,,	£10, etc.
Westminster	,, ,,	£10.
Wellingborough	Failing to stop when requested	£10.*
,,	Reckless driving	£10.*
Berwick	No number plate	11s.
Daventry	Furious driving	£3.
Liverpool	Refusing to give name when requested	£5, etc.
Kirkham	Furious driving	20s., etc.
Worcester	Reckless driving	£1, etc.

* Notice of appeal given.

TO CORRESPONDENTS.

All communications intended for insertion in this Journal or relating to Editorial matters should be addressed to THE EDITORIAL DEPARTMENT, MOTOR-CAR JOURNAL, *39 and 40, Shoe Lane, London, E.C., and must be written on one side of the paper only. Letters must in all cases be accompanied by the name and address of the writer, as no notice will be taken of anonymous communications.*

The Editors cannot undertake to return MSS. or drawings, although every effort will be made to do so in the case of rejected communications. Where such are regarded as of value, correspondents are requested to retain copies.

To insure insertion communications and contributions must be in the Editor's hands by Tuesday forenoon of the week in which the same are intended to appear. Disappointment may be caused by non-compliance with this rule, and to avoid this earlier receipt, if possible, is necessary.

The Editors do not hold themselves responsible for the opinions expressed by their correspondents, or for statements and facts which do not appear in the editorial columns.

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THE

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COMMENTS.

THE Racing Committee of the Automobile Club of America has issued an official statement with regard to its decision not to select any of the cars submitted for a position in the American Gordon Bennett team. After describing the tests to which the cars were submitted the report states:—"Although the committee had been instructed to make a fairly severe test, it was extremely anxious that America should be represented in the Gordon Bennett race, and to this end it was willing to stretch a point. The committee is unanimous in the regrettable conviction that not one of the cars on its merits is entitled to represent America, and that were any of them allowed to do so there would be a repetition of the same lamentable failures which have characterised the past. Certainly cars which cannot go for a few score miles at moderate speed over asphalt without breaking down, which have to be towed to the starting post, or which cannot reach the starting post within several hours of the starting time, are not entitled to be pitted against foreign cars which maintain a speed of over 60 miles an hour over country roads for several hundred miles in succession."

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Inter-Club Meet at Bexhill.

THE Motor Union are arranging for an inter-club meet at Bexhill during the August Bank Holiday week. The gathering of Northern clubs recently held at Buxton proved a great success, and at an informal conference of representatives of the Southern clubs included in the membership of the Motor Union it has been resolved to organise a meet of a somewhat similar character. The suggestion has been warmly taken up by the various clubs in the South of England, and a representative gathering may be expected at Bexhill at the beginning of August. The programme includes, for the August Bank Holiday, a parade of cars in the morning, at which prizes will be awarded to the best-looking cars, some speed trials for touring cars up Galley Hill in the afternoon, and a dinner in the evening. On Tuesday some further trials and possibly a dance in the evening, and on Wednesday a gymkhana and procession of illuminated cars at night. Already about £300 has been subscribed for prize money and considerably more is expected. There is every prospect, therefore, of this meet of Motor Union clubs being a great success.

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Dust Prevention Experiments.

WITH the permission of the First District Committee of the Renfrewshire County Council, the Western Section of the Scottish Automobile Club have treated two portions of roadway with Westrumite and one with crude oil, with a view to testing or demonstrating the efficiency of these materials with regard to the prevention of dust and the maintenance of roads generally. The Westrumite is laid for fully one-third of a mile on the Glasgow to Kilmarnock road, above Whitecraigs Station, near Giffnock, and for one half of a mile on the Anniesland road, west of Scotstounhill Station. The crude oil has also been applied on the latter road near to the entrance to Jordanhill estate for a distance of 400 yards. So far the results shown are satisfactory, and special records are being made by the county roads surveyor as to the utility and durability of these applications. The committee of the Club hope, after a more lengthy experience of the experiments, to prepare and issue a report on the subject.

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The Ladies' Club.

LAST week the Ladies' Automobile Club held a delightful "biograph tea" at their headquarters at Claridge's Hotel, Brook Street, W. As will be seen from the reference on another page, several leaders of the aristocracy were present, and the interest which they took in the pictures of the Gordon Bennett race, as well as of other motor-car events thrown upon the screen, testified to their approval of motoring. We were somewhat surprised, however, that comparatively few drove up to the hotel in motor-cars, the larger number apparently preferring the horse-drawn vehicle, a slight incongruity which, perhaps, will become less apparent as the Ladies' Automobile Club becomes advanced in years and membership. Such social gatherings as that of last week will do much to popularise motoring among ladies, and it is evident that the management of the Club is in efficient as well as enthusiastic hands.

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Against the Garage.

THE medical officer of health for Marylebone recently declared against garages as noisome buildings inimical to the public health. In another part of London complaint has also been made, and the Works Committee of Westminster City Council have reported receiving a memorial signed by forty-two residents of Livonia Street, Berwick Street, W., drawing attention to the nuisance created by the motor-cars which run in and out of the factory in the above street, stating that the firm have lately taken to doing some of the minor repairs in the street itself, and that the noise of the cars and odour of the petroleum is very objectionable to neighbouring tenants, and that there are sometimes as many as seven or eight cars along the street, which makes it necessary for incoming vehicles to take to the pavement, to the danger of pedestrians. The committee has referred the matter to the town clerk to take such steps as he may deem advisable.

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Motor-Cars in Ceylon.

WITH a view to finding out (in case of a motor-car mail service being adopted from Colombo to Batticaloa and Trincomalee) whether the bridges on the Bandarawela-Batticaloa Road and the Matale-Trincomalee Road are strong enough for the running of motor-cars, Mr. T. G. Jayawardena, assistant factory engineer, was readily deputed by the Motor-Car Committee to examine all the bridges on the route with a view of ascertaining the strength of the existing large span bridges. These bridges were originally put up for ordinary road

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traffic some fifty or sixty years ago, being built on the lattice-girder plan. The types of these bridges are weak and were then not strongly built, as they were not much used in those days. Mr. Jayawardena is of opinion that the motor-car would cause a great deal of vibration, for which the present bridges are not strong enough. The work of strengthening these bridges will fully occupy a year, and if a motor service is decided upon, twelve months must first elapse before it is inaugurated. The roads are in excellent order and will be suitable for the running of motor-cars.

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Motor Fire Engines.

A CONFERENCE of fire brigade officers has lately been held at Glasgow, when considerable conversation took place as to the respective merits of horse-drawn and motor fire-engines. Mr. Bayliss, chief officer of the Manchester Fire Brigade, subsequently expressed the opinion to a press representative that there was no doubt of the early universal adoption of motor fire-engines in this country. Naturally the officers of fire brigades who have to consider the public purse are loth to make experiments with machines that have not had full trial elsewhere. Hence the interest which is being taken in the motor fire-engines now employed at Tottenham and Liverpool. Both, we are glad to learn, are answering the expectations of those responsible for their introduction, a fact upon which all concerned may be congratulated.

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A Winton Car in Mexico.

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Costs in Appeal Cases.

MOTORISTS will read with pleasure the result of the appeal of one of their number from a decision of some local justices to the Quarter Sessions for Oxfordshire, reported on another page. Having convicted a motorist, the latter appealed. Then the local justices became quiet and modest in their bearing, actually neglecting to appear in defence of their decision. The appeal was, as Mr. Weatherly pointed out, a re-hearing, and the respondents, who should have been the prosecutors, did not appear. Without, therefore, arguing the case on its merits, the counsel for the appellant was able to secure a reversal of the previous decision together with an expungement of the endorsement on the motorist's licence. But, more than that, the Bench allowed the appellant his costs against the police—an equitable decision that should be universal in such cases. There is no doubt that if more appeals were lodged greater care would be exercised by the police and magistrates, while the payment of costs in cases they lost would show the county people the expensive policy that has been pursued against motorists.

A New Electric Timing Device.

MUCH interest is being shown by the Automobile Club of America in an electric timing device devised by Mr. Alden L. McMurtry, of that club. The device, which is claimed to be an improvement upon anything of the kind now in existence, will probably be used at the next speed tournament on the beach at Ormond, Fla. Mr. McMurtry's machine, it is stated, will not only record the time for a completed distance, but will give as many intermediate times as desired. For example, in a ten-mile run the time will be recorded for each mile and for each quarter mile also, if necessary. Pending the granting of patents, the construction of the device will not be disclosed by its inventor beyond the fact that wires are strung along the course and are connected at one end with as many stop watches as it is desired to have recorded times.

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Another Bill.

INTRODUCED by Mr. D. J. Shackleton, and supported by Messrs. Bell, Crooks, and Henderson, a quartette of Labour members who seem to take a comprehensive view of their duty to their constituents, is the Bill to provide for the Regulation of Traffic in Streets. The main clause is one insisting that "no person shall act as driver of, or have sole charge of, more than one cart or carriage drawn by one or more animals in any street in the district of a public authority, and no person shall fasten, or allow to be fastened, to the rear of any such cart or carriage, any other cart or carriage drawn by one or more animals, or any animal drawing a carriage." Any person acting in controversion of this enactment will be liable to a penalty not exceeding 20s. for the offence. There is little chance of the Bill becoming an Act during the present Parliament, but the authorship of the measure is interesting.

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Good Roads in America.

THE good roads movement in the United States has, during recent years, become of the very first importance. Conventions are constantly being held with a view of promoting the movement. At the National and International Good Roads Convention held in the city of St. Louis in May, Mr. Frank Z. Wilcox, of Syracuse, New York, was appointed a special commissioner to study the road system in England for the purpose of a special report to the Convention next year. He has now arrived for the purpose of fulfilling his commission, and is the bearer of letters of introduction to the Roads Improvement Association of this country and to others. He proposes investigating the condition of the roads and the systems of management in operation in various districts, especially in the case of the country roads.

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"Privilege" for M.P.'s.

IN seeking to escape a fine by pleading the alleged privileges of a Member of Parliament, Mr. Louis Sinclair is not contributing much to the advance of automobilism. He recently drove his car—A 2388—on the off-side of three refuges in Regent Street, and, when summoned at Marlborough Street Police-court, his solicitor mentioned that Mr. Sinclair, as a Member of Parliament, had, by Act of Parliament, a special privilege of having and taking a clear road to and from the House of Commons. Mr. Sinclair, in his evidence concerning the alleged privilege, said he would like to say that in the vicinity of the House of Commons the policemen, in order to facilitate the ingress and egress of members, made them go on the wrong side of the refuges. Mr. Denman, the magistrate, remarked that no doubt there was good reason for the course being adopted in the vicinity of the House, but not in the present case in Regent Street. Mr. Sinclair had spent some time at a club after leaving the House, and he thought the privilege could not apply. In the end a fine was inflicted. Such alleged privileges cannot be reasonably

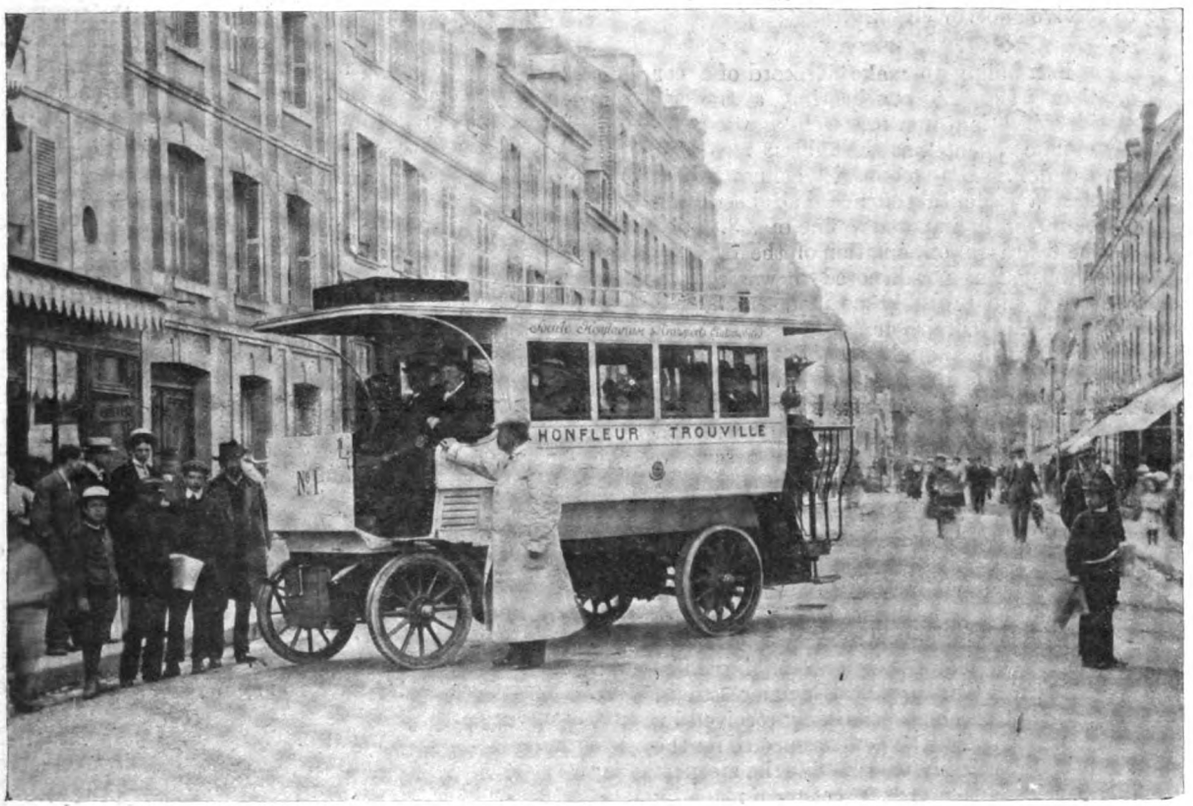
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maintained at a considerable distance from the House, and we are rather surprised that such a lame defence should have been offered.

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Necessity for Good Work.

RECENTLY a car broke down on one of the southern roads, an occupant being killed. A temporary failure of the brakes, a weakness in construction at any point, or an undiscovered flaw in material, may result in immediate danger and cause suffering and pain. A great responsibility rests with manufacturers in allowing no negligence, and in ensuring every care in the construction of their vehicles. The standard of quality must be rigidly maintained and nothing done that is likely to create an adverse feeling to motoring on the grounds of the public safety. With the eyes of the Legislature as well as the magistrates upon motor-cars it behoves makers to strain every effort to secure that only the best workmanship and creditable material is used in automobiles.



One of the 16-seated De Dion Petrol Motor 'Busses for the service between Honfleur and Trouville.

(La France Automobile.

Roads in Essex.

THIS week the Essex County Council are considering a recommendation of their Highways' Committee with regard to scheduling certain roads for speed restrictions or prohibition under the Motor Car Act. The committee, doubtless on the recommendation of their chief surveyor, has come to the conclusion that the clauses in the Act dealing with reckless driving are, in themselves, sufficient protection for the public, and therefore recommend that no prohibition or restriction as regards speed in the country area be made at present. This is a distinct advance from the resolution of the Essex County Council last October, when it was resolved that the Motor Car Bill, then before Parliament, was not sufficiently stringent, and that for certain offences the magistrates should have the power to inflict imprisonment upon motorists without the option of a fine. The friendly disposition of Mr. P. J. Sheldon towards motorists is responsible for a great deal of the more friendly feeling now existing. In his report on the maintenance of Essex roads for the year just closed he has much that is satisfactory to say with regard to the condition of the roads, which last year cost £65,518 for 604 miles of rural roads. We note that in his report he points out that the clearing of ditches by the sides of the main roads has been the most troublesome detail of rural road management that has happened for many years, and he suggests that a short Act of Parliament might be adopted, making the procedure with defaulting owners as simple as that relating to the cutting back of hedges. This would do something to help to make easier the onerous duties of road surveyors.

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Motor-Cycles and Side Slip.

THE report of the Auto-Cycle Club's side-slip trials has just been issued, and the judges are of opinion that although there is in connection with all of the devices ample scope for improvement, not only with a view to increase of efficiency, but to simplification of details and ease of manipulation, the devices serve a useful purpose, while the disadvantages are small. There were five entrants in the trials, and in our "Motor-Cycling News" we give the recommendations of the judges, who have bracketed the devices of Mr. W. Maitland Edwards and the Parsons Non-Skid Company first.

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Accidents in the Metropolis.

A MISHAP to the Earl of Dudley, and an accident which proved fatal to Sir W. Rattigan, M.P., have served to give emphasis to the statement made by Mr. Akers-Douglas, the Home Secretary, in reply to Captain Donelan, to the effect that during the year ended May 31 in the Metropolitan Police District 1,743 accidents to persons and property were occasioned by motor-cars and 214 by motor-cycles. In these accidents seventeen persons were killed and 601 injured. Such incidents, together with the sensational headlines in which certain journals freely indulge, serve to maintain a lingering popular prejudice against motor-cars.

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A Doubt on Official Returns.

AT the same time we can scarcely credit the figures given with such official authority. They are said to relate only to the Metropolitan area, and the death roll of seventeen with 601 persons injured is certainly more lengthy than we had expected. In fact, we would venture to suggest that the details should be given in order to satisfy the public as to the accuracy of the return. It hardly seems creditable to imagine that 1,743 motor-car accidents, practically five a day, have occurred in London. That would seem to exceed the actual number for the whole of the country. In the police returns what are included as accidents? Apparently any stoppages observed by the police are duly reported, and are evidently useful to swell the volume of "accidents." If this is so, it is manifestly unfair for the Home Secretary to offer these to the House of Commons as accidents, and, if it is not so, we should like some satisfactory explanation as to how the return is made up. At present motorists will feel that there is something wrong, and their confidence in officialdom is likely to receive another check.

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Keep a Record.

FOR failing to make a record of a car that was sent out bearing a trader's identification mark a well-known automobile agent has just been fined in London. His counsel acknowledged that a technical offence had been committed and the magistrate instantly imposed a fine of £3. The lawyer hoped he would be heard in extenuation of the offence; but the magistrate, being busy, was not disposed to waste time unduly, and said the fine would probably be increased if the speech were made. With an admirable self-sacrifice the counsel refrained from uttering the thoughts that burned within him. But the moral of the story is that traders cannot successfully plead ignorance of the regulations, that they need not expect to be let off because their delinquency is merely a technical one, and that the cheaper way to run a business is to keep to the regulations of the law. And one of these is that no trader's mark of identification may be employed without an entry of the same being made in a register kept for the purpose.

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Australian Advance.

THE Automobile Club of Victoria had an outing recently at Heidelberg with the object of demonstrating the adaptability of motor-cars for climbing hills. The State Governor, Sir Reginald Talbot, rode out on horseback, being received by Dr. C. Ryan and Mr. W. H. Felsted. The course selected for the contests was just over 1,000 yards in length, and the steepest gradient was 1 in 6½. Meritorious performances were made by 10-h.p. Tarrant, 10-h.p. Rochet, 16-h.p. Decauville, 10-h.p. Argyll and 4½-h.p. Oldsmobile cars. The last run of the season of the club was to Sorrento early last month. Another interesting automobile event was a social gathering. In view of Mr. W. E. Fisher's (secretary of the Automobile Club of Australia) early departure for America, Mr. John Gibbs (acting-secretary) and Mrs. Gibbs extended an invitation to the members of the club and their friends to meet at their country residence at Parramatta, in order to wish him *bon voyage*. Between fifty and sixty attended in their automobiles. The president (Mr. Jones) proposed the health of Mr. Fisher, and referred to the valuable assistance he had given in the organisation of the club. Mr. Fisher was, he stated, really the founder and promoter of the club. In reply, Mr. Fisher stated that during his visit to different cities in America, England, and the Continent he hoped to profit by experience he would gain when visiting larger clubs, such as the Automobile Club of America, the Automobile Club of Great Britain and Ireland, and the Automobile Club of France, and would endeavour on his return, with the assistance of the popular officers of the club, to put it into still better working order, and popularise its movements.

The Gordon Bennett Race.

ALREADY challenges for next year's contest are reaching the French Automobile Club, and that from the A.C.G.B.I. is on its way, the Wolseley Company, Messrs. Lionel de Rothschild and S. F. Edge having decided to enter cars. We believe that Mr. Rothschild will compete with a Siddeley car, the advent of which into racing circles will be regarded with interest. On Tuesday Mr. Alfred Bird gave a dinner in honour of the British competitors in the Gordon Bennett race and the makers of the cars to meet the Duke of Sutherland, the newly-appointed President of the Club. About thirty gentlemen were present, and the determination was valiantly expressed not to waver in the attempt to regain the Cup.

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The Dewar Cup.

ON Tuesday afternoon a luncheon was given at the Savoy Hotel, London, in connection with the Dewar Challenge Trophy. Sir Thomas Dewar formally handed the cup to the trustees, the Earl of Shrewsbury and Talbot and the Earl of Wilton, and the former then made the presentation to Mr. D. M. Weigel in recognition of his recent feat of endurance. In the course of the proceedings it was announced that M. Fournier, of Paris, had sent in a challenge for the cup. The principal conditions attaching to the contest are:—The cup shall be held continuously by the winner until a challenge is received; competitions shall not take place more than twice in one year; the distance of the non-stop run to be not less than 2,000 miles; not more than three changes of drivers to be allowed; no observer to act for a greater distance than 150 miles; and a minimum of four persons to be carried throughout the whole route in such competition. In acknowledging the presentation Mr. Weigel, who, by the way, was able to see his performance depicted on the biograph at the Alhambra on Wednesday evening, said he had tried to show the public what a motor-car was capable of doing, and in concluding the proceedings Sir Thomas Dewar expressed a hope that English manufacturers would assert their supremacy in the industry.

MR. J. GLASS is disposing of the Firefly Motor Company, of Croydon.

THE photograph of Mr. E. George Mawbey in our last issue was by Mr. F. Ralph, of Hunstanton.

LORD WINDSOR has become president of the South Wales Automobile Club, which is negotiating for a site for a club garage.

MR. E. W. LOVELAND, 6, St. Leonard's Road, Bexhill, is secretary of the Bexhill Automobile Meeting, to be held on the first three days of August.

THE first of the new steam motors and carriages for service between the Midland Railway Station and Heysham Harbour has arrived at Morecambe.

MESSRS. FRISWELL LIMITED have declared interim dividends of ten per cent. on the ordinary shares, and six per cent. on the preference shares for the half-year ending June 30th last.

AT the inquest concerning the death of Sir W. Rattigan, M.P., the jury returned a verdict of accidental death. They added that they considered the car was unsafe, but exonerated the driver from blame.

THE output of Argyll motor-cars last month from the works of the Hozier Engineering Co., Ltd., was sixty-six complete vehicles. During the quarter just ended no less than 156 cars were turned out—an excellent proof of the reputation of the Argyll vehicles and the capabilities of the Hozier Co.'s works.

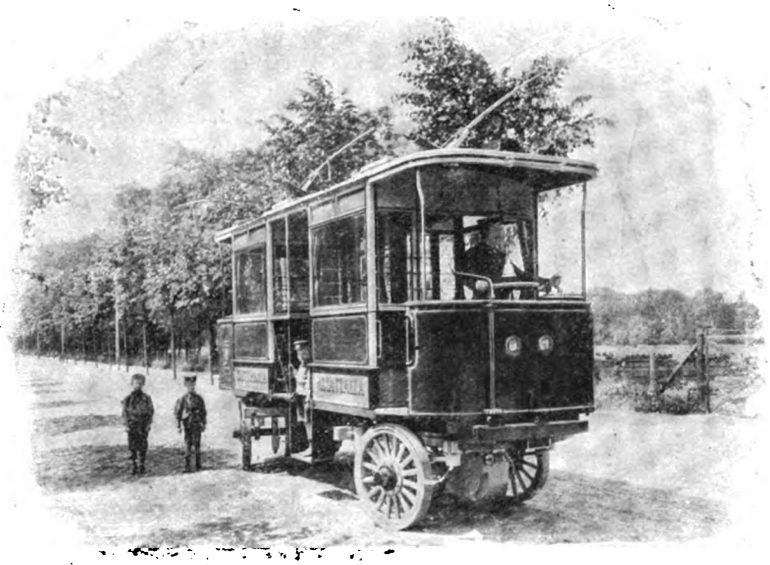
MESSRS. ELLIMAN, SONS, AND COMPANY, of Slough, have issued a second edition of their R.E.P. book which gives a series of useful hints for first aid in accidents and ailments. Every motorist, in fact every tourist, will find this a handy volume to carry when on tour, its many practical points being clearly and authoritatively set forth.

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THE SCHIEMANN ELECTRIC OMNIBUSES.

OMNIBUSES, worked by electric current drawn from an overhead system of conductors, owe their existence to the desire to avoid the special track essential to tramways, the cost of which forms such a large proportion of the total capital of a tramway undertaking. Not only do they need no special track, but they can be put upon any good ordinary road without modifying it and without interfering in any way with the general traffic. They are suitable in any country or district for communication between villages of comparatively little importance where the cost of electric tramways would be prohibitive; and especially so in countries such as Italy, where water power is abundant and electricity is for that reason producible at a low cost. Early in 1882 an electric omnibus on these lines was put upon the road in the neighbourhood of Berlin by Messrs. Siemens and Halske for purposes of experiment. The rear axle was worked by chain gear from two electric motors fixed under the seat of the driver, to which current was taken from the overhead line through two flexible cables which served, not only for conveying the current, but also for trailing the current collector. This consisted of a small but rather heavy car with eight wheels running upon two overhead conductors which were supported on wooden supports at the side of the road.

In 1900, Messrs. Siemens and Halske, in conjunction with Mr. Max Schiemann, of Dresden, installed a line of electric omnibuses to run from Koenigstein along the Biela Valley for a distance 1¾ miles at a speed of about 7½ miles per hour. From two overhead conductors current was led to the motor by two trolley poles and sliding shoes of such a length and construction as to allow the omnibus to deviate 9 ft. 10 ins. from the line of conductors without breaking connection with them. The accompanying illustration represents an omnibus built by the same firm and shown by the Societa Eletricita Alta Italia at the recent Exhibition of Modern Decorative Art at Turin. It consists of a car body resting upon two bogies, each with two wheels and each fitted with a spring-suspended motor of the usual small tramway type driving the wheels of the omnibus through gearing. The two axles are movable and connected by two cross ties, an arrangement giving the vehicle a considerable degree of mobility. The trolley poles are very light and carry at their ends "skates" which are so constructed as to allow a deviation of 11 ft. 6 ins. from the normal line of the trolley wires and permit the omnibus to turn quickly aside to avoid collision. The omnibus is fitted with electric light, signal lamps, electric brakes, lightning conductor, etc. It weighs 4½ tons, accommodates twenty-two passengers, and is worked by a single driver. Thus when a vehicle is overtaken there is no need of standing still on one particular track, from which there is no swerving, until the driver sees fit to get out of the way. The rail-less 'bus simply bears to the right or the left, as the law demands, running over any road that any other vehicle can travel.



General View of Electrical Omnibus.

Quite recently a new form of electric omnibus, illustrated on page 416, has been designed to embody the results of experience gained by previous experiments and actual working of this form of transport in ordinary use. It resembles in appearance the ordinary horse omnibus and is claimed to fulfil all the requirements of this kind of vehicle. At the front is the driver's seat, and at the back a platform with standing places, and also the entrance. The axles, wheels, steering gear, and driver's platform, as well as the complete electrical equipment, are attached to two longitudinal girders and bolsters, to which the car is also bolted, and from which it can readily be removed to allow of repairs being executed easily and quickly. The controller which serves to regulate the speed is provided with a hollow shaft through which the shaft of the steering gear passes, both shafts being fitted with hand wheels, one of which is arranged over the other in such a way that the driver can conveniently handle both at the same time, a point of great importance in ensuring safe driving.

On the right of the controller are two brakes, viz., a foot brake which is used for service stops, and a hand brake for use in emergency or for holding the car on inclines.

The car has seating accommodation for thirteen people inside, and standing places for six on the platform. The windows at the side are removable, and during the summer may be replaced by waterproof curtains. A locker may be fixed under the driver's seat for carrying mails, etc. The floor is provided with ash battens and one or two trap doors for inspection of the motors. The two poles with current collectors are fixed to the roof, the great length of the poles, combined with the peculiar construction of the sliding shoes, allowing the car as much as 9ft. 10 in. of lateral movement, relatively to the overhead conductors, without fear of the shoe leaving the trolley wire. The roof is provided with a low rail to accommodate luggage. The weight of the car when empty is about 3½ tons. About two-thirds of the load is borne by the rear axle, and about one-third by the front axle, a distribution of weight which leaves the steering wheels lightly loaded for steering, and the rear wheels heavily loaded for purposes of adhesion. The wheels have wooden naves, spokes and felloes, and steel tyres. Each axle is supported by three laminated plate springs. The two rear wheels are driven by two 8½-h.p. direct-current motors, giving sufficient power to propel the car at a speed of about nine miles per hour on good roads, and to enable it to negotiate short inclines of 5 per cent. The motors drive the naves of the wheels through a double reduction gear, consisting of spur wheels for the first reduction and a chain for the second, the spur wheels being provided with a gear case to protect them from dust and water. The motors are completely enclosed.

The car is provided with all necessary apparatus, such as hand and automatic switches, fuses, two lightning arresters, and other fittings, its lighting being effected by means of one or two lamps in front of the car, two or four 16 c.p. incandescent lamps in two fittings with glass globes inside the car, and one canopy lamp. It is easily handled in traffic, and can be turned round quite easily when it reaches the end of the route. The trolley wire, which is twenty feet above the level of the street, does not interfere with other traffic.

Messrs. Siemens Brothers, Limited, who are introducing the system into this country, inform us that the total cost of an omnibus, completely fitted as described, is about £500.

SOME experiments have been made at Widnes with regard to the dust on the roads in that district. A solution of calcium chloride is sprayed from watering carts, and not only is the result reported as satisfactory but the preparation is economical in use.

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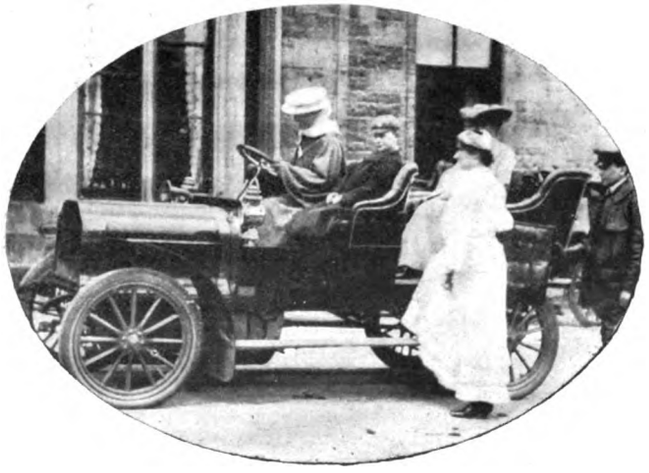
CONTINENTAL NOTES.

Another Projected Motordrome.

At regular intervals reports as to projected motordromes in France cause a flutter of excitement in Parisian motoring circles. Unfortunately the majority of them fade away like castles in the air, and the long-looked-for motor-racing track is still *non est*. The latest scheme emanates from Riva Bella, in the department of Calvados, where it is proposed to establish a track five miles to the lap, and 82 ft. wide.

Automobiles in France.

In a recent issue the "Velo" devoted considerable space to a statement in regard to motor-cycles and automobiles in France for the year 1903. The figures published by our contemporary show that on December 31st last there were in France 1,310,223 ordinary cycles, 19,816 motor-cycles, and 19,886 automobiles. These figures show that there is in use one cycle per 30 inhabitants, one motor-cycle per 1,966, and one car per 1,959 inhabitants. As regards the motor-cycles, it is curious to note the manner in which these are distributed in the country. Paris heads the list with 5,337 machines = 26·9 per cent., then comes the Northern district with 3,036 machines = 15·3 per cent., followed by the East, 1,919 = 9·7 per cent. In the automobiles, the order is :—Paris, 6,085 = 30·6 per cent.; North, 3,040 = 15·3 per cent.; East, 1,995 = 10·0 per cent. In continuation of these figures, it is estimated that at the present moment there are 25,000 automobiles in use in France, as against only 5,286 at the end of 1900.



One of the latest 10-12-h.p. Double-Cylinder Argyll Cars with side entrance body.

A Motor-Bicycle Trial in Holland.

A motor-bicycle reliability trial is to be held at Maestricht, Holland, on the 6th and 7th August. Each day there will be a run to Nimegen and back, a distance of 265 kilometres, the trip finishing up with ten laps on the Maestricht cycle track.

The A.C.F. Banquet to Thery and Brasier.

At the last meeting of the Committee of the A.C.F. it was decided to offer a banquet to Thery and Brasier at the club house in the Place de la Concorde, Paris, on Thursday, the 7th inst., in commemoration of their success in the Gordon Bennett race.

An International Motor-Bicycle Race.

The Motorcycle Club de France proposes to organise an international race for motor-bicycles for a cup, to be competed for on the lines of the Gordon Bennett race. It is suggested that a race should first be run between French riders of motor-bicycles to secure the best team of three, after which a notice should be issued to foreign countries that they were ready to receive challenges for the international event.

The Calais-Dover Motor-Boat Race.

M. Loubet, the French President, has presented a prize consisting of a handsome Sevres vase for competition in the forthcoming motor-boat race from Calais to Dover.

Maritime Motor Ballooning.

It is announced that M. Henri de la Vaulx, the marine aeronaut, is now completing his preparations for a third Mediterranean cruise in a specially constructed balloon, some particulars of which were given at last week's meeting of the Academy of Sciences. On this occasion M. de la Vaulx will employ a 20-h.p. petrol engine attached to the car, which will work an aluminium screw 23 ft. in diameter. M. de la Vaulx having already proved, by two ascents of 41 and 35 hours respectively, that the apparatus designed by his partner, M. Herve, enabled a balloon to pass with safety over the sea, now wishes to show that the same kind of balloon is to a certain extent capable of resisting the elements and is not quite at the mercy of the wind. He does not pretend that the new balloon can actually be steered, but only that it marks a stage in that direction.

Motor-Cars in Russia.

Negotiations are reported to be in hand with regard to the establishment of a motor-car factory at Kiew. It is also stated that Count Grocholski proposes to organise a public service of motor-vehicles for the transport of both passengers and goods between Kiew and Zytomir.

The Mont Cenis Hill-Climb.

The annual hill-climbing competition up Mont Cenis, organised by the Italian Automobile Club, is to be held on Sunday next. There are categories for racers and tourists with the usual classes in both sections. Some fast times are anticipated, as among the vehicles entered are the three Fiats which represented Italy in the Gordon Bennett race.

A Subscription for the French Gordon Bennett Mechanicians.

Following on the subscription for Thery, which has now reached over £300, M. Paul Sencier, of "L'Automobile," is organising one for the mechanicians of the three cars which represented France in the Cup race. The part played by the mechanicians during the course of a big contest is, he considers, apt to be overlooked, and it is with the object of recognising their useful labours that it is proposed to get up a fund on their behalf.

Partinium.

A feature of the French motor industry is the increasing use of the light alloy known as "Partinium" for such parts as crank chambers and change speed gear boxes, etc. Formed early in 1901 with a capital of £46,000, La Societé des Usines de Partinium has established works at Puteaux, near Paris, covering an area of over 4,000 square metres, where about 200 men are now employed in turning out the light alloy in a variety of forms. Recent improvements permit the company to produce crank chamber, gear box, and other castings of all sizes, on the interchangeable system and of uniform quality, while, in addition, Partinium, which can be forged and welded just the same as iron, is supplied in sheets, angles, or of any rolled section for the use of motor-carriage builders. Having established an excellent connection among automobile constructors in France, the Partinium Company are now taking steps to bring the advantages of their products before motor-car builders in Great Britain.

The Dauphine Automobile Week.

The date of the "Automobile Week" of the Automobile Club Dauphinois, of Grenoble, referred to in this column last week, has been postponed, and it is now to be held from the 3rd to the 7th August.

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The Circuit des Ardennes.

The attention of the motoring world is now centred on the Circuit des Ardennes races, which are to be held on the 24th and 25th inst. The weighing-in will take place at Bastogne on the 23rd inst. On the following day the race for voiturettes and motor-cycles will take place, the competitors being started at minute intervals from 7 a.m. The distance is 240 kilometres, representing five rounds of the following course:—Arlon, Habay La Neuve, Etalle, Vance, Arlon. The "battle of the giants"—the heavy and light racers—is reserved for the 25th inst. For these the distance is 600 kilometres (375 miles), consisting of five rounds of the following circuit:—Bastogne, Champlon, St. Hubert, Recogne, Neufchateau, Habay-la-Neuve, Martelange, Bastogne. The whole stretch is to be sprinkled with Westrumite, and there will be no neutralisations or controls, so that it will be possible for the cars to go the whole 375 miles without a stop. The start will take place at 5 a.m. and the cars will be despatched at intervals of one minute. The entries, which are restricted to four cars of any one make, so far include Panhard, Mercedes, Mors, Wolseley, Napier, Clement-Bayard, Pipe, Hotchkiss, and De Dietrich. A grand stand is to be erected at Bastogne, the price for seats on which has been fixed at 20 fr. each. Intending competitors and visitors can obtain full particulars of the meeting from the Automobile Club de Belgique, 5, Place Royale, Brussels.

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Stage.	Distance.	Machine.	Rider.	Time Occupied.
10. Foug-Arches	112	Knap	M. Clouet	3 10
11. Arches-Belfort	99	Peugeot	Lanfranchi	2 25
	1,127 Kil.			29 32

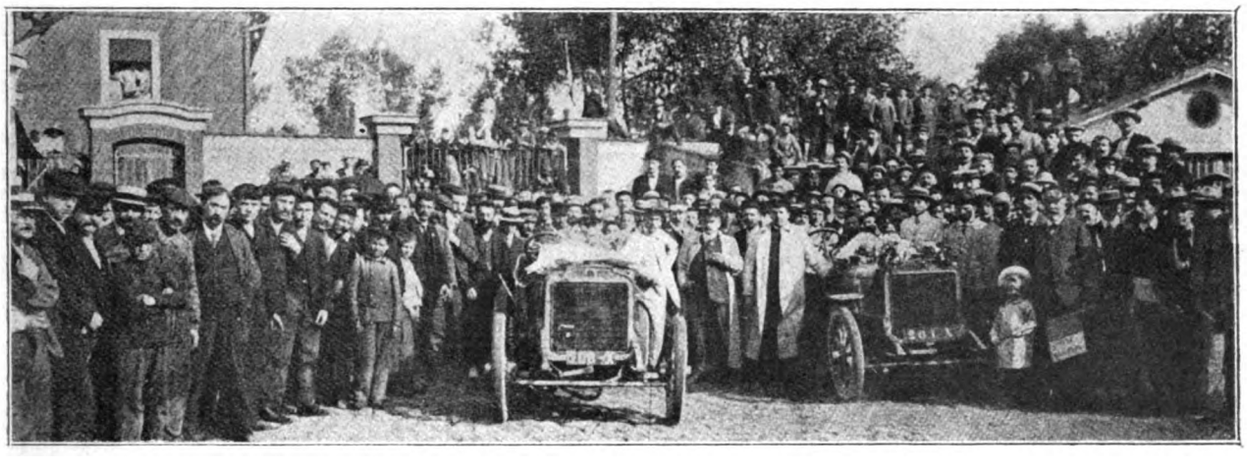
Only ordinary motor-bicycles with engines of not more than one third litre cylinder capacity, equal to about 2½-h.p., were allowed to compete. Osmont was delayed by fog, while a delay occurred at Foug owing to the non-appearance of the dispatch rider, the tenth stage being undertaken eventually by M. Clouet. Thus, while the actual time occupied was about thirty-six hours, the message was carried a distance of over 700 miles in the net time of 29 h. 32 min.

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The Ostend Meeting.

The automobile meeting at Ostend commences on Thursday next, the 14th inst., by a series of five kilometre speed trials for touring vehicles on the Nieuport-Snaeskerke road. On the 15th inst. the racers will indulge in a ten-kilometre trial on the same road. For Saturday, the 16th inst., a touring competition is being organised, while on Monday, the 18th inst., there will be a series of kilometre speed tests on the Snaeskerke-Ostend road. Close upon fifty entries have been received, including three Pipe cars, three Darracqs, three Clement-Bayards, a Panhard, a Hotchkiss, a Gobron-Brillie, and Baron de Caters' 90-h.p. Mercedes.

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The Reception of Messrs. Thery and Brasier at the Georges Richard Co.'s Works. [*L'Automobile.*

The Brest-Belfort Motor-Cycle Relay Ride.

The motor-cycle relay ride organised by the "Auto" for the purpose of demonstrating to the military officials and the public generally in France the possibility of carrying a despatch from the extreme western coast to the eastern frontier of the country by means of relays of riders driving motor-cycles was carried out on the 27th ult., the start taking place at one minute after midnight. The distance was 1,127 kilometres, or rather over 700 miles, this being divided into eleven stages of approximately sixty-three miles each. Eleven motor-cycle firms responded to the invitation of our contemporary to enter machines for the ride, and there were therefore eleven official racers bearing the despatch, they being accompanied by two supplementary riders in the event of mishap. The various stages, the riders, and the time occupied are shown in the appended table:—

Stage.	Distance. Kil.	Machine.	Rider.	Time Occupied. H. M.
1. Brest-Louargat	101	F.N.	Osmont	3 54
2. Louargat-Broons ...	92	Alcyon	Lyonel	2 9
3. Broons-Vitre	90	La Francaise	Derny	2 11
4. Vitre-Pre-en-Pail ...	100	Werner	Bonard	2 17
5. Pre-en-Pail-Tillieres ...	110	Gladiator	Aster	2 38
6. Tillieres-Paris	105	Clement	Laureau	2 43
7. Paris-Chat.-Thierry ..	99	Griffon	Demester	2 9
8. Chat.-Thierry-Couvrot	108	Lurquin et Coudert	Coudert	2 10
9. Couvrot-Foug	111	Knap	Mme. Clouet	3 46

French Motorists in England.

Preparations are well in hand for the De Dion Bouton excursion to the South of England. The motorists taking part in the tour will leave Paris on Sunday morning by road for Calais, where the cars will be embarked on a special steamer for Dover. The tour will commence at the English port on Tuesday morning, the day's destination being the residence of Sir David Salomons at Tunbridge Wells. The excursion will last until the 25th inst., and will end with a banquet, at which the Marquis de Dion will preside. The King has accorded permission for the visitors to inspect Windsor Castle during their sojourn in England.

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Fatal Accident to Beconnais.

Parisian motorists met with a shock on Sunday last on the receipt of the news that Beconnais, the well-known racing chauffeur, and his mechanician Bernhard, had both met with a fatal accident near Labouheyre, between Bordeaux and Bayonne. Beconnais was driving a Darracq racing car, and it is surmised that one of the tyres burst when travelling at a high speed, causing the car to deviate from its course and dash into a tree. The true cause of the accident will, however, probably never be known, as it was not witnessed by anyone, an agricultural labourer being the first to discover the two dead victims. Beconnais first sprang into renown by his speed performances on the motor-tricycle; during the last two years he had driven Darracq cars, being among the competitors in Paris-Vienna and Paris-Madrid.

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THE AUTOMOBILE FOR MEDICAL MEN.

EVERY day almost we see a new convert to automobilism, and, as often as not, the latest convert is a medical man. The question as to the merits of the automobile for the medical profession is an extremely interesting one, and well worth discussing. What are the essential requirements for an automobile which is to be used by a doctor? They may safely be enumerated as follows:—(1) Reliability, (2) adequate speed, (3) protection from inclement weather, (4) general handiness and compactness.

If a motor-car is to be of any real service to a medical man, it must be absolutely reliable. That is, it must be a sure starter, and reliable on the road. With the perfections of the modern automobile there is no difficulty whatever in obtaining an easy-starting car, nor is there any question as to reliability on the road as regards the mechanical part of the vehicle. The question, however, is the tyres. In the above-mentioned list of the requisites for a doctor's car No. 2 states adequate speed; this must necessarily be so, as, in the event of an urgent call, the sooner the doctor is upon the scene of sickness the better; consequently, every doctor's car should be capable of a speed of twenty-five miles per hour on the level, and this speed is rather



Sight-seeing at the St. Louis Exhibition.

open to question with solid tyres. There are some cars built specially for solid tyres, and will stand running twenty-five miles per hour, but there are few, if any, really suitable for the medical man. As regards pneumatic tyres, some people state that they are useless, whether for a medical man or anyone else, but these statements usually come either from people who have been most exceptionally unfortunate with pneumatic tyres, or from those who have not tried them. The difficulty can be solved by either fitting a sound compound tyre, or by using pneumatic tyres a size larger than should be really used for the weight of the car.

Requirement No. 3 in the above list mentions protection from inclement weather. This is, we consider, a point that motor-car manufacturers have not given as much attention to as they might. At the conclusion of this article a specification, so that all details may be clearly explained, will be given which, in our opinion, would form the ideal doctor's vehicle. A glass front, in conjunction with a good hood, affords very efficient weather protection and is not a very expensive extra to a car; nor is it necessary that the hood should be real leather; a real leather hood for a two-seated car will cost at least £20 extra, whereas a hood made of water-proof material, as some of the Cape cart hoods are, should not cost more than £6. For his professional use the doctor will not require anything more than a two-seated car, with a platform at the back, so that a basket may be fastened thereto to carry all necessary articles. As regards the handiness and general compactness, under this heading several details may be mentioned. The car should be perfectly easy to enter from either side, therefore the speed lever should either be well set back or mounted upon the steering column. Either of these arrangements may be found in several small cars now on the market. It will be observed that we are referring to small cars only. There are, of course, large cars which can soon be made suitable for a medical man, but as the majority of doctors who are considering the use of the automobile for their practice are thinking about economy as well as utility, the large car is out of the question. What a doctor requires is a neat turnout which will successfully take the place of a horse and carriage, and, at the same time, be less expensive in upkeep, and he will obtain all this in a good two-seated car. Silence of running has not been remarked upon, as every day cars are becoming more silent, manufacturers having realised that silence is one of the essential points of a modern automobile.

A medical man should choose a car with a two-cylinder engine. It will be quieter than a single cylinder, and much steadier running, and, in the rare event of one cylinder failing, there remains the other to take one to his destination. Two systems of ignition are advisable. The popular high-tension from accumulators is nowadays almost perfectly free from trouble, but things do happen, and very often—usually—when least expected, and in the case of a medical man going off to a case of urgency, a derangement in the ignition might mean the death of the patient. We would therefore suggest that the best plan would be to have a magneto high-tension ignition, and the ordinary high-tension to fall back upon if required.

Some doctors advocate the use of two cars, so that they may be sure of one car being in thorough order. This, doubtless, is a good plan, but only open to fairly wealthy men; besides, the plan rather reflects upon the reliability of an automobile. There is absolutely no reason why one car cannot, with decent attention, be kept in thorough working order. A specification is appended which we think gives a fair idea of a doctor's car.

Body.—Two-seated, with platform at back.
Hood, etc.—Removable glass screen and light hood, as explained above.
Gearing.—By spur-wheels. Change speed lever must either be on steering column or set well back at driver's side.
Engine.—Two-cylinder 7-8-h.p.
Ignition.—High-tension magneto, with accumulars in reserve.
Weight.—Approximately eight cwt.
General Remarks.—Details usually overlooked in cars to be carefully attended to. All taps, etc., to be placed in accessible positions.

THE annual outing of the Coventry Motor Fittings Company, Coventry, was held on the 2nd inst., the venue being the White Swan Hotel, Stratford-on-Avon. The weather turned out beautifully fine, and the party, numbering about twenty-five, had a most enjoyable day.

IN February the General Committee of the Motor Union, acting on the suggestion of Mr. Granville Kenyon, resolved that a letter should be sent to the County Council of Kent, drawing their attention to the necessity for a warning board at a dangerous spot on Farnborough Hill. Since that date communications have been received from non-motorists drawing attention to the pace at which drivers of motor-cars descend this hill, unaware of its danger. A further letter was accordingly addressed to the Kent County Council, which has elicited the following reply:—"The place you mention is well known to the County Surveyor, and is one of those on which he recommends the erection of a notice. The whole matter is under consideration, but I have little doubt but that the point in question will be one of those upon which a notice will be placed."

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SOME USEFUL NOTES.

A THING that is exceedingly hard on the motor is what is known as "knocking." Ordinarily this occurs when the spark is set to occur too early in the stroke for the speed at which the motor is running, and the result is loss of power and excessive wear of the bearings. When the motor is heard to be knocking (and the motorist very easily learns to recognize it) the ignition should be retarded gradually until the point is reached where the knocking ceases. This will give the maximum power of the motor with the charge admitted to the cylinder.

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KNOCKING may, however, occur from various causes, such as loose flywheels, pre-ignition in one or more cylinders, uneven spacing in the commutating device, loose connecting rod or main bearings. To one accustomed to diagnose a case of "knocks" it is usually possible to detect trouble with the ignition, although the wisest sometimes are led astray.

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WHEN the flywheel is keyed on, no matter whether straight or taper, the key should fill the keyways both on the sides and top and bottom, and care should be taken to see that the keyways are straight, and not slightly "skewed." When satisfied that the flywheel is not loose, turn the engine over slowly by hand, if more than one cylinder, and note at just what position each crank is when the coil begins to vibrate. It is very seldom a two or four cylinder engine will ignite or make contact at exactly 90 degrees, 180 degrees, or 270 degrees, and the smaller the commutator the more the liability of improper and incorrect spacing. In two-cylinder vertical engines using contacts ninety degrees apart, it is much harder to keep the distance accurate on account of excessive wear on one side. Try the ignition advance, taking care to avoid danger of a "kick back." If still unable to localise the trouble, it may be then possible to locate the defective cylinder by stopping out one and two, then one and three, one and four, two and three, two and four, and three and four by holding down the vibrators with the fingers.

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CAREFULLY examine the connecting rod, crank end, and connections before unscrewing the bolts holding on the caps, and note which, if any, is loose. If this one corresponds to the one that showed trouble when "stopping out," it is reasonable to suppose that you have located the trouble. If, however, the connection is not loose, and when the bolts are unscrewed the upper end seems firm, the only thing to do is to remove the piston. Then the top of the piston, as well as the head, will almost certainly be found to be covered with a reddish deposit of carbon, which becoming incandescent, ignites that particular cylinder in advance of the others, particularly when advancing the spark at low speed. Power is thus expended before the piston gets to its uppermost point, and the result is a strong metallic knock very like that made by a loose connection. The remedy for this condition is to thoroughly clean off this deposit, and to use less cylinder oil, or oil of a thinner consistency and free from impurities.

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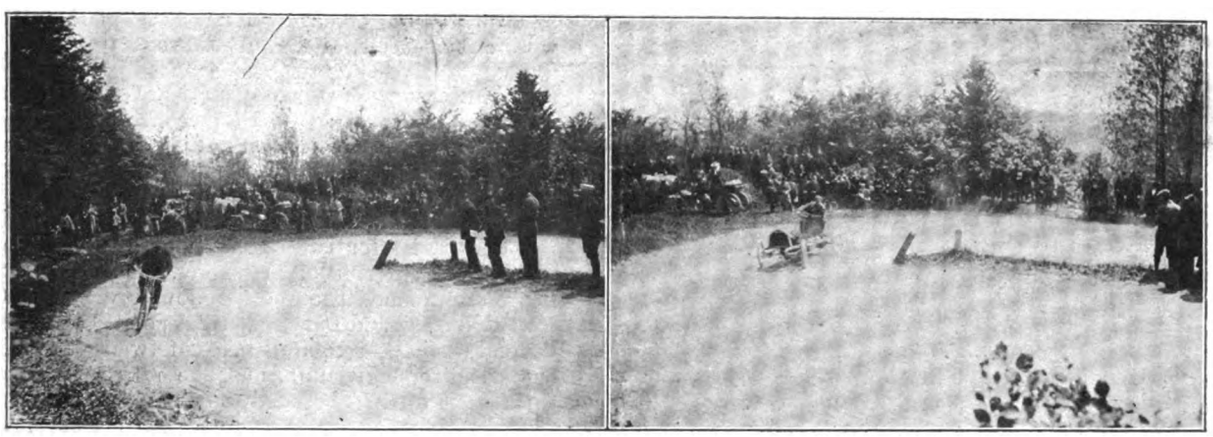
LOOSE connections are much more frequent than they should be, and the causes for such conditions may be usually explained in one of the following ways:—Frequently the cap is not sufficiently stiff to stand the strain on the exhaust stroke, or the bolts may be too far apart. The crankpin may not be parallel with the piston pin, and the result will be that the crankpin bushing will wear bell-mouthed at each end and only get one-half of the bearing it was designed to have. The axis of the cylinder may not be exactly at right angles to the axis of the shaft, and may not be directly over the crankpin as designed. These conditions are not imaginary, for a writer in the "Automobile" states that he has met with them in actual practice.

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SHOULD these loose connections prove troublesome, the best plan is to have some one who is familiar with steam-engine practice, in case no responsible petrol motor repairer can be found to "line" the engine cylinders, pistons, connecting rods and crankshaft. There is another frequent cause of loose connections. Improperly bored or distorted cylinders will permit leakage of the hot gases past the piston rings, with the result that the oil in the crank-case and bearings is burned up. Distortion to cause such a condition is most likely to happen to cylinders that do not have water circulating completely around them.

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THERE is one knock in petrol engines entirely distinct from all others that becomes more and more noticeable with use, and unless attended to may cause no end of trouble. It is especially objectionable and annoying, because excessive wear of connecting rod bushings may usually be traced directly to it. Some engineers allow a loose fit, sidewise at the upper or gudgeon pin end of the connecting rod, between the "cheeks" of the piston, relying upon the lower connections to "line" the connecting rod with reference to the gudgeon pin. While this may suffice as long as the gudgeon and crank pins are absolutely parallel, as soon as there is any appreciable wear, the upper end of the rod is liable on the upstroke to be forced to the right or left, and *vice versa* on the down-stroke to the left or right longtitudinally, with a resulting noise which often cannot be located unless one has had previous experience with a similar case. This will result in a "bell-mouthed" wear at both ends of the connecting rod; and, as the bearing will only be on one-half of the bushing, the pressure per square inch of projected area will be twice that for which it was originally designed. The only remedy is absolutely perfect alignment of all working parts.



The Recent Austrian Hill-Climb on the Exelberg—a Sharp Curve on the Course. The right hand picture shows Herr F. Opel, one of the German Gordon Bennett Team, taking the Corner on an Opel-Darracq Car. *[Allgemeine Automobil Zeitung.*

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MOTOR CYCLING NEWS.

THE Motor Cycle Union of Ireland commenced a busy July on Saturday with a club run to Enfield, starting from the Gough statue in Phœnix Park, Dublin. To-day (Saturday), there will be a hill-climbing competition on the hill leading from Kilmaconoge to Calary Bog. On the 16th the run will be to Drogheda, starting from Drumcondra. On the 23rd speed trials will be held at Portmarnock. The 30th, a run will be held to Athy, one of the "controls" in the Gordon Bennett race of last year, and a competition, for which prizes are offered, carried through. Then on the 2nd prox. another competition will be held, starting at 8 a.m. from Inchicore Bridge.

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MESSRS. LAKE AND ELLIOTT, whose handy cycle and motor repairers' tools are well known, have lately brought out an apparatus, illustrated herewith, for withdrawing obstinate driving pulleys from the crank shafts of cycle motors. The method of using the "Millenium" pulley drawer, as it is termed, is very simple and is as follows:—The two semicircular pieces are shaped to fit the grooves in the pulleys, and are held there by the two clamping screws, which are long enough to enable them to take practically every motor-cycle pulley on the market; the large screw is then screwed tightly against the end of the shaft spindle



and forces the pulley off the same without the loss of time or risk of damage which attends the ordinary methods.

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THE judges in the Auto-Cycle Club's side-slip trials recommend "(1) That the gold medal of the Club be awarded to Mr. Maitland Edwards for his device, and that a gold medal be awarded to the Parsons Non-Skid Company for their device. These are bracketed first. On the roads both devices were entirely satisfactory; on the prepared surface the rider of the machine to which the Edwards cover was fixed showed more confidence in the device, and demonstrated a greater ability to resist skidding, as compared with the Parsons Non-Skid. The Edwards cover affords protection to the tyre, is always in position, and is thus always available for a change of road condition. It gives good protection against side-slip, its wearing properties are good, and it is not liable to disarrangement. It slows the machine, however, and stiffens the cover so as to make the tyre less readily detachable. The Parsons non-skid gives good protection against side-slip. It is quickly applied and detached, and is simple and cheap to repair and maintain. It is light in weight, and it does not appreciably affect the speed of the machine, and it can be carried in small compass if desired. It is subject to rather rapid wear if kept in such use as to make it constantly available, and it affords no protection to the tyre.

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"THAT a third prize, consisting of a silver medal, be awarded to Mr. Hayes for his device. This serves the additionally useful purpose of a stand or jack. It appears to arrest side slip, although the rider failed to keep his machine upright on the prepared surface. This failure appears to be partly due to the fact that he was riding a strange machine, heavier than that to which he was accustomed, and also to the fact that he suffered from over-confidence, and took the greasy patch with less care and caution than did his competitors. The device is subject to little wear, it is always available at the rider's will, and also absorbs power so long as he is holding it in contact with the road. It is subject to be thrown out of usefulness by an involuntary slackening of back pedalling pressure on the part of the rider.

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"THAT a fourth prize, consisting of a silver medal, be awarded to the Wilkinson Tyre and Tread Company for their device. This appeared to arrest side slipping, and in the tests on the prepared surface, though the rider fell, it was plainly demonstrated that the tread would, under a less severe test, exert holding power on the ground. It appeared to affect the speed to but a small extent; it does not prolong the life of the tyre, but its wearing properties are satisfactory. It is constantly available, but this naturally increases the cost of maintenance. The device entered by W. and A. Bates, Limited, appeared to be satisfactory under ordinary conditions, but on the prepared surface failed completely. It is made of very good rubber, wears well, and the first cost is small. It is possibly better than other patterns of tread on ordinary surfaces, but on thick greasy mud it is doubtful if it would afford any protection."

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THE handbook of the Motor Cycling Club for the current season gives a list of members, the memorandum of association of the club and list of fixtures. In August the Motor Cycle challenge cup for teams of six riders from recognised clubs will be competed for, and in September the most interesting event will be the contest for the Albert Brown trophy.

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THE accumulators used by Mr. G. P. Mills on his recent record motor-cycle ride were a pair of Peto and Radford's, with semi-solid Peto-Cadett electrolyte. One ran 600 miles and the other completed the journey.

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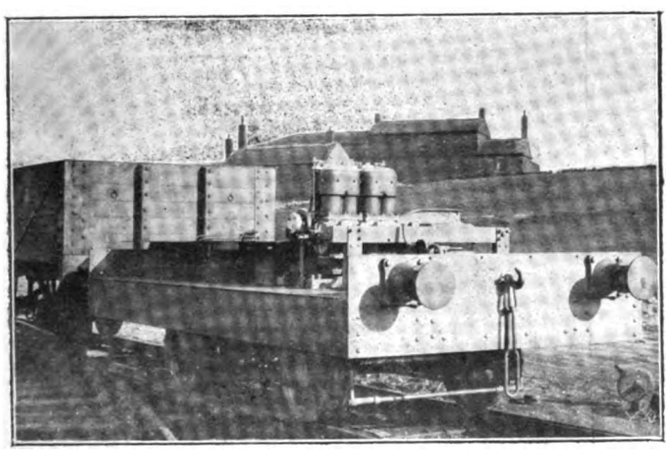
ON Saturday last the Motor Cycling Club held its 100-mile reliability trial for two-seated motor-cycles. The competition consisted of two runs of fifty miles, one in the morning and one in the afternoon. The route followed was from Godstone, *via* East Grinstead and Dane Hill, to a point one and a half miles beyond Chailey—a total distance of twenty-five miles. Here a check had to be given up, and the return journey made along the same route. The conditions provided that: (1) The combined weights of driver and passenger must not be less than eighteen stones; the passenger in all cases to be a lady; (3) the machine, fully loaded with petrol, water, and oil for the entire journey, must not exceed four cwt.; (4) no adjustments are allowed, but at the conclusion of the first fifty miles the riders may refil the petrol and oil tanks from supplies carried on the machine; (5) no competitor may cover a less distance than fifteen miles or exceed twenty miles in one hour. Altogether, twenty-one entries were received, of which seventeen started. Of these only five completed the first fifty miles, viz.:—T. Silver (Quadrant tri-car), J. Van Hooydonk (Phœnix Trimo), Densham (Anglian fore-car), Gunn (Lagonda fore-car), and Milligan (Bradbury fore-car). The second fifty miles knocked out Silver, and the committee decided to put into operation a novel test to determine the winner out of the four successful competitors. An out-and-home course of about half a mile each way was chosen near Blindley Heath, with marshals at each 220 yards. At each of these points and at the turn the engine and road wheels of each competing machine had to be brought to a dead stop between two lines ten yards apart. The operation had to be repeated at each point where a marshal was stationed, and the competitor who covered the course in the shortest time was declared the winner, who proved to be J. Van Hooydonk. For second place the committee have to decide between Gunn and Milligan.

MOTORISTS are warned against the police traps on the outskirts of Leeds, and should be extremely careful in the city, as the police are taking vigorous steps against fast driving.

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A NEW PETROL LOCOMOTIVE.

THE accompanying illustrations depict a petrol locomotive lately supplied by the Elsworth Automobile Company to the Bradford Dyers' Association for use on their private line. It is to be employed principally for hauling coal from the main line to the works of Messrs. J. Sharpe and Company, Limited. It is built to standard gauge, and to draw a weight of 20 tons up a gradient of 1 in 16. The engine is a four-cylinder one, the cylinders being cast in pairs; each cylinder has a bore and a stroke of 4¾ inches, and when running at a speed of 800 revolutions per minute 30-h.p. is developed. The two inner pistons have an opposite movement to that of the outer ones—that is to say, while the two end pistons are at the top of their stroke the two centre ones are at the bottom. The crank shaft is made in one piece and is provided with a large diameter boss, to which the flywheel is bolted. Mechanically-operated inlet valves are used, these being interchangeable with the exhaust valves. Hardened screw stems are fitted to the ends of the valve plungers, so that the distance between the valve plunger and the valve stem may be kept practically constant. After re-grinding the valves once or twice it is possible for the valve stem to rest on the lifter, thus preventing the exhaust valve fully closing, and resulting in loss of compression and power. By means of the adjustable stem, however, this difficulty is overcome. The locomotive is fitted with two speeds and reverse, the power being transmitted by means of a chain on to a rear live axle. The total weight of the machine is ten tons. Amongst the many advantages which it has over the ordinary steam locomotive is that it is not necessary to keep up steam during the whole of the day on the chance of there being work for it, as some days it will not be used at all, and in case of emergency it is ready for work in half-a-minute, as against a steam locomotive taking twenty minutes to get up steam. We may add that the engines were supplied by the Elsworth Automobile Company, of Bradford, and the cab and frame by Messrs. Knowles and Company. The vehicle is doubly interesting, as in the first place it is the first of its kind in the North of England, and secondly, the whole of the parts were supplied by local firms.



The Locomotive with Cab removed.



The Complete Engine.

THE Lancashire Gas Engine Company send us particulars of an 8-b.h.p. twin-cylinder petrol motor they are now turning out. The engine, which develops 8-h.p. at a speed of 950 revs. per min., and 10-h.p. at 1,200 revs., has cast-iron cylinders 3½-inch bore by 4-inch stroke. The inlet and exhaust valves are mechanically operated and interchangeable. An outside flywheel with ball-thrust bearing to take the end thrust of the clutch is provided, while a governor is mounted on the cam shaft.

FRICTION CLUTCH PROBLEMS.

THERE seems to be a tendency to discard the leather-lined cone clutch integral with the flywheel in favour of the metal to metal type. A very just criticism of the leather-lined clutch is, states an American contemporary, based upon its very sudden and vicious manner of engagement, which not only prevents a gradual and pleasant acceleration of the vehicle but subjects all portions of the mechanism to stresses which are practically of the suddenly applied order, and produce strains unnecessarily severe. While the attempt has been made to eliminate this fault by the use of compound clutches, which provide a preliminary engagement of auxiliary metallic surfaces, just before the leather grips the metal, the expedient has not been generally accepted as practicable. The well-nigh instantaneous engagement of a leather-lined clutch calls for a large amount of stored energy from the flywheel in order to produce the desired vehicle acceleration, and no opportunity is provided for assuming the load in a gradual manner. It must be admitted that the leather-lined clutch is a very serviceable mechanism, exceedingly positive mechanically and subject to hardly any wear.

The metallic clutches which some manufacturers are adopting are designed to allow of a considerable amount of slipping, thus insuring a gradual assumption of the vehicle load by the motor. Furthermore, their design is such that the slip produces very little wear, and they are so constructed that they are in a measure self-adjusting for what little wear takes place.

In order to secure long life in clutches of this type the frictional surfaces must be of very liberal size; so large, in fact, that under no condition shall the specific pressure between them be so high as to force out the oil film which should normally exist between them. If this precaution is neglected and too small surfaces used the metal portions come into too intimate contact and cutting takes place. It is important, too, that the opposed frictional surfaces shall be of properly selected metals and that both members shall not be of the same metal, as the cutting tendency is very pronounced in the latter case. Bronze against cast iron is a very common and successful combination. It is quite probable that if sufficiently good wearing qualities can be obtained in the metal clutches they may exceed in popularity the leather-lined type.

MESSRS. LAMB BROS. AND GARNETT have lately introduced a new sparking plug known as the "L. B. G.," which is of interest to motorists in that it carries with it a guarantee for twelve months. This plug is strongly made, and is insulated by mica. By reason of the special form of sparking points it is claimed to be impossible for the plug to short circuit, and that the flow of electricity cannot leak between the mica discs. Another good point is that no joints or packings enter into its construction.

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SOME NEW PUNCTURE PREVENTERS.

OLD cyclists have long recognised that a light chain or wire suspended from a bicycle in such a way that it just hangs on the tyre is a most effective way of withdrawing nails and thorns from the same ere they have an opportunity of puncturing the tyre. For a long time the only device

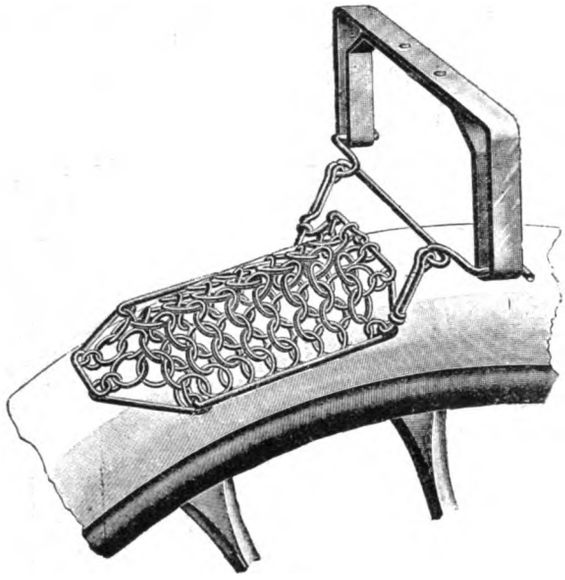


Fig. 1.

of the kind for use on motor-cars was that introduced some years ago by the Michelin Company. Quite recently, however, a number of these useful accessories have been put on the market, three of which we are able to illustrate herewith.

Fig. 1 shows the Bulldog nail and thorn puller for use in connection with pneumatic tyres, recently introduced into this country by Messrs. A. W. Gamage, Limited. As will be seen, the device, which is of French origin, consists of a kind of coat-of-mail held together by a frame of steel wire, and shaped to fit the tyre. In fixing the nail puller, it is necessary to take into account the fact that the wheels of a car spring independently of the frame. It is fixed on the underneath

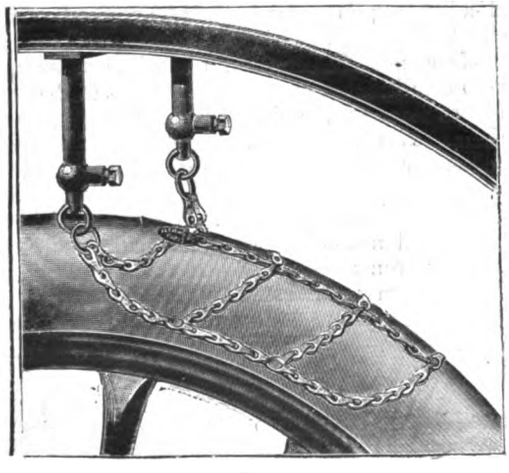


Fig. 2.

part of the mudguard by means of an inverted stirrup, provided with two slots, that allow the stems which hold the extractor to rise and fall with the movement of the wheels. The device can be employed indifferently for either front or back wheels of a motor-car or cycle, and can, it is claimed, be relied upon to withdraw any nails or thorns from the covers ere they have time to puncture the tyre.

Fig. 2 illustrates the "Tigre" nail puller which has recently been brought out by Messrs. Fleming and Company, of Paris. The construction is so clearly shown that no lengthy description is necessary. It may be mentioned, however, that the chains are suspended from pins which can be fixed at any desired position in the supporting bracket, which is itself attached by screws to the underside of the mudguard. The chains are claimed to be unbreakable, and, being of brass, do not rust. Owing to the arrangement of the chains, there are four points at which a nail can be extracted from the tyre, so that should the obstacle get past one point it is almost sure to be caught by one of the others. The "Tigre" can be used on either front or rear wheels, or both, and is made for all sizes of tyres.

The third type of nail catcher that we are able to illustrate hails from Germany, and, as will be seen from Fig. 3, a series of U-shaped pieces of wire take the place of the chains. The device is known as the Triumph, and is made by Herr Emil Deutgen, of the Drahtfabrik, Duren, Rheinland. The wires, which rest lightly on the tyre, are pivoted to a cross-piece, which in turn is bolted to the mudguard. It is made for both the front and rear wheels of motor-cars for various sizes of tyres, while another pattern on similar lines is being manufactured for use on motor-cycles.

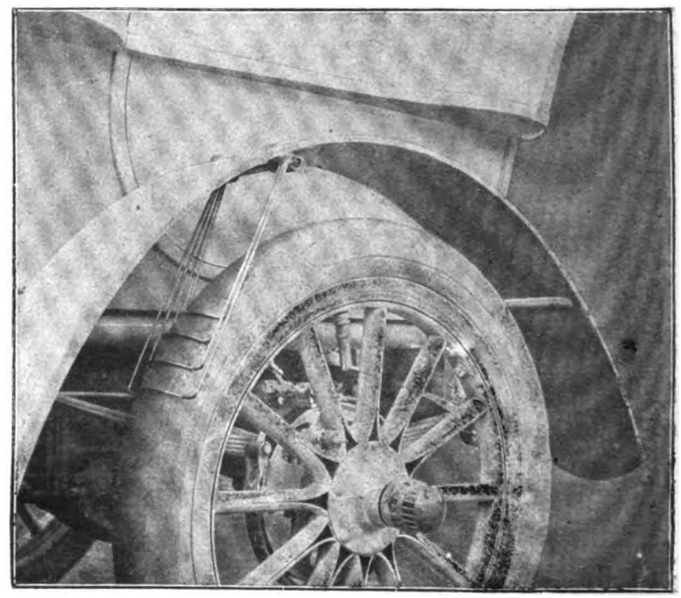


Fig. 3.

All the devices illustrated have been proved in practice to be most effective in preventing nails and thorns penetrating the outer cover and puncturing the inner tubes, and as they are not very costly, we anticipate seeing the tyres of large numbers of motor-cars fitted with some form of nail-catcher such as are referred to above at an early date.

ACCORDING to official figures 289 licences for automobiles have been issued so far this year in the province of Ontario, Canada. This is an increase of 109 over the total number of permits issued last year.

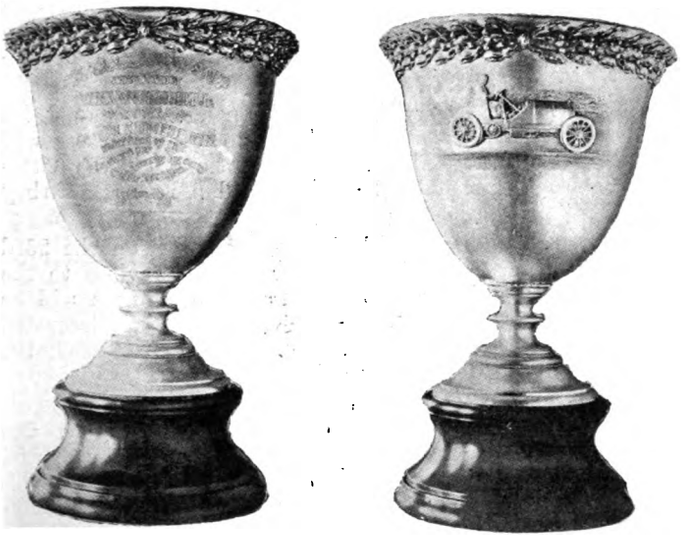
THE U.S. Government has just purchased two 20-h.p. Winton cars for the use of the Signal Corps. One car is to have a body capable of carrying six passengers, together with a full set of telegraph instruments and tools necessary in repairing telegraph wires.

FROM the Lowestoft Town Committee comes an interesting booklet dealing with the charms of Lowestoft, both inland and on the coast. The illustrations of villages in the locality should do something to induce motorists to pay a visit to this well-known health resort when in East Anglia.

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HERE AND THERE.

FRONT and rear views of the trophy presented to the American Automobile Association by Mr. W. K. Vanderbilt, Jr., for an international 300-mile road race, are shown in the accompanying illustrations. The cup is a magnificent specimen of the silversmith's art. On one side, in strong relief, is shown a car in racing trim, standing on the sand of a broad beach, with



an ocean surf in the background. On the opposite side of the cup is the following inscription. "Presented by W. K. Vanderbilt, Jr., to the American Automobile Association, under deed of gift, to be raced for yearly by cars under 1,000 kilos." The cup is about two and a half feet in height and eighteen inches across the top.

THE Kaiser is reported to have ordered a new 40-h.p. Mercedes car since the Gordon Bennett race.

AN electrical trolley-omnibus service is being established between Vörde, Melspe, and Gevelsberg, Germany.

BARNEY OLDFIELD has again severed his connection with the Winton Company, and will in future drive racing cars for the Peerless Company, of Cleveland, U.S.A.

A NEW garage has been opened in Panmure Street, Brechin, by Mr. J. W. Fawns. He has facilities for the charging of accumulators, and undertakes repairs to any class of automobile.

MESSRS. R. A. LISTER AND COMPANY, LIMITED, have just completed in the Station Road, Gloucester, an extensive garage in charge of a skilled motor engineer who will undertake repairs. Petrol, etc., will be stocked.

DURING the recent races at Ascot the whole of the route in the neighbourhood of the course was sprinkled with a 10 per cent. solution of Westrumite, with the result that, despite the heavy traffic caused by the races, the dust was most effectually laid.

THE employees and office staff of the Doherty Motor Accessories Company, Limited, Coventry, journeyed in brakes to Stratford-on-Avon last Saturday on the occasion of their annual picnic. After dinner the company dispersed to indulge in boating and other recreations. A smoking concert was held in the evening, at which Mr. W. H. Doherty presided.

THE Great Western Railway Company's motor-car service between Slough Station and Beaconsfield has proved a great success, and it was officially announced at Slough that the company will now run a frequent service of motor-cars from Slough Station through Eton to Windsor and back. This service will place Eton in direct communication with the Great Western main line.

MR. W. CORNWALL, of the Pioneer Cycle Company, has opened a garage at 141, Hertford Road, Edmonton.

THE parks of Edinburgh are to be mown with one of Messrs. Ransomes, Simms and Jeffries' motor grass mowers.

THE Cudell motor-car works at Aix-la-Chapelle were destroyed by fire a few days ago. Over twenty complete cars were burnt and valuable working drawings lost.

THE Marquis of Londonderry, K.G., has accepted the office of vice-presidency of the Automobile Mutual Protection Association. The other vice presidents are Sir David L. Salomons, Bart., Lt.-Col. R. E. Crompton, C.B., and Mr. Charles Cordingley.

A MOTORIST has been fined at Bow Street (London) police court for using a motor-car in St. James' Park for the purpose of instructing a man how to drive. His pupil was fined 20s. and 2s. costs for exceeding the regulation speed and 10s. and 2s. costs for driving a motor without a licence.

MESSRS. S. BOWLEY AND SON have found it necessary to designate the grades of their motor spirit by such distinctive brands as will not likely be confounded with those of other makes. The two grades which they are distilling will in future be known as "Special" and "Express." The former will give the user the benefit of four to five miles an hour more than the latter, which has taken the place of "A" grade, but is slightly superior in quality.

MESSRS. J. W. BROOKE AND COMPANY, LIMITED, have lately been constructing for Mr. Arthur Robinson, well known as the inventor of the Robinson expanding shaft governor, a set of spring wheels for use on motor-cars. The Arthur Robinson patent compensated spring wheels, as they are known, have recently been tried on a Brooke car weighing 22 cwt. over very varying and hilly roads, and have given very satisfactory results. In fact, Mr. Maudsley Brooke informs us that the claim of Mr. Robinson that his wheel is the mechanical equivalent to pneumatic tyres is more than likely to prove correct.

THE New Motor Face Shield Company is bringing out a new device for motorists the name of which is sufficiently indi-



cated in the title of the concern. The lower part of the shield is secured to the waist by means of a belt, and a rest is also provided to prevent it coming in contact with the hat. It affords ample protection from wind and dust, being of mica in a polished wood frame, and can be used without requiring the use of the hands. The shield can be seen in the show rooms of Messrs. A. Dunhill, Limited.

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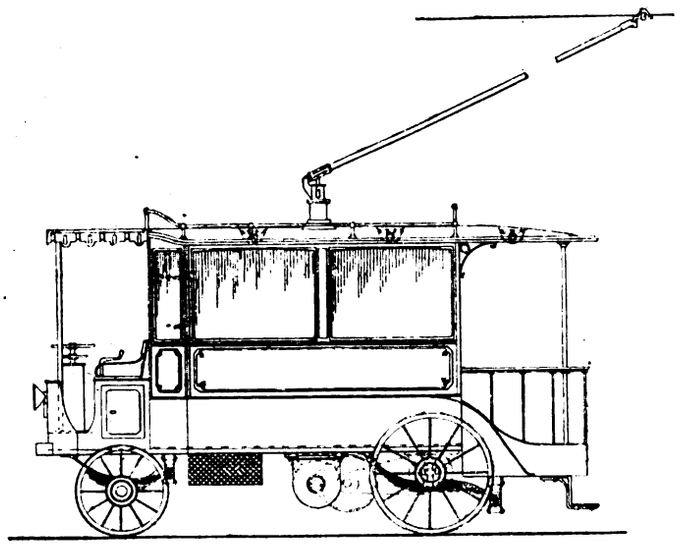
THE Durham County Motor Transit Company, Limited, has been registered with a capital of £4,000. The first directors are Messrs. R. Clark, J. Hoden, J. T. Taylor, T. Raine, and J. G. Shaw, and the registered office is 22, Cheapside, Spennymoor, Durham.

THE East Central district of Scotland is dealt with in Messrs. A. and C. Black's new guide, edited by Mr. G. E. Mitton. This series of Guides, with their large and numerous district maps, is already well known, and the present volume is written in a style that should well sustain the reputation of the series.

FROM the Locomobile Company of Great Britain, Limited, comes a copy of the 1904 catalogue of Spyker cars, which gives illustrations of several types, together with views of the motor, carburettor, etc. We may add that the Spyker cars are made in three sizes—14-h.p., 20-h.p., and 25-h.p.

ARISING out of the successful parade of motor-vans and wagons held on the Thames Embankment on April 30th, the Committee of the Motor Van and Wagon Users' Association have voted a sum of £5 to the police in recognition of the great assistance they rendered on that occasion.

THE charming village of Bidford-on-Avon now possesses greater attraction for motorists in the fact that petrol and sundries can be obtained at the garage which is being erected at the foot of the bridge, where repairs will also be carried out. Motorists will be supplied at any time of the day or night.



Elevation of the Schiemann Electrical Omnibus. (See page 407.)

MESSRS. G. T. RICHES AND COMPANY are introducing an improved form of the special sparking plug designed for use in connection with the Eisemann high-tension magneto ignition, the new pattern being so arranged that there is little likelihood of its becoming fouled. A new terminal for ignition wires, known as the "Amac," is another of Messrs. Ritchie's latest specialities.

MESSRS. METHUEN AND COMPANY have issued a new work on English Architecture, written by Mr. T. D. Atkinson, and illustrated with a large number of drawings mainly by the author. A useful glossary of terms, a chronological list of buildings, and a copious index add to the value of the volume, which will be read with interest by all to whom the historic buildings of our country appeal.

FROM the Touring Club of Italy comes a copy of its 1904 handbook, a work which, although printed in Italian, will be found of great use by British motorists visiting Italy. It includes a directory of the leading towns and villages, the names of the hotels, petrol depots and motor repairers being set against each. The T.C.I. is also issuing a series of well-got-up railway handbooks, those to hand describing the journey by rail from Milan to Bologna, Verona, and Turin respectively, illustrations being given of the principal places *en route*.

THE industrial motor vehicle competition which the French Automobile Club is organising has been postponed from August to October next.

A FIVE-TON Yorkshire steam wagon was exhibited at the Leicestershire County Agricultural Show by Messrs. Arthur Studd and Company, Limited, the Leicestershire and Northamptonshire agents for this vehicle.

THE North British Rubber Company, Limited, have issued a booklet giving a list of the agents from whom Clincher-Michelin covers, tubes, etc., can be obtained. It is accompanied by a map showing all the cities and towns where the agents of the company are located.

AUTOMOBILISTS who wish to test the non-slipping qualities of Edwards' Patent Bands will be pleased to hear that these will be sent on approval under certain conditions by the Otto-Bennett Motor Company, 8, Snow Hill, London, E.C., and if they do not fulfil expectations, can be returned.

A MOTOR gymkhana will be held at Harrogate on the 23rd inst., and will commence with a motor parade previous to the lifeboat procession. Prizes to the value of 10 guineas will be given for the best decorated car, and also for the best undecorated car, and second prizes will be given. After the procession the gymkhana will be held on the football ground.

ON Saturday last the annual outing of the Wolseley Tool and Motor-Car Company's employees was held, about 600 members of the office and works staffs travelling by special train to Llandudno. The sports meeting in connection with this outing has been postponed till Saturday, the 16th inst., when the various events will be contested on the private testing track attached to the works.

THE Stern-Sonneborn Oil Company forward a price list of the "Sternoline" and "Sternol" lubricating specialities. These include Autosternol oil for air-cooled cylinders and other varieties for water-cooled cylinders and the bearings of motor-cars. Occentoline, 800 F. oil, has an unusually high flash point and fire test, retaining its viscosity to a great degree at very high temperatures. Gearoline, Sternoline, and similar specialities also find mention in the pamphlet.

MEMBERS of the automobile clubs of Buffalo and Toronto are trying to bring about an arrangement between the Governments of the United States and Canada which will tend to facilitate the passage of motor-cars from one country into the other. At present the laws in either country require that a fourth of the total value of a car must be deposited with the customs officers. It is intended that a special foreign touring certificate and the guarantee of the respective clubs take the place of the present deposit system.

MR. R. DAVIDSON, of Colombo, Ceylon, who recently imported a 10-h.p. Beaufort car, has lately completed a successful trip to Nuwara Eliya. Starting on the morning of the 14th May at 5.30 p.m. from Colombo, he drove his car via the Gunigatenne Gap and through Dimbula and Nanuoya to Nuwara Eliya without a hitch of any sort. Nuwara Eliya was reached at 5.30 p.m., which, considering that he started at sea level and had reached 6,200 feet above the sea, must be considered no mean feat. Mr. Davidson describes the condition of the roads in some parts as atrocious, especially a little distance out of Colombo, where the road was axle deep in mud. The following morning, after taking a few friends for a tour round Nuwara Eliya, Mr. Davidson started on his return journey to Kandy, via Ramboda Pass. Some of the corners at the zigzags on the pass were so sharp as to necessitate the car being backed occasionally, but no difficulty was experienced with bullock carts, and the only complaint that Mr. Davidson has to make is as regards the large number of stray cattle to be found on the roads. Reaching Kandy in the afternoon a halt was made there for the night, and at 5.15 the next morning Mr. Davidson and his companions left for Colombo by the old Kandy road, which was reached in exactly five hours. Altogether the tour of 240 miles is considered the most successful from a motoring point of view so far accomplished in Ceylon.

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CORRESPONDENCE.

TOURING IN IRELAND.

To the Editor of *The Motor-Car Journal.*

Sir,—I was interested in the letter of your correspondent in issue of the 18th ult., which has just reached me—being on tour in Ireland. I have found that, with one or two exceptions, Irish hotel charges for very indifferent accommodation are excessive. As, for instance, at an hotel in Malahide, seven miles from Dublin by road (a very bad one), and directly on the main line of railway to the north, soda water is 6d. per bottle. At an hotel in Bray, ten miles from Dublin, also directly connected by rail, the charge is 1s. 6d. for whisky and soda, and 2s. 6d. for chop for lunch. At Kingstown I was charged 9s. for cut from the joint and some cheese for two. and they could not give me anything off the "grill," having none! Having suffered under this for some time, we now carry our lunch, etc., with us in a luncheon basket, which has paid for itself over and over again within the last six weeks, to say nothing of being quite independent. The north of Ireland I found fairly reasonable. The tourist, especially motoring ones, should avoid the so-called tourist hotels. Keep to main roads, and when putting up at any place, settle the charges before accepting the "thirst for blood" the Irish innkeeper has for the motor-car. If I tour in Ireland again I will camp out, the Irish farmer being a delightful person, and only too glad to help in any way. In two cases where we were hung up (tyre troubles), we had lunch at a farmhouse, ham, eggs, and beer, clean and nice, and they refused to accept any charge for same—in fact, we were treated so well, that on my return I sent a small present to the mistress of the farm, and I have just had a letter thanking me and saying they appreciated it all the more as they did not expect it.—Yours truly,

K 125.

AUTOMOBILE TOURING.

To the Editor of *The Motor-Car Journal.*

Sir,—Referring to the short article on this subject in the last issue of the *Journal*, I have frequently noticed that some motorists get through a tour in the most comfortable and enjoyable way, while others manage to spoil their journey for themselves or others, or both. The two indispensable qualifications are tact and contrivance. One tactful person doing everything in the right way at the right time, picking up valuable bits of information from those he comes in contact with, having the faculty of securing a comfortable room at a hotel, and the like, in fact, brings enjoyment into a journey when the opposite sort of person would spoil it entirely. Happily for the whole party if the host possess this priceless disposition, for he will impart it also to his guests. The other part is contrivance—the useful faculty, for one thing, of taking along what will be needed and leaving the rest at home. Experience teaches how much to take, and what, if any, to have sent on. A good bump of contrivance, aided by common sense, will bring hope out of calamity at very short notice. The item of luggage is only a part of it, as all the arrangements from day to day need the same happy frame of mind and spirit to carry them through with the largest amount of pleasure. One must learn to be his own mechanic as well as his own driver—at times at least. As a matter of experience, the breakdown rarely happens within easy distance of a well-equipped repair shop, but almost invariably halfway on the road to or from Nowhere. The right sort of knowledge, backed up by the ability to put it into practice in an emergency, means additional comfort and money saved on a tour. The intelligent use of a motor-car for distance work on the road—which means getting the most out of it at the least expense of care and labour and without injury to the vehicle—calls for more than a familiarity with routes and road rules, or even a close study of books of instruction in care and management.—Your truly,

Munchausen.

NON-SKIDDING DEVICES.

To the Editor of *The Motor-Car Journal.*

Sir,—Can you or any of the readers of the *Journal* recommend a reliable non-skidder? I hear that metal plates absorb the power, chains are apt to break, and leather treads with studs do not prevent skidding. During the two years that I have read the *Journal* I do not remember to have seen any device referred to as entirely satisfactory. —Yours truly,

Geo. G. Tucker.

SOLID TYRES.

To the Editor of *The Motor-Car Journal.*

Sir,—Can and will any of the readers of the *Journal* having cars fitted with solid rubber tyres other than "Clincher" give me their experience and opinions of the best to use? I have sacrificed speed and the luxury of pneumatics, but I believe it to be impossible to have suffered greater trouble or danger had I used pneumatics. My greatest annoyance has been owing to the tyre creeping in the rim and flinging out, and the makers say that they cannot do anything to prevent this, notwithstanding that the gears of my car are six, ten, and sixteen miles per hour.—Yours truly,

Chas. Lucas.

A SUGGESTION REGARDING INDUCTION COILS.

To the Editor of *The Motor-Car Journal.*

Sir,—One of the annoyances of the motor-car repairer is that of the method of wiring up different makes of induction coils for motor-cycles and cars. What with the different methods of coil winding and the variation in the number of terminals, it is frequently impossible to say which is the high tension terminal and whether positive or negative. The reason of all this trouble is that there is no recognised rule for marking the terminals of induction coils. One maker uses one kind of denomination and another maker another. The matter is further complicated owing to the fact that the continental makers of coils mark many of the terminals by initials, not of the names of the windings of the coil but of the continental names of the parts on the machines to which they have to be connected up. This makes it difficult, u less one is acquainted with practically all the coils on the market, to prescribe in cases where only the initials on the terminals are given as a guide. A lot of time and trouble would be spared if makers of coils could get together and decide upon a standard nomenclature for the different terminals of the coils.—Yours truly,

F. W. R.

ACCUMULATOR AND TREMBLER COIL.

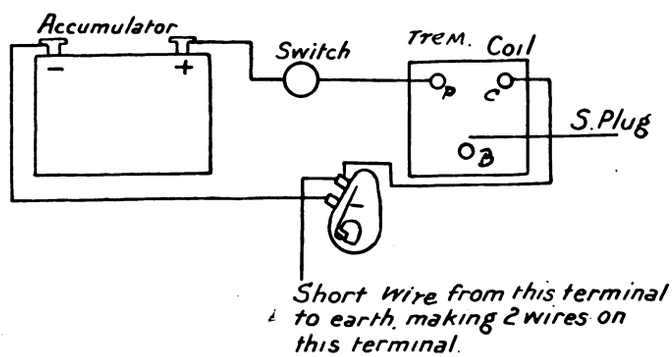
To the Editor of *The Motor-Car Journal.*

Sir,—Will any of your readers tell me if I can get a trembler coil to work well with my present trembler and cam with a V piece cut out, or must I make a wipe contact? I have an 8-h.p. single cylinder Darracq car. I have had great trouble in starting the engine, and I have just discovered the cause. When the connecting plug was pushed in the end came against a nut on the dashboard and caused a short circuit.

How often should the engine have a charge of oil? I purchased a little book of wrinkles which stated that the engine should have a full charge every quarter of an hour. I use a lot of oil and get misfires and dirty plugs.—Yours truly,

First Car.

[We take it that the form of contact breaker with the V slot is of the De Dion type. If this is so, it is quite possible to connect this to the



trembler coil with good results. The connections will be clearly seen from the accompanying sketch. With regard to the quantity of oil required, this is undoubtedly too much, and we should advise the quantity to be lessened to half to commence with, or even to less if this is found to still give trouble.]

HITCHON'S PATENT TRANSMISSION GEAR.

To the Editor of *The Motor-Car Journal.*

Sir,—Having seen the above at the Motor Car Exhibition, but not being personally acquainted with anyone who has used same, I would thank you very much to let me know through the columns of the *Journal* as to whether any of your numerous readers have used the gear, also the advantages and disadvantages of the same. I am rather taken with the gear, but I should like further particulars before adopting it.—Yours truly,

J. Stennett.

KNOCKING IN THE ENGINE.

To the Editor of *The Motor-Car Journal.*

Sir,—The engine of my double-cylinder car has developed a knock which I cannot locate, and I venture to invoke the aid of the readers of the *Journal*. It sounds just as if the crank shaft bearings were loose, and is not the click or knock that is heard from advancing the ignition too far. The noise comes from both cylinders. I have had the engine to pieces, and found the piston rings and crank shaft bearings in excellent condition. The engine runs with perfect regularity, has full power, and never misses an explosion. The valves have been carefully ground, and new springs put on the stems, of the same strength, as nearly as I could determine Both cylinders register 65 lbs. pressure each, and hold it. By carefu' adjustment of the ignition and mixture the engine can be made to run so you can scarcely hear it, and this with full load and with any of the speeds! But let the accelerator be opened, or a slight rise in the road be met, and the humping will commence alarmingly. Even when the knock occurs

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the engine works with regularity, and there is no difference in the sound of the escaping discharge. Everything sounds perfectly normal with this extra noise added, and sometimes I am inclined to think it must be outside the engine. The car has three speeds forward, sliding gear transmission, and bevel gear drive, and the noise is not only heard, but the knock felt in the machine. There are no explosions in the silencer, and the engine never overheats.—Yours truly,

PUZZLED NOVOCASTRIAN.

A USEFUL CRADLE AND TURN-TABLE.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—Your readers may be interested in the accompanying photograph of Webb's cradle and turn-table. The picture shows a 10-h.p.



Georges Richard sufficiently raised in front to enable under work, rendering the use of a pit unnecessary. The cradle takes to pieces in a minute or can be left up in the stable and the car run on to it by its own power.—Yours truly,

R. H. TETLEY.

CLEANING OUT SILENCERS.—"Sparking Gap" writes:—"Can any reader suggest a way to clean out a silencer without removing it? I have one that is hard to get off and take to pieces."

CUTS IN TYRES.—In answer to a recent correspondent, Messrs. R. Lord and Company, of Blackburn, write that they supply a rubber amalgam specially intended for filling up small cuts in the outer covers of motor tyres.

FUEL CONSUMPTION OF MOTOR-WAGON.—Several readers of the *Journal* have written to point out an obvious error in our Comment last week referring to the trial of a Yorkshire steam-wagon. The consumption of coke on the twenty-one mile run was, of course, 156 lbs. The distance was covered in three hours, gradients up to 1 in 12 being taken on the high gear.

PETROL AT HARWICH.—"H. R. G." writes:—"I would warn motorists to replenish their petrol tank before going near Harwich, as the only agent stocking petrol refused to supply me after dark or on Sunday."

THE STANLEY STEAM CAR.—In reply to the Baroness de Reuter, full particulars of the Stanley steam car can be obtained from Mr. F. Wilkinson, Princes Chambers, John Dalton Street, Manchester.

MAGNETO IGNITION.—S. L. Hollis writes:—"I should be very much obliged if you could give me information about a good book dealing with the magneto ignition for motors. Where could such a book be obtained and what would be the price?"

SOLID TYRES.—T. E. Henderson writes:—"Will any of your readers explain why solid tyres reduce the speed of a car? Is it the extra weight of the rubber, or want of elasticity?"

CLUBS AND ASSOCIATIONS.

NOTTINGHAM.

THE committee of the Nottingham Club have awarded the Foster silver challenge cup to Mr. C. Evinson, who drove a 8½-h.p. Humber. Mr. R. M. Wright, Lincoln, 9-11-h.p. Clement, is placed second. Both earned full marks, but the lower price and power of the former gained premier position. The Clement was rather faster on the hill, and was second fastest on the whole run. A photograph of the winner was published on page 400 of last week's issue.

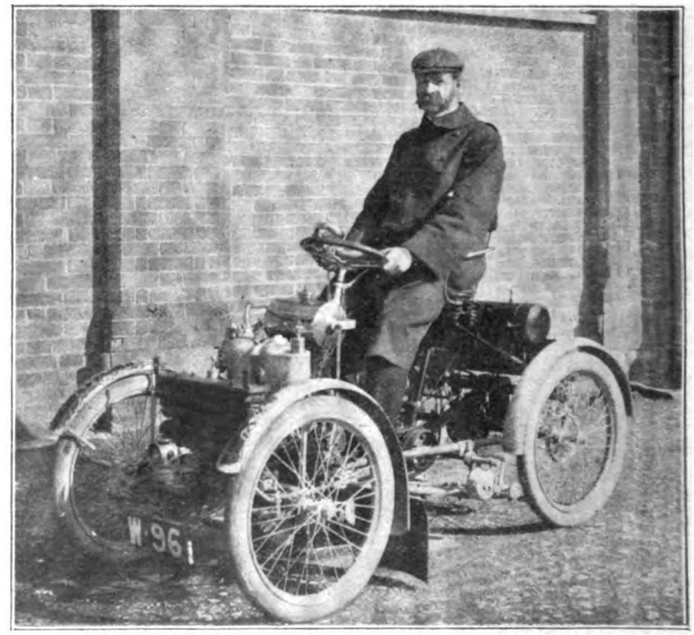
LINCOLNSHIRE.

THE following officials of the Lincolnshire Automobile Club attended a committee meeting at headquarters, the Saracen's Head Hotel, Lincoln, on the afternoon of Friday, the 1st inst.:—Sir Hickman Bacon, Bart. (president), Mr. C. W. Pennell, J.P. (vice-president), Capt. J. A. Cole, J.P., Mr. W. R. Pennell, Capt. Newsum, Mr. Cyril Nelson (the hon. solicitor), and Dr. K. H. Cragg (the hon. sec.). Capt. Cole (chairman of the Administrative Committee) presided. The secretary reported that the secretary of the Lincolnshire Agricultural Show had acceded to their request for an enclosure for members' cars at their annual exhibition at Great Grimsby during the middle of July, and provision would be made accordingly.

An invitation for a joint run with the newly-formed Northamptonshire A.C. to a convenient place in the southern part of Lincolnshire was accepted, and the secretary was instructed to fix the date some time towards the end of the season, and suggest that Stamford would be a suitable meeting-place.

The following gentlemen were elected to membership of the Club:—Mr. Hugh Peacock (Gretford Hall), Mr. Thomas Ives (Lincoln), Capt. E. Tatchell (Grantham), and Mr. F. H. Atkinson, M.D. (Grimsby). Others proposed for election were Mr. H. Marshall (Gainsboro'), Mr. A. Robinson (Grimsby), Dr. Sharpley (Kirton-in-Lindsey), and Mr. Gent (Gainsborough).

Had Saturday's weather held fine, instead of being a succession of heavy storms, there would have been a very notable muster of motors at the Hop Pole Inn, Ollerton, Sherwood Forest, Dukeries, on the occasion of the united meet of the Sheffield and Lincolnshire clubs. As it was twenty cars were driven over and the occupants had a pleasant time, particularly as the evening turned out very fine. The district is a most beautiful one, and the roads are always good. The cars were placed in the covered yard of the inn during tea, but afterwards were put in the large open space outside, and an imposing row was made up. Those participating in the meet included Mr. and Mrs. J. H. Pickford and Mr. C. H. Pickford, Sheffield, 10-h.p. Wolseley; Mr. and Mrs. E. H. Coupe, Mr. Clark and Mr. Hobson, Sheffield, 24-h.p. Darracq; Mr. and Mrs. C. W. Pennell, Lincoln, 22-h.p. Martini; Mr. C. D. Leng, Sheffield, and Dr. Bell, London, 10-h.p. White steamer; Capt. S. A. Cole, J.P., Roxholme (Chairman Lincs. A.C.), 14-h.p. Durkop; Mr. and Mrs. F. Churchill, Mr. F. B. Cawood (hon. sec. Sheffield A.C.) and Mrs. Cawood and Mr. G. F. Flather, 14-h.p. Hallamshire; Dr. P. and Mrs. Sharp, Brant Broughton, 12-h.p. Richardson; Capt. H. E. Newsum, Capt. Bradwell and Mr. J. R. Richardson, Lincoln, and Mr. Stevenson, London, 18-20-h.p. Richardson; Mr. Living and Mrs. J. R. Richardson, 12 h.p. Richardson; Mr T. Danage, Sheffield, 10-h.p. Duryea; Mr, Mrs. and Miss Tomlinson, Sleaford, and Mr. E. Cragg, M.D. (hon. sec. Lincs. A. C.), 8-h.p. Bardon; Mr. G., Mrs. and Miss Garnett, Gainsboro', 8-h.p. M.M.C.; Mr. Ellin, Mr. Oates and Mr. Halliwell, Sheffield, 8-h.p. M.M.C.; Mr. and Mrs. Jecock, Gainsboro', 8-h.p. Dennis; Mr.



Mr. Blyde, of Sheffield, on his converted Quad, at the joint meet of the Sheffield and Lincolnshire Clubs at Ollerton. The machine has wheel steering, water-cooled engine, and change speed gear.

Churchill, Mr. Kirkham, Sheffield, 6-h.p. De Dion; and Mr. and Mrs Clark, Sheffield, 6½-h.p. Gladiator.

YORKSHIRE.

POT BANK, a hill in the form of the letter S, about two miles from Harrogate, was the scene of the hill-climbing trial of the Yorkshire Automobile Club. The course was half a mile in length, the gradients varying every few yards. Starting from the bridge over the Oak beck the road rose for a distance of 41 yards at an angle of 1 in 41. At

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this point the first curve was encountered, the road turning round to the left at an inclination of 1 in 10 for 140 yards up to the second curve, which turned sharply round to the right, and for 82 yards had a gradient of 1 in 7. This was on the outside of the curve, while inside the gradient was something like 1 in 4 or 1 in 5. Just round the corner there was a run of 190 yards at a gradient of 1 in 9·5, and then a straight run to the finish, with 161 yards at 1 in 16, 193 yards at 1 in 24, at 73 yards at 1 in 43.

Early in the morning Mr. A. W. Dougill, of Leeds, the hon. sec. of the club, with a party of helpers, made the arrangements for telephoning



The Yorkshire Automobile Club's Hill-Climb at Pot Bank — Mr. S Kirk on his 24-h.p. De Dietrich Car.

Photo by [*Bacon and Sons.*

from start to finish and for timing the cars. Mr. Borland's electrical timing gear was brought into service. In this the breaking of the thread at the starting point liberates a lever which, through electrical communication, sets going a stop-watch at the other end of the course, and in like manner, when the rider snaps the thread on passing the finishing post, the watch is immediately stopped, and the time can thus be taken to the fifth of a second. Mr. F. J. Borland, of Leeds, and Mr. H. A. Jones, of Bradford, were the official timekeepers; Mr. George Blackburn, of Leeds, was the starter; Mr. W. Penrose Green, of Leeds, and Mr. J. Chippendale, of Harrogate, were the marshals; and the general arrangements were carried out under the direction of Mr. Dougill. The results of the trials cannot be ascertained for some time. The times made do not alone govern the results, which are regulated by a system in which the weight of the car and passengers, the cubic capacity of the cylinders, and the time taken in ascending the hill are the prime factors. Altogether about twenty cars entered for the event and half a dozen motor-cycles, but of these only seventeen cars and two cycles competed, the results being as follows:—

Owner.	h.p.	Make of Car.	Time. M. S.
1. A. Farnell, Bradford ...	28	Daimler	1 13 2-5
2. S. Kirk, Leeds	24	De Dietrich	1 39 2-5
3. E. E. Broadbent, Bradford	16	Celtic	2 4 1-5
4. H. Johnson, Harrogate ...	16	Wolseley	2 6 1-5
5. H. Johnson, Harrogate ...	22	Napier	2 12 3-5
6. B. Bagshawe, Leeds ...	15	Napier	2 21 4-5
7. J. W. Smith, Leeds ...	12-14	Argyll...	2 26 2-5
8. H. Johnson, Harrogate ...	12	Wolseley	2 30
9. Williamson, Leeds ...	14	Clement	2 31 3-5
10. T. H. S. Atkinson, Leeds	11	Talbot	2 41 2-5
11. E. H. Hepper, Leeds ...	15-20	Belsize	3 7 1-5
12. J. W. Broadhead, Elland	20	Spyker	4 29 2-5
13. T. Whitaker, Leeds ...	10	Lanchester	4 48 4-5
14. H. Collinge, Harrogate ...	14	Clement	5 8 1-5
15. W. P. Green, Leeds ...	8	De Dion	5 21 3-5
MOTOR-CYCLES.			
1. G. H. Bacon	2¾	Excelsior	1 42 4-5
2. J. H. Martin	1¾	N.B.G.	2 11 1-5

SCOTTISH.

THE Western Section of the Scottish Automobile Club are not holding a run to Mauchline, to-day as previously arranged. On the 23rd inst. they will hold a meet at Philiphaugh, Selkirk, on the invitation of Mr. W. S. Steel, who has also invited the Eastern Section of the club to partake of his hospitality.

MANCHESTER.

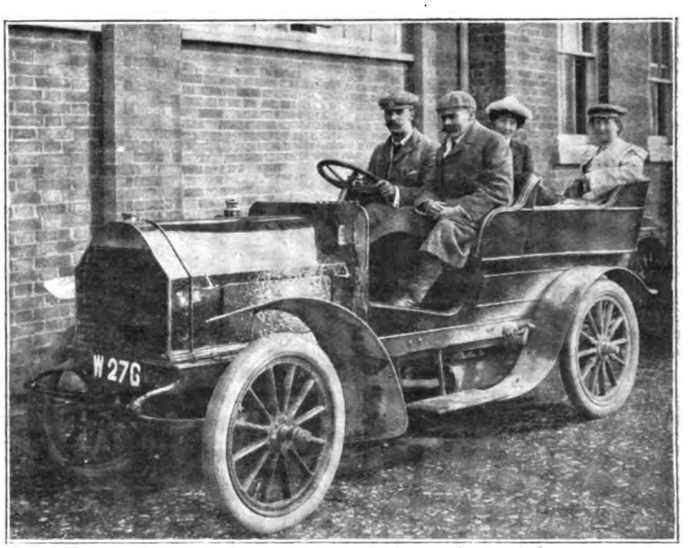
ON Saturday last the members of the Manchester Automobile Club, by the kind invitation of Mr. Roger C. Parr, one of the members, paid a visit to Grappenhall, Heyes, near Warrington, a mansion which stands in a park of about 120 acres. The members arrived at intervals from three to four o'clock; afternoon tea was served in the house. During the afternoon the members and their friends wandered round the ornamental grounds and inspected the conservatories and orchid houses. There were in all twenty-five cars and about ninety passengers.

READING.

ON Sunday the members of the club and their friends were entertained by Mr. J. Montgomerie Napier. Mr. Napier received his guests at Roselawn, his beautiful riverside residence, and, after enjoying a chat on the lawn upon motor topics generally, the party was conducted to a steam launch provided by Mr. Napier, and the trip up the river was greatly enjoyed. The beautiful scenery of the Thames Valley is now looking at its best, and presents a much better appearance when viewed from the river than from the dusty highways. Luncheon was served on board, and tea was provided at a river-side inn at Clifton Hampden. The return journey was completed about 8.30 p.m., and, after bidding adieu to their genial and hospitable host, the guests set out for home by automobiles. Those present included Mr. and Mrs. C. H. Dodd, Dr. and Mrs. A. C. Major, Mr. and Mrs. Tabor, Mr. and Mrs. J. V. Moinet, Dr. J. Hopkins-Walters, Dr. Truman. Dr. Deane, Mr. W. H. Phelps, Mr. Walters, jun., Mr. A. E. Newton (Hon. Sec.) and Mrs. Newton.

LADIES' AUTOMOBILE CLUB.

THURSDAY of last week was a busy day with the Ladies' Automobile Club. The annual general meeting was held at Claridge's Hotel, with Lady Edward Spencer Churchill in the chair, when the report presented referred to the recent progress. During the six months that the club's headquarters were at the Hans Crescent Hotel the membership increased from 130 to 219 members. In April the club moved into its present quarters at Claridge's Hotel, and since that time seventy-nine new members have joined, making a total of 298 members. On the 20th April, at an extraordinary general meeting of members, the Duchess of Sutherland was elected president and the executive committee was empowered to elect a fourth vice-president. This they have since done, and Lady Edward Spencer Churchill has consented to act in this capacity. While the club was at the Hans Crescent Hotel the vice-presidents invited the members to a biograph tea and the club accepted the hospitality of Mr. Cordingley at his Automobile Exhibition at the Agricultural Hall. On the 9th June, the first meet of the club was held in Waterloo Place, the cars afterwards proceeding *via* Pall Mall, the Mall, Buckingham Palace, where the King and Queen watched them pass, to Hyde Park and Ranelagh. Following the meeting was a biograph tea, when several scenes from the Gordon Bennett race were shown with evident approval from the ladies present, who included Lady Cecil Scott Montagu, Lady Beatrice Rawson, Lady Edward Spencer Churchill, Lady Margaret Jenkins, Lady Colvile, Baroness Campbell Von Laurentz, Lady Hartopp, Lady Salomons, Mrs. Bruce Porter, Hon. Mary Portman, Mrs. Lindsay Lloyd, Mrs. Wilson Noble, Hon. Mrs. Charles Forester, Mrs. J. Biddulph Martin, Miss Pilcher, Mrs. Mark Mayhew, Mrs. T. B. Browne, Mrs. Douglas Hall, Mrs. Chas. E. Shaw, Miss Goldney, Mrs. Gerard Leigh, Mrs. Elliot, Mrs. Piggott, Mrs. Carpenter Rowe, Mrs. Montefiore, Mrs. Gunston, Miss G. Wilson, Mrs. Richardson, Mrs. R. W. Buttemer, Mrs. Stracy Clitherow, Mrs. Roget, and Miss d'Esterre-Hughes.



The Joint Meet of the Sheffield and Lincolnshire Clubs at Ollerton.—Mr. F. Churchill on his 14-h.p. Hallamshire Car: seated at his side is Mr. F. B. Cawood, Hon. Secretary of the Sheffield Club

On Monday twenty-four members and friends of the Club were entertained by one of the members, Mrs. Herbert Lloyd, at her home, Coombe Farm, Addington, Surrey. Among those present were Mrs. Gerard Leigh, Miss Cristabel Browne, Mrs. Foyster Bowen, Mrs. Copland, Miss Eastwood, Mrs. S. F. Edge, Mrs. Edmunds, Mrs. and Miss Hartung, Miss Violet Stubbs, Mr. and Mrs. Wilson Noble, Mrs. Piggott, Miss Jackson, Nurse Parker, Mr. and Mrs. Studley, the Misses Evans and the Misses Parker, Miss Violet Needham, and Miss d'Esterre-Hughes (secretary).

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MORE APPEALS ALLOWED.

AT the Trinity Quarter Sessions for Oxfordshire, before Sir W. R. Anson, Bart., M.P., Mr. Richard H. Demuth, of Court Barton, Creech St. Michael, near Taunton, appealed against a conviction under the Motor Act, 1903, by the justices of the Wootton North Petty Sessional Division, sitting at Deddington, by whom he was fined £5 and costs. Mr. F. E. Weatherly (of the Western Circuit), and Mr. Cecil Walsh (of the Oxford Circuit), instructed by Messrs. Poole and Boulting, solicitors, Taunton, appeared for the appellant, and the respondents were not represented. Mr. Weatherly asked the Court to quash the conviction, which was under Section 1 of the Motor Act. The appeal was upon the merits and also upon a point of law, but having regard to the fact that the respondents did not appear, he asked Quarter Sessions to quash the conviction on the ground that the respondents had not appeared, without going into any question of merit or law at all. The case of the Queen against Purdey made it clear that where the respondents did not appear it was the duty of Quarter Sessions to quash the conviction without any more ado. In that case the Recorder had quashed a conviction, and the question before the Court was whether the Recorder was right in quashing the conviction because of the non-appearance of the respondents. Chief Justice Cockburn said: "In the ordinary course of practice at Quarter Sessions, where an appeal against a conviction is heard, the necessity is thrown upon the person who had appeared as prosecutor to make out such a case as would sustain the prosecution, and if no one appears to sustain it, it becomes the duty of the court to give effect to the appeal and quash the conviction upon the presumption that the prosecutor is unable to support the conviction, inasmuch as he does not appear to do so." They had given notice of appeal on the merits, and, of course, they had safeguarded themselves also by giving a ground of appeal on a question of law. His submission was they need not go any further, inasmuch as the respondents had not appeared. The appeal was a re-hearing, and the respondents were in the position of prosecutors. The position was this—here was a prosecution in which the prosecutor was not present, and they had to do in Quarter Sessions what they would do in Petty Sessions, dismiss the charge. On the authority of the Queen v. Purdey they should quash the conviction. The Chairman said there could be no doubt, under the circumstances, the appeal must be allowed. An appeal being in the nature of a re-hearing, as there was no case offered by the police, who were the original prosecutors in the matter, there was nothing for the court to deal with. The case, therefore, fell to the ground, and the conviction would be quashed. Mr. Weatherly said he wished to mention a new point. Upon a conviction under this Act the licence of the person convicted had to be endorsed, and the licence of Mr. Demuth was endorsed. He thought he was entitled to have that endorsement expunged; it was only a consistent conclusion of the decision of the Bench. The Chairman said the licence would go back to the Petty Sessions to be expunged. Mr. Weatherly remarked that he had one other application, and that was with regard to costs. He asked them to say that in the circumstances they ought to allow such reasonable costs as their clerk or taxing master thought fit. Of course, it would only be against the police, and not against the Justices. He concluded there was in Oxfordshire a fund—it would not come out of the pockets of the police inspector—to meet cases of this sort, and he very strongly urged that costs ought to be allowed. The Chairman, after consultation with the magistrates, said the Bench was clearly of opinion that reasonable costs ought to be allowed—the same to be taxed out of Court by the Clerk of the Peace before the adjourned Sessions on July 23rd next.

AT the Surrey County Quarter Sessions, held at Kingston-on-Thames on Friday, the 1st inst., before a bench presided over by Sir William Vincent, an appeal by Mr. William Mosenthal, of 38a, Porchester Terrace, W., was heard. Mr. Mosenthal was summoned before the Kingston bench on the 26th May last for driving a motor-car upon Pains Hill Bridge at a speed which was dangerous to the public. The police gave evidence to the effect that Mr. Mosenthal, on Sunday, May 15th, at 12.40 p.m., drove a large motor-car in the direction of Ripley at an excessive rate, and in their opinion dangerous to the public. They also gave evidence that there were a number of people and cyclists on the bridge and that the car was going at a speed of twenty-five miles an hour. Mr. Mosenthal, on the other hand, said he was proceeding along the road at about eight to twelve miles an hour; there was no traffic on the road at all; he pulled up in about twelve paces, and could not have done so if it had been going over twenty miles an hour. But, notwithstanding this evidence, the Bench convicted him and fined him £5, and, in addition, endorsed his licence. On the appeal Mr. Lushington appeared for the respondents, Mr. Horace Avory, K.C. (with him Mr. A. Moresby White, instructed by Mr. Staplee Firth) appeared for Mr. Mosenthal. Mr. Avory, in addressing the Bench, pointed out that the justices must take into consideration the whole of the circumstances of the case before arriving at any decision, and impressed upon them that it was no offence under Section 1 of the Motor Car Act, 1903, to drive at excessive speed unless there was positive evidence to prove danger; he also urged upon the Bench that the important question was, what were the special circumstances in this case which would make the speed dangerous, and in speaking of the evidence for the respondents, he said it was absolutely impossible for the witnesses to tell the speed of the car when they only saw it for a distance of about 100 yards. Mr. W. Mosenthal bore out his evidence given at the police court, and two cyclists, who were on the bridge at the time, gave evidence to the effect that they were not, nor was anybody, endangered. The Bench retired, and after long deliberation returned to court, when the Chairman said the Bench had decided to allow the appeal, and the endorsement on Mr. Mosenthal's licence was ordered to be erased.

MR. VICKERS, of Cadogan Square, W., was summoned by the Andover police for motoring at a speed which was dangerous to the public, and convicted. He appealed to the Quarter Sessions held at Winchester, being represented by Mr. G. F. Mortimer, instructed by Mr. Staplee Firth. The appeal was allowed, the conviction was quashed, and the endorsement on the licence was ordered to be cancelled.

CONVICTIONS AGAINST MOTORISTS.

Place.	Summoned for	Fine.
Lewes	Driving unregistered car	10s., etc.
Lincoln	Driving without licence	12s. 6d., etc.
Northwich	Furious driving	£5.
Gainsboro'	No light on motor-bicycle	£1, etc.
Worthing	Excessive speed	£4.
Birmingham	Negligent driving	40s.*
Bow St. (London)	Above 10 miles an hour in St. James's Park (several cases)	20s., etc.
Blofield	Driving recklessly	£4, etc.
Worcester	,, ,,	20s. etc.
Nottingham	,, ,,	20s.
Birmingham	,, ,,	40s.*
Norwich	Not keeping motor-cycle on right side of road	10s., etc.
Bodmin	Driving recklessly	5s.
Bromley (Kent)	Driving to common danger	40s., etc.
Dublin	Using a false number	£5, etc.
,,	Failing to produce licence	40s., etc.
Newtown Mount Kennedy	Unilluminated rear number	10s., etc.
	Not producing licence	5s., etc.
Chertsey	Reckless driving	£2, etc.
Woking	Lending a motor number	5s., etc.
,,	Fraudulently using a number	5s., etc.
Odiham	Driving at excessive speed	£3, etc.
Southampton	Dangerous speed	40s., etc.
Lewes	Driving unregistered car	10s., etc.
Stratford	Driving without licence	10s., etc.
Saxmundham	Exceeding legal speed	20s., etc.

* Notice of appeal given.

POLICE TRAPS.

THERE is a measured quarter of a mile just north of Findon (Sussex).

A POLICE trap is in operation in Moortown Village, near Leeds. The Harrogate road from Leeds *via* Harewood is being patrolled and car and cycle numbers are being taken. The trap is one that works both ways, and is from the Chained Bull Hotel to a point about 250 yards above Moortown Church.

ON the London road, Hook, is a measured distance of 220 yards.

CASES DISMISSED.

AT the Huddersfield Borough Police Court Charles Mitchell, Chapel Hill, was summoned for driving a motor-car in Woodhead Road, on the 8th ult., at a speed exceeding twenty miles an hour. Inspector Taylor, who timed the defendant over a measured quarter of a mile, said that he covered the distance in 31 sec., equal to 29 miles 56 yards per hour. There was no evidence of corroboration as to the speed, and Mr. F. A. Reed, who appeared for the defendant, said that there was no case to answer. This contention was accepted by the Bench, and the summons was dismissed, as was also a summons against the defendant for not having a car registered.

THOS. W. BUSH, of Hammersmith, was summoned at Chertsey for recklessly driving a motor-car at Weybridge, on June 15th. An Egham groom said he was in Bridge Road on a bicycle when the motor, going at a rate of twenty miles an hour, struck the back wheel of his bicycle, and knocked witness off insensible. Defendant said the complainant lost his pedals as he came from Balfour Road into Bridge Road. The fact was that the bicycle was going so fast that he could not stop it and ran into the wheel of the motor. A gentleman who was in the car corroborated this, and the case was dismissed.

MR. A. R. POAT, of Grosvenor Square, W., was summoned at Epsom on Monday for motoring at an excessive speed. He was defended by Mr. G. F. Mortimer, instructed by Mr. Staplee Firth. The prosecution failed to establish the fact that anybody was endangered and the case was dismissed.

AT Watford, on Tuesday, Henry Wilkinson, chauffeur to Mr. J. B. Joel, Grosvenor Square, London, was charged with driving a motor-car to the common danger on June 18th. Mr. Staplee Firth defended. The police evidence was that the defendant was travelling at twenty-six miles an hour down Clay Hill, Bushey. The defendant said his speed was fifteen miles an hour. Mrs. Joel, who, with Mr. Joel, was in the car, gave corroborative evidence, and contradicted the constable's statement that he was in plain clothes. The constable (recalled) said he had made a mistake. The Bench dismissed the case.

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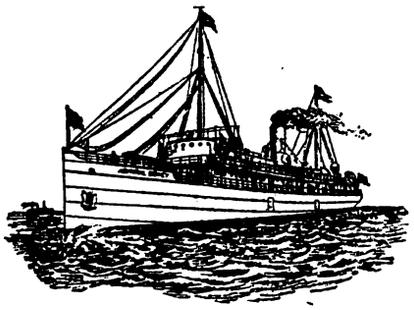
THE

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COMMENTS.



LARGE numbers of foreign motor-cars continue to be imported into this country, the number last month being returned at 581, of a value of £248,579. Parts were responsible for £46,733, bringing up the total for June to £295,312, as against £252,345 in the preceding month and £258,578 in June, 1903. So far this year, that is to say, for the first six months, the imports stand at £1,267,830, or approximately £203,000 more than in the same period of last year. Passing now to the exports of British automobile productions, the returns are somewhat disappointing, only 27 vehicles being shipped last month, these with the "parts" being valued at £16,300. For the six months ending with June the exports are, however, returned at £139,930, or roundly £7,100 more than in the corresponding six months of 1903.

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A False Police Trap.

MR. ALBERT G. STERN has performed a useful service to his fellow motorists in drawing attention to the fact that a police trap on the Braywick road, between Windsor and Maidenhead, had been incorrectly measured. It appears that towards the end of last month, while driving from the Royal borough, he was stopped by a police-sergeant and two constables for attaining a speed of twenty-six miles an hour on his motor-car. He was informed by the police that he had covered the 220 yards at this rate, and, feeling certain that a mistake had been made, Mr. Stern procured a tape measure and measured the distance in the presence of the sergeant and his two constables. There was no doubt that the distance was only 202 instead of 220 yards. Nevertheless a summons was issued, and Mr. Stern was preparing to defend the case, when he received an apology from Major Poulton, the chief constable of Berkshire, and also a note to the effect that the summons had been withdrawn.

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Carry a Tape.

MAJOR POULTON says that the police were under the impression that the distance was correct, but, on its being subsequently measured, Mr. Stern's measurement was found to be accurate. In view of the large number of cases where the measured distance has been used to convict motorists, we would suggest that some grave errors of justice have doubtless taken place, for we cannot believe that this particular instance is merely an isolated one. It would appear that motorists must now add a tape measure to the other equipments of their cars in order to verify or otherwise the measured distances along which the police take the times.

Motor Ambulances.

IN a speech in London, a few days ago, Sir William Collins, the chairman of the Education Committee of the London County Council, urged the immediate necessity of an up-to-date ambulance system for London, where, he said, 10,000 street accidents were annually attended to by the police, who were not equipped with the means of transporting patients to hospitals with the speed with which they ought to be conveyed. At the time of the last Motor Car Exhibition at the Agricultural Hall some members of the Metropolitan Asylums Board were making diligent inquiries as to the possibility of a motor ambulance for the conveyance of patients from one or other of the institutions of that authority to other places, but little has been heard of the proposal. We trust, however, that the time is not far distant when manufacturers generally will recognise the coming demand for motor ambulances, and such speeches as that of Sir Williams Collins are to be welcomed as preparing public opinion for the innovation.

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The Motor Union.

IN view of the success of recent appeals from magisterial decisions, and of the good work which has been done in obtaining notice boards and warning signs at various dangerous corners, we trust that there will be no delay on the part of the individual owners of cars in joining the Motor Union. This organisation has undoubtedly justified its existence in the energy with which it is directed, as well as the usefulness of the work it has already done. A great future is ensured for the Union. Its membership is not only influential, but it is widespread, and, so far as Great Britain and Ireland are concerned, it is likely to be of permanent value to the automobile movement.

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The Recognition of the Road.

THE education of the people with reference to the road proceeds rapidly, and not only are the local authorities in the country recognising the new factor that has been introduced by the automobile, but the importance of the subject has been impressed upon some of our recent influential visitors. In an interview on the conclusion of his trip through Great Britain, the Alake of Abeokuta expressed himself as having been much impressed by the importance of roads as he had seen them in England, and declared his intention of taking steps to promote extensive road making in his own country. Such a remark, coming into association with his evident delight in motoring, should encourage not a few firms to take an interest in Abeokuta, a country they have hitherto ignored.

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In Ireland.

NOT only is Abeokuta to be improved in regard to the roads and highways, but, despite the antediluvian wailing of a few shortsighted councils, substantial progress is being made in Ireland. At the quarterly meeting of the Athlone Rural Council, the County Surveyor recommended that a large number of payments to road contractors be deferred as the surface treatment of the roads was not satisfactory. He said the use of

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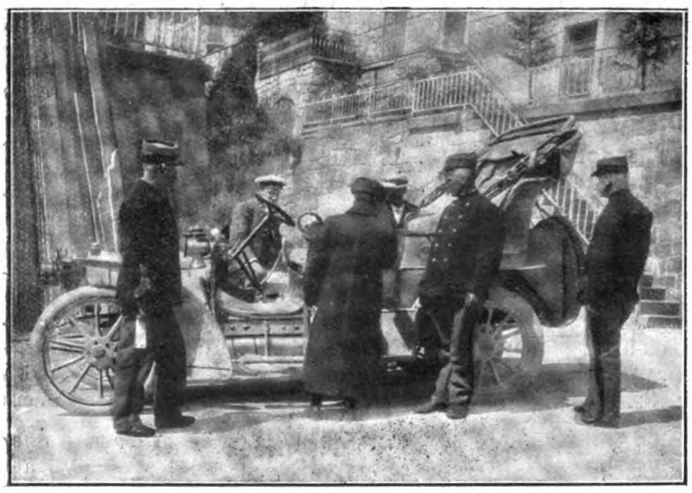
motor-cars had become so general, these modes of conveyance called attention to the surface of the roads, and contractors should try and satisfy present day requirements, and not be content with what was a good enough state in the past. The question was whether they could produce that surface which would satisfy the motorist. He feared they could not without greater expense. The thing most necessary in the keeping of a public road was to attend to it more frequently, on the principle that to prevent injury was better than to repair. The Council approved of the action of the County Surveyor.

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An Australian Run.

POSSIBLY the final run this season of the Automobile Club of Victoria was held on June 4, 5 and 6, the route being that skirting the bay via Mordialloc, Frankstone, Mornington and Schnapper Point to Sorrento. The party, including seven ladies, numbered about thirty; and, although the roads for many miles were under water, and in consequence the other portions were very greasy, no accidents occurred, the trip finishing at the time arranged for. The cars included two 16-h.p. Decauvilles, a 12-h.p. Knowles, a 9-h.p. De Dion, two 6-h.p. De Dions, two 6½-h.p. Humberettes, etc. On the road home a call was made for afternoon tea at Mr. Crooke's, Aspendale Park, where the new track for motor-racing is being prepared by him, mainly for the use of the Club's members, of which he is on the committee. Although only in existence less than six months, the Club has already over 150 members enrolled, the majority of course living in Melbourne and suburbs.

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Across the Alps.—The Car at Flumet.

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Motor-Cycles in War.

AT a meeting at the Royal United Service Institution, Mr. A. Graham Murray, the Secretary of Scotland, has been pointing out that if we had fairly good roads to negotiate the motor-cycle would be of the greatest possible service to the military authorities. At the same meeting Major M'Nalty read a paper on the value of mechanically-propelled vehicles for military purposes, urging that the necessary features about an automobile for military uses were that it should use a heavy and less volatile oil instead of petroleum spirit, should be of a standard pattern, as silent and raising as little dust as possible, should be reliable for hill-climbing and passing over difficult ground, handy to control and easy to repair on the field. When these conditions were complied with the use of motor-cars must obtain serious consideration. A motor-cycle could be maintained at a much less cost than a horse, and its simplicity and rapidity of action were greatly in favour of its use. He mentioned that in the South African war there was a saving of as much as £50,000 by adopting mechanical transport for stores. Writing us with reference to the subject, Colonel W. J. Bosworth says there is no doubt as to the efficiency of many of the machines now in the market for military service, but asks for information as to the tyres available to give reliability to the vehicle while not detracting from the speed.

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The Use of Oil in Road Making.

WHILE on this subject it may be of interest to note that Mr. Edwin Cannan, M.A., has prepared a report for the Roads Improvement Association, in the course of which he says: — It seems desirable to carry out some further experiments with the object of discovering whether, with the aid of oil, a hard and durable crust can be formed at reasonable expense on the top of a sound macadam road in this country and climate. For the purpose of ascertaining whether oil would lay dust, it was doubtless necessary to experiment on a public road, but that oil will lay dust may now be regarded as abundantly proved. The objections to its use in the simple Farnborough method are (1) the expense, which, at the lowest computation, is more than the whole cost of maintenance of thousands of miles of English roads on which the increase of motors is likely to make dust an intolerable nuisance, and (2) the unsatisfactory effect of the oil in wet weather. In order to discover what we now wish to know, whether oil can be employed usefully and at reasonable expense (taking into account the rise in price which will inevitably result from a large increase of demand), not as a liquid to be sprinkled on the top, but as a material to be inserted in the upper portion of the road surface, it is quite unnecessary and undesirable to make the earlier experiments on a public road and allow fools and children to see half-done work. The earlier experiments can be conducted perfectly well on a very small and inexpensive scale on a private carriage drive or in a timber yard.

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The Alpine Adventure.

OF the running of trials there is no end, and various, indeed, are the forms that such tests are now taking. It is not so very long ago when a thousand miles trial extended over a week, and many of the competing cars were found extended along the road. Now such a test is regarded with nonchalance by makers, and other factors than merely reaching the destination are taken into account in making the awards. Non-stop runs from Glasgow to London, and others of 2,000 miles and more, have set records for the motorist of the future to go beyond. Now Captain Deasy, having explored Tibet and done other adventurous things, has conquered the Alps on his trusty motor-car and demonstrated anew the possibilities of the man and the motor. For these long rides are equally a tribute to the stamina of the participants as of the reliability of the car that carries them over mountains and across the Continent.

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Motor-'Buses in the South.

SEVERAL applications have been made to the town council of Worthing with regard to motor'-bus services, and these having been discussed by the General Purposes Committee, the Council has been recommended, "that the several persons who had been making inquiries on the subject of motor-omnibuses should be informed that the Council would offer no objection to the granting of licences to run such vehicles provided the Council's conditions as to speed, routes, and the bye-laws relating to omnibuses plying for hire were complied with." This was seconded and adopted. Replying to an inquiry, the Mayor said every application for licences would come before the Council for approval. Nearer London the movement for motor-'buses makes progress, and petitions are being signed in Farnham, Haslemere, and the districts round, to the London and South-Western Railway Company, asking them to inaugurate a motor-omnibus service between the two towns. The signatories state that the proposed service would link up the two branches of the railway, would traverse many increasing and attractive

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villages and districts, and bring a large additional traffic to the railway by increasing the facilities of travel. It would also be the means of adding to the number of houses erected, thus lowering the district rates, improving local trade, and extending the fields of employment for local people.

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The Canine Nuisance.

Dogs are as troublesome as children on the road, and anything that can minimise the nuisance they have become to motorists is to be welcomed. Hence the action of Superintendent Williams, of Welshpool, is to be recommended to the police authorities in other districts. He was travelling on a motor-bicycle when a dog rushed at him, and, catching hold of his leg, nearly brought him to the ground. The result was that he charged the owner with keeping a dangerous dog. At the court the Superintendent said he did not wish to press the charge, but he wanted to demonstrate to the people of the locality that they must keep their dogs under control, a view which the chairman of the magistrates endorsed in making an order that that should be the fate of the offending canine.

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Keep a Record.

Several traders who have lately been summoned for failing to keep a record of the cars sent out without the general identification mark upon them have pleaded, in extenuation of their offence, that it was only a technical one. This, however, has been worn so thin that it is now of no avail, and traders should certainly, knowing the law, take every precaution to see that it is carried out, unless they wish to involve themselves in considerable unnecessary expense, to say nothing of the worry and unpleasantness of attendance at a police court. The regulations with regard to the use of these traders' marks are so clear and explicit that there really should be no excuse for intelligent persons not carrying out the provisions. We recognise that in some minor details they are irksome, but no good is done by wanton neglect to carry them out.

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"It's an Ill Wind," etc.

Motorists who have driven along the roads near Skegness will realise how very hazardous they are, being for the most part narrow and extremely twisting and turning and all with deep dykes on either side. A week ago four motorists had a rather memorable experience of these roads. At one of the many double turns, where the road is banked every way, the car, failing to get round properly, gradually slid into the dyke and overturned, throwing three of the four out, luckily clear of the dyke and car, the fourth jumping from the tonneau right over the dyke and barb-wire fence. A passing motor-cyclist brought a gang of men and a derrick and the car was soon lifted out and was able to resume its journey. While the car was being lifted out a man from Wainfleet hastily collected several loads of people in his wagonette, and, at a charge of sixpence each, made money in taking them to see the spill.



The Nice Touring Competition. Some of the Cars at Saint Tropez.

Police Traps Again.

Once more are the police active, and again in Surrey and Sussex. In the former place the venue is Oxshott, Superintendent Marks' district, and the other Henfield, in the notorious West Sussex district. In the latter place, just before an acute right angle turn, the policeman steps out and proudly displays his watch-time, permanent apparently—59 4-5 secs.—the distance half a mile, the other constable being concealed in a shed. The position of this building is such that the two policemen cannot possibly see each other, and the watch carried by the man who stops the motorist is an extraordinary-looking arrangement, costing possibly a few shillings. In Richmond Park, too, nearly all motorists are worried and held up by hidden parkkeepers on foot and horseback and asked if they are aware ten miles is the highest speed they can travel in Royal Parks. These annoyances

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usually happen in practically unused portions of the Park, and where there is an entire absence of traffic—other than motor-vehicles.

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A Demonstration with Burst Tyres.

An impression seems to have arisen amongst a section of the public that if a mishap happens to the tyre of a motor-car, a calamity is sure to follow. Such an idea all motorists know is a ridiculous one, and the ever resourceful Mr. S. F. Edge thought that for once and for all the idea should be dispelled. Therefore, he issued invitations to large numbers of the Press to meet him at the Crystal Palace on Tuesday, and between sixty and seventy representative journalists took advantage of the invitation. The programme Mr. S. F. Edge laid out was a severe one, including a touring car going at full speed having two tyres burst on the road, then this touring car to travel with deflated back tyre and to have all four tyres burst. To make the demonstration more convincing, a Napier racing car was brought on the scene, and it was proposed that two tyres should be burst and the same car run again with a tyre loose, with a view to it being run off at full speed, if possible.

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The Cars pursue their Course.

At the start the trials were somewhat disappointing owing to the difficulty of causing punctures in the Dunlop tyres. Broken glass bottles were freely used, as well as boards with spikes, more than twenty of the latter being scattered about in one instance. Ultimately, however, Mr. Cecil Edge collapsed his tyres, and it was shown that the 15-h.p. Napier did not swerve in the least. Then Mr. S. F. Edge used his racing Napier, collapsing his tyres on two occasions, in each instance the car continuing its steady course. The greatest demonstration of all was his endeavour to shake off a loose deflated tyre. This was found a most troublesome proceeding, and, notwithstanding that Mr. Edge swerved all over the track, with a view to shake the recalcitrant tyre, it was only after several trips that the outer cover came off, travelling thirty or forty miles an hour, and smashing ironwork and innumerable fairy lamp globes. Mr. Edge said he did not know the tyre had come off, and certainly the car maintained its steady course, although it ploughed up the road for some distance. To the pressmen, the demonstration was certainly a most convincing one, and we do not think any of those gentlemen who were present can again indulge in the alarmist writing which is so common a feature of the general press.

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The Bexhill Meet.

The programme of the Bexhill meet for August Bank Holiday has reached us, and while it is well calculated to arouse popular interest and provide a good entertainment for the day, we should have been better pleased had the names of some of the officials appeared thereon. If Mr. Basil Joy or some other well-known organiser of such events had been responsible for the carrying through of the event more confidence might have been felt in the affair. Perhaps it is not too late for such a suggestion to be carried into effect.

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Proposed Restriction at Bury.

Mr. E. Pearse Burd, of the Local Government Board, has held his first enquiry in Lancashire with regard to the ten-mile limit. This took place at Bury on Tuesday last, when the Automobile Club and Motor Union were represented by Mr. E. Shrapnell Smith. The North-East Lancashire Club delegated their president, Mr. Wm. Birtwistle, J.P., Blackburn, Mr. Robert Crossley, Clayton-le-Moors, and Mr. S. Briggs-Bury, Accrington. The Manchester A.C. deputed Mr. Victor O'Neil to speak for them, whilst Bolton automobilists had an excellent witness in Mr. H. T. Scowcroft, J.P.; Mr. James Whitehead, son of the late High Sheriff of Lancashire, and Dr. Nuttall, of Clough Street, Bury, spoke for the immediate vicinity. The whole case for the various clubs was controlled and presented by Mr. W. Rees Jeffreys, who was opposed by the Town Clerk of Bury, Mr. Haslam. Only two witnesses were called in support of the application, the Borough Engineer and the Superintendent of Police. The general conclusion of all present was that Bury made out no case, especially in view of the fact that the majority of the streets within the proposed area—a radius of three-quarters of a mile from the Parish Church—are wide and straight.

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The Southern Roads.

The week-end, as all our readers know, was a warm one, and it was expected that motors would be out in numbers, but the most enthusiastic motorist could never have anticipated such numbers as were seen on the Brighton roads on Sunday last. They were practically in procession, and to the four-cylindered car the two-cylindered cars were a nuisance, occupying the middle of road, and the one-cylindered car owner was an unreasonable object to the former. The give and take of some motorists on public roads is not as it should be, and we are inclined to the opinion that the most inconsiderate users of the roads are the owners of small cars.

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Visit of French Motorists.

With a dozen De Dion cars between thirty and forty French motorists have arrived in England for a tour in the south, the itinerary being shown in the map published on another page. Landing at Dover on Tuesday morning, they spent a few hours in the town, and then, headed by Mr. J. W. Stocks, made for Hastings, where the first stage of the journey ended. Our friends from across the Straits are having a hearty welcome in the various towns through which they pass, and nothing but pleasant recollections should remain at the conclusion of their trip. The party was entertained by Sir David Salomons at Tunbridge Wells on Wednesday.

Mr. F. F. Wellington has been appointed manager of the British Automobile Commercial Syndicate, Limited, of Long Acre, London, W.C. Mr. D. M. Weigel retains his position on the Board.

In the Marlborough Police Court, Mr. Windsor T. White has been fined 40s. and 2s. costs for trying to drive a motor-car in London in the American way, on the right side of a refuge instead of the left.

Mr. T. W. Holmes, who knocked down and injured with his motor-car four members of the Ravensthorpe Band, was at Dewsbury County Court on Wednesday ordered to pay £65 damages and costs.

Mr. T. Shaw has just driven a 15-h.p. Napier car from London to Dundee *via* Edinburgh, Glasgow, and Perth, a distance of 530 miles, in 24½ hours. From Dundee, Mr. Shaw intended to drive to Inverness and there complete his non-stop run.

The executive committee of the A.C.G.B.I. have adopted a resolution recommending that permits for non-stop runs or trials should not be granted to newspapers or private individuals, a view with which we are in entire sympathy. This recommendation is to be considered at a special meeting of the club committee.

The Wilton-Cox Device Company are now prepared to appoint agencies in Great Britain and Ireland for the sale of their bands. In Mr. Weigel's recent run one tyre was defective, notwithstanding which it ran about 900 miles before it was worn out. When he replaced it with another cover which had not the Wilton-Cox device, it had a puncture at once. He replaced this cover again in London by another fitted with the device and had the same result as with the other three covers which were fitted with the bands, that is to say, on all the tyres fitted with the bands there was not a single puncture in the whole 2,017 miles run.

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SEASIDE SERVICES.

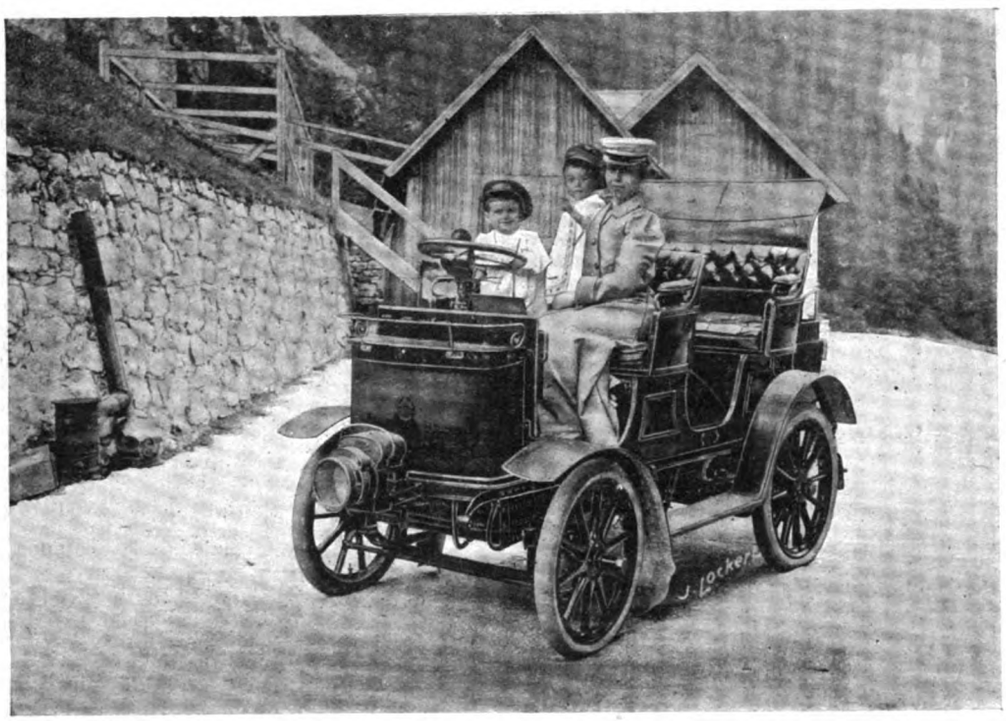
A FEW summers ago, at one of the East coast seaside resorts, a motor-car was wont to rush about the place in a wayward and grunting fashion. Ever and anon it would come to a standstill, to be immediately surrounded by a group of curious sightseers anxious to gaze upon the spectacle, but uncomplimentary in their remarks as to its appearance. And then the perfume! It encouraged those whose noses had a tendency to turn upwards to undoubted movement in a skyward direction. When the vehicle was coaxed again into a panting movement and set out upon its journey as though in pain, people stood back upon the pavement and wondered as the mud-bespattered, dowdy car plied for hire among those who had gone to the place for pleasure, not for a doubtful recreation.

In fact, the seaside motor-car of a few years ago was a kind of outcast among automobiles — a veritable roadside tramp that threatened to vibrate its passengers into certain opposition. Things are now righting themselves, however, and the law of the survival of the fittest applied to automobilism is evinced in the elimination of the unfit. That wretched, weary, wanton motor-car no longer disports itself on the sea front, to the alarm of the visitors and the amused indignation of the residents.

Our southern coast is developing an interest in motor-vehicles that shows an enterprise as great as that which animated railway magnates in the early days of the train. Eastbourne's municipality has made a great advance, and the vigour with which it has carried out its motor-'bus programme has incited other local bodies into a spirit of inquiry. At Folkestone and Sandgate private enterprise has provided the people with good automobile services, and at Hastings equally satisfactory provision has been made. Bournemouth has well-known public motor-cars; motor-'buses cannot long be delayed in that district. And at Torquay, where hilly roads have been a trial of strength for the motors, 'buses without horses have carried thousands of passengers with prospect of great success. Brighton, too, is not ignorant of automobile service, and during the present summer no town of any importance is likely to be without its service of motor vehicles.

On the other coasts inquiries are afoot and whisperings of projected services at the leading resorts are frequently to hand. Those interested in such developments must consider the essentials of success before actually embarking in operations. Only good types of vehicles must be selected, and here recent experience in the towns already named will be useful. Care must be paid to the condition in which the vehicles are sent out for their daily runs. There must be no slovenliness, and the cars must be thoroughly cleaned and overhauled each day. Drivers of neat appearance must be found and everything done with a view of ingratiating the service in public favour.

Then a fixed tariff and time table must be established and rigidly adhered to. This is a factor of success which was entirely wanting in the earlier services. Now that the vehicles have so much improved that reliable time keeping can be practically guaranteed, there should be no difficulty in running the cars or 'buses absolutely to time. It is an important consideration. The time table should be made known in the locality, so that new visitors need not waste opportunities for taking trips to adjacent places.



A Young Driver of a Serpollet Steam Car. [*Le Chaufeur.*

Projectors of public services at the seaside should not imagine that the novelty of the motor-car will be its seaside justification. The sense of innovation has largely disappeared, and people now use motor-cars because of their convenience, not because they are new means of conveyance. Hence the necessity of securing reliable, steady drivers as well as cars with similar points of commendation. With bold advertisement, accurate running to time tables and economy in garage expenses there should be good profit for small syndicates locally financed at any of our seaside resorts. Such ventures can have the benefit of the experience of the successful services now running in the South, and also the assurance of public favour which has been liberally given to well-organised fleets of automobiles.

THE Tractor Machinists, Limited, has been registered with a capital of £10,000 to carry on the business of iron and steel founders, makers of motors and motor engines for carriages. The first directors are Messrs. H. Oviatt, R. Heywood, and J. S. Cropper, and the registered office is at 30, Fleet Street, E.C.

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FIRST ACROSS THE ALPS.

BY ONE OF THE PARTY.

TO climb and climb for 185,755 feet among the Alps in fifteen days. Such was the self-set problem. The accomplishment was even quicker, despite the fact that no fewer than 3,011 kilometres had to be covered up hill and down dale to find the hills to climb. The journey from Neuchatel through Switzerland, Italy and France over thirty-four of the highest mountain passes in Europe and countless climbs back to Geneva was made in 12½ days on the road on a 16-20-h.p. Martini car driven in turns by Captain H. H. P. Deasy, who ascended the mountain railway to the summit of the Rochers de Naye last October, and Monsieur Max de Martini, the winner of this year's Rochet-Schneider Cup; the other occupants of the car being M. Georges Prade, whose place was taken during part of the time by M. Alphonse Steimes, of the "Auto," and Mr. H. Massac Buist.

The story of the first mountaineering tour ever planned to be undertaken by motor-car is one of unqualified success from start to finish. We never knew what it was to worry about the car. When the inner man had been attended to and we desired to resume the road the tanks were filled with more petrol, lubrication was looked at, and we were away. Even punctures were unknown, a triumph for the Continental tyres. It is the general belief, of course, that almost any road you care to take on the Continent is incomparably better than our English highways, but the notion is a fallacy pure and simple. For instance, take those wonderful straight and level stretches leading into and out of stately, suffocating Turin. They were planned and built by the greatest road-makers the world has ever known; but, alas! the Cæsars and their vassals are no longer responsible for their upkeep. Of course we expected rough surfaces among the mountain passes, for we were first across two, or rather the second turned out to be a pass only existing on Taride's route map, after we had mounted for 18½ kilometres over an extremely dangerous and difficult mule track. This was along the Col du Charvin, which is reached by way of Valloire and skirting St. Jean de Maurienne. In many cases, too, we found that we were the second across. Even without waiting to be told by the map that certain routes we proposed to travel were impracticable, or by the natives that they had only seen one other motor-car on those heights before, and that nothing like so large a vehicle, there were always mute truth-tellers ahead of us to indicate the fact; for we invariably found that in parts where motor-cars were unknown mongrels were every now and again suddenly appearing immediately in front of our bonnet. But they did not bark or jump from one side to another, instead they put their tails between their legs and scampered ahead along the very middle of the track until sheer exhaustion drove them into the first means of refuge that presented itself.

But to the story of the climb. As is pretty widely known by now, the great feat of the tour was the passing over the Forclaz, a dangerous and forbidden passage 6,496 feet high on the Tete-Noir route from Martiny to Chamonix, a distance of twenty-five miles across the Swiss-French frontier. To have taken it under the most favourable weather conditions and with the car having a short instead of an extended wheel-base would have been sport enough for the intrepid. As it was, however, there had been rain within a few hours of our setting forth, and the length of the heavily-weighted car was more than half as long again as that of any mule-drawn vehicle taken over the pass. But we were anxious not to be delayed in our tour. So we agreed to pay the burliest of the local guides a sum of 100 francs.

It was fourteen minutes past four in the morning when the five of us mounted the car, and, with all our luggage on board, stole quietly out of Martiny in the opposite direction from that we designed to pursue. We had not gone a couple of miles when the ascent proper began. Almost from the beginning the path pursued a serpentine course, the average coils by which the track almost doubled on itself being at distances of from 50 to 100 yards, with the gradient steepest at the most difficult parts of the turns. the average rise from Martiny to the summit being 1 in 6½. Moreover, where the road was not treacherous with the wet it was rendered dangerous by the presence of patches laid with large round loose stones that went hurtling down into the precipitous depths below as the driving wheels span round in the vain endeavour to get a grip. The bends were so abrupt that many of them could not be taken without backing and advancing the car three or four times in both directions, there being only a yard to move in either to the rear or forward, and the surface of the track getting worse and worse with each passage, so that side-slips were often felt. Many measurements of our outer wheel tracks were taken, when we found that it had been no uncommon thing for us to pass within a foot of the very verge of a sheer drop into space, the narrowest margin measured being 3½ inches. Yet, for all our trouble, we reached the summit in an hour from the start.

But there was no time to spare, for the descent was, in the guide's opinion, more dangerous than the climbing up, and there was the "douane" to be passed before the officials were up. The turnings proved to be at longer intervals, but they were more dangerous, because at those parts, as elsewhere, the track, instead of being banked up, sloped away towards the unguarded edge, while all the way down those in the car had the great mountain towering over them on the one side, and on the other space until the eye lit on depths hundreds of feet below. A moment's giddiness or loss of nerve would have brought us to the bottom in record time. Happily for us Captain Deasy has been bred a mountaineer from the days of his wanderings and explorations in Tibet and about Central Asia, while Max de Martini was born among the heights where he has spent his life. So in the place of a swift descent we went down considerably slower than we climbed up. The "douanier" was not on duty when we passed his abode, but the sound of our coming had awakened him, and the sight of his astonished face as he thrust his unkempt head out of the window and rubbed his eyes hard to assure himself that he was not dreaming made us laugh loud and long. At Vallersine telegraph office, where we drew up for the first time, the innkeeper could not conceive that we had really come from Martiny, despite the fact that he knew full well we had not passed him at any time in the opposite direction, that there was but the one way over the mountains, and that the chief of the guides was with us to tell the tale. The fame of the exploit preceeded us wherever we went.

If that was the most difficult achievement from the sporting point of view, there were others almost equally trying as far as physical endurance was concerned. We have wandered high and low in three countries, but if you are to climb 185,775 ft. you must also go down, no mountain of that height being yet discovered on the earth's surface. Hence we sought sea-level at Nice, which was practically a deserted town owing to the summer heat, and a few hours later were up above the snow-line, glad of every available wrap and a bout of snowballing to keep the circulation going. Desp te all precautions we were seized one after the other with internal chills that made motoring anything but pleasant and the mere thought of food impossible. For all that the trip was thoroughly enjoyable, the only regret in connection with it being that we had not six or eight weeks instead of a few days in which to do it.

THE Collier Tyre Company, Limited, are removing from 210, Shaftesbury Avenne, to 127, 128, 129 and 130, Long Acre, London, W.C., where they hope to be installed in a fortnight's time.

ACCORDING to a report from the Highways Committee presented to the London County Council on Tuesday the clerk of the Council had from June 18 to July 2 registered 149 motor-cars and ninety-one motor-cycles, making the total number of cars and cycles registered up to the last-named date 3,768 and 2,697 respectively. The clerk had also issued during the same period 371 licences to drive motor-cars or cycles, and general identification marks for motor-cars had been assigned to three manufacturers or dealers.

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A RECORD ALPINE TOUR.

(*See page* 426.)



A Frequent Obstruction on the Road. Captain Deasy. M. de Martini is seated at his side. Arriving at the Telegraph Office, Vallorsine.

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THE "BAKER" CHANGE SPEED GEAR.

THE planetary type of change speed gear, so largely used by American motor-car builders, have hitherto received but little attention at the hands of European designers. Messrs. Joseph Baker and Sons, Limited, of Willesden Junction, have, however, been devoting their attention to this type of gear, and exhibited an example of the same at the Motor Car Exhibition at the Agricultural Hall, and of which we are now able to give the illustrations in Figs. 1 to 4. The standard gear, as shown in the reproduction, is for three speeds forward and one reverse motion, the reductions arranged being at present 3 to 1, 5 to 1 and 10 to 1, *i.e.*, on the fast speed the engine will be going three revolutions to one revolution of the road wheels on the car. The gear can of course be arranged for any speeds, the ratios naturally varying for different power cars.

There is only one lever necessary to change the speed, and it is impossible to do anything to injure the gear in speed changing; furthermore, the teeth of the gear wheels are always in mesh. There is also no clutch, the gear being free in between each different speed, the brake bands, as will be seen from the illustrations, practically forming a separate friction clutch for each different speed.

The gear runs in oil and the changing of speed is effected without shock; the brake bands before mentioned, which are tightened up gradually by means of cams worked by the single change-speed lever, slip slightly when they are being put in, thus avoiding any sudden load being put on to the teeth in the gear. This slipping action is also utilised when driving in traffic, and enables the driver to control the speed of the car from zero up to the gear on which he is running at the time. For instance, when running on the top speed the lever can be pulled into the mid position between the top and the second speed, which will give a free engine; it can then be started up again by gently pulling the lever into the top speed position again, or into the second speed position, as required; this can of course be done

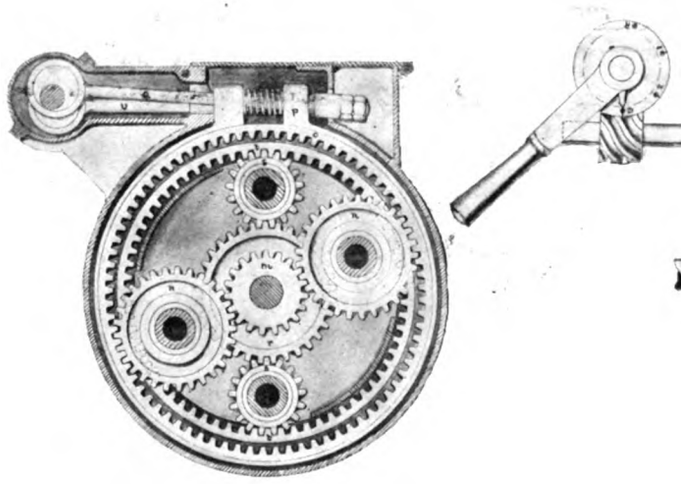


Fig. 1.—Section on Line E F, Fig. 4.

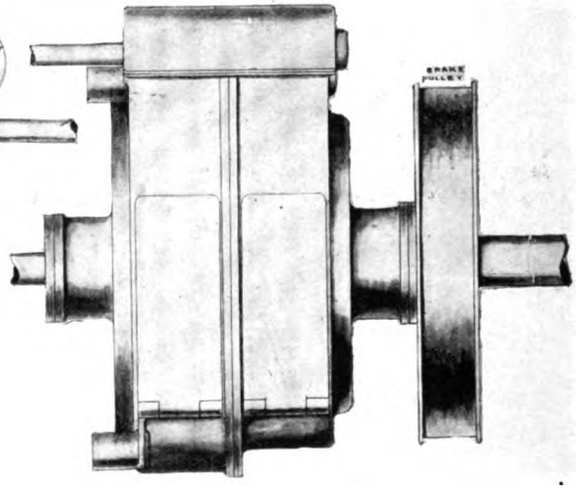


Fig. 2.—General View.

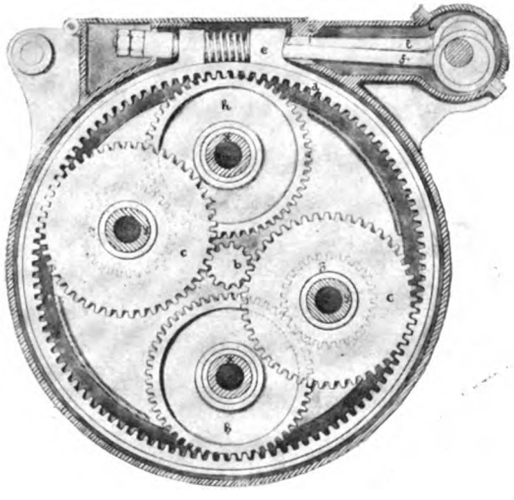


Fig. 3.—Section on Line C D, Fig. 4.

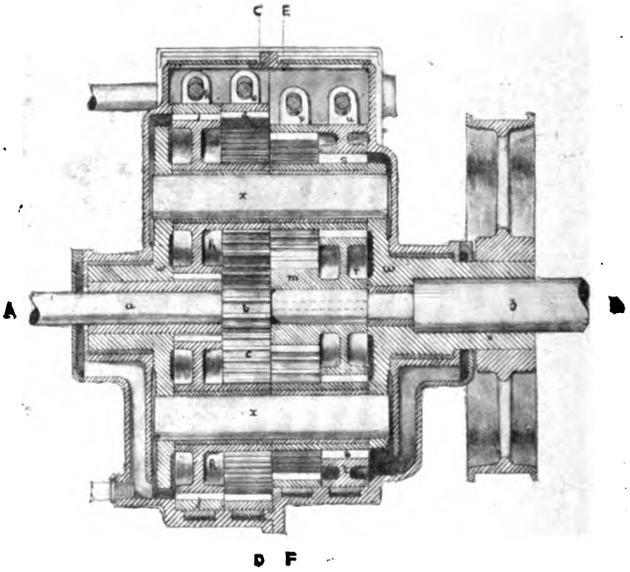


Fig. 4.—Cross Section of Gear.

A Driving shaft from engine.
B Pinion on shaft A for first or slow speed.
CC Planet wheels for first or slow speed.
D Internal toothed ring for first or slow speed.
E Friction band to hold ring D for first or slow speed.
F Eccentric and rod for tightening band E for first or slow speed.
GG Planet pinion on first motion wheel C for reverse.
H Intermediate gear wheel between G and ring J for reverse.
J Internal toothed ring for reverse.
K Friction band to hold ring J for reverse.
L Eccentric and rod for reverse.
M Pinion keyed on shaft A for second or intermediate speed.
NN Planet wheels for second or intermediate speed.
O Internal toothed ring for second or intermediate speed.
P Friction band to hold ring O for second or intermediate speed.
Q Eccentric and rod for tightening band P for second or intermediate speed.
R Pinion keyed on shaft A for third or fast speed.
SS Planet pinions for third or fast speed.
T Internal toothed ring for third or fast speed.
U Friction band to hold ring T for third or fast speed.
V Eccentric and rod for tightening band U for third or fast speed.
W Floating cage carrying planet gearing with centripetal lubricating channels.
XX Hollow spindles carrying pinions HH—SS.
YY Hollow spindles carrying pinions CC—GG—NN.
Z Driven shaft to diffential.

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equally well between any of the intermediate speeds. Another feature of the gear that will be found very useful to nearly all drivers, especially where a small and cramped stable is used for storing the car, will be the way it is possible to use the reverse as a brake, and to go from the slow speed into the reverse speed similarly by pulling the lever over, the reverse speed acting as a brake until the slip is overcome, when the car gradually goes backward ; the forward speed can then be utilised as a brake until the car comes to a standstill, when the lever can be pulled into the mid position between the slow and reverse speeds. The gear has been given an extended trial on an 8-h.p. De Dion car, which the makers inform us has been driven over 5,000 miles without any breakdown or hitch, and without showing any sign of wear.

SOME TYRE DESTROYERS.

THE causes of tyre destruction cannot be too often called to the attention of motorists. A fruitful source of chafing is the carelessness many drivers show when coming up abreast of the kerb. Even if a vehicle runs only a very short distance along the edge of the kerb it will chafe the greater part of the circumference of the tyre, especially in the case of small wheels. The sides of a pneumatic tyre have the least quantity of material to resist wear, as it is obvious that if these were made very thick they would cause the tyres to lose considerably in resiliency. Therefore they are only made sufficiently strong to withstand the pressure to be put upon them. If, in consequence, by accident or carelessness the sides of the tyres become chafed, it is always as well to have the damage repaired by the makers as soon as possible, as this is a comparatively trifling item in the first place, yet if it is left to go on more rubbing takes place, the canvas becomes exposed and subjected to wet, then once the water has thoroughly impregnated rotting of the fabric will very quickly take place.

It seems almost impossible to sufficiently impress upon users of rubber tyres the damage oil will inevitably visit upon them. Too many owners permit oil to remain upon the floor of the garage. As all kinds of oils, greases, and the majority of acids have a deleterious action upon rubber, whenever any of these come into contact with the tyres they should be thoroughly removed at once. If allowed to remain the action of the oil is very slow, but equally sure. It softens the rubber, in the first place, reducing it to a spongy mass ; then, when the air enters through the cracks, it hardens again, and so eventually absolutely destroys the entire tyre.

It will often happen that the tyres on the front wheels will show signs of wear long before there are any similar evidences upon those on the rear wheels. When this occurs it is always well to see if the front wheels are parallel with one another. Although they may have been when the vehicle left the factory, it is possible that through straining a very permanent set has been given to the wheels, resulting in a lateral inclination towards one another, the result of which is a certain amount of dragging action all over the tread of both tyres, since one tyre is inclined to run in the one direction while the other is equally bent on going in the opposite direction.

An easy method of testing whether the wheels are parallel or not is, remarks a writer in the "Automobile Magazine," to make a pencil mark, or ink mark, as near as possible on the centre line of the tread on both tyres. Measure the distance between these two marks, and cut off a piece of string to the exact length between the marks. Then move the vehicle until the marks are directly opposite the previous part of the circle from which the measurement was taken. Again try the string, and if it is found that the distance is either greater or less, steps should be taken to have the wheels set outwards or inwards, as the case may be, to bring them parallel again.

THE South Wales Motor Company have secured an order from the Cardiff Corporation Tramways Department for two motor tower wagons.

CONTINENTAL NOTES.

The A.C.F. Banquet to Thery and Brasier.

One of the most brilliant functions so far held at the club-house of the A.C.F. in Paris was the banquet on Thursday of last week in honour of Thery and Brasier, the driver and designer of the winning Georges Richard car in the Gordon Bennett race. About 200 were present at the dinner, over which Baron de Zuylen presided. At his right was M. Chapsal representing the French Minister of Commerce and Industry. Speeches were indulged in by the Baron M. Max Richard president of the Chambre Syndicale de l'Autombile, the Marquis De Dion, and M. Chapsal, the latter announcing the intention of the Government to decorate M. Brasier with the Cross of the Legion of Honour. M. Charron then presented Thery with Government bonds of the value of £480, the result of the fund organised in his favour, it having been decided at the last moment that the bonds would be more acceptable than the *objet d'art* it had at first been intended to give him. More short speeches followed, including one by Brasier in acknowledgment of the kind things that had been said of him, and the evening was brought to a close by a cinematograph display of the Gordon Bennett race.



One of the Birmingham Motor Omnibuses. The vehicle is a 24-h.p. Milnes-Daimler; it carries 36 passengers, and runs between New Street, Five Ways, Hagley Road, and the Bear Inn Hotel, a distance of 3½ miles.

Motor-Cars for the German Army.

The German military authorities are organising a competition for a small petrol car suitable for use in the army. The vehicle required must be capable of carrying two persons anywhere a horse and cart can travel. A maximum speed of twenty-five miles per hour on level roads and a capability of climbing hills of 1 in 5 are required. The cooling of the engine must be so arranged that even at slow car speeds frequent renewal of the water supply will not be necessary. The petrol tank must have a capacity sufficient for a journey of 125 miles. Full particulars of the competition, which closes on the 1st October next, can be obtained from Die Versuchs-Abteilung der Verkehrstruppen, 12, Wilhelmstr. 101, II., Berlin, S.W.

The French Motor Show.

The seventh annual Salon d'Automobiles is to be held in the Grand Palais, Paris, from the 9th to the 25th December next.

More Automobile Clubs in France.

The Automobile Club de l'Aude has just been formed at Narbonne. Already over sixty members have been enrolled. A

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preliminary meeting has also been held at Tarbes with the object of forming an Automobile Club of the Pyrenees.

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The Flying Kilometre in Twenty-five Seconds.

One day last week, as a result of a wager that the Panhard racers built for the recent eliminating trials could not exceed a speed equal to 135 kilometres (84 3-8 miles), M. Teste made a trial against the watch on the well-known Dourdan road. Timed by Messrs. Tampier and Gaudichard, of the A.C.F., he succeeded in doing the flying kilometre in 25 sec., equal to 144 kilometres (ninety miles) per hour.

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Objectionable Fumes and Excessive Lubrication.

The French Automobile Club has issued a warning to motorists with regard to excessive lubrication, and the consequent clouds of objectionable fumes emitted by many cars. The notice adds that the authorities have decided to take severe measures against anyone guilty of thus inconveniencing the public.

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Hill-Climbing on Mont Cenis.

The annual hill-climbing competition from Susa up Mont Cenis, organised by the Italian Automobile Club, was held on Sunday last in glorious weather. Among the spectators were the Queen of Italy, the Princess Laetitia, and the Minister of Posts and Telegraphs. In the racing car section, the three Italian Gordon Bennett drivers, Lancia, Storero, and Cagno, competed on Fiats, in addition to Florio on a Panhard and Vitalis on a Rochet-Schneider. The best time up the hill (22 min. 24 sec.) was made by Lancia, Florio being second. In the light racer class, Ceirano on an Itala car was first in 28 min. 52 sec., while Tamagni on a Marchand secured the first place in the motor-bicycle section in 28 min. 29 sec.

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Motor Mail Vans in Bavaria.

The Bavarian Ministry of Transportation has recently obtained tenders for a number of motor cars for mail service. Five patterns of cars are intended to be utilised, of which three are to be used for the service within cities and two on highways in the country. The vehicles for country service are intended chiefly to be utilised for the transportation of both passengers and mails, thus covering the regular mail-coach routes. In addition, another class of smaller cars will be built, intended to deliver and collect mails, and possibly also goods, at points having no railway connection.

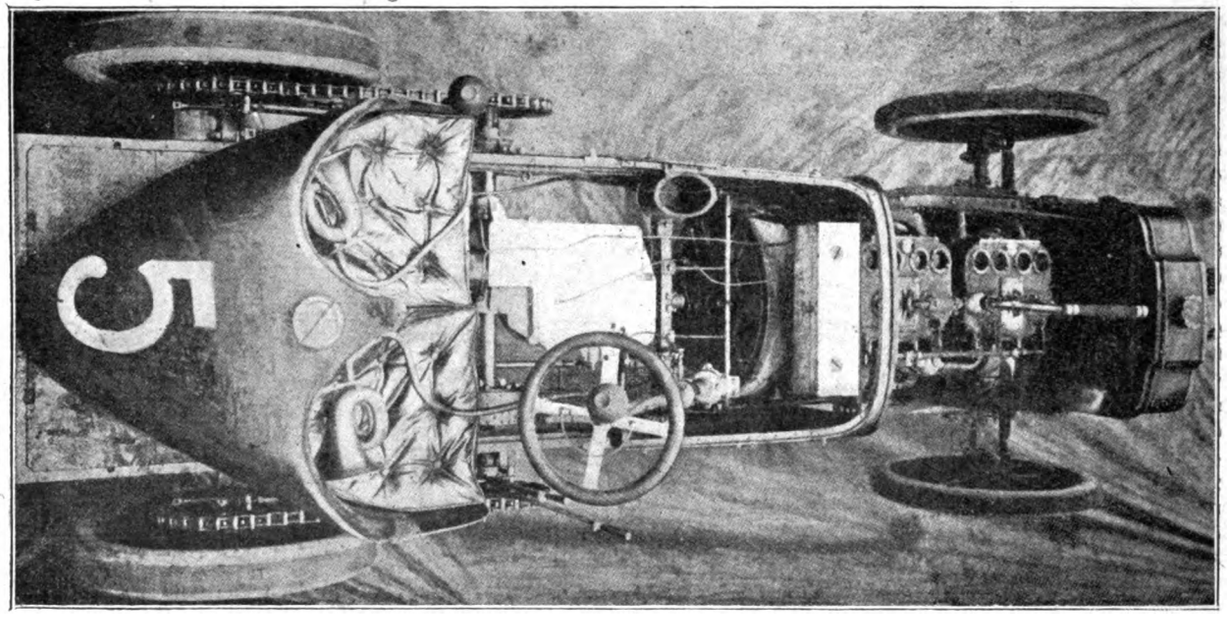
A New Air-Ship.

Some trials have this week been held at Puteaux, near Paris, of a new air-ship, built to the designs of M. H. Francois for the St. Louis competition. The motive power is supplied by a 24-h.p. Prosper-Lambert four-cylinder petrol engine which drives four screw propellers, one at each corner of the framework. No rudder is provided, steering being controlled by stopping one or other pair of the propellers.

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A Novel Reliability Trial.

A bronze trophy, valued at £200, to be known as the Coupe des Alpes Francaises, has just been offered on the proposal of M. Viallet, president of the Syndicate d'Initiative du Dauphin, and vice-president of the Automobile Club of Grenoble, for a reliability run over the touring roads of the French Alps during the space of one year. The cup will be open to all motorists except those in the immediate neighbourhood (viz., the departments of Isere, Savoy, Upper Savoy and Upper Alps), and will be a test of reliable running at a speed of sixteen miles an hour. The trial will begin on August 1st next, and will end on July 31st, 1905. A total of between 1,500 and 1,600 miles will have to be covered, and every car will have to carry at least one passenger for every cylinder of the engine. The course will be split up into stages, but the competitors may take the stages in any order they like, and may start and finish where they choose—the only point of importance being that the above-mentioned speed must be adhered to as closely as possible all through. A constant succession of "sixteen miles in the hour" will be of greater value than an average of sixteen miles obtained by, say, one run of eight miles and another of twenty-four miles in the hour.



Plan View of the Richard-Brasier Car which Thery drove to victory in the Gordon Bennett Race. [*La Vi. Automobile.*

THE Great Eastern Railway Bill has been read a third time and passed, after the insertion of an amendment agreed upon between the Post Office and the railway company to assert and protect the rights of the Post Office to require the conveyance of mails by the motor-car services of the company.

MAKING an ascent in a balloon from the Crystal Palace a few days ago, Mr. C. F. Pollock, Mr. J. T. Moore-Brabazon, and the Hon. C. S. Rolls, of the Aero Club, had a somewhat exciting experience, the balloon being carried towards the sea at a great rate. A safe landing was made, however, in a field three miles beyond Grays, the journey having been accomplished in thirty-five minutes.

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MOTOR CYCLING NEWS.

We are this week able to illustrate the Pearson motor-bicycle made by Messrs. Pearson Bros., of Elm Grove, Portsmouth. As will be seen, the frame of the machine is of special construction, the design being such that increased strength is given to the bottom bracket and steering head. The machine is made in two sizes—3¼ and 4-b.h.p.—the motive power in both cases being supplied by an Aster air-cooled engine. The usual high-tension system of ignition is adopted, while the mixture is furnished by a Longuemare carburettor with throttle control. The power is transmitted to the rear wheel by a belt. The brake power provided is sufficient not only to control the machine down steep hills but also a trailer.

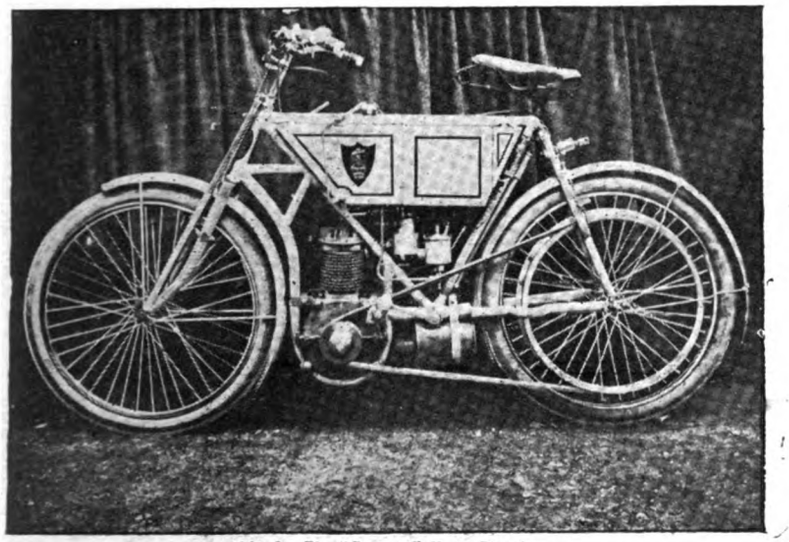


Fig. 1.—The "Pearson" Motor-Bicycle.

The 200 miles reliability trial of the Ulster centre of the Motor Cycle Union of Ireland will be held on the 19th inst., on which day the president of the Union, the Hon. Leopold Canning, is to be married at Westminster Abbey.

The Reliability Trials of the Auto-Cycle Club will take the form of a circular tour of 1,000 miles, starting from London and proceeding *via* Yarmouth, Stamford, Scarborough, Oxford, and back to town. The date upon which the event will commence is the 15th prox., and entries will have to be sent in by the 23rd inst., otherwise an enhanced entrance fee will be charged.

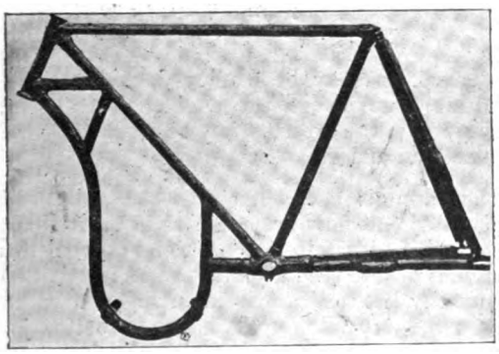


Fig. 2.—The "Pearson" Motor-Cycle Frame.

The Liverpool Motor Club held their annual 100 mile non-stop reliability test on Saturday afternoon to Shrewsbury and back. Only six actual starters—five on motor-bicycles and one on a car—appeared. Many more had promised to enter, but owing to the course being changed at the last moment many were unable to start. Promptly at 3.25 the competitors left Eastham Church, having to do the 100 miles in between five and six hours. All accomplished the outward journey to Shrewsbury, but on the return the car had a stop at Whitchurch through an accumulator wire breaking, and so had to abandon the contest. The remaining five finished without trouble, and will run again to-day (Saturday) to decide the winner.

The Motor Cycle Union of Ireland held its first hill-climbing competition of the year on Saturday afternoon last. A very steep hill was selected for the event, leading from Kilmaconoge, co. Wicklow, up the Sugarloaf mountain to Calary Bog. The distance covered was something over a mile and a half, and the gradient was exceedingly steep. Thirteen entries were received for the pedalling class, and of the eleven who competed ten reached the top of the hill. Nine of the ten entries for the non-pedalling class competed, and six of them succeeded in getting up the hill without pedal assistance. The first named class was won by H. S. Huet on a 3½-h.p. Minerva, and the non-pedalling class was won by A. Summers on a 3-h.p. Triumph, that rider ascending the hill in faster time than the winner of the pedalling class. The results of both classes are appended.

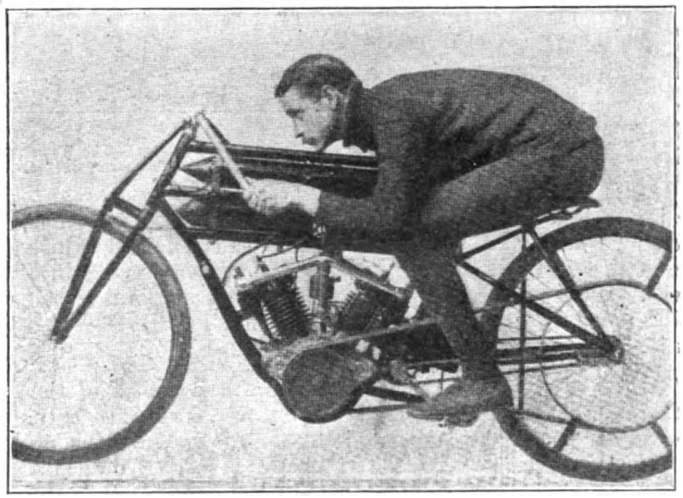
Pedalling Class.

		m.	s.
1.	H. S. Huet, 3½-h.p. Minerva	3	35 3-5
2.	C. B. Franklin, 2¾-h.p. F. N.	3	39
3.	A. Summers, 3-h.p. Triumph	3	47 4-5
4.	F. A. Wallen, 2½-h.p. Triumph	3	49 3-5
5.	C. G. Grey, 2¾-h.p. Bowden	3	58 1-5
6.	Rev. Stevens, 2¾-h.p. Phœnix	4	15
7.	J. G. Drury, 2-h.p. Triumph	4	21 2-5
8.	H. A. Evans, 3-h.p. Singer	4	28 4-5
9.	H. J. Seymour, 2¾-h.p. F. N.	5	41 2 5
10.	R. E. Price, 2¾-h.p. F. N.	5	50 2-5

Non-Pedalling Class.

1.	A. Summers, 3-h.p. Triumph	3	34
2.	C. B. Franklin, 2¾-h.p. F. N.	3	41
3.	H. A. Evans, 3-h.p. Singer...	4	36 1-5
4.	F. A. Wallen, 2½-h.p. Triumph	4	57¼-5
5.	H. S. Huet, 3½-h.p. Minerva	5	2 4-5
6.	R. E. Price, 2¾-h.p. F. N.	6	8 4-5

At the race meeting promoted by the Worthing Excelsior Cycling Club on the local sports ground, E. Baruch Blaker made a successful attack on the three and five miles motor records for the Worthing track. The three miles record was made two years ago by W. W. Genn, of Wimbledon, who with 100 yds. start covered the distance in 5 min. 55 sec.; while the five mile track record stood to the credit of T. H. Tessier, who with 200 yds. start covered that distance at the Club's 1901 race meeting in 10 min. 33 secs. Last week Blaker, with a flying start from scratch, reeled off the first mile on his 2¾-h.p. Bat in 1 min. 48 secs., or at the rate of over thirty-three miles an hour; the first three miles were negotiated in 5 min. 27 sec.; while his time for the five miles was 9 mins. 12 3-5 secs.



Mr. G. H. Curtiss, on the 8-h.p. Motor-bicycle, on which he covered 10 miles in 8 min. 54 2-5 sec., averaging 53 2-5 sec. to the mile, on the Daytona-Ormonde Beach, Florida, U.S.A.

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SOME USEFUL NOTES.

A LARGE proportion of the minor troubles which fall to the lot of the automobilist have their origin in faulty and leaky joints, and, in view of the large and increasing number of recruits to the ranks of car-owners whose mechanical training is only at its commencement, a short and somewhat elementary treatment of the usual methods of packing and re-making such joints may not be without its uses.

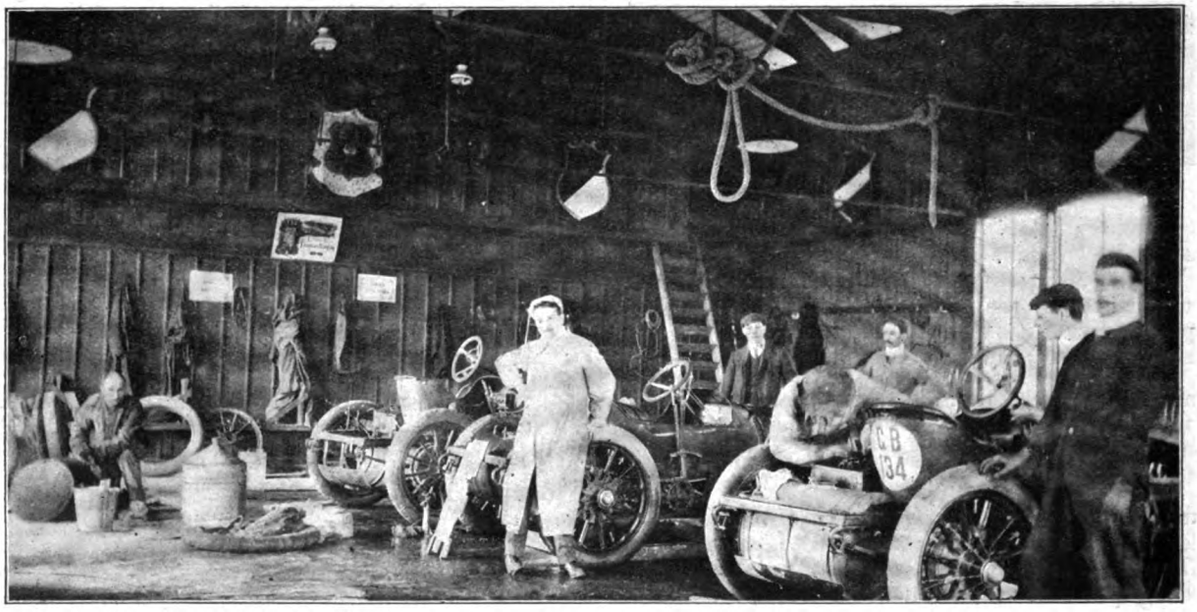
JOINTS are numerous—often unnecessarily so—in most modern motor designs, and any improvements which reduce their number or size—as the frequent practice of casting cylinder and cover in one piece, or that provide for ground joints without packing—are to be welcomed, provided that they do not involve castings being too complicated or necessary renewals being costly; but some will be inevitable in any design, and the materials available for making them may next be considered.

OF these the principal are soft metals, fusible or infusible, as lead and copper; asbestos, in the form of soft or hard sheet, string, and sheet of a third variety on a wire-gauze base and containing some rubber admixture, which, though used for steam-pipe joints, is to be avoided for most motor-car purposes; leather rubber; and finally the old familiar hemp and red lead, which atter is mixed with an equal part of white lead and made into a thick paste with linseed oil, and is always useful when making screwed unions in pipes which do not have to be often disunited.

THE selection of these will depend on the purposes of the joint, whether it has to resist high temperatures, steam heat only, water, oil, or petrol; and the best joint of all is one in which no packing is needed, *i.e.*, when the surfaces can be got to such a degree of truth that when drawn together with only a smear of oil or red lead, or even without this, a tight union is obtained. This may be done easily and cheaply by grinding when the surfaces are not large and studs or other projections do not interfere with the necessary rotation of one surface on the other; while when this is impracticable it must be done by scraping, which, though an expensive method, requiring some skill, would, in the writer's opinion, repay its more frequent employment. In default of this, packing is necessary, and the most usual material for this is asbestos, the chief objections to which are its fragility, necessitating care in handling, and the fact that it does not stand water well, though unaffected by heat or dry steam.

ONE principle to be borne in mind when making joints is that the thinner the packing is the better, and the thin hard blue asbestos sheet is on the whole most satisfactory, especially where a water joint is unavoidable. For this purpose it should be soaked in linseed oil, or smeared with tallow (the writer generally makes the tallow into a thin cream with a little petrol, which ensures its rapidly penetrating the sheet), and may be also blackleaded on each surface to render its removal easier when the joint is to be re-made; but with a difficult joint this is better omitted.

BLACKLEAD has an awkward way of forming hard concretions on iron surfaces which are very adherent, and the greatest care must be taken in removing such, with any fragments of old packing, especially about the bases of studs, etc., before beginning to make a joint, and clearing out the grooves usually present to retain the packing. Bolt holes should be punched (or, better, cut with small curved scissors) amply large, and burrs of asbestos round them avoided, while there should be no broken lines or folds in the sheet. Where the bolts are light, or few in number, the softer white asbestos may be employed, and screwed up at intervals, allowing time before the engine is used again. For combustion joints only, the asbestos may be used plain, or rubbed with a little blacklead and grease.



The Gordon Bennett Race.—The Wolseley head-quarters.—The Wolseley Co. secured the use of a gymnasium and dancing-room at Usingen for the storage and "mise-au-point" of their cars in the International Contest.

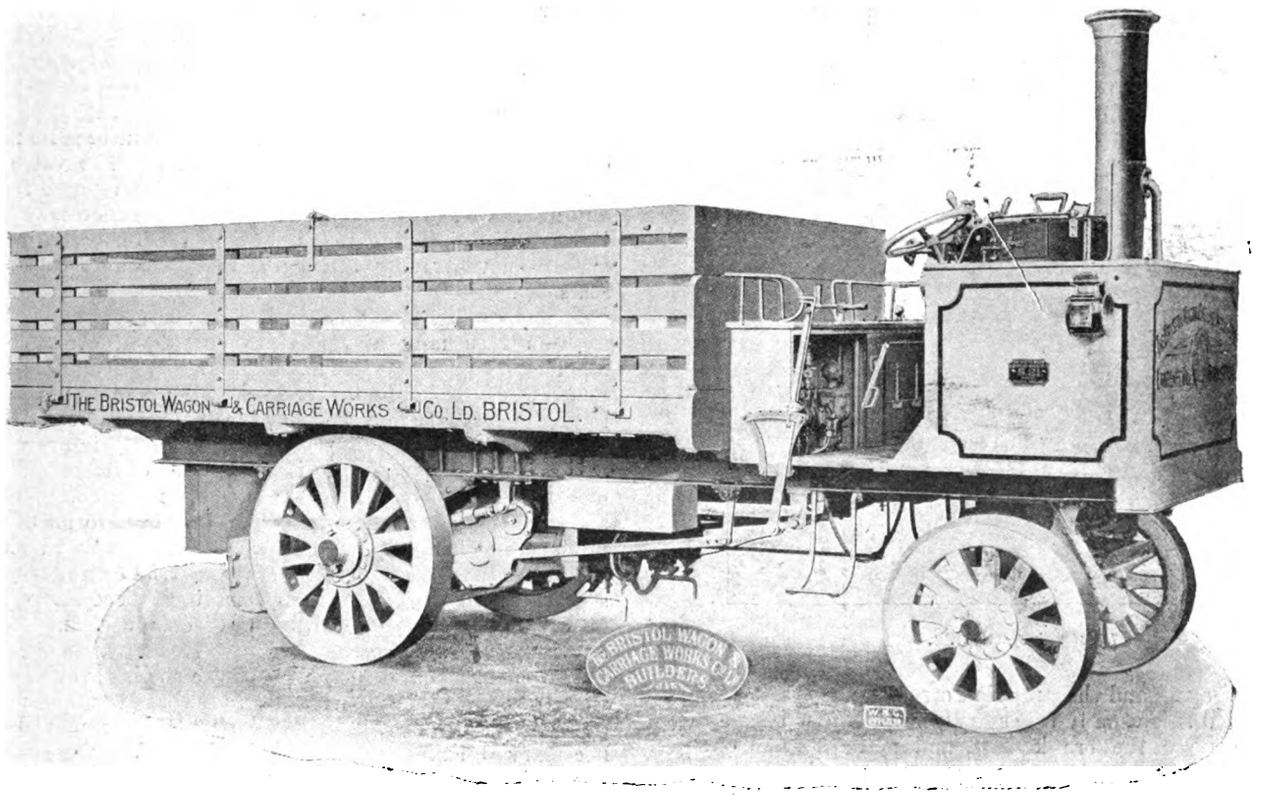
A USEFUL packing is made of asbestos covered with thin copper where small joints only are concerned, but it is not easy to get sufficient pull on it safely in the case of a large area. In small cycle engines, where such a joint is used for the cylinder head, it is frequently left too broad, and cutting it down to about one-eighth or three-sixteenths will enable a better joint to be made without excessive pull on the bolts.

FOR the benefit of those who look after their own cars, one or two practical points may be mentioned in connection with any attempts to examine or replace balls. In removing the wheel, the cone and lock-nut are unscrewed in the same direction as the run of the wheel, *i.e.*, the thread is left-handed in the case of the right wheel, and *vice versa*, the left being thus the same as the cap. The cones and cups and balls should be all carefully examined after cleaning, and if worn rough, renewed at the earliest opportunity.

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THE "BRISTOL" STEAM-WAGON.

ANOTHER addition to the list of British builders of heavy steam vehicles is the Bristol Wagon and Carriage Works Company, Limited, one of whose four-ton wagons is illustrated herewith. As will be seen, the boiler is fitted in the fore-part of a steel channel frame; it is of the vertical water-tube type, and is arranged for coke firing. It is provided with injector, stop and safety valves, water, blow-off and feed cocks, and also an auxiliary feed pump. The working pressure is 200 lbs. per square inch. The fire-box is fed from the top, through a vertical flue; the outside shell is so mounted that it can be removed for cleaning purposes. The engine is of the horizontal two-cylinder compound reversing type, with ample bearing parts, all arranged to work in oil. The vehicle is gear driven throughout, two speeds being provided, the latter being easily controlled by the driver from his seat. The gear wheels run in oil and are protected from dust. Steering is controlled by means of a worm fixed to an inclined steering



General View of the Bristol Steam Wagon.

spindle, worked from the driver's seat, and made to gear with a steel quadrant firmly secured to the front central pivot, on which the front axle rotates. The brake is also arranged to be operated from the seat by means of a screw, and is of the double block type, working on both the rear road wheels. The latter have steel hubs, spokes of English heart of oak, the felloes of ash, and the tyres of stout wrought iron. Strong forged arms are secured to the felloes to take the driving thrust, so that no strain comes on the spokes or hubs. The rear wheels are 37 in. diameter, with 7 in. wide tyres, the front pair being 28½ in. by 5 in. The axles are of steel, the front one being fixed and moving on a central pivot; the rim axle is of the Cardan pattern driven direct by gearing. The axle boxes are of cast steel, lined with gun metal bushings. The water tank, which has a capacity of 120 gallons, is fitted with water lifter and strainer, and also drain cocks, and cocks for testing the level of the water. The overall length of the vehicle is 17 ft. 9 in., and the width 6 ft. 6 in.; any type of body can, of course, be fitted to the frame.

PREPARATIONS FOR DRIVING.

TO the fortunate individual who has ordered a new car, the coming season is one of anxious expectation as to the behaviour of the vehicle. Not everyone is financially able to order each year a strictly up-to-date car, and such an one must be content to make the old vehicle serve him another season. He will naturally be ambitious that his car shall make as creditable an exhibition as possible among the more advanced automobiles of his friends, and to further this end he will seek to make upon it such improvements in appearance and equipment and such repairs and readjustments as the car may seem to warrant from financial considerations. Too extensive remodelling and too great additions to the equipment of an old car are, of course, inadvisable. They are too much like putting new wine in old bottles, but it is certainly advantageous, if not almost mandatory upon the conscientious owner, to put the mechanism, such as it is, in the most perfect possible condition, favourable for doing its best work.

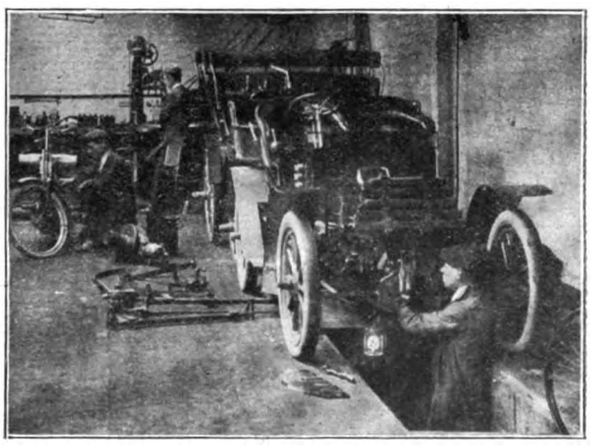
Sometimes it occurs to the owner of a two-seated car that he would like seating capacity for two more passengers, and he may, after careful consideration as to the strength of the *chassis*, decide to provide himself with a detachable tonneau. It may be that this conversion is very seldom actually warranted on strict engineering or economic grounds.

Adding the extra seating capacity may make advisable or necessary a lengthening of the wheel base, with its accompanying extension of the frame, re-location of springs and radius rods, lengthening of chains, possible moving of tanks or machinery, and so forth. Since a greater weight is to be carried by the same engine power, the car may have to be geared down to maintain its hill-climbing capacity under the changed conditions, and leaves may have to be added to one or both pairs of springs, or auxiliary spiral springs or rubber buffers be supplied to take care of the increased load.

It is well to keep in close touch with the manufacturers of one's particular car, with a view to taking advantage of whatever improvements they may have made which are applicable to

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the old type. An improved carburettor may have been brought out; an advanced form of contact maker may have been evolved, the clutch may have been improved, or some new wrinkle in lubrication or control may have been adopted. Ordinarily the manufacturers are accommodating and reasonable as to furnishing these improvements for attachment to old cars, and they are usually made with some regard to fitting their earlier product. Passing now to the motor, this may need some little attention; perhaps it has developed a "knock," in which case the reciprocating parts should be examined to ascertain whether there is any undue looseness in the bearings of the connecting rods on the crank or gudgeon pins. If any such is found in the former place it should be taken up. Looseness on the gudgeon pin is not so easily corrected, as no chance for adjustment is usually provided, and ultimately, if the wear continues, the connecting rod hole and the holes in the piston bosses will have to be bored or reamed out to a size just large enough to true up the holes, and a new pin, made of steel, hardened and ground to the exact size, will have to be fitted. A knock may be caused by looseness of the engine upon its frame, and these fastenings should be made secure beyond peradventure. Occasionally the key which secures the flywheel to the crank shaft works loose, and, if this occurs, the keyway is fairly certain to be destroyed, the engine the while knocking badly. If the keyway has not been torn out, the key may be



A Useful Inspection Pit.

driven home again and the trouble corrected; but if it has become deformed it is usually necessary to cut a new keyway on the opposite side of the crank shaft, and perhaps a new one in flywheel boss. Possibly the annoying knock may be due to the fact that the crank shaft bearings are worn. Sometimes means are provided for adjusting these important parts, but in many cases the only remedy is the making and fitting of new bushings. A lack of lubrication is usually responsible for any rapid wear in such bearings, unless they are too small, and one should be sure to remove the cause as well as to repair the damage.

It may be that the engine has lost its compression to a serious degree. This defect should be corrected before the car is again put into service. If the engine has ever possessed good compression it is hardly likely that the difficulty is in the fit of the piston in the cylinder, unless it has run dry repeatedly and cut badly, or unless the gudgeon pin has protruded and scored the cylinder walls. It is, of course, possible that a piston ring may have broken, or the rings, if not pinned in position, may have turned in such a way as to have brought their joints into the same straight line, thus allowing an escape of gas. Unless it involves much labour, pistons may well be withdrawn occasionally, and they, as well as the inside of the cylinder, carefully examined. The piston rings, if they are correctly formed and doing their duty properly, should be worn uniformly bright and smooth throughout their peripheries. Sometimes defective rings may profitably be replaced by more accurate ones; but if the cylinder is not perfectly cylindrical in section, or of uniform diameter at different points, this avails little.

It is more probable that the valves are at fault and are leaking. The successful grinding of valves is not so simple a matter as it would seem to be, but is really quite a little art in itself. It requires considerable deftness, some patience and a willingness to work gently and carefully, with frequent applications of the abrasive to the surfaces. If one tries to use force between the valve and its seat when grinding, distortion of the surfaces will take place, and they will never meet properly in service. Some prefer quartz powder to emery for valve grinding, and use water rather than oil. Sometimes an exhaust valve may be found so deeply pitted as to render its smoothing up by grinding alone an almost interminable job. In this case the valve may be centred in a lathe and a tool set so as to take a light chip from the bearing surface, care being taken to preserve the angle as it was originally.

After the valves have been ground to a perfect seat—and this may be roughly tested in case they are removable by seeing if they will hold petrol—the valve-operating mechanism may require examination. The valve stems should operate freely in their guides, but not much wear should be allowed. The push rods of mechanically-operated valves should be maintained in such adjustment as just to clear their valve stems. This allows of a positive seating of the valve under the influence of its spring, and still insures its maximum opening under the influence of the cam. The valve springs should be demonstrated to be of normal strength, free to act and unbroken. Occasionally, loss of compression may be due to leaks around sparking plugs or compression cocks, or it may arise from the faulty fitting of valve chamber caps or valve seats.

The owner who "never has had any trouble" with his ignition is usually an individual possessed of a very short memory. Spark troubles are familiar to most motorists. The main thing is to find the weak point which most requires improvement. It may be that the manufacturers of the car in question may be able to supply an improved form of contact device; but, if not, the contacts in the old one may be smoothed up or entirely renewed, if necessary, and a perfect adjustment secured. Improved forms of sparking plugs are continually being introduced, amongst which may be found one that may at least warrant a trial during the coming season. The wiring of the car sometimes becomes oil soaked or otherwise damaged during a season's use, and it may be advantageously replaced.

If there has been trouble with the cooling system now is the time to remove its cause. The radiator or tank may have developed leaks, and, if so, they should be removed and the necessary brazing or soldering done. Where rubber hose connections are employed to flexibly connect the several elements of the cooling system, this material is sure to deteriorate after a couple of seasons' use and should be replaced. Unions or couplings in the circulating pipes may need a little attention to keep them tight. The stuffing box of the circulating pump shaft may have begun to leak on account of the failure of its packing, and a new one should be inserted in the gland. If a belt is employed to drive the air fan, it may be that it will be found so much stretched or worn as to necessitate its replacement, or, at least, that a portion be cut out and the belt hooks be re-inserted in holes cleanly cut with a belt punch so that they may not tear out. In instances in which a chain is used to operate the pump it should be carefully adjusted, or if the adjustment provided is not sufficient to tighten it, a link should be taken out. If the chain shows the slightest tendency to ride the sprockets it may be considered worn out and ought to be replaced.

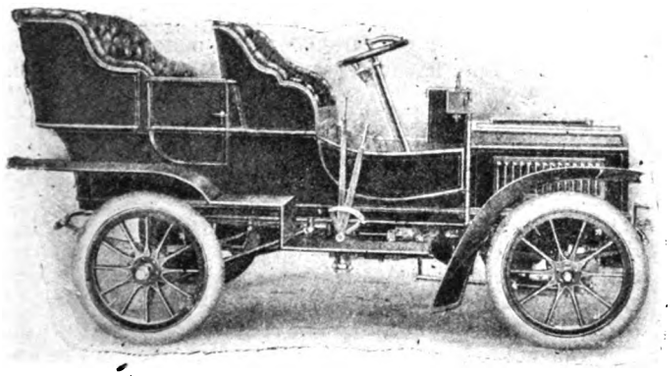
(To be concluded.)

At least two Scotch coachbuilders are energetically taking up the construction of motor-car bodies, viz., Mr. George Thompson, of Stirling, and Mr. A. C. Penman, of Dumfries.

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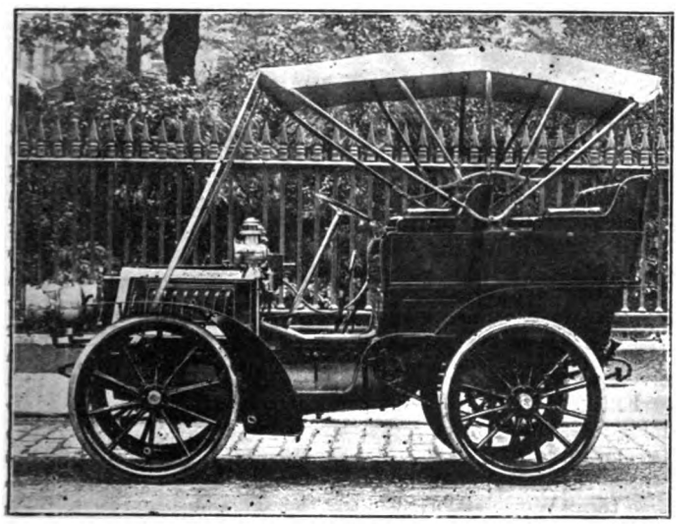
HERE AND THERE.

THE latest addition to the models of Humber cars is a 10-12-h.p. double-cylinder vehicle, which, in view of its relatively low price, should quickly come into vogue. In the new car many of the Humber features are retained, notably the tubular steel frame. The engine is located under a square bonnet, the front opening of which is filled in by a ribbed radiator. A belt driven fan is also provided to induce a current of air through the radiator. The water circulating pump, which is driven off the half-time shaft, is so mounted that it can readily be detached when necessary. The usual high-tension system of



ignition is adopted, the coil and accumulators being carried in a box secured to the dash-board, so that they are not only accessible, but only short lengths of ignition wires are necessary. Three speeds forward and a reverse are controlled by a single lever, the transmission from the gear box being by cardan shaft and bevel gear. The steering wheel is of the single-arm open type, enabling the throttle and ignition levers mounted on the steering column to be easily manipulated. The car has a long wheel, permitting it to be fitted with a luxurious side entrance double-phaeton body.

MESSRS. BROWN BROTHERS have issued an attractive coloured show card of their cars, which are now made of 7, 8, 9, and 12–14-h.p.



A 12-h.p. Gladiator, with Cape Cart Hood, specially built for a motorist in India. The vehicle is fitted with solid tyres, and a special water-tight arrangement under the engine and gear case, to enable it to ford streams, etc.

THE Bass Rock Cycle and Motor Company, of High Street, North Berwick, have opened a motor garage, where they will keep a stock of petrol and motor spirit.

THE Durand Non-Skid Tyre, Limited, is the title of a company formed to acquire and take over the agency owned by Messrs. J. E. Hutton and J. A. Wilding, in connection with the Durand non-skidding tyres for motor-cars and other vehicles.

A PUBLIC motor-car service was inaugurated last week between Dieppe and Varengeville.

THE "Thor" Motor-Car Company has opened a garage at 45, Horseferry Road, Westminster, S.W., where repairs of all kinds can also be carried out.

THE exports of automobiles and parts from the United States during July last amounted to £34,254 as against £28,854 in the corresponding month of 1903.

THE Automobilists' Guide Book for France, published in the French language by the Continental Caoutchouc and Gutta-Percha Company, Hanover, has just been issued.

MR. W. BIGGS, the local agent for Wolseley and Humber cars, has recently added a garage to his premises in Derby Street, Ormskirk, where a stock of motor accessories is being kept.

THE Dunlop Motor Company, Limited, of 39, John Finnie Street, Kilmarnock, has been formed to acquire and carry on the motor branch of the business of R. and J. F. Dunlop, cycle and motor manufacturers.

THE Woking district is the subject of the latest sheet map issued by the Ordnance Survey. This is on a scale of two miles to the inch, and will be useful to motorists travelling in one of the most delightful regions of the south of England.

THERE is in Boston, Lincolnshire, a very good example of a coachman-gardener motor-car driver. He is employed by Dr. Rickett, a well-known medical man, whom he drives, and



quickly learnt to operate the "Baby Peugeot," and prides himsel on being able to do his own running repairs. The accompanying illustration shows the doctor and his man on the little car.

FROM Turner's Manufacturing Company, Limited, comes a copy of a new catalogue they have just issued of the Turner-Miesse steam cars. Illustrations are given, not only of various parts of the mechanism, but also of several types of carriage bodies, including one of a handsome side-entrance landaulet. The list concludes with a number of testimonials from users of these English-built steam cars.

THE Pope Manufacturing Company, of Toledo, U.S.A., has completed a 60-h.p. racer, which will compete in the Vanderbilt Cup race in October next. The motor has four cylinders, 6 in. bore by 7 in. stroke. The inlet valves are automatic, and the cylinders are jacketed with copper. Three speeds forward and a reverse are provided, the power being transmitted to the road wheels by side chains.

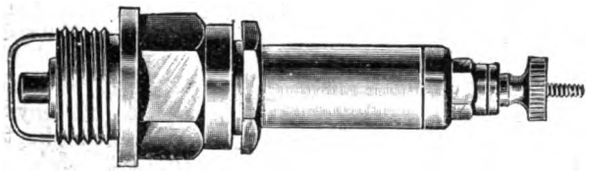
MR. E. LISLE has just ascended the Constitution Hill, Swansea, on a 12-h.p. "Star" car with four passengers. The hill is 936 feet long, and rises to a total height of over 200 feet, the average gradient being 1 in 5·04. The steepest gradient is 1 in 3½, and this occurs for a length of about 150 feet at the bottom of the hill, and for a similar length at the top of the hill; the flattest gradient is 1 in 7 for a short length only in the middle of the hill.

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THE Upper Norwood Ratepayers' Association is interesting itself in a motor-'bus service for the locality.

FOR a design for a motor-car body, the Coach Makers' Company have awarded a silver medal to Mr. A. N. Meier, of Redhill, and a bronze medal to Mr. J. J. Brown, of the same place.

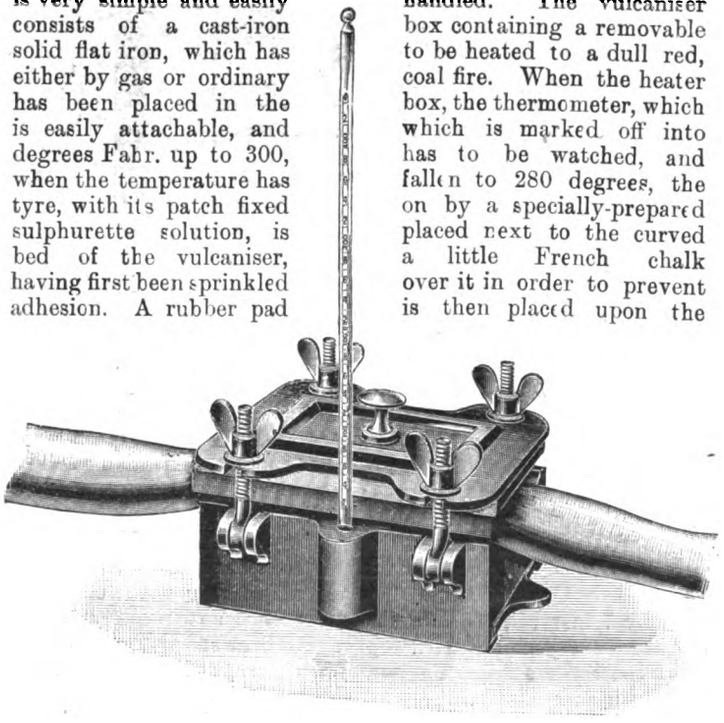
THE special feature about the sparking plug shown in the accompanying illustration is that the sparking points cannot get displaced, and the inventors, Messrs. Statter and Company,



Birmingham, claim that a far better spark can be obtained from a comparatively large surface than from a needle-like point. The plug appears to be well made, and is easily taken to pieces.

THE other day Mr. J. E. Hutton took one of the standard 8 h.p. three-cylinder Panhard touring cars up Porlock Hill, driving it the whole way up this stiff gradient without assistance. As indicating their confidence in these vehicles, Messrs. J. E. Hutton, Limited, state that they will guarantee the light touring model to attain a speed of thirty-five miles an hour on the flat, carry five people up Putney Hill on third speed at twenty miles per hour, and six people up the steep gradient of Netherhall Gardens, N.W., at eight miles per hour.

A NEW portable vulcaniser, known as the "G.B.," has lately been put on the market by the County Chemical Company, Limited, Birmingham. It is now generally conceded that punctures repaired by ordinary rubber-solutioned patches are not always a success when applied to motor tyres, owing to the fact that during the running of the tyres the heat occasioned thereby often liquefies them, and the patches, owing to the creeping tendency of the outer covers, are eventually displaced. The new vulcaniser, which has been designed to overcome these difficulties, is very simple and easily handled. The vulcaniser consists of a cast-iron box containing a removable solid flat iron, which has to be heated to a dull red, either by gas or ordinary coal fire. When the heater has been placed in the box, the thermometer, which is easily attachable, and which is marked off into degrees Fahr. up to 300, has to be watched, and when the temperature has fallen to 280 degrees, the tyre, with its patch fixed on by a specially-prepared sulphurette solution, is placed next to the curved bed of the vulcaniser, a little French chalk having first been sprinkled over it in order to prevent adhesion. A rubber pad is then placed upon the



tube, next a wood block, and finally the top plate, which is screwed firmly and evenly down by means of the thumb screws. When the temperature has fallen to 240 degrees—this occupies from ten to fifteen minutes—the process of vulcanisation is completed. The device is designed for use by amateur motorist and trader alike, and requires no special skill. It is handy and fairly light, and is sold at a moderate price.

AN Anti-dust League is being formed in connection to the Swiss Touring Club.

THE British Detachable Cycle Motor, Limited, has been registered with a capital of £75,000.

MR. E. J. PENNINGTON is reported to have been arrested in St. Louis, U.S.A., on a warrant issued for his arrest, charging him with conspiracy and fraud.

THE Barnet Urban District Council has decided to affix notice boards in the Great North road running through the town of High Barnet warning motorists against excessive speed.

MR. G. W. BURNELL, of Albion Street, Rugeley, Staffs., who has garage accommodation for twenty cars, has issued a neat card drawing attention to his facilities for the repair of vehicles, the supply of spare parts, etc, and the charging of accumulators.

MESSRS. H. ANDREW AND COMPANY, motor engineers, of Plympton, Plymouth, have sent us samples of their "Simplex" terminals for connecting up ignition wires to batteries or coils. They are made of two brass stud rings, with flanges sufficiently wide apart to take the two halves of the stranded wire which are twisted round them, the flanges of the ring terminal being then squeezed together with pliers over the wire.

THE Homeland Association, Limited, forward a copy of their Handbook for Oxted, Limpsfield and Edenbridge, with their surroundings, written by Mr. Gordon Home. This little work, describing the beautiful district of South-East Surrey and the Border-land of Kent and Sussex, is fully illustrated by drawings made by the author, and by photographs. Included in the book is an Ordnance survey map of the district on the one inch scale.

WE have received from the publishers, Messrs. De Vere and Company, a copy of Mr. T. H. Holding's "Cycle and Camp," in



Route Map of the De Dion-Bouton Excursion in the South of England.

which the well-known motorist tailor describes several days' real enjoyment in camp in Ireland. Much practical information is imparted to all who tour, and the fifty pages of useful hints with regard to the location of the site for the tent, food and cooking appliances, are extremely sensible and to the point. Mr. Holding is no theoretical enthusiast on the subject. He has designed several camping appliances, including a tent of appropriate design and suitable material for use by motoring parties, while the garments he has introduced for outdoor sports generally show the practical trend of his mind, of which much evidence is afforded in the well-written book just placed on our shelves.

FROM Abbott's, of Queen Street, E.C., comes a new catalogue of motor clothing which affords evidence of the enterprise and ability with which the firm is now catering for the sartorial requirements of motorists. Among the specialities we notice the "Wolseley" coat cut with a wide skirt and fitted with wind cuffs, the "Portland" coat—a long double-breasted ulster buttoning back to the shoulder, the Argyll coat, with a yoke and pleat at the back to give additional skirt room when seated, and many other good styles in cloth and leather. The previous experience of the firm in connection with clothing for yachtsmen and sporting men generally has been useful in extending their business to the motoring world, and the waterproof qualities of their garments can be thoroughly relied on. Motor aprons, leggings, etc., are also illustrated in the catalogue, which is completed with a selection of punched rubber mats, rubber matting, etc., as well as some good lines for motor-cyclists.

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CORRESPONDENCE.

POLICE TRAPPING.

To the Editor of *The Motor-Car Journal.*

Sir,—I should like, through the medium of your valuable *Journal*, to warn motorists in Leeds and district to keep well within the bounds of the law, for not only are the police "trapping" on most of the main roads leading into the city, but last Friday I had to appear before the stipendiary magistrate to answer the heinous charge of not having my rear number plate sufficiently illuminated at night. My lamp was not out but had smoked the glass rather badly, and just when the policeman "spotted" me I was passing under a street lamp fitted with a powerful incandescent light, which was so strong that it quite swamped my tail light. Though I explained this in court, I had not the slightest consideration shown to me but left the poorer by £1, and with my licence endorsed. On the same day three Leeds gentlemen were charged with exceeding the legal limit at Moortown. The police only timed over the very short distance of 220 yards, and though one defendant was charged with driving at the rate of only twenty-two miles per hour, and his solicitor pointed out that an error of one second would mean a difference of over one mile per hour and proved pretty conclusively, that the police methods of timing were by no means accurate, he was fined £3 and costs, and, along with the rest of us, his licence was endorsed. I would therefore warn motorists in this district to be very careful to give the police no chance, for the unfortunate motor man who once gets inside the Leeds Town Hall, where the law is stretched to its utmost limit in favour of the police and the benefit of the doubt is never extended to the motorist, can only get out again by paying up and looking as pleasant as he can under the circumstances.—Yours truly,

J. Wales Smith.

1. Carry a densimeter. I have been sold various compounds under the name of "Pratt's A."

2. Get lubricating oil in big towns or sent on; small places stock vile stuff, and charge about 6s. per gallon for it.

3. Put car under lock and key; tools have a way of vanishing, mine have more than once.

4. The police are most reliable in giving information, and take any amount of trouble as to good roads, etc.

5. Be careful who charges accumulators Ireland is sadly backward in this respect. The lighting stations in big towns are the most reliable, and the charge is never more than sixpence for a small cell. Have two or three spare cells or good dry battery.

6. The road maps and small guide published by Messrs. Mecredy are very reliable but want bringing up to date in their information as to good and bad roads.

As I have been practically all over Ireland on bicycle, motor-bicycle and car, extending over many years, I would gladly give through your columns any information to those contemplating a tour in this delightful country and in a motor sense "free land."—Yours truly,

R. I.

SOLID TYRES.

To the Editor of *The Motor-Car Journal.*

Sir,—In reply to Mr. C. Lucas' inquiry in your last issue about solid tyres, I have used solid tyres on my motors for six years and have had little or no trouble with them. Sirdars I have found good and reliable, and in several years' use of them I have only had one come off, and that the makers replaced at half price. I average thirteen or fourteen miles an hour on the car on which I use them (it weighs nineteen hundredweight), but up to a month ago, when I had a new engine, I never exceeded eighteen miles an hour. With this weight and speed they will last for about 5,000 miles and perhaps more, but I don't care to use a tyre when it gets worn down nearly to the rim. On another car weighing 15 cwt. (four-seated) and averaging about the same speed (not exceeding twenty miles an hour top speed), which I bought second-hand about a year ago, I have Falconnet solids and I am extremely pleased with them. I have run them about 3,500 miles, and they have not given a moment's trouble and show now very little wear. I do not know what mileage they had done before I acquired the car, but possibly another 3,000. These tyres, which are a French patent, are expensive—nearly £50 a set—but for wear and resilience I can speak most highly of them. It must always be remembered that long and easy springs are almost as important as good tyres for comfortable travelling. I cannot understand Mr. C. Lucas' tyres flinging out at the speeds he mentions.—Yours truly,

Edgar Soames.

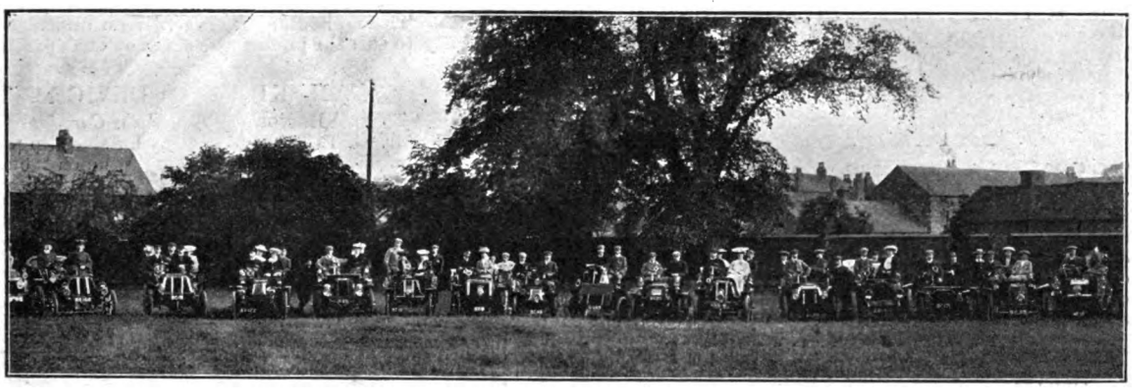


Photo by] **The Meet of the Leicestershire Automobile Club at Melton Mowbray.** *[F. Crown.*

TOURING IN IRELAND.

To the Editor of *The Motor-Car Journal.*

Sir,—In the *Journal* of the 9th inst. I notice a letter on "Touring in Ireland," in which your correspondent complains of the excessive charges made in Ireland. I do not think he knows much of Ireland, or he would not write in the manner he does. I have dined at the best and only hotel in Malahide, namely the Royal, and have had a good dinner there for 1s. 6d., and also have lived in Bray, which is thirteen miles from Dublin, and not ten. I can honestly say that I have always been treated better and cheaper by the Irish hotel keepers than anywhere I have travelled in my life. Your correspondent also speaks about Kingstown, seven miles from Dublin, in which he states he was charged 9s. for two cuts from the joint. I am positive he cannot know much of Ireland. I have visited the country from north to south, and my impression is this, that as a genuine race of good-hearted, open, honest people give me the Irish (on their own soil), before any race of people in the world. I am not an Irishman myself, but if I were I should be proud of the honour. I can travel Ireland through on 10s. a day, including all, and am open at any time to prove it to any of your readers who are going to tour Ireland.—Yours truly,

H. Douglas.

To the Editor of *The Motor-Car Journal.*

Sir,—I fully endorse the letter of "K 125" in your issue of the 9th inst.; in fact, he does not put the case strong enough. There is no getting away from the fact Irish hotels are, it is much to be regretted, extortionate, and the unfortunate motorist appears to be their ready prey for any small necessity, such as simple lunch or refreshments. At one hotel my bill for one night, including plain dinner—soup, joint, cheese, butter, and bottle of Bass—bed, plain breakfast, garage for small car (open shed), came to 16s. without the necessary tips. At a delightful place called Enniskerry I was charged for tea, with ham and eggs for two, 7s. If I might add a little advice to the Irish tourist, I would say:—

THE SIX-CYLINDER NAPIER.

To the Editor of *The Motor-Car Journal.*

Sir,—I took my opening run last Saturday and Sunday on my new six-cylinder Napier, and was struck with the general smoothness of the running and absence of fatigue in driving, due to only one or two changes of speed during a day's drive. There are but three speeds forward, and I find the third speed (direct drive) is in use nearly the whole time, the throttle varying the speeds on slopes and through towns. It is possible to come down to walking pace on the top speed, and to climb all gradients above about 1 in 15 on the same notch. The only hills requiring the second speed between London and Folkestone, Dover, Hastings, Tonbridge, Hadlow, and London were Sandgate Hill, entering Folkestone, for a few yards, the Valiant Sailor Hill, between Folkestone and Dover, River Hill, Sevenoaks. Level crossings are scarcely felt, the long springs taking the shock.—Yours truly,

Roger H. Fuller.

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MOTOR-WAGONS IN SOUTH AFRICA.

To the Editor of *The Motor-Car Journal.*

Sir,—I enclose an open letter for H. D. Fadelle, of Trinidad, in reply to his recent communication, which I trust you will be pleased to forward. Although at first sight this may not appear to you as being favourable to motor-vehicles, in reality it is so, as there is far more harm done to the motor industry by the class of vehicle which is being exported at present than by anything I could say. At the present time here in South Africa it is an impossibility to sell a motor-lorry of any description owing to the bad name they bear, and the high cost of



running them in comparison with horse-drawn vehicles. This is not the fault of the motor but of the designing, and until the makers at home wake up to the possibilities of the colonial trade it is far better for the industry that the vehicles should not be exported.

I enclose you a small photo of myself and wife taken on the road to Pietermaritzburg with our 4½-h.p. Renault car.—Yours truly,

J. A.

IMPROVEMENTS IN SMALL CARS.

To the Editor of *The Motor-Car Journal.*

Sir,—I note with interest Mr. Palmer's notes in your issue of the 2nd inst., *re* improvements in his small car. I recently purchased one of these and am surprised at the work I am able to get out of it. When I first had it about eight miles an hour was all I could get out of it, and after one journey of a hundred miles it struck work. Finding it was losing compression, I had a new exhaust valve made and fitted it. Still the car refused to budge, so I took the piston out and had new rings fitted (this was the only part I did not do myself). After this the car went much better, but as I had to stop every fifteen miles for water I joined up the petrol and water tanks to make one water tank. In this particular type the tank on one side of the car is for water and the one on the other side is used for petrol. Having converted my petrol into a water tank, I joined up two tins which had been made to fit under front seat, and ran a small copper pipe from them to the carburettor (Longuemare). The capacity of tins is 4½ gallons. This gave me water capacity for thirty-five miles and petrol for 120 miles. However, I was not satisfied, and in looking through the *Journal* saw an advertisement of Ratcliffe Brothers, of Frinton-on-Sea. In reply I received some particulars of their M.O.I. valve which appealed to me, so invested in one. The result far exceeded my expectations, I got more pace and very much better hill-climbing capacity out of the car. Then I did away with the leather belting and substituted webbing ones which have now been run over 500 miles yet do not show any signs of wear nor have yet had to be tightened. I give them an occasional dressing of Gripoline. I can now get fourteen miles an hour out of the car, which is four years old and fitted with solid tyres.

Could any of your readers give me any idea of the road from London to Wrexham *via* Aylesbury, Buckingham, Kidderminster and Shrewsbury? Whether it is very hilly, good surface, etc.? Also which would be the least hilly route to Aylesbury? I have driven my car a hundred miles in eight hours, part of the way being to Cambridge *via* Epping, Bishop's Stortford and Great Chesterford. I should start from Stratford, and would prefer not to have to travel through London.—Yours truly,

East-End

IGNITION BATTERIES.

To the Editor of *The Motor-Car Journal.*

Sir,—It may interest some readers of the *Journal* to know that we have found and have been using for some time an electric battery which combines the portability of the dry battery with the lasting power of the wet battery. We refer to the cells known as "Transport" cells, and supplied by Siemens Bros. They have to be filled with liquid like a Leclanche, but in shape they are similar to a dry cell. They are watertight, and the voltage is better than the ordinary dry cell, while the resistance is much less. Our Mr. Arthur Hoare has recently driven 5,000 miles on an 8-h.p. De Dion with these cells. During that time the cells were rinsed out once with warm water, and fresh sal ammoniac solution was added. The cells have the advantage of being strongly made and reasonable in price, and we cannot think why they are not more frequently used in England.—Yours truly,

The Bombay Motor Car Co., Ltd.

KNOCKING IN ENGINE.

To the Editor of *The Motor-Car Journal.*

Sir,—In answer to "Puzzled Novocastrian's" letter in the last issue of the *Journal*, with regard to knocking in engine, I may say that I had a similar experience with an engine whilst testing the same, and which I eventually discovered (after taking the engine down four times) to be due to the connecting rod just touching the cam shaft. This only occurred when the engine was running at full power. On taking the engine down there was almost one-sixteenth of an inch clearance, but, either owing to a slight spring of the crank shaft or the centrifugal force, there was sufficient to cause a decided knock. No doubt if "Puzzled Novocastrian" carefully overhauls his engine something of this sort will present itself.—Yours truly,

H. J. K.

USEFUL TOOL FOR CONNECTING UP DRIVING CHAINS.

To the Editor of *The Motor-Car Journal.*

Sir,—In a recent issue of the *Journal* you illustrated a tool for fastening chains to motor-cars after removal for cleaning or other purposes, under the column "Useful Hints." Will you be good enough to let me know the name and address of the maker of this article, or where it can be obtained, as I am unable to meet with it in the trade.—Yours truly,

Chas. Rata.

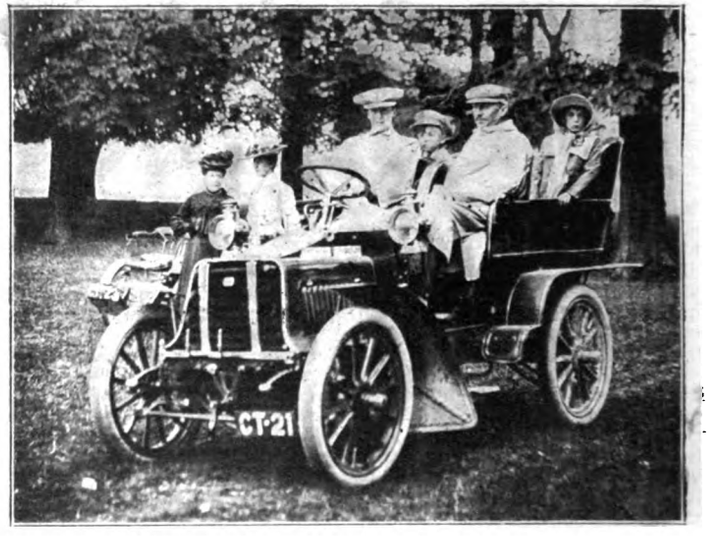
[The device we illustrated in our issue of the 30th April is not on the market. There should, however, be no difficulty in getting one made locally to suit the pitch of the chain on one's particular car.]

NON-SKIDDING DEVICES.

To the Editor of *The Motor-Car Journal.*

Sir,—*Re* Mr. G. T. Tucker's enquiry for side slip preventing device, may I say, as one who has spent some years, much thought, labour, and money on this question, that I advise this gentleman to get, if he can, a front-driving, front-steering car, the steering gear to be strong and of the irreversible type, and he may defy and forget side-slip.

This with plain tyres merely. If he would be ultra secure let him add any good non-side-slipping device to the back tyres, or, if he prefer, to all four. He will then find that the word side-slip will have no meaning for him. He will, of course, round corners at a reasonable pace,



The Hon. Mr. and Mrs. Maurice Gifford on their 12-h.p. Sunbeam Car, on which they won the Point-to-Point Race at Grimesthorpe Park. (See page 439.)

for no design of car and no tyre device will ever render one "fool proof" against a force known as centrifugal.—Yours truly,

Non-side-slip.

SOME NEW PUNCTURE PREVENTERS.

To the Editor of *The Motor-Car Journal.*

Sir,—We notice an article in your last issue dealing with some new puncture preventers, and amongst them you illustrate a type of nail-catcher hailing from Germany. We would like to mention that we

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made and fitted something very similar to this contrivance to a Serpollet car, which answered the purpose exceedingly well. We have never publicly solicited orders for these, as we really did not find much demand, except from private users of cars who may have seen the attachment, and our only object in referring to the matter is to show that this preventive originated in England.—Yours truly,

THE ECLIPSE COPPER COMPANY.

NAIL PULLERS.—Replying to several correspondents, the Tigre nail puller illustrated in the last issue of the *Journal* is obtainable from Messrs. Fleming and Company, of 23, Rue Vicq d'Azir, Paris.

BOOKS ON MOTORING.—T. L. W. writes :—"Could any of the readers of the *Journal* tell me of some handbook of motoring such that a novice might master the intricacies of the motor with something akin to ease? I desire a book which might deal, not so much with the motor-cycle as with a light four-wheeled car whose management is comparatively easy." T. L. W. would probably find "The Motor Book," by Mr. R. J. Mecredy, and published by Mr. John Lane, suit his purpose.

OPENING FOR REPAIR SHOP.—F. C. would like to hear of a town, preferably on the south coast, where there is a good opening for a motor repair shop and garage.

KNOCKING IN ENGINE.—Replying to "Puzzled Novocastrian's" question, S. A. Jones recalls a similar case in which he found the connecting rod of the engine knocking against the crank case.

NON-SKID BANDS.—Replying to Mr. C. R. Hamilton, full particulars of the Lempereur non-skid bands can be obtained from Messrs. Mann and Overton's, Limited, Victoria Garage, 7A, Lower Belgrave Street, London, S.W.

THE STANLEY STEAM CAR.—Messrs. Galloway and Company of Gateshead write us that the British agency for the Stanley steam car is jointly held by their Mr. W. E. Galloway, Mr. F. Wilkinson, Manchester, and Mr. W. S. Paris, of Southport. They add that "Stanley's have such an enormous demand for their cars in the United States, that we have the greatest difficulty to obtain delivery here, and have to be satisfied with what we can get. At the moment we have just received two cars, but do not think there is much prospect of getting more for some time."

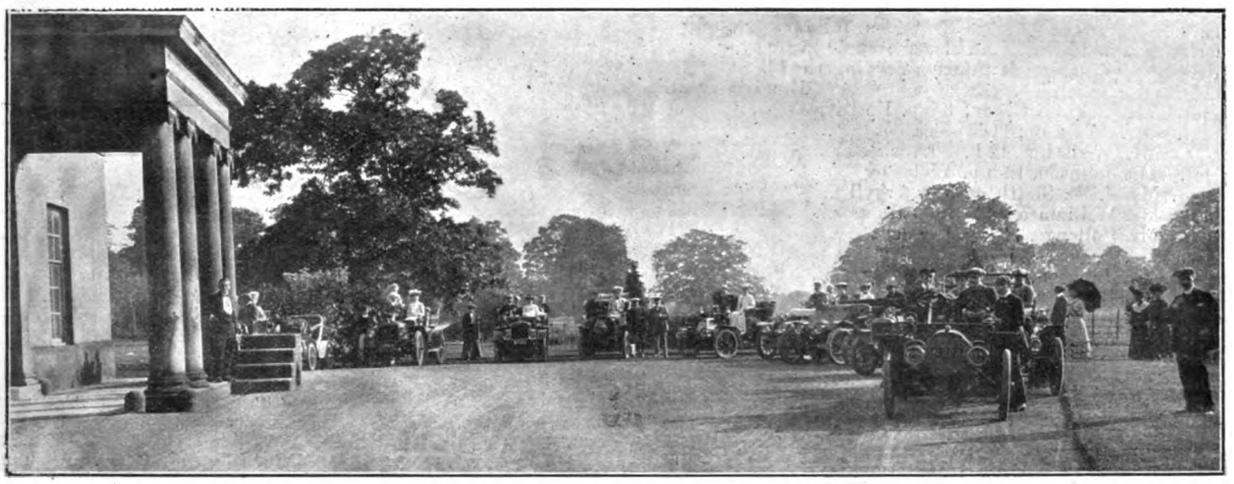


Photo by] The Meet of the Manchester Automobile Club at the Brine Baths Hotel, Nantwich. *[R. Banks.*

CLUBS AND ASSOCIATIONS.

THE LADIES' CLUB.

ON Wednesday the members of the club met the Berkshire Automobile Club at Holme Park, Sonning, near Reading, by invitation of Mrs. E. F. Rhodes. On the 23rd inst. the members have been invited by Mrs. Ainsley, of Hanworth Park, Feltham, Middlesex, to meet there.

BURY ST. EDMUNDS AND WEST SUFFOLK.

A MOST enjoyable run to Brandon has taken place in connection with the Bury St. Edmunds and West Suffolk Automobile Club. Amongst those assembled were Mr. H. P. Collis with his 8-h.p. De Dion Bouton car; Mr. Leofric J. Hunter (hon. secretary of the Bury Automobile Club); Mr. Reginald Lacy Scott, Mr. Kenneth W. Greene, Mr. W. Montgomery, and Mr. Bouttell on motor-cycles; and Messrs. A. E. Stockbridge and Hubbard. Setting off towards Northgate Railway Bridge, they proceeded along Fornham Road in the direction of Fornham St. Martin, Ingham, and Thetford, thence to Brandon.

LINCOLNSHIRE.

COMPETITION IN GRIMSTHORPE PARK.

DR. GILPIN, of Bourne, provided a novel and interesting afternoon's entertainment for the Lincolnshire Automobile Club on Saturday, upon the occasion of his annual picnic to its members. This was again held in Grimsthorpe Park, by permission of the Earl of Ancaster, and a more delightful spot than the shady recesses of trees by the side of the ornamental lakes it would almost be impossible to find. Here the motorists found refreshing rest, after their long ride in the tropical sun. The competition took the form of a point-to-point race, which was won by the Hon. Maurice Gifford, an ardent follower of the Belvoir Hounds—who with his wife (also a keen foxhunter) have been to the front in many a good run with the pack. Amongst those who put in an appearance were Mr. and Mrs. G. Linnell (Market Deeping), 10-h.p. Wolseley; Mr. and Mrs. C. W. Pennell, and Mr. and Mrs. W. R. Pennell (Lincoln), 16-h.p. Martini; Dr. and Mrs. Gilpin (Bourne), 8-h.p. Peugeot; Rev. M. and Mrs. Wilkins (Croft), Baby Peugeot; Dr. Cragg (the club sec.), (Billingboro'), Enfield Quad; Dr. Benson (Market Deeping), on a 6½-h.p. Humberette; Mr. F. Richardson (Sibsey), 10-h.p. Wolseley; Rev. T. A. Stoodley (Dowsby), 4½-h.p. De Dion; Mr. and Mrs. C. Holland (Boston), Baby Peugeot; Mr. R. M. Wright and Mr. and Mrs. Coombes (Lincoln), 9-h.p. Clement; Dr. and Mrs. Sharp (Brant Broughton), 12-h.p. Richardson; Mr. and Mrs. Shippey (Bourne), 3½-h.p. Gladiator; Mr. and Mrs. W. A. Tomlinson (Sleaford), 5-h.p. Bardon; Mr. W. B. Jevons (Market Rasen), 8-h.p. De Dion; Mr. and Mrs. A. A. Padley (Market Rasen), 10-h.p. De Dion; Mr. and Mrs. T. W. Mays (Bourne), 9-h.p. Wolseley; the Hon. Maurice and Mrs. Gifford (Grantham), 12-h.p. Sunbeam; Mr. George Godson (Asgarby), 6-h.p. M.M.C.; Dr. Reckitt (Boston), 4½-h.p. De Dion; Mr. Johnson (King's Lynn), 14-h.p. Clement-Talbot. Many personal friends of Dr. and Mrs. Gilpin were invited to meet the motorists, and altogether upwards of a hundred sat down to tea under the shelter of the trees. The competition took place afterwards. It was a point-to-point race (regulation speed). Nine entries were received for the event, and the cars were despatched in opposite directions at intervals of three minutes. Competitors were supplied with a tracing from the Ordnance map, which clearly defined the circular course to be negotiated. None of the competitors had previously been over the course. The total distance was ten miles, and the time allowed for completing it was 30 minutes. According to the conditions any competitor completing the distance in less time than the minimum to have each minute counted as overtime. The competition was under handicap, cars above or below 10-h.p. to be allowed or fined (as the case might be), one minute for each horse-power, and cars not carrying their full complement of passengers (four) to be fined one minute for each empty seat. The car whose net time approached nearest to 30 minutes to be the winner of a prize given by Dr. Gilpin. The following was the result of the running after making the allowances and deductions :—

	Time (mins.).
Hon. Maurice Gifford, 12-h.p. Sunbeam	30½
Dr. Sharp, 12-h.p. Richardson	31
Mr. A. A. Padley, 10-h.p. De Dion	32
Mr. R. M. Wright, 9-h.p. Clement	32
Mr. C. W. Pennell, 16-h.p. Martini	35

Other competitors, of whom no returns were made, were :—
Mr. G. Linnell, 10-h.p. Wolseley,
Mr. F. Richardson, 10-h.p. Wolseley,
Mr. C. Holland, Baby Peugeot,
Rev. T. A. Stoodley, 4½-h.p. De Dion.

Dr. Gilpin and Mr. T. W. Mays (Bourne) officiated as starters and timekeepers, and they were assisted in their duties by Dr. Benson, J.P. (Market Deeping), Mr. J. H. Carter, and Mr. E. Wherry.

MANCHESTER.

ON Saturday last the Manchester Automobile Club had a run to Nantwich, making, as usual, the Brine Baths Hotel their headquarters. The photograph given above of the assembled cars was taken on the

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circular drive in front of the hotel. Sixteen cars took part in the run, and about fifty members and friends sat down to dinner.

LEICESTERSHIRE.

MR. E. G. MAWBEY, M.I.C.E., the president of the Leicestershire Automobile Club, entertained the members of the club to an "At Home" on Saturday at the Hall Hotel, Ashbourne. Twelve cars and two motor-bicycles participated in the journey through Loughborough, Kegworth, and Derby, to Ashbourne. After tea tennis and croquet were indulged in on the lawn, and Colonel L. L. Powell, the vice-president, proposed Mr. Mawbey's health in felicitous terms. Mr. Harding endorsed the remarks, and the toast was heartily pledged. Mr. Mawbey suitably responded. Among the guests were the following:-Mr. and Mrs. Mawbey, Miss Mawbey, Mr. Maurice Mawbey, Colonel Powell, Mr. and Mrs. S.C. Hobson, Mr. Binns, Mr. and Mrs. King, Mr. Orson Wright, Mr. and Mrs. H. B. Harding, Miss Muriel Harding, Mr. E. S. Harding, Mrs. Parker, Miss M. A. Mason, Mr. C. T. Mason, Mr. Earp, Mr. T. Peberby, the Misses K. and M. Peberby, Miss D. Cleland, Mr. T. L. Perkins, Miss Perkins, Mr. and Mrs. H. Warburton, Miss Dickinson, Mr. and Mrs. H. E. Barron, Mr. and Mrs. Baxter, Mr. and Mrs. G. H. Wait, Miss Wait, Mr. and Mrs. H. Bray, Mr. Bates, Mr. Whitby, Mr. S. F. Aspell, Mr. J. Haines, Mr. H. M. Stickland, Mr. T. Fisher, Mr. Alan McAlpin (hon. secretary).

SOUTH-EAST ESSEX.

ON Sunday, the South-East Essex Automobile Club had a run to Danbury. Among those present were Mr. and Mrs. Foster, 7-h.p. Daimler; Mr. and Mrs. Herrtage, 9-h.p. Darracq; Mr. and Mrs. Whittall, 5-h.p. Humberette; Mr. and Miss Sloman, 2¾-h.p. Humber fore-car; Messrs. Brice, 3½-h.p. Brown; Reynolds, 3¼-h.p. Lurquin-Coudert; Dives, 2¾-h.p. Brown; and Taylor, 2¾-h.p. Brown.

YORKSHIRE.

THE final result of the Pot Bank Hill Climb, reported in our last issue, as worked out by the handicaps, is as follows. Account is taken of the gross weight carried, and also the cubic capacity of motor-cylinder or cylinders, and the time taken ascending the hill.

			Handicap Marks.
Class 2.	1st.	Mr. Penrose Green, 8-h.p. De Dion ...	1106
,, 3.	1st.	Mr. Atkinson, 11-h.p. Talbot ...	1554
		Mr. Whitaker, 10-h.p. Lanchester...	727
,, 4.	1st.	Mr. Johnson, 12-h.p. Wolseley ...	1291
	2nd.	Mr. J. W. Smith, 12-h.p. Argyll ...	1176
		Mr. Williamson, 14-h.p. Talbot ...	1154
		Mr. Collenge, 14-h.p. Clement ...	882
, 5.	1st.	Mr. Bagshaw, 15-h.p. Napier ...	1266
	2nd.	Mr. Johnson, 16-h.p. Wolseley ...	1114
		Mr. Broadbent, 16-h.p. Celtic ...	1074
		Mr. Kirk, 16-h.p. De Dietrich ...	1038
		Mr. Johnson, 24-h.p. Napier landau ...	993
		Mr. Hepper, 15-h.p. Belsize... ...	714
,, 6.	1st.	Mr. Farnell, 28-h.p. Daimler ...	1262
,, 7.	1st.	Mr. Martin, 1½-h.p. Bicycle ...	1970
	2nd.	Mr. Bacon, 2¾-h.p. Humber ...	1272

THE BATH ROAD MOTOR-TRAP.

WILLIAM AUSTIN, a labourer, of Cippenham, near Slough, was charged at Beaconsfield, on Monday, with placing wire across the Bath road, between Slough and Maidenhead, with intent to inflict grievous bodily harm on Mr. W. F. Partridge. The prosecuting solicitor mentioned that the offence was committed on June 19, and on that occasion the King and Queen visited Mr. Grenfell at Taplow Court, and returned to Windsor along the Bath road by motor-car. The circumstances of the occurrence have already been reported in our columns, and, after some evidence had been heard, the prisoner went into the witness-box to deny the charge. He was committed for trial.

CASES DISMISSED.

EARL FITZWILLIAM was summoned at Portsmouth for driving a motor-car to the danger of the public. P.C. Dawson stated that at 6.40 p.m. on June 4th he was at the Twyford Avenue end of Commercial Road, when he saw a motor-car coming from North End at a furious pace, and to the danger of the public. Witness stepped out into the road and held up his hand for the car to stop, but the driver went on. The number of the car was A 1488. After Earl Fitzwilliam and his driver had given evidence Mr. Staplee Firth addressed the Bench in defence. After private consultation the magistrates expressed the opinion that while it was a very proper case to bring forward they did not think the evidence was sufficiently conclusive, and they gave the defendant the benefit of the doubt, and the summons would be dismissed.

AT the Bradford Police Court, Claude White, of Emsworth, was summoned for driving a motor-car at a speed dangerous to the public. Mr. W. G. Purnell said that on the 25th of last month the defendant was seen coming down Bank Street into Market Street with his car at a rate estimated at eighteen miles an hour. Mr. Jones, a member of the Yorkshire Automobile Club, gave evidence to the effect that he saw the car going along Tyrrel Street and Bank Street, and turn the corner of Hustlergate. He considered the car was going at a dangerous speed considering the amount of traffic about at the time. After urther evidence had been given, the case was dismissed.

CONVICTIONS AGAINST MOTORISTS.

Place.	Summoned for	Fine.
Kingston (Ireland)	No identification plate on motor-bicycle	£5, etc.
Hatfield	No identification plate on motor-bicycle	£1, etc.
Folkestone	No light for rear No.	£1, etc.
Edgware	Reckless driving	£10, etc.
,, ...	Disregarding the police	£5, etc.
Slough	No light for rear No.	15s.
Kingston.....	Excessive speed in Richmond Park	40s., etc.
Mortlake.....	Above legal limit	£5, etc.
Knutsford	Reckless driving	£5, etc.
Liverpool.....	,, ,,	£2, etc.
Marlboro' St., W....	,, ,,	40s., etc.
Liskeard	No light for rear No.	2s. 6d., etc.
South West London	Having improper identification mark	5s., etc.
Lambeth	Unilluminated rear number	£2, etc.
Chertsey	Reckless driving	£5, etc.
Manchester..	,, ,,	£3.
North London	Not producing licence when required	10s., etc.
Neath	Dangerous driving	10s., etc.
Shoreham	No light at rear	8s. 6d.
Warwick.....	Driving to the common danger	£5, etc.
Croydon	,, ,, ,, ,,	£5, etc.
Exeter	,, ,, ,, ,,	£3, etc.
West London.....	Allowing the plate number to become indistinguishable	£1, etc.

HELPING OTHERS RESULTS IN A FINE.

ON Monday, Thomas P. Duffin, Wolseley Works, Birmingham, was summoned for driving a motor-car to the common danger, at Warwick, on Saturday, the 2nd inst. Two Leamington cab drivers swore that the car was travelling at a dangerous pace, probably thirty-five or forty miles an hour. A Coventry car appeared to be racing with the defendants. Shortly after passing the cabs an accident happened, and a dog was killed by the Coventry car and a cyclist named Nicholls had his collar-bone broken. William Nicholls, Solihull, said that no sooner was the dog run over fifty yards away than the car bore down on him, and he could remember no more until he found himself in the hospital. Defendant said he was going at a reasonable pace, was on the right side of the road, and had the car under complete control. He did not know there was a second car behind until Mr. Spencer Hargreaves told him of it. The Bench fined defendant £5. A summons against the other driver, Lee, of Coventry, was adjourned for a week.

With reference to this case the Duryea Company write to say that Mr. Duffin was in front of the Coventry car, and upon noticing the accident returned to the scene and did all he could to assist, and took the injured cyclist to the hospital on his car. Thus he was really summoned because he acted as the Good Samaritan.

POLICE TRAPS.

THERE is a measured furlong on Barnes Common which has resulted in several summonses lately.

AT the foot of a hill at Merstham is a trap well designed to catch motorists travelling south.

NEAR the post office at Water Newton, 81 miles from London, is a stretch of 606 yards, with police at each end.

AN M.P.'S APPEAL.

MR. LOUIS SINCLAIR, M.P., who was recently fined at Marlborough Street (London), Police Court, for driving his motor-car in Regent Street on the wrong side of the refuge, asked the magistrate on Monday to increase the fine of 20s. to a guinea, because he wished to give notice of appeal against the decision, and the Act provided that there could only be an appeal where the fine exceeded 20s. Mr. Denman said he would increase the fine as desired, and Mr. Sinclair, having paid the additional shilling, gave formal notice of appeal.

THE Raleigh cycle upon which Mr. G. P. Mills lowered the Land's End to John o' Groat's record last week was fitted with Clincher motor-cycle tyres. British-made Clincher tyres were also fitted on the Talbot car driven by Mr. D. M. Weigel 2,000 miles.

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THE

Motor-Car Journal

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COMMENTS.



IT was Sir Francis Jeune who, first among our public men, drew attention to the enlarged radius of social friendships which would be made by the motor-car. Not only are long tours now possible in districts hitherto unknown to the railway traveller, but social visits may be paid and business carried on at considerable distances from each other in times hitherto absolutely out of the question. Thus the automobile is becoming recognised in Society circles, and there is no doubt that this merit of the motor-car is the cause of much of its popularity with county families who spend much of their time in the country.

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The Gordon Bennett Race.

MR. AUSTIN'S suggestion that the A.C.G.B.I. might invite three selected firms to each build a motor-car for the Gordon Bennett race, instead of appointing the British team after an elimination race, has something to commend it and should have full discussion. The expenses of the eliminating test are a heavy drain upon manufacturers, and as our own firms are mainly concerned with touring cars rather than racers, the selection of the three firms would not, in the present state of things, be a very invidious matter. Those that were thus honoured might be asked to produce cars with minimum requirements in the way of speed, acceleration, stopping, starting, etc., and the minimum having been satisfied, no other test should be necessary. Whether further consideration justifies first impressions or not, the fact that Mr. Austin has brought the matter forward warrants its serious consideration.

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The Motor Horn.

SOME space has recently been wasted in a morning contemporary in a discussion in which correspondents have been advocating the disuse of the horn by motorists. We can quite understand that there are some people who would like to make the public roads as silent as possible, but where this is secured at the expense of the public safety, we totally disagree with these advocates. As a matter of fact, the normal noise of a car is almost sufficient indication of its approach, but where corners are frequent and traffic is thick, the use of some other noise becomes imperative. In fact, we would urge upon all motorists, when rounding sharp corners, to toot pretty freely before approaching the bend. As motor-cars become universal this injunction will become more and more necessary. For the consequences of two cars approaching from opposite directions, and each driving as near the centre of the roadway as legally possible, meeting at a bend, is too terrible to contemplate. Hence the suggestion that motorists should give little heed to those newspaper correspondents who seem to delight in raising scares and making suggestions simply so that they may write letters to the papers.

Numbers on Cars.

ACCORDING to one of the police inspectors of Dublin, the shifting of automobile numbers from one machine to another is becoming an intolerable and frequent nuisance. A case has just come before the courts in which the identification mark of a motor-cycle had evidently been duplicated by someone who had no claim to its use. The owner of the alleged number was discharged, and the jury handed a document to the Recorder to the effect that "In giving the prisoner a wide benefit of the doubt we wish to draw public attention to the defect in the laws regulating the numbering of motors and registration of same, and suggest the numbers be encased in or enamelled on the metal portion of the machine." This is a suggestion that the Irish Local Government Board may bear in mind should new legislation be proposed, and we would appeal to motorists on both sides of the Irish Sea to do all they can to put down such practices.

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The Motor and the Fruit Trade.

AN epoch in the history of the Clydesdale fruit trade has been inaugurated by the commencement of a new method of conveying the fruit to Glasgow market by motor-lorry. The other afternoon the first motor-vehicle arrived in Crossford, and several of the leading growers inspected it in the evening. Opinions are fairly well divided on the merits of the new service, though it is generally conceded that the motor-lorry is a step in the right direction. The great Clyde Valley is peculiarly situated, having no railway connection, and the methods at present in vogue for transit are felt to be slow and somewhat costly. Many growers take their fruit into Glasgow by horse-drawn vans—a distance of twenty miles—which necessitates early pulling of the berries. Others drive their fruit to the nearest railway station—one or two miles distant—for despatch by rail, but this necessitates a deal of handling of the baskets and consequent shaking and wasting of the fruit. The steam-motor is built to carry a load of seven tons, and will, of course, be speedier and cheaper.

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Successful Appeals.

ACCORDING to a return just compiled by the Motor Union, there have been eight appeals to Quarter Sessions since the passing of the Motor Car Act, and only in two cases have the convictions been upheld, both occurring in the county of Hampshire. It is rather remarkable that all these appeals have been in the south, and we would congratulate the solicitors engaged, Messrs. Frith, Vulliamy and Rushforth, as well as the counsel concerned, on the uniform success which has attended their efforts. It would appear that motorists appealing against the decisions of the magistrates have every reason to hope for success; hence the added inducement for contesting such convictions wherever possible. In only two cases, however, in which the conviction was quashed did Quarter Sessions give costs against the magistrates, with the result that four unfortunate automobilists have had to pay sums varying from £60 to £150 to disprove charges of which they were ultimately found to be innocent.

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General Booth's Motor-car Trip.

AFTER the recent interchange of courtesies between His Majesty and General Booth, of the Salvation Army, no surprise will be felt at the conversion of the latter to automobilism. Early in August he is to start on a "motor-car campaign" from Land's End to Aberdeen. It is to be a record "stop" run, for sixty-two towns and villages will be included in the preaching plan and an average of three meetings a day will be addressed from the vehicle. Many people in the country have expressed a desire to hear the General. They cannot get to the meetings in London. So Mahomet is going to the mountain—by motor-car.

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Shooting at the Tyres.

AT a resort on Long Island, in the United States, a police officer has fired a revolver at the tyres of an automobile which exceeded the speed limit. The bullet struck the body of the car and went between the legs of John Foley, the owner of the vehicle. The owner declares that he failed to hear the policeman's warning to slacken pace. Great indignation has been caused by this action amongst chauffeurs, who declare that it is unpardonable. The police, however, justify themselves on the ground of Magistrate Cornell's advice to shoot at cars driving at a dangerous speed. Lawyers and automobilists are unanimous in condemning the opinion expressed by Mr. Cornell as deplorable, and likely to incite the ignorant to deeds of violence under the belief that they will be afforded immunity. According to the New York correspondent of the "Daily Telegraph," in some quarters of the city automobiles are unable to penetrate owing to the hostility of parents, who declare that the streets are no longer a safe playground for children.

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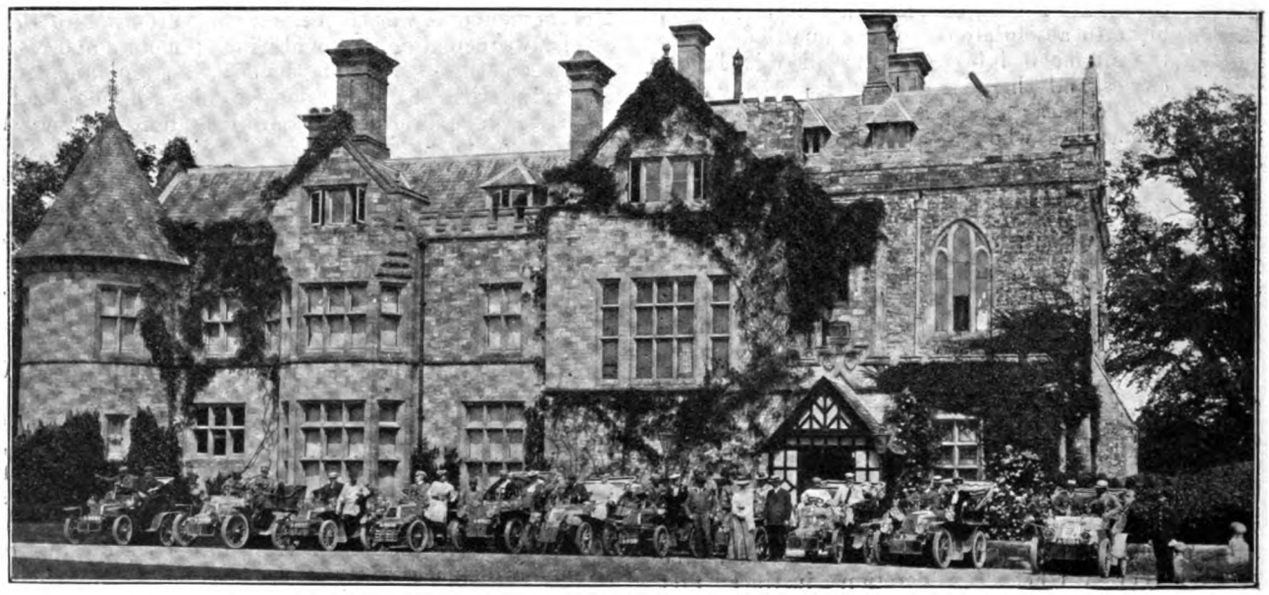
The Folly of the Child.

THIS idea of the roadway as a playground for children is one that will have to be dispelled in this country as well as in America. In the rural districts children are beginning to recognise the danger of such foolhardiness, but in some of our towns the youngsters are too reckless for their safety, and a few serious accidents may be anticipated ere they learn wisdom. Often have we seen them rushing across the road in front of cars, or standing in the centre of the thoroughfare as long as they think they can do so with impunity. This folly will end in disaster, and we would invite our readers to send letters to local journals urging parents to seriously warn their families as to the risks they run in playing such games of bravado in the public streets.

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Cars and Commissions.

THE letter we publish this week from a firm in the automobile trade calling attention to the "journalistic" methods of a contemporary, opens a wide question of interest to both the trade and the public alike. Doubtless the journal concerned will make known to its readers the fact that its replies to their queries are likely, should business result, to enrich its coffers by a certain percentage. Otherwise Sir Edward Fry and those who have brought the subject of secret commissions to the front will find in the automobile press an instance with which to startle the country. Writing for ourselves, we deplore any such close association between advice to readers and commission from advertisers as is indicated in the correspondence referred to. The value of the correspondence columns is vitiated at once, and a blow struck at the regard in which the automobile press is held which will be regretted by all who have watched the progress of the motor-car papers with pride and goodwill.



The French Motor Tour in England.—The party at Lord Montagu of Beaulieu's Hampshire seat.

The Badminton Book.

THE third edition of the Badminton volume on Motors and Motor-driving comes to hand this week. This book, written by experts and edited by Sir Alfred Harmsworth, has been thoroughly revised, while the new legislation enforced since the publication of the original pages is fully referred to. Many books on motoring have lately made their appearance, but this maintains its place in the first rank—a place which the editor evidently intends it should retain.

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Accidents in the Streets.

FOR the year ended May 31st there were reported in the Metropolitan area no fewer than 22,113 accidents to persons and property in which horse-drawn vehicles were involved. No less than 7,327 persons were injured more or less seriously, so that there is much room for improvement if any effectual attempt is to be made to increase the safety of our streets. Fortunately the great proportion of the accidents thus recorded were only slight, but nevertheless some real effort to deal with the problem should be made ere the matter becomes more complicated by the introduction of new vehicles which will

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probably confuse some old drivers who have not yet learned the secret of rapid movement. As we pointed out last week, however, there can be no adequate idea of the proportion of horse-drawn and motor-car accidents, seeing that no figures are available as regards the number of vehicles of the former class in use.

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Self-Propelled Traffic Problems.

SIR HERBERT JEKYLL, Assistant Secretary to the Board of Trade, has received, at the offices of the board, a deputation from the Roads Improvement Association. Mr. Worby Beaumont suggested that the Board should no longer sanction the erection of posts along the middle of roads. Such standards enormously reduced the usefulness of the thoroughfares and hindered the maintenance of the pavement in a uniform condition. Colonel Crompton urged the adoption of recommendation 50 of the Departmental Committee appointed last year, namely, that except in very special cases no tramway or light railway should in future be laid on any road which has not a minimum width of 33 feet, if a double line is contemplated, or of 27ft. if a single line is to be constructed. Mr. Rees Jeffreys argued in favour of a central authority specially charged with the duty of protecting the rights of general vehicular traffic. Mr. Howard Humphreys, referring to the growing importance of heavy motor traffic, pleaded that railway and canal companies should be compelled to keep their highway-bearing bridges up to the original strength, and should not be allowed to close them wholesale against self-propelled vehicles, as was being done in Staffordshire and Monmouthshire. Mr. Robert Todd, chairman of the Association, Mr. R. Noble and Mr. R. J. Smith also took part in the proceedings. Sir Herbert Jekyll promised to lay the representations of the deputation before the Board.

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The Dust Question.

THERE is no doubt that ere long the authorities will have to give heed to the representations of those who have given the subject of road making their attention. In connection with this there is no denying the seriousness of the dust nuisance, and blame should not entirely attach to the motorists. Cannot something tangible and systematic be done by our highway authorities throughout the country? Mr. Shrapnell Smith, who is to address the twenty-second congress of the Sanitary Institute at Glasgow on Tuesday next, will submit a resolution on this urgent question to the conference of municipal and county engineers. We shall be interested to see the form in which it will emerge, and trust that the conference will give full consideration to the matter.

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The Municipal View.

THE matter was referred to by Mr. A. T. Davis, the County Surveyor of Shropshire, in his presidential address to the Association of Municipal Engineers. He pointed out that fourteen or fifteen years ago it was a rare thing to see a steam-roller in the country districts. The introduction of such implements had rendered it possible for india-rubber tyred vehicles to use the roads without being unduly injured by loose sharp stones. At the same time Mr. Davis pointed out that the coming of the automobile had been followed by the dust nuisance. His view was that the real remedy must be founded on the principle "that prevention is better than cure," and the chief roads, at least, will have to be coated with an impervious material which will resist the sucking action of pneumatic tyres, and, at the same time, be strong enough, together with the foundation coat, to bear the heavy traction traffic. Of course there would still be wear and tear caused by iron-shod wheels and horses' feet, but the detritus produced from these and other causes would be reduced to a minimum. If this change is to be brought about without friction it must be done without adding materially to the present cost of maintenance, and Mr. Davis cannot think of any better or more economical material for the purpose than tar-macadam. There is nothing new in the principle of mixing tar with road metal, but many must be interested in the experiments of a member of the Association in the use of selected furnace slag for the purpose, which while yet warm from the furnace is made to absorb the tar, which it is alleged thoroughly saturates it and renders it waterproof throughout. If this material is found in actual practice to be sufficiently tough to resist the wear and tear of heavy traffic the fact that it can be produced at a reasonable cost will lead to its extended use.



The King leaving Hinton Admiral Station for Highcliffe Castle.

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The Police and Motorists.

"THE police in some parts of the country," writes Mr. Staplee Firth, "are simply taking the number of a motor-car, enquiring the name of the registered owner at the different County Councils, and then writing a formal letter to demand the name and address of the driver, under the pretence that they are making such demand under Section 1, Sub-section

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3, of the Act of Parliament. Several motorists have assumed that the police are within their powers in doing this, and they have meekly given the name and address of the driver, the driver, in many cases, being themselves. Where they have had summonses issued against them, they have not had an opportunity of defending themselves, or procuring evidence for their defence, from the simple fact that there was no warning when the alleged offence was committed, nor had they any notion of it when subsequently charged with committing such offence. It cannot be too widely known that the police have no right to resort to these underhanded methods of trumping up cases against motorists. There are only two instances where it is necessary for the registered driver to give information. These two instances are, where the driver, on being stopped, refuses to give his name and address, or gives a false name and address, and the police are not empowered under any other circumstances to resort to this section of the Act. If a motorist sees a police constable hold up his hand to stop and he refuses to do so, even this circumstance is not one under which the police have any right to demand from the registered owner under the section above referred to his name and address."

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The French Motorists in England.

FOLLOWING the reference to the De Dion excursion in last issue we would add that the visit to Sir David Salomons was greatly enjoyed. From Maidstone the French motorists went to Brighton, and then, by way of Worthing, Arundel, and Chichester, they journeyed to Havant and Portsmouth. A day was spent at Southsea, some of the visitors taking advantage of the opportunity to cross to the Isle of Wight. At the seat of Lord Montagu our photograph was taken and then the tour was continued to Weymouth. On Saturday they reached Torquay and in the evening went to Paignton, where they were entertained to dinner at the new Hotel Redcliffe by Mr. Paris Singer. The English and French flags were arranged side by side, and immediately underneath was suspended a banner on which were inscribed the names of King Edward VII. and President Loubet. Mr. P. Singer presided, and the guests also included Dr. J. Alexander, Dr. T. H. Ward, and Mr. J. H. Cooper, the last-named occupying the vice-chair. The menu holders were in the form of miniature cardboard motor-cars. On Sunday a trip was made to Newquay, Monday and Tuesday being spent in Cornwall. The return journey was commenced on Wednesday, and the party is due in London to-day (Saturday).

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Touring and Photography.

TOURING is now the order of the day among motorists, and in addition to well-filled luncheon baskets the presence of a reliable camera will add materially to the pleasures of a trip. Of course there is disappointment with photography, but it offers a means of recording incidents and scenes for reminiscence when days are short and nights are long. Among motorists are many amateurs of real talent, and we shall be glad to receive photographs of wayside scenes in which the automobile figures, as well as of historic places visited by our readers. There is an art in grouping cars with monuments and before notable buildings that is worth all the trouble, and the results of which we should like to see.

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Motor-Boat Racing at Southampton.

THE British International Cup Race for Motor-boats is to take place in the Solent on Saturday, the 30th inst. Challenges have been received from France and America for the cup. Altogether there are six classes—for boats not exceeding 15 ft., 20 ft., 25 ft., and 30 ft. respectively, launches of over 30 ft., and an unrestricted class for boats under 40 ft. Altogether there are twenty-six entries, the largest number being in the "under 25 feet" section. An eliminating contest is to be held on Friday. The start and finish of the race is to take place off Ryde Pier. So much interest is being taken in the event that the A.C.G.B.I. has chartered the steamer "Princess Helena" to enable members and friends to follow the race.

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The Motor Union.

AN extraordinary general meeting of the Motor Union was held in the Inns of Court Hotel, Lincoln's Inn Fields, on Monday. Colonel Holden presided over a large attendance, which included Earl Russell, Messrs. E. H. Cozens-Hardy, R. J. Smith (Glasgow), Arthur Dale (Gloucester), C. H. Dodd, and Dr. J. Hopkins Walters (Reading). The draft rules, which were deferred from the meeting held at the time of the Exhibition at the Agricultural Hall in March, were considered, and, after considerable debate, passed. A General Purposes Committee was also appointed to advise the General Committee as to any steps which may advantageously be taken to increase the membership and usefulness of the Union.

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A Motor Disease.

MOTORPATHIA cerebralis is not to be found in the official nomenclature of diseases issued by the College of Physicians, and yet there are a good many patients who have suffered from it during the last few years. Every innovation that appears in our midst, says the "Medical Press and Circular," brings its own drawbacks with it, and since motoring came into fashion a number of its devotees have found out that even the joy of spinning through the air at 20 or 30 miles an hour has to be paid for in some shape or form. The yachtsman suffers from mal-de-mer, the mountaineer from mal-de-montagne, and automobilists from motorpathia cerebralis. The vibration of the car, especially at high rates of speed, produces in some the same temporary disorganisation of function in the semi-circular canals, and their nervous supplies, that the motion of the ship does in the sea-sick passenger, and nausea, giddiness, and headache are the result of a fast journey over a rough road. Fortunately, the art of the car-builder is able to reduce this disadvantage to a great extent by providing large and powerful springs, but some people, especially ladies, suffer considerably from the jolting and swinging of the car. The frequent use of the car in every-day practice in a district in which the roads are bad seems to tend to upset the normal equilibrium of the nervous system, and unsteadiness of gait and shakiness of the hand result.

THE Midland Hotel at Manchester has just been made the headquarters of the Manchester Automobile Club.

DEPEND upon the policeman to exaggerate your speed and the owner of a different make than yours to doubt it.

A GARAGE has been opened at High Street, Theale, Berks, by Mr. H. G. Sweetman, of Reading. Petrol is stocked, and all classes of repairs can be undertaken.

LAST Saturday the Eastern Counties Automobile Club held a gymkhana at Stutton Lodge, Ipswich, by invitation of Mr. and Mrs. Godolphin Milbank. Seventeen cars took part in the event, Dr. Moseley acting as judge and general superintendent of the race, Mr. Milbank as starter, and Mr. Ching as timekeeper.

AN exhibition of motor cars, motor-cycles, accessories, etc., will be held in the Corn Exchange, Oxford, on Wednesday next and the two following days. It will be under the management of the Oxford Cycle and Motor Car Company, and will be in connection with the meeting of the British Medical Association in the University town.

IN the House of Commons Mr. Scott Montagu has proposed the exemption from duty of alcohol required for motive power, lighting, heating, and manufacturing purposes. The Chancellor of the Exchequer said that, though he could not accept the proposal as it stood, he would accept the suggestion that they should have a committee to look into the matter.

THE arrangements for the haulage of coal on the Huddersfield Corporation tramways from Hillhouse railway siding to the works of Messrs. Marten, Sons and Company, Limited, Wellington Mills, Lindley, are nearing completion. The coal will be conveyed in motor-driven wagons, for each of which two men will be required. The distance covered will be about three miles.

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SPEED TRIALS AT OSTEND.

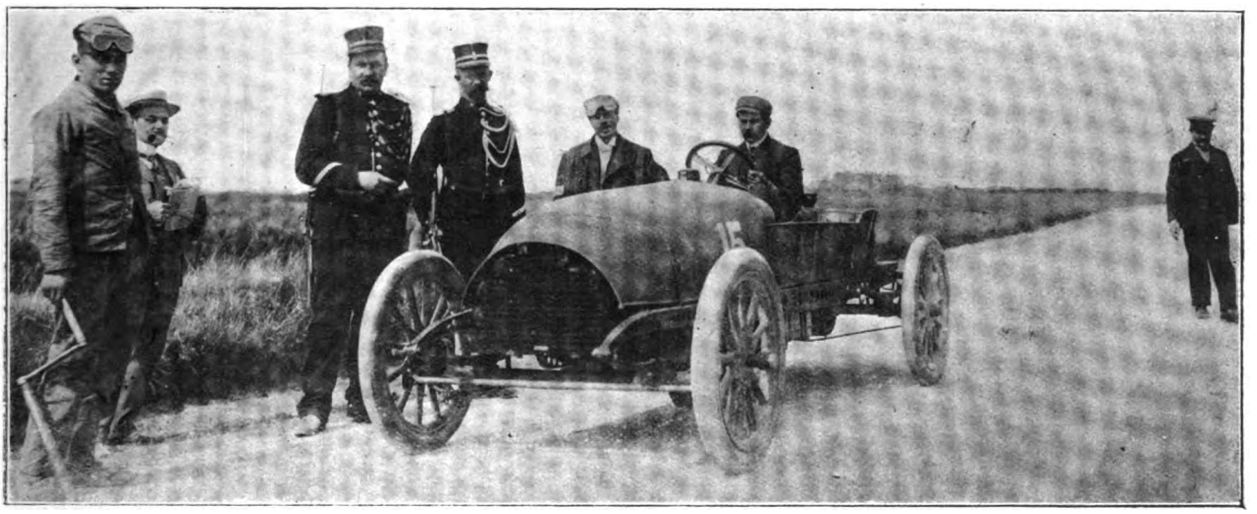
THE automobile race meeting at Ostend, organised by the Automobile Clubs of Antwerp and Flanders, was commenced on Thursday of last week, the day being devoted to the five-kilometre speed trials for tourists on the Nieuport-Snaeskerke road. No accident marred the day's sport, which was witnessed, among others, by Prince and Princess Albert of Belgium. The whole length of the course was sprinkled with Westrumite. The first event was for *chassis* costing less than £160, which proved a victory for Gachet on a Boyer (time 6 min. 18 sec.). The class for cars under £240 brought out four entries—three Vivinus and a Boyer—the winner being Count de Liedekerke on one of the first-named vehicles (5 min. 24 sec.). Eight entries were received for the section for cars costing less than £400, the competitors including Pipe, Vivinus, Darracq, Serpollet, Belgian Gobron, Clement-Bayard, and Corre. The best time was made by Elskamp on a Gobron (4 min. 32 sec.), Joostens (Clement-Bayard) being second in 6 min. 8 sec. A large entry list was received for the class for cars costing under £600, the first three places being secured by Rochet-Schneider cars. Kinet proved the winner in 3 min. 47 secs., La Minne taking 5 secs. longer. The category for cars under £800 brought out a Fiat, a Serpollet, two Mors, and two Automotrice cars, the event proving a victory for Deville on the steamer, his time being 4 min. 17 secs. Only two cars competed in the class for cars under £1,200. Hautvast, one of the Belgian Gordon Bennett team, on a Pipe easily beat Delesalle on a C.G.V., the former covering the five kilometres in 3 mins. 14 secs., as against 4 mins. 40 secs. taken by the latter. The section for cars over £1,200 brought out two Mercedes, one driven by Baron de Caters and the other by Baron Jochems. The event was won by De Caters, whose five kilometres in 2 mins. 52 secs. was the best time of the day.

Friday, the 15th inst., was devoted to the racing section, the programme consisting of a ten-kilometre speed trial on the Nieuport-Snaeskerke road, parallel with the canal. It was in good condition, but comprised two sharp turns, one near the start and the other about midway. The weather was splendid, and some exceedingly fast speeding was enjoyed by the spectators. The first event was for motor-bicycles under fifty kilos., and brought out half a dozen competitors. The best time was made by Renè on a Red Star (7 min. 28 sec.). Pilette on a De Dion won the class for motor-cycles, under 250 kilos, in 7 min. 29 secs., and Edmond on a Darracq the voiturette section, in 6 min. 14 sec. The category for light cars was a battle between Clement-Bayard and Darracq, Hanriot on the former beating Hemery (time 4 min. 52 sec.). The heavy car class brought out Rigolly (Gobron-Brillié), Baras (Darracq), Coppee (Panhard), Gabriel (De Dietrich), and Le Blon, who has hitherto driven Serpollet steam cars, on a Hotchkiss. Rigolly proved the victor, he doing the ten kilometres in 4 min. 39 sec., equal to a speed of nearly 81 miles an hour. Baras was second in 4 min. 43 sec., while the slowest man did the distance at the rate of 75 miles an hour.

Saturday was devoted to a fifty-mile tour from Ostend to Bruges and back *via* Blankenbergh. About thirty competitors took part in the run, including the Baron de Caters, Messrs. Serpollet, Baras, Gabriel, Rigolly, Le Blon, Edmond, and Deville. On Sunday a banquet was held, and in the evening the visitors were received by Baron de Caters at the Hotel de la Fontaine, where a cinematograph display of the Gordon Bennett race was given.

Some very high speeds were attained in the standing mile trials, which were held on the Snaeskerke road on Monday, the Darracq cars, after a spell of bad luck, retrieving their position by securing several world's records. In the racing section the motor-bicycles led off. Olieslagers, on a Minerva, was first, and created a new record, viz, 59 2-5 sec., Seguy, on a Griffon, being second in 1 min. 6 2-5 sec. In the heavy motor-cycle class Rigal, on a Buchet tricyle, beat Pilette on a De Dion; time, 1 min, 16 1-5 sec. In the voiturette category Edmond, on a Darracq, established a new world's record, covering the mile in 1 min. 1 4 5 secs A new record for light cars was also established by Hanriot, who, on his Clement-Bayard, did the mile in 56 sec. dead. It was in the heavy car class that the fastest speeds were achieved. Baras, who had had a new engine fitted to his Darracq, made a splendid start, and did the mile in the marvellous time of 48 3-5 secs., equal to over 74 miles an hour, Rigolly (Gobron-Brillié) being second in 50 1-5 sec., and Le Blon (Hotchkiss) third in 1 min. 25 secs. The times for the kilometre from a standing start and for a flying 609 metres were also taken. Baras covered the former in 35 secs., and Rigolly in 36 3 5 secs.; while the 609 metres were done by both in 13 3-5 secs., or a rate of nearly 105 miles per hour.

In the tourist section, Landrin on a Serpollet was first in the under £400 class (time 1 min. 30 sec.). La Minne, on a Rochet-Schneider won the under £600 class in 1 min. 18 sec., while in the under £1,200 class Baron de Caters' 90-h.p. Mercedes, with four persons up, covered the mile in 1 min. ¾ sec. The day was beautifully fine, with a slight wind in favour of the motorists. A kilometre of the course had been sprinkled with a tar solution to keep down the dust, which it did most effectively.



Hanriot on the Clement-Bayard on which he established a new World's Record for Light Car

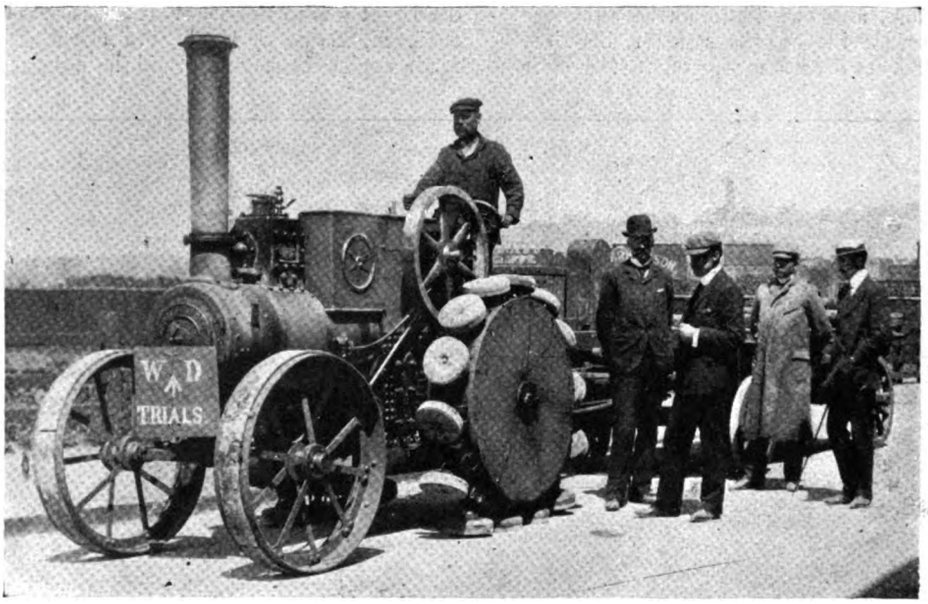
THE Duryea carriages are the subject of a new pamphlet published by the Duryea Company, of Coventry, in which the history of the car, its development from early types to the present excellence and its construction, form the subject of chapters supplemented by useful hints on the management and care of this vehicle, extending to upwards of sixty pages. The book will be of general interest to motorists and of particular value to users of this type of car.

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THE PEDRAIL TRACTOR.

THE exhibition of Mr. Diplock's latest design of Pedrail engine, which he calls the Pedrail Tractor, 1904 type, at the Royal Agricultural Show last month, attracted great public attention. On the 30th ult. an interesting preliminary trial of this tractor took place at Lincoln, in the presence of three officers of the Mechanical Transport Committee of the War Office. After showing the movements of the Pedrail on rough ground, turning a quick circle, etc., it was attached to a lorry loaded with pig iron, the total weight of the tractor and lorry being 9½ tons gross. This load was hauled for a distance of about four miles, in the neighbourhood of Lincoln, including a long hill with an average gradient of 1 in 12, and in parts 1 in 8. The Pedrails throughout this trial worked with remarkable ease and certainty, and it was quite evident in mounting the hill that the adhesion of the Pedrails was sufficient for a much heavier load. This conclusion was verified in a striking manner on the return to Messrs. Fosters' works at Lincoln, where the machine was built.

The tractor was attached to a traction engine weighing 11½ tons, with the driving pin left in, so that in hauling the engine it was necessary to turn the gear wheels of the 11½-tons



The Pedrail Steam Tractor.

engine backwards, thereby adding very considerably to the resistance of the load. A dynamometer was placed between the tractor and load, and the average draw-bar pull registered was over one ton. The brake on the 11½ ton engine was then screwed down until the resistance on the draw-bar registered an average of just over two tons, at which point the resistance of the load proved sufficient to pull up the tractor. It may be mentioned, for the benefit of the uninitiated, that on a first-class, hard, level road (taking road resistance at 60 lbs. per ton) a draw-bar pull of two tons is equivalent to pulling a load of about 75 tons.

The interesting feature of this trial lies in the fact that the tractor was pulled up by want of sufficient cylinder power in the engine, and not by want of adhesion. Throughout the trials the Pedrails never skidded or slipped, and this notwithstanding that the heaviest trial took place on ground with a loosened upper surface about two inches thick in dust.

Our illustration shows the Pedrail tractor and lorry on its return journey, with Mr. Diplock, Major Lindsay Lloyd, Major Donohue, and Major McNalty (reading from left to right) standing in the foreground. Mr. Diplock is now fitting this same tractor with double cylinders to increase the power, and as soon as this is done further War Office trials will take place —probably in the Long Valley, Aldershot.

CONTINENTAL NOTES.

The Liedekerke Cup.

Count J. de Liedekerke has just offered a cup to the Belgian Automobile Club for an International touring competition. The Count proposes that the trial shall take place in Belgium annually, and extend over a distance of at least 250 miles without any neutralisations. The contest, which is open to touring cars with engines of a maximum capacity of 3·75 litres, and of which the stroke must not be less than the bore, will be restricted to manufacturers, who may enter a maximum of three vehicles each. The cars must be in touring trim, and the one which covers the course in the best time will be declared the winner. The first competition is to be held next year.

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A German Speed Indicator Competition.

The German Government has decided to organise, in conjunction with the Mid-European Motor-Car Club, an international competition for the best speed control and indicator apparatus. A Commission has been appointed to draw up the necessary conditions, having regard to the following points:—Every motorist knows the difficulty of fixing the travelling speed of a car, particularly on open roads where objects for comparison are not easily found, while the police cannot always guess or measure the speed correctly, even with the best stop watches. At present a driver is often fined although innocent, the police not acting from malice, but owing to incorrect information. The Government authorities intend to lay down regulations to prevent furious driving and police persecution to protect both the public and the motorists, since the latter represent an important movement. It shall be made possible to fix the speed approximately to enable police and judge to punish the offender, but not to fine the motorist who is the victim of malice or ignorance. The Commission is aware of the difficulties in the way of designing a reliable apparatus, also with regard to laying down the conditions as to how the speed indicator shall register the results. The inventor's scope must not be limited to a great extent, but a few main points must be laid down beyond which the construction must not deviate. The rules are being drawn up by a sub-committee.

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Motor-Car Regulations in Austria.

The Provincial Government of Lower Austria has issued a decree empowering the local authorities to prohibit the passage

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of automobiles over any roads or parts of roads where, in their judgment, the traffic of such vehicles would endanger the safety and comfort of pedestrians and others using the roads. This is the first action taken in Austria for the regulation of motor traffic, and is meeting with the greatest opposition from automobilists. They declare it will have a most injurious effect upon the industry.

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The Calais-Dover Motor-Boat Race.

The great race for motor-boats from Calais to Dover which has been arranged by the French Automobile Club will take place on August 8, provided the conditions are at all favourable. According to the official programme the competing vessels will be in three classes—racers, cruisers, and motor fishing-boats—and in the first two classes there will be a further subdivision to ensure that vessels of the same size and power shall be in competition. There are said to be already over eighty entries, including Panhard, Hotchkiss, De Dietrich, Serpollet, Napier, Wolseley, and Herald.

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Another Hill-Climbing Competition.

The Automobile Club Bourguignon will hold a hill-climbing competition on Sunday next on the Val-Suzon hill, near Dijon.

The Circuit des Ardennes.

Considerable interest is being shown in the Circuit des Ardennes races, which are to be held on Sunday and Monday next, and already all the available sleeping accommodation in the immediate neighbourhood of the starting point is reported to have been secured. Sunday will be devoted to the race for voiturettes and motor-cycles. The circuit is not the same as that chosen for the cars, having a different starting-point, and is only thirty miles round, so that the competing machines will have to traverse the course five times to make up the total distance of 240 kms. (149 miles). The itinerary is as follows :—Arlon, Attert, Habay-la-Neuve, Ettale, Vance, Stockem, Arlon. There are no level crossings, and there will be no stops for controls. The start will be at 7 a.m., the machines being despatched at intervals of one minute. The race for the heavy and light cars will be run over a different course on Monday, the route being Bastogne, Ourthenville, Champlon, St. Hubert, Recogne, Neufchateau, Habay-la-Neuve, Martelange, Bastogne. As the total distance to be covered is 600 kms. (376 miles), the circuit will have to be traversed five times, the start and finish being at Bastogne. The same as Sunday's run, there are no level crossings, and there will be no stops for controls. Some exciting racing is expected, as all the leading firms are competing, while England will be represented by the Wolseleys and the Napiers. It is reported that Jarrott has decided not to run, and that his mechanician, Bianchi, will take his place. The German Daimler Company is not competing officially, but Mr. Andrew Fletcher has entered a 90-h.p. Mercedes. Duray, who has hitherto driven a Gobron-Brillié, will make his appearance at the wheel of a Darracq.

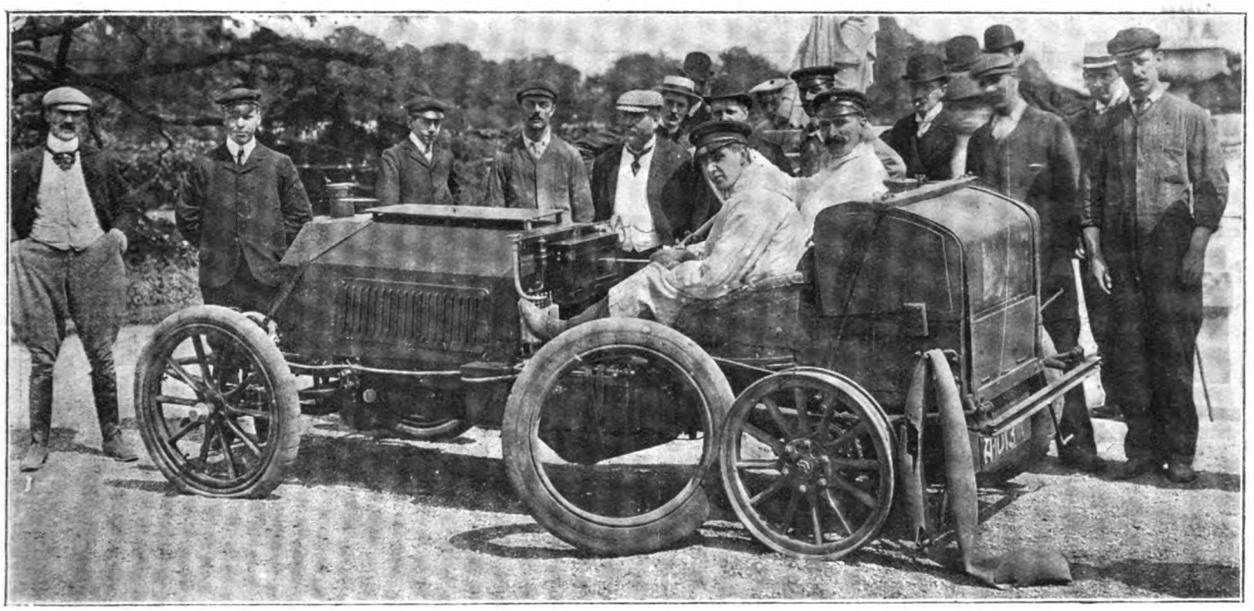


Photo by] The Tyre Demonstration at the Crystal Palace. The Napier Racer after shedding its Tyre. (*See last issue.*) [Russell & Son.

The Ventoux Hill Climb.

The meeting at Ventoux, organised by the Vaucluse an Automobile Club, will take place on the 27th and 28th August. The first day will be devoted to a tour to the summit of the hill, while on the second there will be a timed contest for both racing and touring cars. There is a difference in height above sea level of 5,000 ft. between the starting and finishing points, the average gradient being 13 per cent.

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More Alpine Climbs.

On Thursday, last week, M. René Nagelmachers succeeded in driving his 60-h.p. car over the Col du Glandon, which separates the French department of Isère from Savoy. The highest point is 6,560 ft. above the sea level.

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The Dust Nuisance.

The French Automobile Club has just voted small sums ranging from £12 to £20 to the local authorities of Trouville, Deauville, and Beuzeval-Houlgate towards the cost of dust-laying experiments.

MESSRS. A. DEACON AND SON have opened a garage in Llandudno capable of accommodating 30 cars, fitted with every convenience, including inspection pit with electric light and plenty of room for washing cars.

IN the annual report of the British Electric Traction Company, Limited, the directors state that they have given much attention to the question of motor haulage and motor-omnibuses, and have entered upon several experimental enterprises, but, so far, without obtaining satisfactory results, and all the expenses incurred have been written off. Experience, however, has been gained in connection with the new industry which is likely to be of value in future.

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PREPARATIONS FOR DRIVING.

(*Concluded from page* 434).

A YEAR'S hard service will usually develop in the steering mechanism of a car a noticeable amount of lost motion, unless all moving parts are perfectly dustproof and exceptionally well lubricated. Where serious backlash is found to exist it will probably be partly in the irreversible device at the base of the steering column, and partly in the ball joints or pivots between the steering column. The newer worm and worm wheel steering gears have means for throwing the wheel into deeper engagement with the worm and for thus approximately correcting the wear, which is minimised by packing the gear in lubricant within a perfectly tight case and by hardening the worm surfaces. The older ones, however, are many of them without means for adjustment, and, since the worm is usually fast to the column or integral with it, the elimination of the backlash is well nigh impossible. Multiple-threaded screw irreersible devices are now made adjustable by the use of a split nut with its halves capable of being drawn together, or by some equivalent device, and wear may be corrected, but the sector and gear devices which were formerly much used were generally made unadjustable and were frequently entirely unprotected from road dirt.

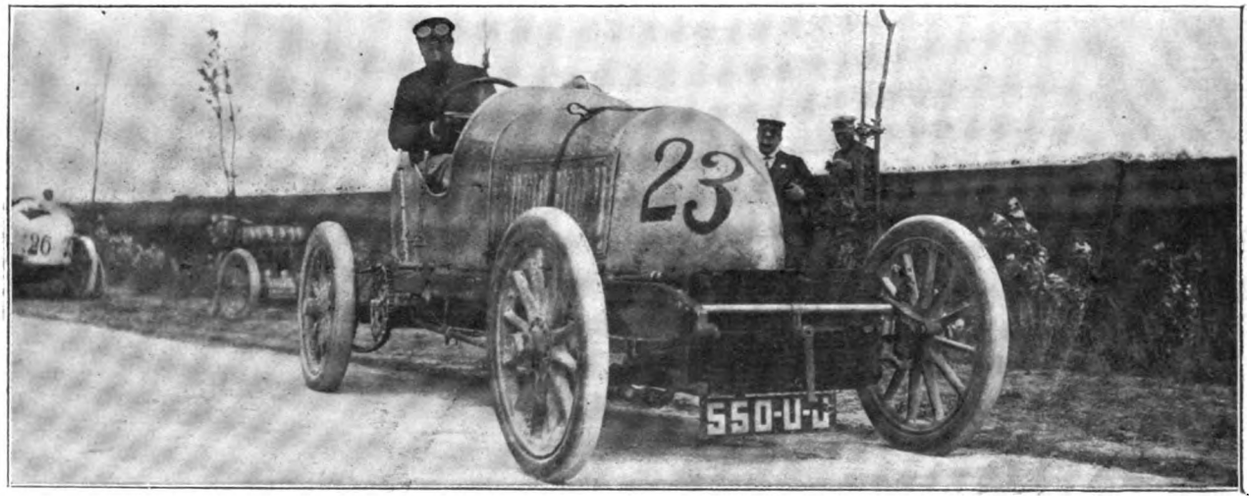
A review of the past year's experience with the tyres of the machine may call to mind one or more which required unduly frequent pumping, and these, or their inner tubes, should be removed and carefully inspected for leaks, which, if found, should be repaired. It may be that the valves were the only source of loss of air, and the cost of putting in new ones is very trivial. If any of the tyres exhibit weakness, new ones should be ordered in anticipation of their failure. In case any presumption may have arisen in the past that the size of tyres used on the machine was too small, a good opportunity may be afforded at this time for the changing of the wheel rims to admit of the heavier tyres.

It is not unlikely that a season's use may have had its effect upon the wheel and axle bearings. Cups or cones may have begun to cut, or a ball or two may have broken, and the adjustments may be in need of attention. At any rate, it is well to be assured of the condition of these important bearings. The adjustment of ball bearings is very easily accomplished, but roller bearings usually depend upon the removal of thin washers to counteract the wear, and a little more more skill is required. An examination of the change-speed gear may bring to light the fact that the bushings of the gear shafts are worn so that perceptible looseness is apparent. The gear faces which engage on the sliding system may have become battered by constant use and may require re-beveling. If anything is found badly worn its lubrication should fall under suspicion.

Owners of machines who note the great improvement in lubrication methods which have been embodied in the latest cars may become dissatisfied with their own oiling arrangements, which, while effective enough, may lack convenience. It is perfectly possible to apply magazine oilers to vehicles originally unsupplied with these conveniences, as there is on the market a variety of such devices provided with as many feeds as required. They may be obtained of the gravity type, of the power-driven pump variety, or of the kind in which the oil is forced positively by means of the exhaust pressure.

One of the necessary preliminaries of the season's running is a thorough cleaning out of all oil passages, lubricators, and cases containing oil for splash lubrication. The use of paraffin is most effective in this. It should be allowed to run rapidly through oil cups until all dirt and gum is removed, and it should be forced through magazine oilers and their tubes, and through all oil passages and oil pockets. Gear and crank cases should be liberally supplied with paraffin and the liquid then rapidly drawn off, when it will carry with it the minute metal chips and dust which frequently accumulate, as well as, in solution, the gummy portions of the oil. When all internal parts are clean, and all oilways clear, one may expect lubrication to be effective.

After all necessary mechanical work has been accomplished, and not until then, the painting of the body may be undertaken. Unless the colour is to be changed or some new woodwork has been added, a slight amount of "touching up" with the colour may be all that is necessary before applying the varnish. If any additions of lamps or horns, golf baskets or hampers are contemplated, it is well to have them in mind before the finishing touches are applied by the painter.



Speed Trials at Ostend. Le Blon on the Hotchkiss. (*See page* 445.)

THE Automobile Club of Argentina has just been formed in Buenos Ayres.

WE understand that the Gamage issue was more than doubly applied for.

THE Corporation of Hythe has determined to put a stop to motoring through the Mayor's Avenue, which is to be exclusively utilised for promenading.

MESSRS. DEAN AND BURDEN BROTHERS, LIMITED, have been registered with a capital of £3,800, to acquire the business of motor manufacturers and engineers carried on at Friary Lane, Salisbury, as Burden Brothers, and to carry on the business of engineers, manufacturers of motors of all kinds and dealers in motor-cars, etc.

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THE 20-H.P. HUTTON CAR.

THE 20-h.p. Hutton car, which formed one of the great attractions at the Motor-Car Show at the Agricultural Hall, was briefly dealt with in the *Journal* for the 26th March last. It comprises so many novel features, however, that we have taken the first opportunity of

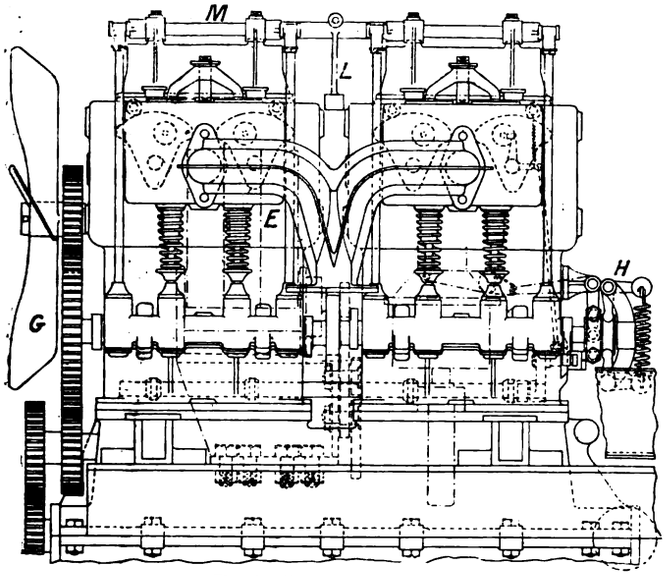


Fig. 1.—Elevation of Motor.

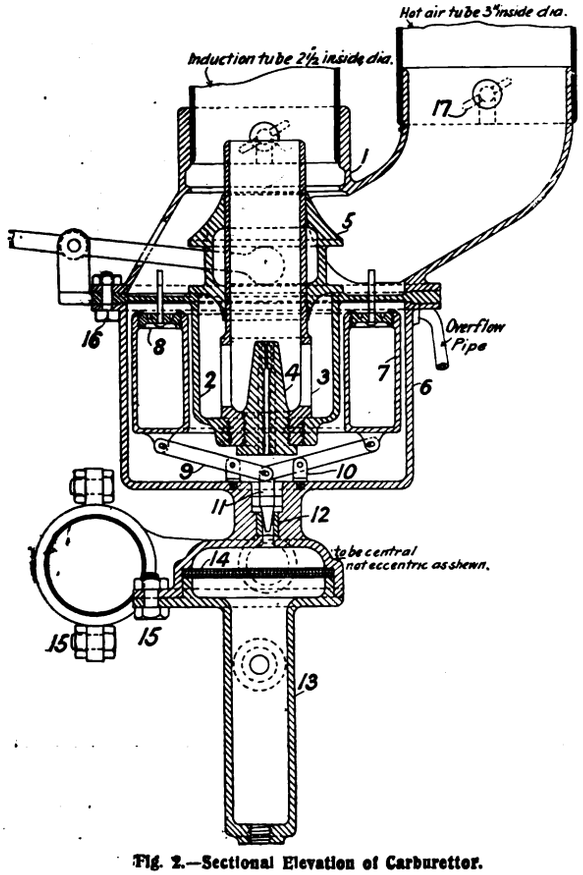


Fig. 2.—Sectional Elevation of Carburettor.

referring to it at greater length. The car, which is constructed in accordance with a number of patents granted to Mr. T. W. Barber, M.I.M.E., has been designed with a view to provide simpler methods of control for the mechanism and less expenditure of physical effort on the part of the driver. Now that cars of 20 and 30-h.p. are generally used for touring purposes, it calls for a good deal of nerve and muscular power to keep such vehicles under control. Of course, nerve cannot be supplied mechanically, but, as will be seen by the subsequent description, it is possible to supply mechanical devices which will enable a person deficient in physical resource to vary the speed of the car—for instance, put on the brakes, etc., with little more than the movement of a finger. The concentration of all the means of control on the steering wheel is also a central feature of the new vehicle.

The frame is constructed of nickel steel members, hydraulically pressed to shape, and riveted together at the cross junctions with gusset-plates. The springs for the steering axle are provided with elastic dumb irons, which add considerably to the light running of the car. Cross members are placed where the twisting strains, due to the attachments of the springs, are transmitted to the frame, enabling the latter to be constructed of a very light section, and at the same time increasing its rigidity. The engine (Fig. 1), which is nominally rated at 20-h.p., has four-cylinders, 90 mm. dia. by 124 mm. stroke, cast in pairs. The inlet valves are mechanically operated, and are placed on the top of the cylinders, the exhaust valves being in the usual position at the side. All the movements for the valves and sparking are obtained from one cam shaft, at one end of which the governor is placed, and at the other end gear

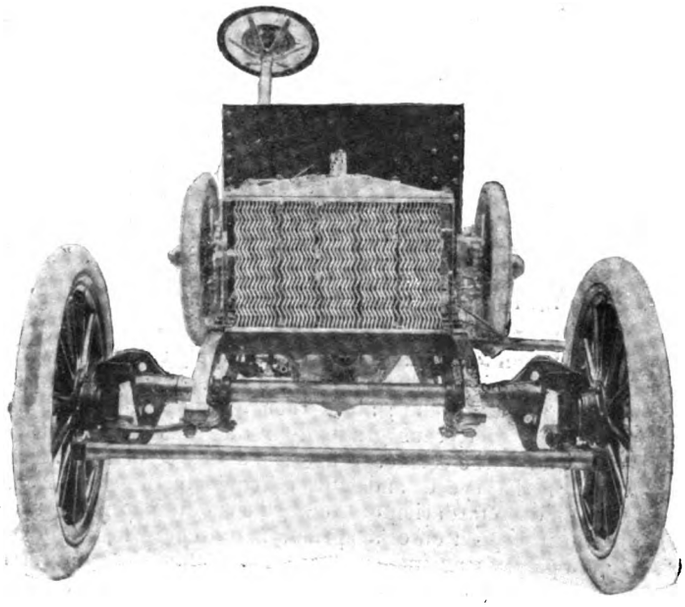


Fig. 3.—Front View of 20-h.p. Chassis, showing Radiator.

wheels for obtaining motion from the crank shaft, and also for conveying movement to the gear-driven fan G. The inlet valves are provided with a variable lift adjustment by means of eccentrics, operated from a rocking arm L, on a shaft M, and controlled from the steering wheel. Means are also provided to advance and retard the time of sparking. The engine and its entire accessory mechanism is carried elastically on the frame of the car by four spiral springs which fit into sockets. By this means the engine is freed from the stresses due to distortion of the frame of the car, and the necessity for a flexible connection between the clutch and gear-box is eliminated. The normal speed of the engine is 900 revs. per minute, the maximum being about 1,500 revs.

Figure 2 shows a sectional elevation of the carburettor, which is controlled direct by the governor in such a manner that the richness of the mixture is varied automatically, according to the speed of the engine and the power required. This is accomplished in the following manner:—The body of the carburettor (6) contains an annular float (7), surrounding the jet (4), which is in the centre of an induction tube (3). The latter which is perforated in the end adjacent to the jet, projects into the main induction pipe of the engine. Sliding on the induction tube is a throttle-collar (5) operated by means of a rocking

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lever, which is coupled to the governor. As shown in the drawing, this collar has shut off all access to the induction tube (3); at the same time leaving a full passage for air up the main induction pipe. This is the position which the collar would assume when the engine tended to race or was set by hand to run at the minimum speed. When starting the engine, the governor raises the collar to its highest position and it will then prevent air passing direct into the main induction pipe; all the air will, there-

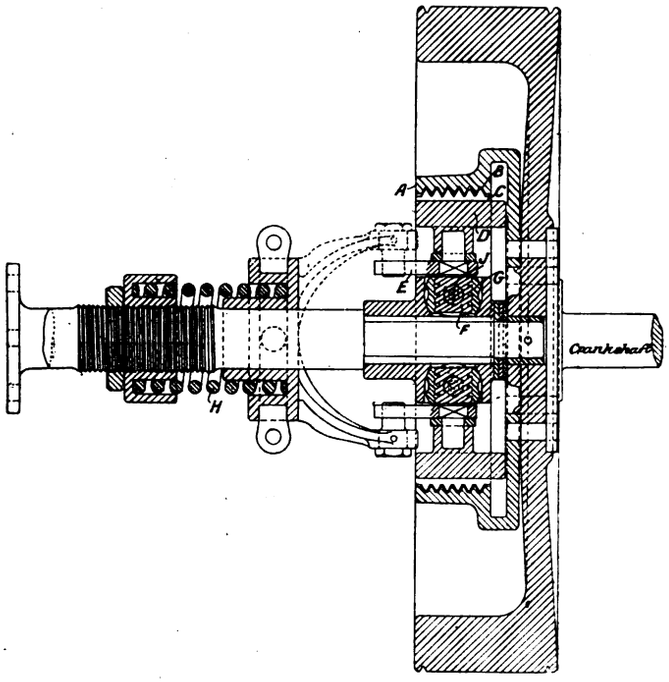
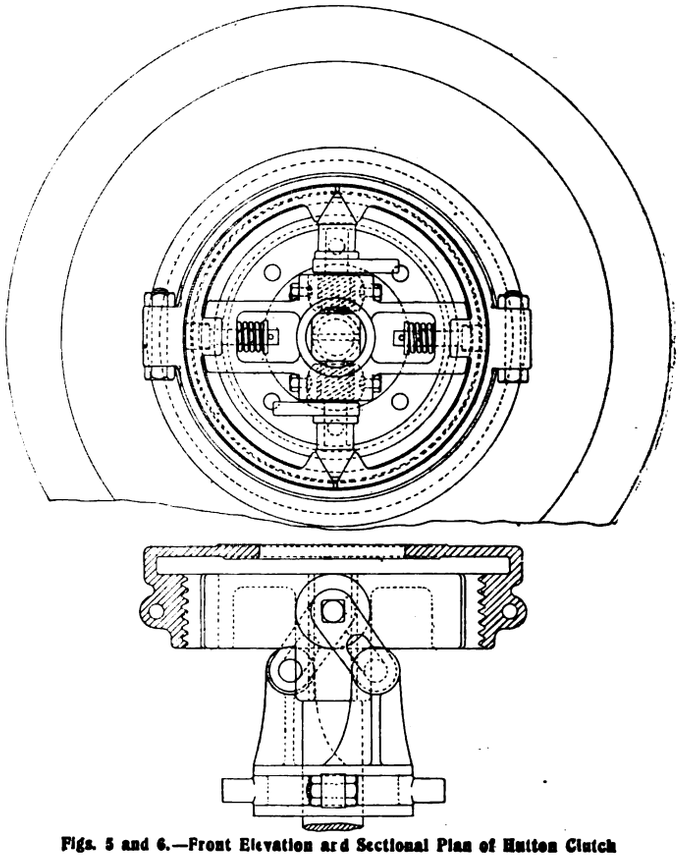


Fig. 4.—Sectional Elevation of Hutton Clutch.

fore, pass through the induction tube and supply the engine with a rich explosive mixture for starting. As the engine speeds up the governor lowers the collar; air is then admitted direct into the main induction pipe, thus gradually reducing the strength of the mixture until the correct proportions of petrol and air are obtained for the speed and power required of the engine. Acceleration or retardation of the engine is obtained in the usual way by the interposition of a spring, actuated from the dashboard and operating against the governor. Below the carburettor a water-separator (13) is attached. The petrol is admitted near the top of this separator and passes upward through the gauze filter into the carburettor; particles of water and dirt are intercepted by this gauze and gravitate to the bottom of the separator, from which they can be drawn off at any convenient time. Hot air is supplied to the carburettor through the orifice (17). This is obtained in the usual manner by surrounding a portion of the exhaust pipe of the engine with a tube leading to the carburettor.

Ignition is by low-tension magneto, driven by a chain, passing across between the cylinder castings, from a sprocket wheel on the centre of the cam-shaft. The engine is started from a shaft which projects out from the frame on the near side, instead of being arranged in front. This shaft lies beneath the mudguard and its inner end carries a bevel wheel that meshes with a larger bevel just behind the fly-wheel. Normally, the starting shaft remains stationary as usual, freeing itself as soon as the engine is set in motion. The radiator (Fig. 3) forming the front of the bonnet is exceedingly light, it being made entirely of aluminium. The upper and lower water spaces are each formed by two castings, which are bolted together, and these containers are connected to one another by a large number of small tubes, bent into zigzag shape and expanded into the plates at each end. It is very light, weighing only 30 lbs., and is claimed to be extremely efficient and to afford a free passage to the circulation of the water. The exhaust-box of the Hutton car is of exceedingly novel design. It consists of a taper pipe, the outer end having the largest diameter. The pipe itself has a series of holes pierced in it, through which air is drawn in and mingled with the exhaust gases, which have a straight outlet from the motor, without meeting any baffle plates on their way to the atmosphere.

Figs. 4, 5 and 6 illustrate the pedal-controlled metal-to-metal clutch which transmits the power from the engine to the gear shaft. A is a cast iron ring attached to the flywheel; it is provided with grooves at B, similar to those formed in the split rings C, which form the expanding portion of the clutch. The wedges D are advanced and retreated from the position shown by means of levers E and screws F, the latter working in spherical nuts G. The levers are moved backwards and forwards by means of a sleeve on the shaft, operated in the usual manner by a forked arm. The adjusting spring is shown at H. The adjustment for wear is easily and quietly accomplished by means of the set screws J which project into cavities formed in the sides of the nuts G. All that is necessary to take up the wear of the clutch is to slacken back these set-screws and rotate the nuts until the next cavities register with the set screws, which are then tightened up again. Sixteen of these cavities are drilled in the periphery of the nuts. An angular chamber is provided to carry a quantity of oil, which is supplied constantly to the clutch, and the effect of the grooves at B is to keep the whole of the working surfaces constantly lubricated. This



Figs. 5 and 6.—Front Elevation and Sectional Plan of Hutton Clutch

causes the clutch to have a very sweet action, and relieves the car from shock, even if the clutch be let in suddenly. It will be seen that no end thrust is created by the clutch.

(To be continued.)

MESSRS. JARROTT AND LETTS, LIMITED, have issued a souvenir pamphlet illustrative and descriptive of the recent ascent of Snowdon by Mr. W. M. Letts, a copy of which they will be pleased to send to any inquiring readers.

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SOME USEFUL NOTES.

BOTH brakes and steering gears are now generally well and safely constructed, but they, like all other mechanisms, warrant the closest scrutiny. Every motorist should assure himself that each nut, bolt, pin, or other device upon which their integrity depends is properly in place, and that nothing is weak or loose. Each brake on the car should frequently be tested upon the steepest available incline to see that it is capable of promptly bringing the machine to rest and holding it from motion in either direction, and merely because one of the two brakes is little used, it should not be neglected, but kept in perfect adjustment for use in the emergency which its name denotes that it is intended to meet. Attention to brakes and steering gear upon the part of motorists, and the acquirement of a readiness to use them, will prevent all accidents not obviously attributable to recklessness, and dispel the general but erroneous idea that motor-cars are dangerous.

◆ ◆ ◆

A RATHER peculiar short-circuit is liable to occur in the Panhard cars. When the starting chain is a little slack, it may, wing to vibration, touch one of the little brass tubes of the commutator and consequently "short" that particular cylinder.

◆ ◆ ◆

THERE is sometimes a doubt, in the case of a new car, as to which is early or late firing. It should always be remembered that when the contact-breaker is moving in the direction the cam-shaft turns it is moving to "late-firing."

◆ ◆ ◆

THOSE who have not put on a new tyre-cover before should note that it is far easier to do so if they put the clips in the rim first, and also put the tube in by the valve. The operation will be more difficult, and necessarily longer, if the cover is first put on and the clips inserted afterwards.

◆ ◆ ◆

BECAUSE a bearing has been equipped with balls does not mean that it is therefore for ever and a day made almost frictionless without further thought or attention on the part of the motorist. Ball bearings are only superior to plain ones when they are given an opportunity to properly perform their functions as friction decreases. To be sure that this exists the balls should be carefully examined every 2,000 or 3,000 miles the car travels, and the balls might advantageously be renewed at least every 5,000 or 6,000 miles. This is not only a policy of wisdom but one of economy as well, since steel balls are a far cheaper commodity than the cups and cones on which they run. The amount of damage a broken ball may do, or, still worse, a ball worn sharp, as well as rough, is, remarks a writer in the "Automobile Magazine," not easily appreciated by those who have no experience.

◆ ◆ ◆

WHEN in doubt as to the number of balls, one less should be put in than the total possible number which can be squeezed into the cup. When jacked up and screwed tight, the wheel should revolve quite freely; in fact, as freely as possible, provided there is no lateral "play." If a cone shows a tendency to work loose, it is best to provide a stout iron washer fitting up to the pin; this should be the strongest that can be used.

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WHEN replacing a broken ball, it is better to renew the whole set, unless the new ball can be carefully gauged to be of the same size as the others. If this is not attended to, the new ball, having to bear more than its share of the weight, quickly succumbs. The greatest care should be taken, of course, to use grease free from grit, and to clean the balls and bearings before they are replaced.

◆ ◆ ◆

HOW few novices use the clutch of a car properly! They obtain their new car, start off on it, change the gears, letting in the clutch "bang" each time, and wonder that the car does not get away. A delicate use of the clutch is essential for good driving, as the engine should always be allowed to "get away" before the clutch is fully engaged.

MOTOR CYCLING NEWS.

COMMENCING with 1905, the Automobile Club of France has decided to make a weight allowance in motor-cycle races and competitions of 3 kilogs. for motor-cycles using magnetos for ignition.

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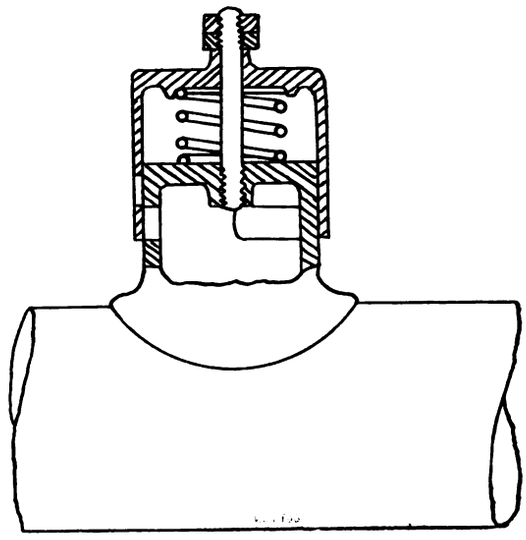
SHOULD any English firm be desirous of competing in the Dutch motor-bicycle reliability trial which is to be held on the Maestricht-Nymegen road on the 14th and 15th August, an entry form can be obtained at the office of the *Motor-Car Journal*.

◆ ◆ ◆

SIGNOR TOSCANO, who recently made an attempt to establish a record on a Werner motor-bicycle from London to Rome, had unfortunately to give up at Modane, owing to sudden indisposition. He proposes to make another attempt shortly.

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Mr. W. STARLEY, manufacturer of the Starley worm-drive motor-cycle, is now fitting a device to all his machines which does away with the air-lever on the handle-bar. As will be seen from the accompanying illustration, the device is an attachment to the ordinary carburettor and consists of two short tubes which telescope into each other. Both tubes are provided with slots which serve as air passages, the outer tube being actuated by the



intake sliding backwards and forwards. The faster the engine works the larger becomes the opening for the admittance of air.

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A NUMBER of motor-cycle races throughout the country are being arranged for August Bank Holiday. Amongst those for which permits have already been granted by the Auto-Cycle Club are:—At Guildford, a three and a fivemi les handicap; Brighton, a three miles handicap; Tunbridge Wells, a three miles scratch race and a five miles handicap race; and New Brighton, a five miles scratch race.

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THE 1,000 miles reliability trial for motor-cycles organised by the Auto Cycle Club will commence on the 15th prox., the routes for the six days being as follows:—

		miles.
August 15th.	—To Great Yarmouth with a stop at Colchester for lunch	154½
„ 16th.	—Yarmouth to Stamford, lunch at Ely	204¾
„ 17th.	—Stamford to Scarboro', lunch at Doncaster... ...	146
„ 18th.	—Scarboro' to Doncaster, lunch at Thirsk	164½
„ 19th.	—Doncaster to Oxford, lunch at Warwick	185
„ 20th.	—Oxford to London, lunch at Marlborough... ...	146
		1,000¾

◆ ◆ ◆

LOCAL cyclists and others who may be willing to act as hon. officials in districts through which the competitors will pass are invited to communicate with the secretary, Mr. F. Straight, at 119, Piccadilly, W., as early as possible.

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A SWISS ELECTRIC TIMING ARRANGEMENT.

MOST people have heard of the celebrated "Cresta" toboggan run at St. Moritz, Switzerland, and many have seen it, but not so many are familiar with the electric arrangement by which the racing is timed accurately to the tenth of a second. Having regard to the unique character of this little installation and to its possible use in timing mile and kilometre motor trials, a description of the apparatus may be of interest. St. Moritz is one of the highest villages in the Engadine, having an altitude of about 6,000 feet, and is a great centre of winter sports; it is consequently much frequented by English and other nationalities who enjoy the sports of skating, curling, tobogganing, ski-ing, &c., which can here be obtained under the best conditions. Good tobogganing may be had in other places, but at St. Moritz it is carried to a fine art, and only an expert can expect to compete successfully on the renowned "Cresta" toboggan run, with its wonderful curves and banks. The course is a

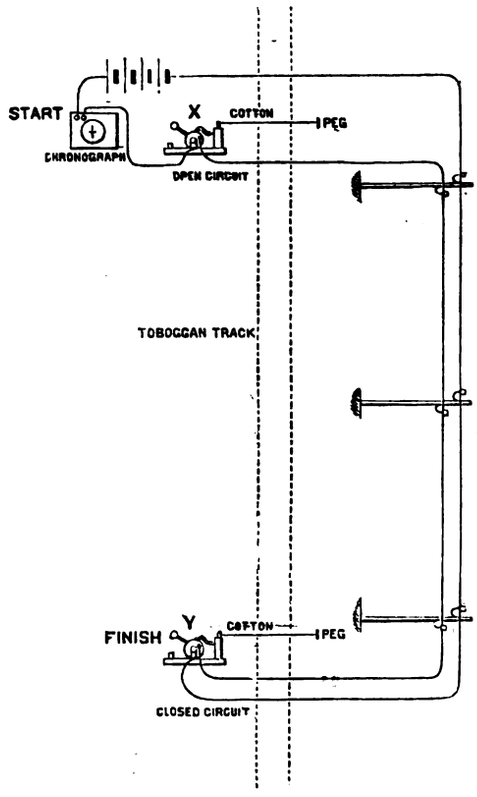


Fig. 1.

little over three-quarters of a mile in length, with a difference of elevation from the start to finish of about 600 ft. As only one toboggan can occupy the track at a time, the races are all decided by the time taken to complete the course. The record time from the start to the finish is at present 61 6-10 seconds, this entailing a speed of sixty miles an hour or more on the fastest parts. The curves of frozen snow are built up with high banks accurately shaped to allow the tobogganer to go round them at the greatest speed, the highest bank being about 25 ft. in height. The whole track is practically of ice, and after passing the finish it has for a short distance a steep upward gradient, the great momentum obtained carrying the toboganner up hill.

At the side of the course there are poles carrying four overhead wires on ordinary porcelain insulators; the two upper wires are connected to a telephone at each end to allow of communication between the officials in charge of the starting and finishing points. The two lower wires are connected to the timing apparatus, which is arranged as in Fig. 1. At the starting point, one overhead wire is, states the "Electrical Review," connected through a battery of ten cells to one terminal of the chronograph, the other terminal being connected through the trigger switch X to the other overhead wire. The further ends of the overhead lines are connected at the finishing points to another trigger switch Y. Both switches, X and Y, are firmly fixed at the side of the course, and have each a strong cotton line attached, with one end to the trigger of the switch; the line is stretched across the track about 2½ in. from the ground, and the other end is tied to a peg driven into the ground on the further side. The switches X and Y are nearly identical and are represented in Fig 2. A circular wheel of brass,

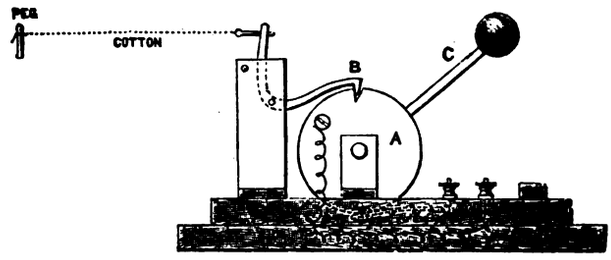
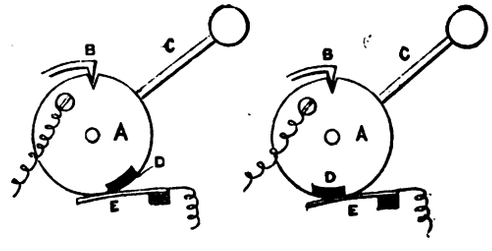


Fig. 2.—Switch with Trigger Set and Attached to Cotton

A, is mounted on bearings, and has a notch in its periphery in which the pawl B is placed when the trigger is set. To the wheel is fixed a radial arm, C, with heavy brass knob, which falls by gravity when the pawl is disengaged by the cotton being pulled. At the lower edge of the wheel, A, a piece of ebonite, D, is inserted in slightly different positions in the two switches (Fig. 3); also a metallic spring contact, E, is pressed against the under side of the edge of A. As will be seen in Fig. 3, when the pawl is set in the notch in the two switches, the spring E in switch X will be pressing against the ebonite D and in switch Y, the spring E is making contact with the wheel A. Before the tobogganer starts, both switches are set with the pawls B in the notches of the wheel A and the cotton stretched from the trigger across the track at start and finishing points. The signal is given and the tobogganer starts from a few yards behind the cotton; his toboggan striking the cotton pulls and breaks it, disengaging the pawl; the arm C drops at switch X, closing the circuit, which allows the current to flow through the electro-magnet of the chronograph, the armature releasing the clock-work, which immediately starts and continues until the cotton attached to switch Y is pulled and broken by the toboggan at the finish of the course, when the arm



Switch y Circuit closed. Switch x Circuit open.

Fig. 3.

of switch Y falling breaks the circuit and stops the chronograph; the time is then noted, and the apparatus re-set for the next tobogganer. The chronograph has a stop for resetting the hand at zero, one complete revolution of the hand representing thirty seconds, and these being sub-divided into tenths. It may be mentioned that with the switch at the starting point, the pawl B can be arranged so that a comparatively hard pull is required to disengage it, but at the finishing point, owing to the very great speed of the toboggan, the pawl must be arranged so that a light pull will disengage it, or otherwise the cotton will break without releasing it.

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HERE AND THERE.

THE membership of the Auckland (New Zealand) Automobile Club now numbers 45.

THE Court Circular has announced the King's motor-car trip from Buckingham Palace to Newmarket.

THE Durham County Motor Transit Company, Limited, has been registered with a capital of £4,000.

A REWARD of £10 for the apprehension of missile throwers has been offered by the Automobile Club of Pittsburg, U.S.A.

IT is estimated that there will be 370 cars in the tour to St. Louis which is being organised by the Automobile Club of America.

AT Littlehampton Mr. S. A. Jones has a garage from which he lets cars on hire and supplies the wants of motorists passing that way.

THE Colville Motor Garage has been opened at 21, Powis Terrace, Talbot Road, Bayswater, S.W. A feature of the establishment is the provision of private lock-ups for cars.

THE preliminary arrangements have been completed at Montreal for organising the Automobile Club of Canada. A general meeting is shortly to be held, when permanent officers will be elected.

THE County Garage Company, Limited, has been registered with a capital of £1,650 to acquire the business carried on at 14, Botchergate, Carlisle, by Mr. J. Hodgson, as the County Garage Company.

THE Prime Minister left town on Saturday afternoon in his motor-car for Beaconsfield, where he spent the week-end with Mr. Henry White, of the United States Embassy. He returned to Downing-street on Tuesday.

THE office staff of Messrs. Armstrong, Stevens and Son, Birmingham, held their annual outing on Saturday last. About twenty-two journeyed to Stratford-on-Avon, where the usual recreations of boating, motoring, and walking were indulged in.

PLANS are now being prepared for the White racing steam car which will represent the White Company in the Vanderbilt cup race, in October next. The car when completed will weigh from 1,800 to 2,000 pounds, and the engines will have a capacity of 80-h.p.

THE Comte and Comtesse Louis de Gontaut, whose marriage fetes caused so much interest in Paris lately, have arrived at the Royal Palace Hotel, Ostend, in their motor-car. They will continue their automobile journey to The Hague, Amsterdam and Aix-la-Chapelle, and will go finally to Lucerne.

AN automobile hospital, consisting of a motor ambulance ready to bear nurses and physicians post haste to the scene of an accident, is to be built and equipped by the Medical College Alumni Association of Harvey, Ill., and made part of the Iroquois Memorial Hospital at Chicago.

MESSRS. J. E. HUTTON, LIMITED, have received delivery of a new 1904 Mercedes model—the 40-45-h.p. The bore and stroke of the engine are 120 and 150 mm. respectively, as against 110 and 140 mm. on the 28-32-h.p. model. In other respects the two types are very similar.

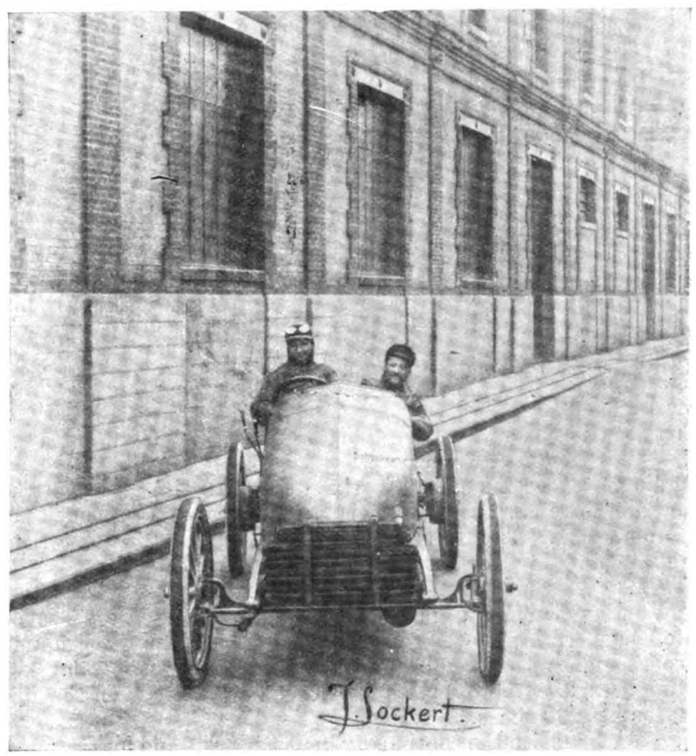
A NOVELTY in the foreign automobile section at the St. Louis Exhibition is a large Panhard bank wagon. This vehicle is of a general type, useful, with slight modifications, as a police patrol wagon in city work, or a money or securities transport for banks and trust companies. It is very strongly built, and has a powerful searchlight on the roof in front.

MOTORISTS who have visited California say that no State in America offers as many enjoyable tours. The great expanse of territory in California affords a greater variety of scenery than is offered in any section of the country, and automobilists are beginning to appreciate the fact that there are many country roads that will compare favourably with any in the United States.

THE Aero Club balloon No. 1, with a capacity of 45,000 ft., recently carried Mr. Frank H. Butler, Mr. Spencer, and Professor Huntingdon to a height of 9,000 ft. The velocity of the wind was 25 miles per hour, and they landed at Saffron Walden in two hours. On the same occasion No. 2 balloon carried Mr. C. F. Pollock, Hon. C. S. Rolls, and Mr. Ivor de la Rue from the Crystal Palace.

MESSRS. WOLSTENCROFT AND COMPANY, LIMITED, has been registered with the capital of £1,800, to carry on the business of manufacturers of and dealers in motors, motor-cars, motor-cycles, locomotives, trucks, wagons, traction engines and other machines, engineers, machinists, fitters, &c., and to adopt an agreement with the Hon. E. R. Thesiger.

MR. W. G. JAMES, who has acquired the right to use the word "Crypto" in relation to cycles, motor-cycles and motor-cars, from the Crypto Works Company, has acquired the premises at 14, Mortimer Street, London, W., until recently occupied by the Weston Motor Company. Mr. James' business will consist of two distinct departments, one carried on as the Crypto Car and Cycle Company, which will deal with all complete cars and motor-cycles sold under the name of "Crypto." In the second department, which he will conduct in his own name, he is pushing the *chassis* made by M. P. Dupressoir, of Maubeuge, France, for whom he is the exclusive agent for Great Britain, Ireland and the Colonies. The speciality of the Dupressoir firm is high class armoured wood *chassis* and automobile components ranging from 6 to 14-h.p.



M. A. Clement, jun., on the Clement-Bayard Racer with which he competed in the French Eliminating Trials. [*Le Chauffeur.*

THE Mint authorities at Bangkok, Siam, are in the market for a motor-van for the transfer of ingots, coin, etc., up to one ton. The specification states that the van must have a speed up to ten miles per hour, and have a hood for the driver and the accompanying official, also a step in the rear for another official. Behind the driver's seat a box is required for the accommodation of the "transfers." The box, which may be three feet square and 18 inches deep, should have a lid lifting vertically, and a "tail board or falling side." The van must be capable of taking a load of one ton up an incline of one in five at a speed of eight miles per hour, and may be propelled either by steam engine or internal combustion motor. In stating the price at which such a van can be supplied, the makers must give full particulars of the motor, transmission, frame, wheels, tyres, radiators, etc. The amount of fuel used per ton mile must also be stated. Communications should be addressed to Mr. J. W. Hinchley, H.S.M. Royal Mint, Bangkok.

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THE Earl of Londesborough and Mr. A. Ure, K.C., M.P., have been elected members of the A.C.G.B.I.

A CORRESPONDENT writes that the other Sunday morning 125 motor-cars and cycles passed the Red Deer Inn, Croydon, in two hours.

THE Cadillac Automobile Company, of Detroit, has so fully recovered from its recent fire that its shipments of cars averaged 200 a week during the month of June.

MESSRS. DUNHILL have just brought out an umbrella dust screen; it is arranged to be fitted to the door of the tonneau or

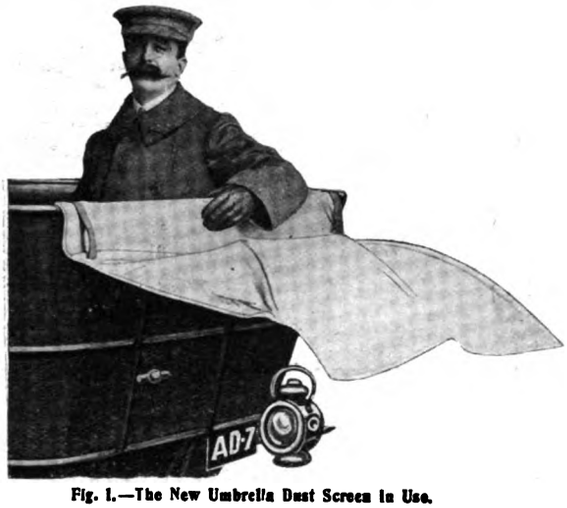


Fig. 1.—The New Umbrella Dust Screen in Use.

the back of the car. The frame folds compactly and opens and shuts as easily as an umbrella. When not required it can be easily detached, the only fixing required upon the car being three small studs. The frame is extremely light, being of aluminium, and is covered with a strong thin material.

FROM the H. H. Franklin Manufacturing Company, of Syracuse, N.Y., U.S.A., comes a catalogue of the Franklin petrol cars. These are of 10-h.p. and 24-h.p., and are noteworthy in that both are fitted with air-cooled four-cylinder engines.

THE Weymouth Corporation Guide, which will be sent on application, accompanied by six stamps, to the Town Clerk, contains some attractive photographs of places in and about that seaside resort. The roads in the district are good, and motorists are becoming familiar features in the locality.

THE Warwickshire County Council has issued a notice cautioning manufacturers against a continuance of the use of Stoneleigh Hill, near Coventry, as a testing ground for motor-cycles and cars. It is pointed out that during five days in June over fifty motor-cycles were taken up and down the hill altogether 232 times.

To cope with the continually increasing demand for their cars the Wolseley Company have found it again necessary to considerably extend their premises at Adderley Park, Birmingham, and building operations have been commenced on ground facing the present works, where a large factory will be erected covering no less than 116,640 square feet. The first bay, which will be utilised as a repair shop, has been already completed. The shop measures 240 feet by 30 feet, and is provided with two pits running the whole length of the building on either side. The latest pattern machine tools and all necessary appliances for dealing with this class of work in the most expeditious manner are provided. At one end a large space has been fitted with a number of lock up cupboards in which customers can store all articles, such as rugs, lamps, etc., while their cars are under repair. Above this a store-room has been built for keeping finished cars whilst awaiting delivery instructions. These new works will be used mainly to develope the industrial side of the motor industry, and special plant will be installed for dealing with launch motors, public service vehicles, heavy tractors, lorries, etc., and other branches of engineering which the capacity of the present works does not permit of being undertaken in large quantities.

THE Earl of Carnarvon has acquired a Hotchkiss car, for which the British Automobile Commercial Syndicate, Limited, are sole agents in Great Britain.

A SERVICE of motor-'buses will shortly commence running between Lowestoft and Southwold, and at Torquay two such vehicles have just been placed on the road to Paignton by the Great Western Railway Company.

IN the annual report of Messrs. Greenwood and Batley, Limited, Leeds, it is stated that the manufacture of chassis for electrically-propelled motor-cars had given good employment, and that about 100 of these carriages had been made during the year.

THE Brighton and Sussex Motor and Carriage Works, Limited, has been registered with a capital of £15,000 to acquire the undertaking known as the Brighton and Sussex Motor and Carriage Works, carried on at 123, Gloucester Road, and 29, King's Road, Brighton, and 99, Conway Street, Hove, to acquire a site in Brighton, behind the Grand Hotel, and to erect thereon shops and motor works.

MR. JAMES MILES has opened a garage in Providence Place, Ann Street, London Road, Brighton, where he has accommodation for twenty cars, and two inspection pits, as well as facilities for the charging of accumulators and for general repairs. Mr. Miles has every convenience for lady motorists as well as for gentlemen, and is evidently going fully into the automobile business.

FROM the Scottish Cyclists' Union comes their official handbook for the current season, giving a list of hotels, consuls, and repairers in the various towns and villages throughout the northern part of Great Britain. This is done with completeness and accuracy, reference being facilitated by a useful alphabetical index. Although primarily intended for cyclists, the little book will prove of great value to motorists touring in Scotland.

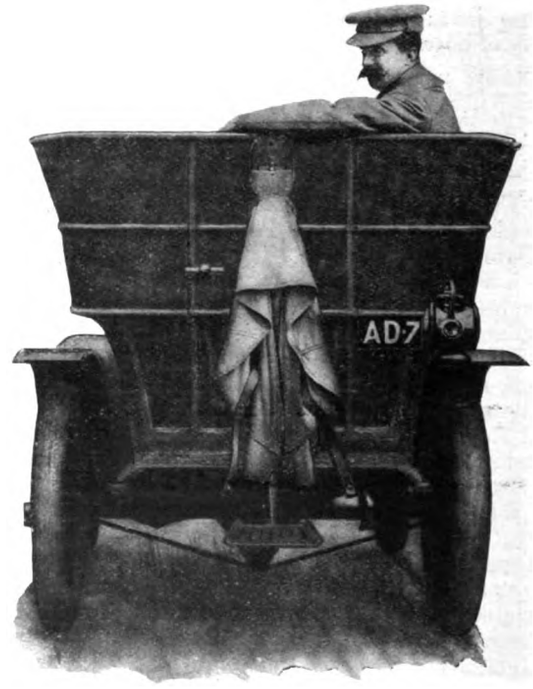


Fig. 2.—The Screen Folded Ready for Opening the Tonneau Door.

LAST week the foremen from the Beeston Works of Humber, Limited, held holiday, the directors placing at the disposal of the party a fleet of motors. The arrangements were in the hands of Mr. Belcher, and the tour was made through some of the loveliest scenery in Derbyshire. Getting away from the beaten tracks the roads in places were mere bridle paths, and notwithstanding the severe tests the cars were subjected to, each one arrived home without any adjustment having to be made. If a breakdown had occurred, there were 30 or 40 expert mechanics in the party available to rectify any mishap.

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CORRESPONDENCE.

THE LIFE OF MOTOR-CARS.

To the Editor of *The Motor-Car Journal.*

Sir,—There is one thing about motoring that is not always taken sufficiently into account by the average user. I mean the life of the vehicle, or rather the period during which it will continue to meet the owner's requirements. It is, of course, certain that the man who pays £600 or £700 for a vehicle does not expect to get full value for his money in actual service, unless he is a business or professional man, to whom economy of time is a great consideration. Except in such cases the car can only pay for itself on condition of its doing service for a specified time, which time is to be calculated according to the class of work it has to perform—that is to say, whether it is in constant or occasional use or is employed for business or pleasure purposes or both—and, in any event, it will take a number of years before the purchase value will be wiped out by the economies which the owner is able to make by its use.

It is difficult to say how long a motor-car should be in actual service, because this varies with different requirements. The question of general interest, therefore, is the time during which the vehicle is capable of doing efficient work. Everything is limited by the durability of the car, because the owner cannot work out his economies beyond that period. What, then, is the life of a motor-car? Not so very long ago it was generally estimated that the motor-vehicle would do excellent service for six years. Now, if we were limited to this time it is evident that the majority of users would not find it to their interest to purchase cars. They would scarcely be able to cover the purchase money in such a short period. Formerly no one ever thought of buying motor-cars with the idea of using them until they fell to pieces, but it was the usual practice to invest in cars either by making an immediate profit on their resale or by disposing of them at the end of a year or so, so that the owner always had up-to-date cars and usually made a good profit on the transaction. With the increasing production of cars there are much fewer opportunities for engaging in this form of investment, and the sale of second-hand cars or of new vehicles with premiums—except in a very few cases—has practically died out.

The motorist must therefore buy his car with a special view to its durability, because he may have no chance of making anything out of it by speculative transactions, and, fortunately for the future of the car, its life is found to be much longer than was supposed in the earlier days of the industry, when six years were fixed as the limit of its actual service. As a matter of fact, it is a common thing to see cars running—old Daimlers, for example—dating from 1897 and 1898. These cars were, moreover, built at a time when the industry was far less advanced than it is at present, and it should reasonably be supposed that the new vehicles, constructed on scientific lines with special material and designed to resist the maximum strains, will last for a much longer time. There seems to be nothing unreasonable in putting this life at ten years at least, and it will probably be found that there are few, if any, users where a ten years' economy will not pay back the purchase money with interest, leaving the owner with a vehicle which can be reconstructed at comparatively small cost for another long period of service. Of course, there is still the question of a car getting out of date; but this is of no importance to the ordinary user, who is quite satisfied with a vehicle that will meet all his requirements as regards comfort and reliability, whether it be the fashionable type or not.—Yours truly,

F. J. Dixon.

A GROWING NUISANCE.

To the Editor of *The Motor-Car Journal.*

Sir,—May I be allowed to suggest that instead of the police wasting their time in endeavouring to trap motorists, they should devote a little of their energies to the young rascals who, not now content with throwing their caps in the road as a car goes by, are beginning to pelt motorists with small sticks and stones? The other day, as we ran through a Surrey village, a stone was thrown at me, and by the closest shave just missed giving me a nasty blow in the face.—Yours truly,

Mazagran.

SECOND-HAND CARS.

To the Editor of *The Motor-Car Journal.*

Sir,—Surrounded with difficulties as is the task of selecting a new car, it shrinks visibly when compared with that which confronts the prospective motorist desiring to make his introduction to the pastime through the medium of a second-hand vehicle. In the first case there are numberless signs and indications which, if intelligently studied, frequently enable one to avoid the pitfalls that mark the purchaser's path. The live makers those who, instead of either going backwards or standing still, have progressed and are still progressing, are not hard to perceive. Values are determined, in the main, by considerations which even the uninitiated can understand. The weight, the power, the speed, the carrying capacity—all form items in the inventory of value, and a very little study furnishes the would-be motorist with his cue. In addition, and most important of all, the reputation and standing of the maker go a long way in finally determining the matter.

But with second-hand vehicles these considerations have much less weight. The decadent cars naturally come to the front in great numbers and are offered at tempting prices. Obsolete patterns are frequently in the majority. The anxiety of their owners to dispose of them is in obverse ratio to their sale value, the latter being sometimes practically nil. If this be true of cars of dubious, or more than dubious, ancestry, it is scarcely less so where cars of reputation are concerned. These seem safe purchases. For that reason buyers who know a little about makes are the easier thrown off their guard. The purchase of a standard vehicle at a reduction of from one-half to two-thirds of its list price seems a perfectly safe one, and as a rule it is. But there is the question of condition to be taken into very serious consideration. The car may have been recklessly abused and be in such condition that only the expenditure of much money and time will avail to put it in good running order. The assumption is, when the purchase is made from a regular dealer, that this has been done. But assumptions are sometimes ill-based, and no buyer can safely do otherwise than go beyond such assumption and satisfy himself that it has something behind it. If repairs have to be made they should, as a matter of course, be added to the purchase price, and it is necessary, if a true estimate of the value of a



The Meet of the Lincolnshire Automobile Club at Riseholme Hall, Lincoln. (*See page* 457).

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car is to be obtained, to see that the repairs are exhaustive and that they leave the car in good running order.

When such a course as this is adopted the purchaser knows exactly where he stands. But it is seldom done. The buyer does not know enough to perceive the advantage of such a plan; and the seller, whether dealer or user, is almost equally opposed to it. Price cuts an important figure, and the greater it is the more difficult it becomes to sell the car to the average purchaser.—Yours truly,

B. W. J.

KNOCKING IN THE ENGINE.

To the Editor of *The Motor-Car Journal*.

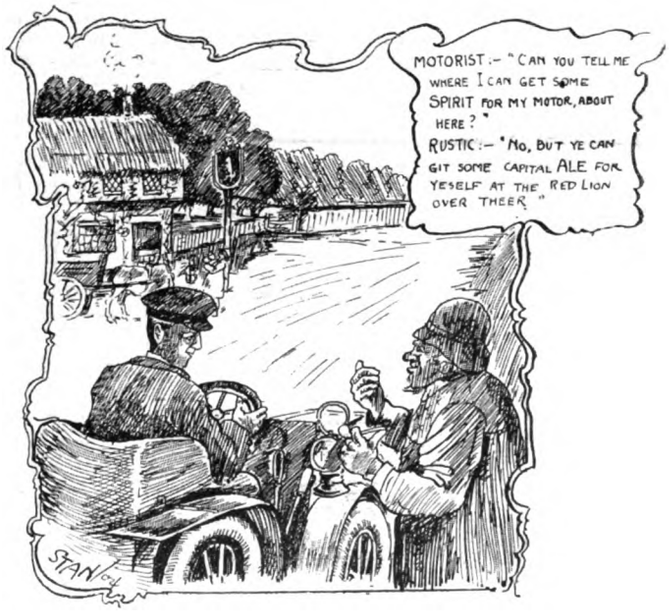
Sir,—It seems to me very probable that the knocking of which "Puzzled Novocastrian" complains in the *Journal* of the 9th inst. is due to the regulation of spirit. This is frequently the case with two-stroke engines; in fact, at times the noise is so pronounced as to cause one to think that the engine is being struck with a sledge-hammer.—Yours truly,

T. Delver Sanders.

PATENTS IN AUSTRALIA.

To the Editor of *The Motor-Car Journal*.

Sir,—The Australian Commonwealth Patent Act is now proclaimed. By it one application under the new Statute covers Victoria, New South Wales, Queensland, South Australia, Tasmania, and Western Australia. After June 1st (the day of proclamation) no more patents can be applied



or separately in the States above mentioned. The Commonwealth Act absorbs each State Act, and all documents, whether for the completion of the old State patents or for the new Commonwealth applications, have finally to be lodged in Melbourne, where the examination of all applications is conducted. Seven copies of the specification on white paper (not thinner than 250 to 300 sheets per inch) are called for. Also three sheets of drawings all measuring 8 in. by 13 in., two being on white Imperial paper, the third on tracing cloth. An opportunity which should not be missed is presented to manufacturers and inventors by this new Act.—Yours faithfully,

Phillips, Ormonde and Co.

OVERHEATING OF INDUCTION COIL.

To the Editor of *The Motor-Car Journal*.

Sir,—I am using an induction coil of good make on my car, but it gets so hot that the paraffin has melted and run out to some extent. I do not know how coils are constructed, and consequently do not know what to do to stop it. Will it do any harm? It does not seem to make any difference with the sparking as yet, but shall be glad if you or any reader of the *Journal* can tell me how to prevent the heating.—Yours truly,

W. J. T.

[The trouble caused by heating in the induction coil may be due to "W. J. T." using a battery of higher voltage than is suitable, or that the induction coil is placed too near some part of the car which gets heated. It is also possible that there is a short circuit in part of the primary winding, causing too much current to pass through it. It will not do any harm until the paraffin has melted completely off some part of the condenser or secondary winding, so that moisture can get to it, which would eventually happen. If one end of the coil is unscrewed and lifted so that the connecting wires to the terminals do not break off, a further supply of hot paraffin wax could be run into it. The main point is to keep all the parts of the coil thoroughly protected from moisture, which it is the function if the paraffin wax to do.]

TOURING IN IRELAND.

To the Editor of *The Motor-Car Journal*.

Sir,—Might I be permitted to reply to the letter of Mr. H. Douglas *re* touring in Ireland? No such hotel exists in Malahide as the Royal, and no such price as 1s. 6d. per dinner exists—a chop costs 2s. 6d. Bray is a little over twelve English miles from Dublin. I have been all over Ireland and am a Irishman having large interests in the country, and I quite agree with what he says regarding the Irish people, as my former letter stated; but I still maintain, and can prove what I state, that the greatest difficulty the disinterested parties who took up the question of developing Ireland as a touring resort some years back met with was the hotels, and the varied charges for very indifferent accommodation. I admit Ireland can be done at 10s. per day, but one would have to know the country well, and it would be very poor living, but it could not be done by anyone touring on a motor of any description. As an American friend of mine, who spent last July, after the Gordon Bennett race, on a motor-car tour in Ireland, said to me when leaving, "I guess you should be a rich people; they got all I had but the car, and they could hardly take that, they knew it was not my own!" A story I once heard in America of a visitor leaving a house, and found all the servants in a line in the hall, one holding his bag, another his hat, and so on, and after tipping half a sovereign and so on down the line arrived at the man who held his gloves, said to him, "Keep them, my good man, its cheaper!"—Yours truly,

K. 125.

JOURNALISTIC COMMISSION.

To the Editor of *The Motor-Car Journal*.

Sir,—We have received the following circular letter from a well-known motor-car paper published in London:—"Since this journal was started we have made a special feature of advising and assisting those of our readers who wished it in the choice, and often in the actual purchase, of their motor-vehicles. As the net result of the work of this department of the "—" we are in a position to verify the fact that orders to the value of upwards of £30,000 have been placed with manufacturers and agents by our readers, and directly due to the recommendation of the various cars represented by the above sum. So far, we have carried on this work gratuitously, but now, owing to the greatly increased circulation and influence of the "—," and to the absolute satisfaction of our clientele with which this has been carried on, we are consulted so frequently, and by such a large number of people, that the time and expense we are called upon to afford has become a serious item of our expenditure.

We therefore ask you whether you will agree, from this date, to credit the "—" with a nominal introductory commission of 2½ per cent. upon the sale of any new or second-hand motor-vehicles bought from you by persons coming to you upon our recommendation?"

We have always been of the opinion that the function of the Press was to give unbiased advice on these matters, and that their profits arise from the advertisements they print, and from the sale of their paper. We hardly think it fair that a journal should attempt to put a tax on the trade by demanding a commission for the recommendation of certain makes of cars, but we should like to have the opinion of the trade on the subject, as we think the question is one of vital importance.—Yours truly,

Motor Dealers.

AN APPEAL TO MOTORISTS.

To the Editor of *The Motor-Car Journal*.

Sir,—Your readers are well acquainted with the unfortunate narrow road passing High Barnet Parish Church. The authorities of this church are fully sensible of the fact that many motorists and cyclists restrain their pace, their horns, and their bells in passing. There are, however, some who forget the distraction which an unnecessary noise is to those in church during the hours of Divine service. May I, through your columns, plead for their courtesy and consideration, and request them to pass as quietly as possible?—Yours truly,

Rector of Barnet.

The Orient Buckboard.—Replying to R. H. Gordon, the British agents for the Orient buckboard are the Remington Automobile Agency, of 11, Tothill Street, Westminster.

The Fleetwood Motor Passenger Carrying Company, Ltd., has been registered with a capital of £5,000.

We learn that Mr. G. E. Culley has been appointed managing director of the American Motor-Car Agency, at whose depot at 117, Long Acre, W.C., examples of the Ford car may be inspected.

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IMPORTS OF AUTOMOBILES.

BELOW we publish our monthly official list of the imports of motor-cars, motor-cycles, and the parts thereof, into the United Kingdom during the month of March, 1904 :—

BELGIUM.

Shipped from	To	Description.	No.	Value. £
Antwerp	Harwich	Motor-cycles	2	70
"	"	" car parts	—	175
"	"	" cycle "	—	1,609
"	Belfast	" car	1	150
"	Grimsby	" " parts	—	12
"	Newcastle	" " "	—	6
Brussels	London	" cycles	42	1,135
"	"	" car parts	—	400
Ghent	Goole	" cycle	1	20
"	London	" car	1	250
Ostend	Dover	" cycles	2	62
"	"	" car parts	—	171
"	London	" cars	27	11,861
"	"	" cycles	71	2,527
"	"	" car parts	—	1,133
"	"	" cycle "	—	52

Total value of imports from Belgium in March, 1904 ... £19,633
Total value of imports from Belgium, January-March, 1904 £68,900

FRANCE.

				£
Bordeaux	London	Motor-cars	2	600
"	Southampton	" "	1	150
Boulogne	Folkestone	" "	44	15,817
"	"	" cycles	2	75
"	"	" car parts	—	3,958
"	Goole	" cars	20	8,210
"	"	" car parts	—	427
"	"	" cycles	—	16
"	London	" cars	125	41,587
"	"	" cycles	6	150
"	"	" car parts	—	1,214
Calais	Dover	" " "	—	27
"	London	" cars	2	450
"	"	" car parts	—	25
Dieppe	Grimsby	Motor-cars	16	3,700
"	Newhaven	" cars	134	49,260
"	"	" cycles	44	1,371
"	"	" car parts	—	7,591
Dunkirk	Leith	" car "	1	500
Havre	Liverpool	" car	1	500
"	Southampton	" cars	4	720
Marseilles	Liverpool	" car	1	400
"	London	" car	1	300
Rouen	Hull	" cars	2	530
St. Nazaire	Newhaven	" cars	3	1,300
" "	"	" cycle	1	9
Treport	Leith	" cars	3	1,450
"	"	" car parts	—	4,030
"	London	" cars	35	9,940
"	"	" car parts	—	11
"	Manchester	" cars	2	560

Total value of imports from France in February, 1904 ... £154,899
Total value of imports from France in Jan.—March 1904 £397,840

GERMANY.

				£
Bremen	London	Motor-cars	12	3,785
"	"	" car parts	—	10
Danzig	Hull	" cycle	1	36
Hamburg	Harwich	" cycle parts	—	61
"	Liverpool	" car	1	150
"	London	" cars	5	1,525

Total value of imports from Germany in March, 1904 ... £5,567
Total value of imports from Germany Jan.-March, 1904 ... £17,124

HOLLAND.

				£
Amsterdam	London	Motor-cars	2	650
Flushing	"	" car parts	—	23
Rotterdam	Harwich	" " "	—	625
"	"	" cycle parts	—	65
"	London	" car "	3	1,189
"	"	" car "	—	26

Total value of imports from Holland in February, 1904 ... £2,578
Total value of imports from Holland in Jan.-March, 1904 ... £8,330

UNITED STATES.

				£
Boston	London	Motor-cars	2	250
"	Manchester	" car	1	480
New York	Hull	" cars	2	400
"	London	" "	38	10,560
"	"	" car parts	—	250
"	Southampton	" car	1	2 0
"	"	" " parts	—	21

Total value of imports from the United States March, 1904 £12,161
Total value of imports from the United States Jan.-March, 1904 £26,653

CLUBS AND ASSOCIATIONS.

BERKSHIRE.

BY invitation of Captain E. F. Rhodes, the fourth summer meet of the Berkshire Automobile Club was held on Wednesday of last week at Holme Park, Sonning. The gathering took the form of a garden party, and there was an attendance of some thirty motor-cars, besides a few motor-bicycles and "trailers." Captain and Mrs. Rhodes welcomed their guests, who included, besides a number of members of the Berkshire Automobile Club, a contingent from the Ladies' Automobile Club and some of the principal residents in the neighbourhood, among them the vicar of Sonning (Canon Holmes) and Major Lloyd, R.E. The band of the 3rd Batt. Royal Berkshire Regiment, under Bandmaster Courtenay, played a choice selection of music during the afternoon, and tea, fruit and ices were served in the dining-room and from a tent on the lawn. Most of the guests left between six and seven o'clock, and enjoyed in the cool of the evening the run back over the Berkshire roads to their several destinations.

Owing to the King having signified his intention of being present at the motor-boat races at Southampton on July 30th, which many of the Club members desire to attend, the next Club meet has been postponed for a week, and will be held on the first Saturday in August at St. Ann's Hill, Chertsey.

LINCOLNSHIRE.

MOTOR meets nowadays are of many kinds, but on Saturday Mr. and Mrs. C. A. Moreing, of Riseholme Hall, near Lincoln, managed to provide a distinct novelty in combining a water fete and battle of flowers in connection with the meet of the Lincolnshire A.C. Well over sixty cars were drawn from all parts of the country, and the line of vehicles was very imposing. Lunch was provided in a marquee on the lawn. Afterwards the visitors went down to the cars and inspected the several new vehicles, and most of those present took trial runs in each other's cars, the roads in and around the park presenting quite a busy scene.

The large lake was then visited, and some of the motorists boarded the boats, the ladies, ashore and in the boats, being supplied with baskets of flowers, and at the word they indulged in a right merry battle of flowers, going into it with real zest, and every one making merry. Some of the blooms that had fallen into the water were used as ammunition, which added to the merriment, and the scene was both animated and pretty.

"Cease fire" sounded by the trumpeters brought hostilities to a close, and the "dinner call" drew the heated combatants to the lawn again, where refreshing tea was served. Those present included Col. J. S. Ruston, Lincoln, and Capt. J. A. Cole, J.P. (Chairman of the Club), Dr. de Beauvais, Mr. E. Cragg, M.D. (hon. sec.), Dr. Benson, and Capt. Mitchell-Innes (chief constable of the county), Rev. R. H. Simpson, Dr. Gilpin, Mr. F. Richardson, Dr. Sharpley, Rev. T. Nelson, Mr. H. Belcher Rev. S. W. Skeene, Rev. Mr. Stoodley, Mr. G. E. Sandars, Dr. Sharp, Col. J. M. Warrener, and Capt. H. E. Newsum.

THE LADIES' CLUB.

THE following ladies have been elected to membership of the Ladies' Automobile Club :—Lady Clementina Walsh, Miss Isa Keyser, and Mrs. W. Portal. The following members of the Club were present at the inter-club meet which was held by invitation of Mrs. Rhodes at Holme Park, Sonning, near Reading, on the 13th inst. :—Mrs. Ainslie, Mrs. Buttemer, Miss C. Browne, Mrs. Edmunds, Mrs. Hartung, Miss Hartung, Miss Honeyman, Mrs. Herbert Lloyd, Mrs. Biddulph Martin, Mrs. Carpenter Rowe, Mrs. Turnor, and Miss Woodhull.

DERBY.

IN beautiful weather, the Derby and District Automobile Club held a meeting in Allestree Park on Saturday. The gymkhana event was won by the hon. secretary, Mr. C. J. Allin, who drove an 8-h.p. Rex. The kilometre sprint went to Mr. G. F. Reading on a 10-h.p. Wolseley.

PETERBOROUGH.

BY invitation of the Marquis of Exeter (the club president) the members of the Peterborough and District M.C. recently visited Burghley and spent a most enjoyable afternoon. The motorists, many of whom came from the Bourne district, first met at the New Inn, Market Deeping, and afterwards went in a body to Burghley. Here they were met by Lord Exeter, who personally conducted the party over the house. The following took part in the run :—Messrs. F. T. Heighton (Peterborough), S. Ireland, P. R. Heighton, Gibson (Bourne), Percy (Bourne),

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B. C. Holmes, Bulkmore, T. A. Morris (Bourne), T. Pearson, J. Whattoff (Boston), Rev. S. W. Skene (Deeping St. James), W. E. Wadsley (Bourne), S. Heighton (Peterborough), P. Smith, and W. Clarke.

HEREFORDSHIRE.

A LUNCHEON was given to the members of the above club at Sufton Court by Mr. J. T. Hereford (president of the club) last week. Speeches were made after the luncheon by the host and Colonel Scudamore, who proposed the health of the members of the club, also the health of Mr. J. T. Hereford. They then adjourned to Dinmore, where the reliability trials for motor-cycles took place. Amongst those present at the trials were Mr. J. T. Hereford and party in a 18-h.p. Daimler car; Mr. Graystone, of The Moor, Hay, in a 15-h.p. Panhard; Mr. J. H. Hall, of Ross, in a 8-h.p. M.M.C.; Mr. A. W. Marriott and party in his 5-h.p. International Benz; Mr. Llewellyn and party, Ross, in a 16-h.p. Brush; Mr. E. B. Howell and party in a Humberette; and Mr. W. Pritchard, of Hereford, on his 2-h.p. Quadrant cycle. Messrs. W. Margrett and A. Townsend acted as timekeepers, Mr. Margrett very kindly supplying the stop watches. Mr. Wilfred Groom (secretary) was present as starter. There were two classes of cycles, viz., No. 1 class for motors of and over 2¾-h.p.; No 2 class for motors of and under 2¼-h.p. The names of the competitors and results are given below:—

CLASS 1.

1. H. Minton, 3¼-h.p. Zedel, 2 min. 8 3-5 secs.
2. F. Marriott, 2¾-h.p. Griffon, 2 min. 39 4-5 secs.
3. J. H. Hall (Ross), 2¾-h.p. Quadrant, 2 min. 42 1-5 secs.
4. C. L. Llewellyn, jun. (Ross), 2¾-h.p. Excelsior, 2 min. 49 2-5 secs.
5. T. Godwin, 3-h.p. Bat, 2 min. 59 4-5 secs.
6. C. L. Llewellyn, sen. (Ross), 2¾-h.p. Excelsior, 3 min. 10 4-6 secs.
7. E. J. Smith (Bromyard), 2¾-h.p. Griffon, 3 min. 20 secs.

CLASS 2.

1. H. Minton, 2-h.p. Minerva, 2 min. 52 1-5 secs.
2. J. Wheel (Ross), 2-h.p. Minerva, 2 min. 57 2-5 secs.
3. F. Marriott, 2¼-h.p. Royal-Albert, 3 min. 22 3-5 secs.
4. C. W. T. Simpson, 2-h.p. Imperial Triumph, 3 min. 37 1-5 secs.

The winning times in both classes were excellent, considering the gradient and the state of the roads.

READING AND GLOUCESTERSHIRE.

ON Saturday last the Reading and Gloucestershire Clubs ran from Reading and Cheltenham respectively and met at Farringdon. The meeting was postponed some weeks ago on account of the bad weather, but the postponement was a happy one, inasmuch as the run on Saturday was favoured with the most perfect summer weather, and the roads, with the exception of the thick layer of dust, were in good running order. The Reading cars started from the club's headquarters and proceeded to Farringdon *via* Streatley and Wantage and the return journey *via* Abingdon and Wallingford. The run was also one of the six-monthly club runs in connection with the Reading Automobile Club's reliability trials for which a silver challenge cup is awarded and a medal to the holder.

The cars assembled in the Market-place at Farringdon, and after they had been examined and inter-club courtesies exchanged the party took tea at the Bell Hotel. Mr. A. Arthur Dale made an after-tea speech, welcoming the Reading Club in felicitous terms, to which Dr. Walters replied on behalf of the Reading Club. Among those present were Messrs. A. Arthur Dale, 3½-h.p. Ormonde; H. Callas and Mr. J. Harris on 7-h.p. Swift; A. C. Brewerton and C. H. Smith, 10-h.p. Georges Richard; Skurray, 12-h.p. Darracq; Dr. Walters, 8-h.p. M.M.C.; J. Montgomerie, 5-h p. Napier; Sandars and Wood, 11-12 h.p. Argyll; Dr. A. C. Major and A. E. Newton (Hon. Sec. Reading A.C.), Renault; C. H. Dodd and W. H. Phelps, 8-h.p. Renault; J. V. Moinet, 3-h.p. Excelsior; Neville Bennett, 3-h.p. Excelsior tricycle; J. H. Hewitt and Mrs. Moon, De Dietrich; T. H. Hewitt, 10-h.p. Gladiator.

BLACKHEATH.

THIRTY-ONE members and friends of the Blackheath Automobile Club had a most enjoyable run on Saturday last to Botley Hill, Surrey. The members and cars taking part comprised Fleet Paymaster W. O. Bedford, R.N. (Swift); Messrs. H. A. Cunis, (Horley); Alex. Duckham, (Germain); E. Fraser (Humber tricar); L. Lambert (Talbot); H. Norfolk (Renault); T. Norfolk (De Dion Spider), T. Prestige (Clement); S. Prestige (Panhard); W. S. Toynbee (tricar); W. Whiteway (Regal). Some of the members took advantage of the favourable weather and had an *al fresco* lunch on the way. Tea was taken in picnic fashion on the brow of the hill, and a start made for home at 7·15. p.m. In the unavoidable absence of the hon. sec., Mr. Alfred Roberts, Mr. H. A. Cunis kindly officiated.

MIDLAND.

THE Midland Automobile Club have purchased a complete telephone service for use on the occasion of the president's hill climb at Sunrising Hill to-day (Saturday). This service they will be pleased to hire out to kindred clubs. After the event a dinner will be held at the Shakespeare Hotel, Stratford-on-Avon.

A COMMISSION CASE.

A. W. GAMAGE, LIMITED, Holborn, sued Krupkar, Limited, motor manufacturers, 13, Basinghall Street, for £29 1s. 9d., being 10 per cent. commission on the purchase price of a motor-car sold by the plaintiffs for the defendants to one Dicken. Mr. P. Rose-Innes, who appeared for the plaintiffs, said that in the early part of the year there was an exhibition of motor-cars at the Crystal Palace. The plaintiffs and the defendants had stands. Mr. Dicken was introduced to Mr. Vincent, a director of the plaintiff company, who was in charge of their stall. Mr. Dicken saw several cars, and on the second day inspected one of the defendants' cars, the price being 277 guineas. Mr. Vincent asked the defendants what they would allow to his firm if he could sell one of their cars, and Morrison, who represented the defendants, replied that 10 per cent. would be paid. Mr. Vincent brought off the sale, and the plaintiffs now wanted to be paid. In his evidence Mr. Vincent said it was not true that the 10 per cent. arrangement was in reference to future business. As a fact Mr. Dicken knew that they were to have 10 per cent. Mr. Dicken was called, and bore this out. Mr. Morrison, for the defendants, said that he sold the car to Mr. Dicken, who simply employed Mr. Vincent to act as an expert. Witness added that he had sent the plaintiffs a cheque for five guineas, the usual expert's fee, although that was generally paid by the purchaser. He did that feeling that he would like to act magnanimously. He told Mr. Dicken that he would not sell the car if he had to pay a commission. The Judge said he was not satisfied that the 10 per cent. arrangement was confined to future business. He thought it included the lot, and, therefore, he found for the plaintiffs, with costs.

PRISON FOR "MOTORISTS."

ON Whit-Monday Horace Melville took Alexander McSwade out in a motor-car which he had borrowed without permission and also without having a licence to drive. He drove at a furious pace, and in swerving to avoid running down a boy crashed into an omnibus, smashing its stairs and damaging the car to the amount of £50 or £60. McSwade was thrown so heavily that he had since been paralysed down his left side, and remembered nothing of the affair. At Clerkenwell Sessions, Melville, who had been a month in custody, has been sent to prison for two months in the second division.

JUSTICE DARLING was engaged all day at Guildford Assizes on Friday hearing a case in which a French motor-car driver named Emile Richard was charged with the manslaughter of Frederick Parkinson Job at Banstead on April 4th. It was alleged that prisoner was driving the car at from twenty-five to thirty miles an hour, and in order to pass a motor-cycle he so swerved that he crashed into Job, who with his cycle was hurled into the air. His injuries included a fractured skull, and he died in Sutton Cottage Hospital four days later. Prisoner was sentenced to six months' hard labour.

CASES DISMISSED.

AT Chertsey, Earl Cairns was summoned for driving a motor-car recklessly and negligently near Egham Causeway whilst on the way to Ascot on June 14th. Mr. Staplee Firth, at the opening, raised an objection against the form of the summons, and the word "negligently" was deleted. Mr. Firth said it was absolutely impossible for Earl Cairns, expert driver though he was, to negotiate Staines Bridge at thirty miles an hour. Lord Cairns and Lord Anerley, who was in the car at the time, entered the witness-box and denied the reckless driving. Both said the car was under perfect control. The magistrate dismissed the case.

MR. W. L. M'BRIDE was summoned at Kingston-on-Thames County Police Court for driving his motor-car at a speed which was alleged to be dangerous to the public, at Portsmouth Road, Surbiton. The constable in his evidence said that as the car bore a manufacturer's number, he asked defendant if he was out with the car on trial with the object of selling it. The defendant replied: "No, I am only doing it for pleasure." The Chairman intimated that as the speed was so near the limit allowed to motorists—20 miles an hour—the summons would be dismissed.

MR. LEE, of Coventry, was summoned at Warwick for "driving to the common danger" under circumstances reported last week. The adjourned case was heard on Monday, when his counsel, Mr. Maddocks, of Birmingham, raised a novel defence. After one witness for the police had sworn to "thirty-five to forty miles an hour" and two others to "furious" driving, and all three had testified under cross-examination to from 150 to 200 yards having been covered in from two to five minutes, and Mr. Maddocks had ascertained from the Chief Constable that his case was complete, he submitted that he had no case to answer as no offence had been proved, Mr. Maddocks' contention being that there is no such offence in the 1896 Act of Parliament as "driving to the common danger," which offence only appears in the Local Government Board's regulations, and he contended that as L.G.B. regulations are subject to alteration at any time, it was necessary for the prosecution to put in a copy of the existing regulations before it could prove that an offence had been committed at all. The Superintendent wished to send for a copy, but Mr. Maddocks held that, even if he were willing to permit the case to be reopened, which he was not, that a printed copy was not sufficient, but that it was necessary to produce a written copy, sealed and signed by the Secretary of State, and in the end this contention was held to be a valid one and the case was dismissed.

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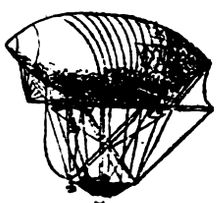
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COMMENTS.



AN experiment was carried out on Saturday under the auspices of the Aero Club, when two balloons left the Crystal Palace, one manned by Mr. C. F. Pollock, Mr. D. Lloyd, and Mr. C. Moore, while in the second there travelled Mr. C. S. Rolls, Professor Huntingdon, and Mr. Frank Butler. A race involving the capture of one balloon by the other had been arranged, and both started close together. The "Norfolk," of which Mr. Pollock had charge, however, quickly got ahead of "Aero Club No. 1," which was under the care of Mr. Rolls. The advantage of the start was lost to the "Norfolk" by an easterly drift, and "trailing" had to be given up when the balloon had to "jump" a village which lay in its path. Near Cambridge the wind dropped so much that the capture of the "Norfolk" by "No. 1" was seen to be impossible, and soon the balloonists found themselves over Newmarket at a height of 7,000 feet. The air was intensely cold, and this caused the gas in the balloons to condense, with the result that the occupants of both were given an unexpected shower bath. The "Norfolk" made a safe descent near Ely; but its companion balloon came down between Newmarket and Cambridge, where it was captured by a motor-car that had been giving it chase all the way.

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The Trials in Hereford.

ALREADY the people of Hereford are beginning to be interested in the light car trials to be held in that city. The Hereford Automobile Club is raising £100 towards the expenses, the subscription list being headed by the Mayor, Mr. H. C. Beddoe. The daily runs will probably be to Worcester, *via* Bromyard; to Ludlow; to Ledbury, *via* Leominster; to Staunton; to Kington; and, lastly, in the Ross district. The competitors will arrive at Hereford on the 27th prox., and an interesting time is in store for the motorists, who will doubtless welcome the change from the south of England.

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Visit of Scottish Road Surveyors to France.

FOLLOWING up the interest created by the Special Commission appointed last year to enquire into the working, maintenance, and administration of the roads in England, and the mention of the superior system obtaining in France, the Road Surveyors' Association of Scotland, through the Foreign Office, approached the French Government for leave to inspect the roads in France, and to make personal observation of the system there. The proposal was cordially received by the French Government, who extended a hearty invitation to the Association to send representatives. Accordingly, a party of surveyors visited the country ten days ago, and were shown over some of the most important roads, also the various methods of quarrying and preparing material, bridge building, paving, road rolling, and the use of tar as a dust preventative. By the free and generous use of motor-car, rail and steamer, every facility was given for moving about, and all felt that the visit, which was in all respects a most pleasant one, would, in consequence of the information obtained, prove most profitable and instructive.

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The Motor Boat Race.

THE British International Cup Race for Motor Boats will be raced for at Ryde to-day (Saturday), in the presence of their Majesties the King and Queen. This will add greatly to the importance of the event, and indicates that the sport and industry of motor boating is assuming very important dimensions. This Cup is at present held by this country, and is competed for on practically the same lines as the Gordon Bennett Cup for motor-cars. Five boats are entered to represent Great Britain, and France and the United States are challenging; the race should therefore produce a very keen contest. The event is being organised by the Automobile Club of Great Britain and Ireland, as the trustees for the Cup, the management being in the hands of the Marine Motor Committee of the Club.

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Motor-Cycle and Small Car.

THE future of the motor-cycle seems an undetermined point, and even makers of this form of automobile are not wholly convinced as to the prospect. Speaking on the subject to a leading northern maker the other day we learned that while the sale of the motor-cycle is great, the buyers of the same are not always prepared to take as great a care of the vehicle as are owners of small cars. In short, the ranks of motor-cyclists are filled by a proportionately larger number of unmechanical persons. The fall in the price of the car and the additional cost of the fore-car, trailer, or side car are bringing the outlay on the two more nearly together. This is a factor in the situation which leads many to feel that the present boom in motor-cycles—they outnumber the cars that have been registered—is not to be perpetual. The time may come when the figures are reversed and there will be a great disparity between the census of motor-cars and motor-cycles.

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A Census of Automobiles.

IN the paper which Mr. Shrapnell Smith read at the Conference of Municipal and County Engineers in connection with the congress of the Sanitary Institute at Glasgow, some interesting tables were given, showing the number of motor-cars, motor-cycles, and driving licences which had been issued up to Midsummer of the present year. These showed a total of 18,340 cars and 21,521 motor-cycles, excluding the county of Essex, from which no return had been received. In order to bring the estimate up to date, Mr. Smith computed that there are now 20,076 cars and 22,916 motor-cycles in the United Kingdom, making a total of, roughly, 58,000. Of these 15,616 cars and 18,116 motor-cycles are in use for private purposes. Business uses account for 2,380 cars and 3,370 motor-cycles. Nearly 1,000 cars are in use for the haulage of heavy goods, and not quite half that number for public passenger service. These figures are interesting as showing the great advance that has taken place since registration began. A comparison of the

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figures for various counties reveals the fact that London and the south of England have a very considerable lead, Birmingham and the Midlands also showing up well in this connection.

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In the River.

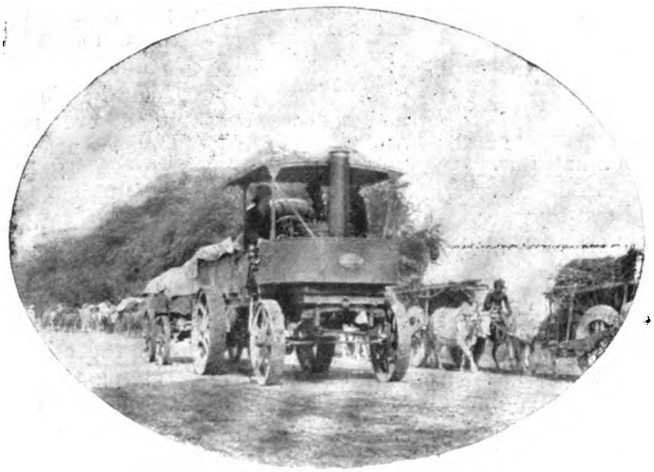
A MOTORIST had an exciting adventure during the Molesey Regatta. He was driving on the towpath, and in turning round the car glided into the river. Fortunately the passengers were quickly rescued from the Thames, and, with the help of a rope fixed to the two brackets at the end of the front springs, the crowd on the bank towed the car along the bed of the river to shallow water, and then, with a strenuous effort, pulled the vehicle back to land. Not often does the riverside crowd have such fun, but the owner saw little humour in the situation.

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No Taxes on Alcohol used in Industry.

SEVERAL M.P.'s, including the Hon. J. Scott Montagu, Sir W. H. Holland, Colonel Sadler, Messrs. T. Lough, G. Harwood, and Lloyd George, have been urging upon the Chancellor of the Exchequer the wisdom of exempting alcohol used for motive and manufacturing purposes from taxation. Mr. Austen Chamberlain admitted the justice of the plea, and although not immediately responsive to the wishes of those who wanted to see new industries stimulated, promised a departmental committee to inquire into the matter with a view to action. We welcome the committee and hope that its deliberations will quickly result in a change which, while not materially affecting the Treasury, will undoubtedly benefit the industries of the country.

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A Thornycroft Steam Wagon at Delhi, India.

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Motor-Car Construction at Guildford.

FEW of the many motorists who pass through Guildford look upon the old town as a motor-car building centre. Even we were surprised when, the other day, we had an opportunity of inspecting the works of Messrs. Dennis Bros., Ltd., at the extension which had taken place since our previous visit. The new addition, at the back of the old premises, comprises three large floors with internal staircase communication and an external iron staircase as an emergency in case of fire. On the ground floor is located the power plant, this comprising a 75-h.p. gas engine, the gas for which is produced on the premises. In addition to driving the shafting on the various floors, the gas engine operates a large dynamo for lighting the premises by electricity. In turn we passed through the smiths' shop, the hardening, plating and enamelling departments, the heavy machine tool-shop, and the fitters, and erecting department. In due order we came to the body-building section, in conjunction with which we were able to inspect the operations of painting, varnishing and upholstering. Indeed, we have to confess that we were astonished at the completeness of the Dennis factory, which covers an area of no less than 150 feet by 175 feet, the total floor space available being 95,275 sq. ft. With the exception of the engines and the pressed steel frames and certain special accessories, all parts of the Dennis cars, even to the carriage bodies, are now turned out on the premises. What we were particularly interested in was the stores department. This is in two sections, one part being devoted to what may be termed raw material and the other to finished parts. By a carefully-worked-out system of books and cards track is kept of the various parts, and at the same time a record is made of the time spent on the part, the workman's name and other useful data. Another department, too, which forms one of the features of the works is that in which the costs are worked out. Mr. Raymond Dennis, who acted as our guide, informed us that he had found this department an invaluable help, as by its means they were able to ascertain the exact cost of every car they turn out. Pressure of space prevents us referring at greater length to the Dennis works, but we may add that there were evident signs of activity at the time of our visit. As proof of this we may mention that they give employment to over 170 men, and that we saw fully fifty cars in various stages of construction.

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The French Motorists in England.

NOTHING marred the visit of the De Dion excursionists to England, and following their visit to the West a most enjoyable journey to London was taken, *via* Oxford and Windsor. Under the guidance of the Hon. A. Graham Murray, the Secretary for Scotland, an ardent motorist, to whose practical knowledge his confreres north of the Tweed owe the freedom of the roads, the party explored the State apartments at Windsor Castle, and saw many interesting treasures a sight of which is not often granted to public eyes. Everyone was delighted, and the hearty welcome extended on behalf of the King was further proof of the cordial relationship existing between the two countries that face each other across the Straits.

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At Taunton.

ON hearing that the party were to visit Taunton, the newly-formed Somerset Automobile Club invited them to a complimentary luncheon, which was held at the London Hotel, Taunton, on Thursday of last week. The motorists, who had journeyed from Barnstaple with no more serious mishap than a few punctures *en route*, arrived about two o'clock and sat down to the excellent repast provided by Mr. E. H. Claridge, whose hotel has just been officially appointed as the headquarters of the Automobile Club, for the benefit of its members when in the West of England. After justice had been done to the good fare provided, Sir Wroth Lethbridge, Bart., who presided, proposed the toast "His Majesty the King" which was enthusiastically received by all present. Mr. A. Armitage, in a humorous speech, proposed the health of the visitors, which was in turn ably acknowledged by one of the guests, who, in the course of his remarks, stated the pleasure they had all derived by the tour through southern England, and thanked their hosts for the very kind reception that day; he wished to convey from his confreres their best wishes for the success of the Somerset Club. Mr. J. Hargreaves, who had journeyed to Taunton on his Napier racer, in responding, thanked the visitors for their very kind remarks, saying he hoped that that was only one of the many visits they would pay to this part of the country. On the termination of the proceedings the cars were photographed by Mr. Montague Cooper, of Taunton, a reproduction from which appears on page 461.

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Reunion in London.

THE official tour at an end, a delightful reunion took place on Monday evening at the Hotel Cecil, when the Marquis De Dion invited the French excursionists and a score of English guests to dine with him. The French and British flags were intertwined at one end of the room, and Mr. J. W. Stocks had arranged the guests with a view to extending international

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acquaintance. The Marquis presided, and in felicitous phrases welcomed his guests and gave the toasts of the King and the Royal Family. The King, he said, was the first automobilist in the world, and they appreciated highly their visit to Wind or Castle.

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Toasts and Responses.

THE Baron de Zuylen, president of the Automobile Club de France, proposed "Automobilism," and Sir David Salomons, Bart., responded. In proposing "Our Guests,' the Marquis De Dion referred to the way in which, twenty years ago, his friends thought he was mad and laughed at the automobile as a little "puff, puff." But he worked on, and now the motor-car was recognised as a possibility. The English were a practical people, and would, doubtless, make much of the idea in the future. There was no reason why the two nations should not work together for the universal triumph of industry and mechanics. Responses were made by the Hon. A. Graham Murray, K.C., Sir David Salomons, and the Hon. J. Scott Montagu, M.P., the latter pointing out how motoring had enlarged the view of national life, enabling those who owned cars to see how the people of various countries lived in a way that was hitherto impossible.

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Next Year's Excursion.

FOLLOWING these excellent speeches the chairman cordially toasted the "Press," the reply reminding those present of the good work it had done in fostering a spirit of amity between France and England. The ladies who were on tour and the chairman were next toasted, and the atter wound up a delightful evening with a hearty invitation to an excursion in France next year. He suggested that a special train might await the English motorists on arrival at Calais to convey themselves and their cars to the central point of the excursion. Thus time would be economised and comfort secured. From the glowing account that he gave of the idea all present became as enthusiastic as the chairman, to whose *bonhomie* and geniality so much of the pleasure of the evening was due.

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At St. Neots.

A FAIR example of the procedure adopted at a so-called Court of Summary Jurisdiction took place at the Court House at St. Neots, Huntingdon, on Thursday last week, when a bench of countrymen sat in solemn judgment upon three automobilists who made a striking comparison with the Bench.

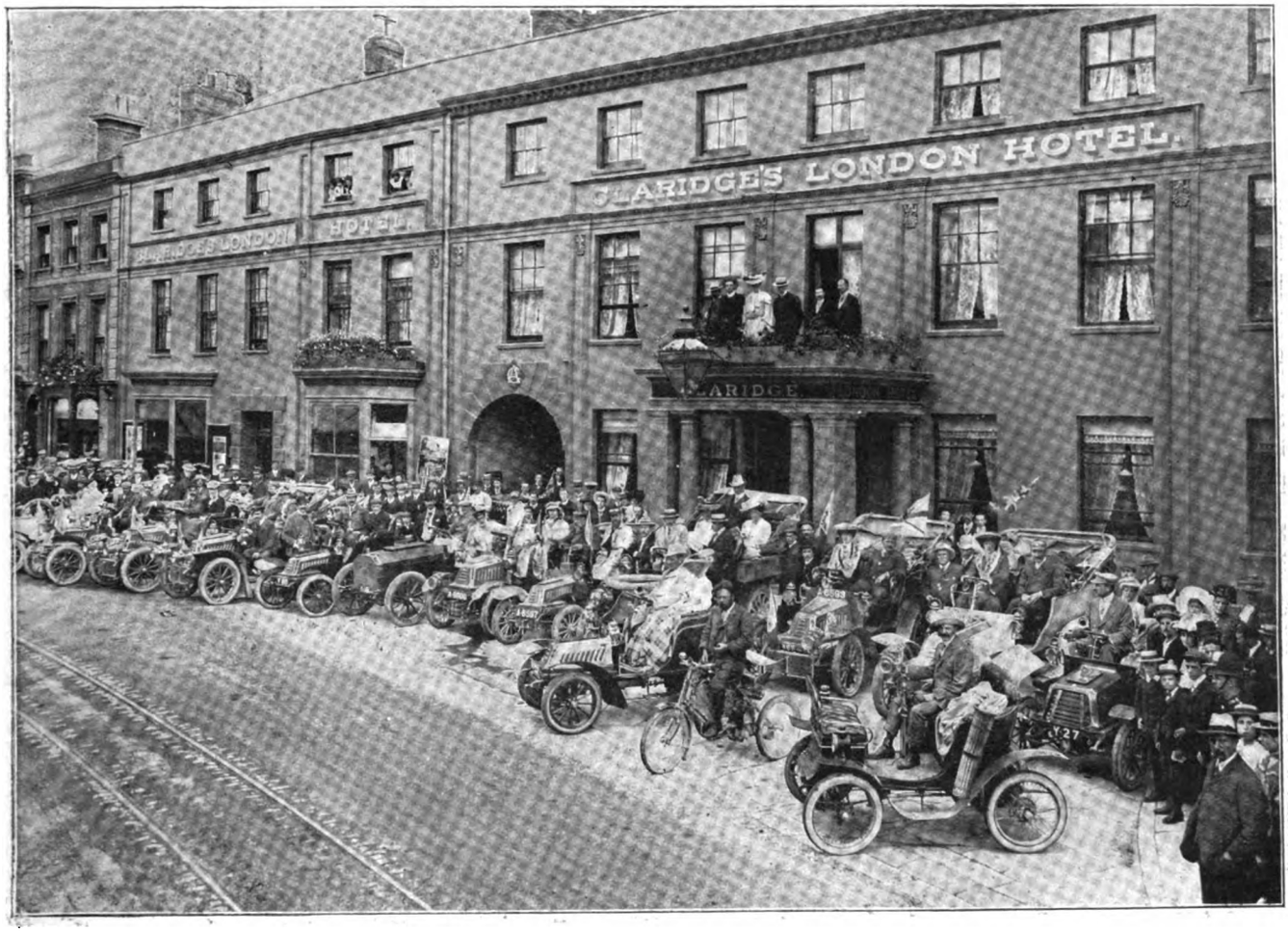


Photo by] The De Dion-Bouton Excursion—French Motorists at Taunton. *[Montague Cooper.*

Each automobilist was brought in turn before "their Worships" and charged with the most serious offence under the Motor Car Act of 1903, viz., of driving to the danger of the public. It has now become fairly established law, upheld by several appeals to Quarter Sessions, that before a Bench can convict of such a serious offence, evidence must be forthcoming, and strong proof shown that somebody was actually endangered, and that speed is no evidence in itself of danger. No such evidence was given in any of these three cases; in fact, every evidence was given, both by the prosecution and by the automobilist in each case, that the car was driven carefully, and in each case it was proved that the car was pulled up in its own length, or very little more; indeed, this fact was admitted by the prosecution. Three or four points of law were raised by counsel for the defence, Mr. A. Moresby White (instructed by Mr. Staplee Firth), and although each case was upheld by decided cases and

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quotations, the Bench in their wisdom over-ruled them, and convicted in each case.

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A Motor Wagon Mishap.

A RATHER extraordinary accident happened to Messrs. F. Skurray and Son's Coulthard motor wagon at Swindon a few days ago. It was running under a narrow railway bridge when some timber supports, which had been put in to make up the road, suddenly gave way, tipping the wagon completely over on its right side, and throwing most of the load on to the road. The extraordinary part of the accident is that, after jacking up the machine and reloading, she started off on her journey and completed it without any difficulty. When it arrived at the mills everything was carefully examined, and the only damage done was to the brake rods, which were bent.

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A Crisis.

THE automobile industry and sport is undoubtedly passing through a crisis which threatens hardship to all concerned unless it is grappled with by a firm hand, and unrelenting vigour and perseverance are shown by the individual in fighting the action taken by many of the county Benches of magistrates throughout England. The merciless treatment meted out to automobilists is apparent from the perusal of the press. The Motor Car Act was championed by those who little knew what power they were putting into the hands of these men, and by their folly and short-sighted policy has this crisis been brought about. The methods adopted by the men who sit in judgment upon their "betters" in some hole and corner village are simple, and so well known to all that it is unnecessary to reiterate them.

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The Cost of Appeal.

MR. ARCHIBALD FORD is to be congratulated on his success in securing a reduction of his fine of £20 and costs to the smaller sum of 40s. at Liverpool. He came in conflict with the police on the landing stage at that port, with the result that in the Stipendiary's Court he was fined £20. The Recorder, however, has reduced the fine to the smaller amount, but Mr. Ford has probably spent another £20 in paying fees, witnesses, etc., so that financially he is further out of pocket than when he commenced the appeal. This we feel is one of the weaknesses in connection with the Act. Experience has shown that in four cases out of five the appeals have been eminently justified, but that the individuals who thus resist the police methods should have to pay all their considerable expenses is an unfair position which should call for review at the termination of the operation of the present Act.

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Put a Stop to Motors.

A FEW days ago the writer rode to town with two members of a well-known "Anti-Motorist" Bench in the south and overheard a most interesting conversation. One of the gentlemen had that morning been sitting on the Bench trying a "very bad motor case." "And what did you do with him?" asked his companion. "The same as usual," replied the other, "we fined him £10 and endorsed his licence." And he followed up his remark by saying "We have got used to bicycles, but the motors we shall never get used to, we must therefore put a stop to them." This expression sums up the whole case. "We must put a stop to them" is the watchword of many of the county benches, and the motorist must individually, and as a body, fight against this sentiment, and, remembering the victories at Horsham, Winchester, and Kingston, should strive with renewed energy. Then the reward of their toil will be manifest, both to the industry and sport, and the wish of every fair-minded man will undoubtedly be brought about sooner or later. The county benches, some of which are a disgrace to the country, should be reorganised after proper enquiry, a suggestion that should be borne in mind in influential quarters.

A Peculiar Accident and its Moral.

A PECULIAR automobile accident, which resulted in the death of Mr. D. Healy, a prominent business man, is reported from Auburn, N.Y. Mr. Healy was found under his car in the motor-house with his skull crushed and his arm broken. He left home saying he was going to repair his machine, which had been damaged some time previous. The front wheels had been removed, and the body was supported on two blocks of wood and a crate. When the deceased was found the blocks were lying lengthwise on the floor, while his head was on the crate, the full weight of the car pinning his body down in that position, in which he was found some hours later by his wife. It was evident that Mr. Healy had accidentally knocked out the blocks of wood while engaged at work on the car. Our object in referring to the gruesome accident is to show that too much care cannot be exercised when working on or about a car. Should it be ne essary to get under a vehicle that is jacked up off the ground, steps should be taken to prevent the car moving ever so little by blocking the road wheels.

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Decrease in Horse Traffic.

THE displacement of horse-drawn vehicles by motor-cars is affecting the railway companies in a peculiar way. At the annual meeting of the Great Eastern Railway Company on Wednesday, Lord Claude Hamilton said in the past wealthy people going out of town had sent their carriages and horses on before them by railway. Motor-cars, however, had taken the place of the carriages, and it was found more convenient to send these on by road in charge of the chauffeur. Receipts for the carriage of horses and carriages had, therefore, fallen off. In addition to this loss there had also been a slight loss on the parcels traffic, due to the use of motor-vans. Similarly at the half-yearly meeting of the London, Brighton, and South Coast Railway, Lord Cottesloe attributed the decrease in the horse and carriage traffic to the greater use of motor-cars and the consequent displacement of horses and horse-drawn traffic. Probably facts like these will do something to educate the companies in the direction of economy by the adoption of motor-vans for some classes of goods traffic, and of motor-'buses for passengers.

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Dust Prevention.

WE are glad to learn that the conference of engineers and surveyors to county and other sanitary authorities has expressed the opinion, "that the advent and increase of motor-vehicles on public highways renders it imperative, in the interests of public health, that municipal, urban, and county authorities should adopt methods for the prevention of dust on macadamised roads; and this meeting recommends the Council of the Sanitary Institute to make known these views as widely as practicable." This was adopted unanimously on the proposition of the President, Mr. W. Weaver, M.I.C.E, seconded by Mr. E. George Mawbey, M.I.C.E., whose article on motor-cars for municipal officers in our columns recently has attracted much attention.

THE entries received for the Bexhill meeting on Monday next promise excellent sport. On Tuesday an illuminated procession of cars will take place, and a battle of flowers on Wednesday.

MESSRS. FRISWELL, LTD., inform us that they have sold the lease of the premises at 48, Holborn Viaduct, E.C., to the Winton Motor Carriage Company, of Cleveland, U.S.A., which is opening up in England. Messrs. Friswell's only address now is 1, Albany Street, N.W.

THE second day (Wednesday), of the motor-boat reliability trials in Southampton Water showed excellent results, all the fifteen boats which started completing the 20 hours' trial without mishap. The best performance was done by the Napier Minor boat. Scolopendra II., Durendal, and Baby Brooke also kept up a smart pace.

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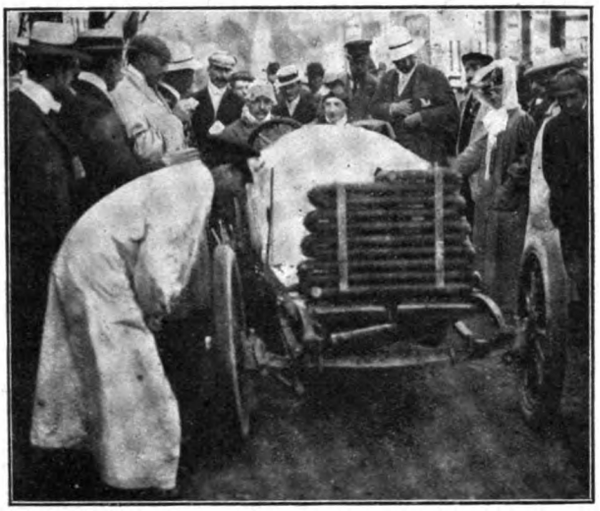
THE CIRCUIT DES ARDENNES.

ARLON, Sunday.

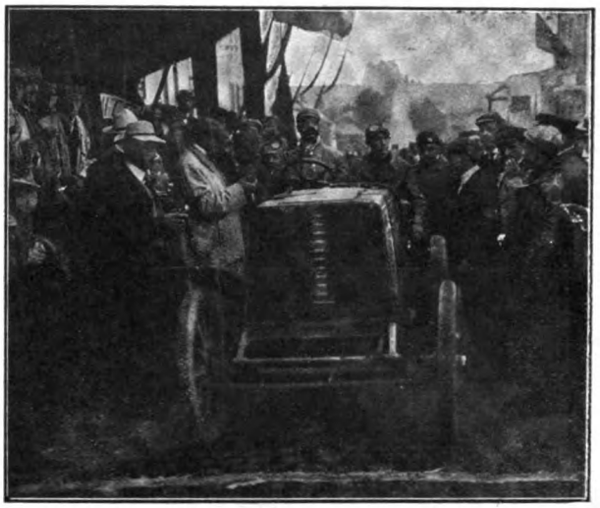
AFTER the record speeds attained at Ostend on Wednesday of last week, the scene of automobile operations in Belgium shifted to Bastogne, where the weighing-in operations in connection with the Circuit des Ardennes took place yesterday (Saturday). The racing commenced this morning, the day being devoted to the voiturettes and motor-cycles. The circuit was not the same as that chosen for the cars, having a different starting-point, and was only thirty miles round, so that the competing machines had to traverse the course five times to make up the total distance of 240 kms. (150 miles). The itinerary was as follows:—Arlon, Attert, Habay-la-Neuve, Ettale, Vance, Stockem, Arlon. There were no level crossings, and there were no stops for controls. Owing to the relatively few voiturettes entered, interest was principally centred in the motor-cyclists, particularly in the struggle between Kuhling on a Minerva and Griet on a Alcyon. Eventually the former won in 3 hours 46 min. 6 sec., his average speed being equal to close upon forty miles an hour. Griet (Alcyon) was second, and Hamand (Minerva) third. In the heavy motor-cycle class Tavenaux on a Gregoire, with Griffon engine, was first in 3 hours 50 min. The voiturette class was a struggle between A. Clement on a Clement-Bayard and Edmond on a Darracq. The latter, who led at the end of the first round, met with puncture and other troubles, and eventually abandoned at the end of the third circuit, leaving Clement to finish alone in 4 hours 26 min. 52 sec.

BASTOGNE, Monday.

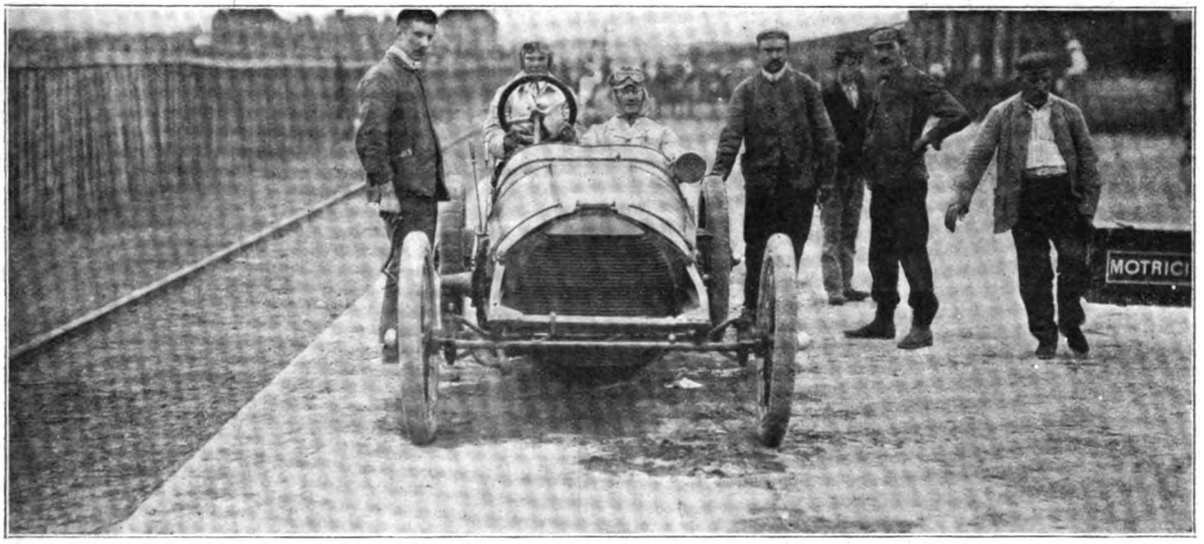
The great race of heavy and light cars was run off to-day. At the last moment there were several changes in the drivers, Baron de Caters giving place to Jenatzy on a Pipe. The English competitors comprised Mr. Andrew Fletcher on a 90-h.p. Mercedes, Mr. Mark Mayhew on his Napier, and Girling and Bianchi, Jarrott's mechanician, on Wolseleys. It was evident from the beginning that the Panhard Company were making a big bid to retrieve their position in the racing world, in which, as events proved, they were most successful. The course to-day was Bastogne, Ourthenville, Champlon, St. Hubert, Recogne, Neufchateau, Habay-la-Neuve, Martelange, Bastogne. As the total distance to be covered was 600 kms. (375 miles), the circuit had to be traversed five times, the start and finish being at Bastogne. Altogether there were thirty-three competitors in two classes, they being despatched at 2 min. intervals, the first man, Heath, being despatched at 5 2 a.m. Rain had fallen in the night and had done much to reduce the dust danger.



Gabriel, on De Dietrich, Starting.



Heath, the Winner of the Race, at the Starting Point.



Bianchi on the Wolseley at the Weighing-in.

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All the competitors finished the first lap except Terry (Mercedes). The best time in this round was made by Duray, who made his debut on a Darracq, Rigolly on his Gobron-Brillié, being close behind him. The second round knocked out Hautvast (Pipe), owing to ignition troubles, Tart (Panhard), Weyler (Gobron-Brillié), Baras (Darracq), Lavergne (Mors), and Amblard (Hotchkiss). Jenatzy gave up in the third lap owing to a leaky tank. Girling (Wolseley) also retired in this round, as did also Rougier (De Dietrich), and A. Fournier (Hotchkiss). The fourth lap saw the retiral of Guders (Clement-Bayard), Maurice (Hotchkiss), and Buirette (Darracq), while in the last round Hanriot (Clement-Bayard) retired owing to overheating troubles. Complaints were rife as to nails on the road, and most of the competitors suffered from tyre troubles. Rigolly was particularly unfortunate in this respect, while Teste finished with one tyre down, a minute behind the winner. The fastest lap in the whole race was made by Le Blon, who covered the 120 kilometres in 1 hour 9 min. 44 sec., or at the rate of about 65 miles per hour. Only seventeen of the competitors were classified as finishing. This was due to the spectators blocking the road, the local authorities, as a consequence, putting an end to the race. The results of the event are shown in the appended table :—



A Chinese Mechanician.

HEAVY CARS.

	Driver.	Car.	Time. h.	m.	s.
1.	Heath	Panhard	6	30	49
2.	Teste	Panhard	6	31	44
3.	A. Clement... ...	Clement-Bayard... ...	6	34	43
4.	Rigolly	Gobron-Brillié	6	42	4
5.	Le Blon	Hotchkiss...	6	54	5
6.	Duray	Darracq	6	55	34
7.	Farman	Panhard	6	57	29
8.	Gabriel	De Dietrich	6	58	51
9.	Mayhew	Napier	7	27	42
10.	Leger	Mors	7	45	15
11.	Fletcher	Mercedes...	7	53	0
12.	Bianchi	Wolseley	7	54	10
13.	Lancia	Fiat	7	45	25
14.	Salleron	Mors	7	55	34

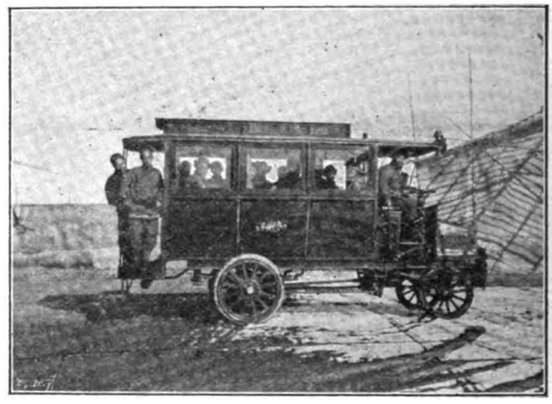
LIGHT CARS.

			h.	m.	s.
1.	De la Touloubre ...	Darracq	7	48	59
2.	Hemery	Darracq	8	9	35
3.	Edmond	Darracq	9	58	0

The first two places in the car section were thus secured by Panhards, a Clement being a good third. Of the English competitors Mayhew was ninth and Bianchi twelfth. As will be seen, in the light-car class all the first three places were secured by Darracqs. Heath's average speed works out at nearly fifty-eight miles an hour. The meeting was well organised there being no serious accident reported.

AUTOMOBILES FOR THE CHINESE IMPERIAL COURT.

SEVERAL months ago it was announced that a German firm had secured an order for fifteen automobiles for the use of China's imperial court. We learn that these vehicles have now been delivered and are in regular use; they were built by the Berliner Motorenfabrik at Tempelhof, near Berlin, and were taken to China and placed in service there by Herr E. Valentin, an engineer of the company, who has lately returned from his trip. Three of the vehicles ordered are for the use, respectively, of the Empress, the Emperor and the princes, and are luxuriously furnished, and finished in the Imperial yellow, with the Chinese insignia, the dragon and sun, affixed in all possible places. These vehicles are each fitted with a rotatable cushion seat. The other twelve are for the use of the court servants, etc., and are built as fourteen-passenger omnibuses, and painted a deep red. The cars were disassembled and sent by rail securely packed in very strongly-made cases. The trip from Berlin to Tientsien took twenty days, of which fourteen were spent on the Siberian express train. The cases were transported to Tientsin from the terminal of the Trans-Siberian line by steamer,



One of the Empress of China's Motor Omnibuses.
[*Allgemeine Automobil Zeitung.*

and even before their arrival Herr Valentin had erected shed for assembling the vehicles, which served later as garages for the cars and residence for the drivers. The next thing to receive attention was the instruction of the Chinese workmen. When the cases finally arrived the ship captain declared that with his small cranes he could only undertake to unload them at the risk of the owners, to which Herr Valentin was obliged to consent. Next the coolies refused to move the cases, claiming that they were too heavy to handle, but promise of a handsome allowance made the impossible possible, and 150 men, with their primitive appliances, successfully accomplished the transport of the cases to the garage. The unpacking of the cases was also a matter of some difficulty; but now began the assembling of the vehicles, a task of no small difficulty. The work was yet far from completion when one day Viceroy Yuatutchikai sent word to Herr Valentin that he intended to make a trial trip the next morning at 10 o'clock. There was only an interval of eighteen hours left, and as non-compliance with the vice-regal demand might have led to serious consequences, the work of assembling was forced with all possible haste, and by 9 o'clock the vehicle was in running order. The Viceroy was fully satisfied with his trip, though at first he had a horse-drawn vehicle following the motor-car until he had convinced himself of its reliability. The training of the men who are to drive and take care of the cars was carried out very successfully, and the final delivery of the vehicles in Peking passed off without a hitch.

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THE 20-H.P. HUTTON CAR.

(*Concluded from page* 450).

FIGS. 7, 8, and 9 show various views of the infinitely variable speed gear, which is perhaps the most important characteristic of the Hutton car. The operation of this mechanism may perhaps best be described in the following manner. Fig. 9 shows a section through the shaft, eccentric sheave and strap. A cross section of these parts is shown in Fig. 8. In Fig. 9 the sheave is shown central with the shaft, and in Fig. 8 it is at its maximum stroke.

The variation in stroke of the eccentric is obtained by hydraulic pressure. The pressure fluid is admitted through the centre of the shaft, under the ram (17), which forces the sheave and strap outwards, according to the fluid admitted to the cylinder. The cylinder is formed on the body of the shaft—is, in fact, bored out of the cross head, which rotates the sheave and upon which the sheave slides. In Fig. 9 the eccentric strap is shown with links (1) attached to the lugs. The other ends of the links are attached to toggles (2), which form a connection between shoes (3 and 4) operating on either side of rings, provided on the rotating portion of the gear. The effect of this toggle movement is that a species of free wheel construction is obtained, such that when the links move in one direction the shoes are caused to grip the rings on the periphery of the gear and the whole rotates, while when they move in the other direction the shoes are disengaged and slide back freely on the rings

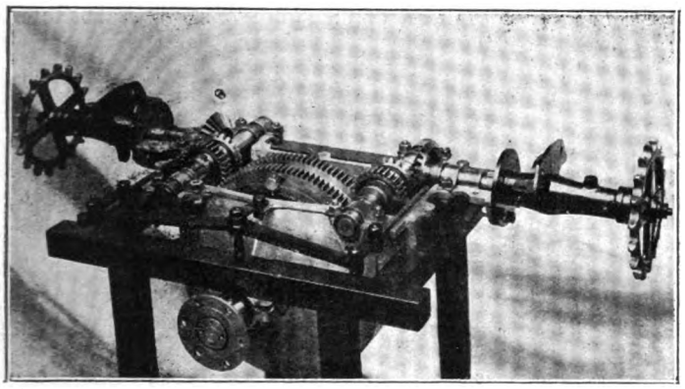
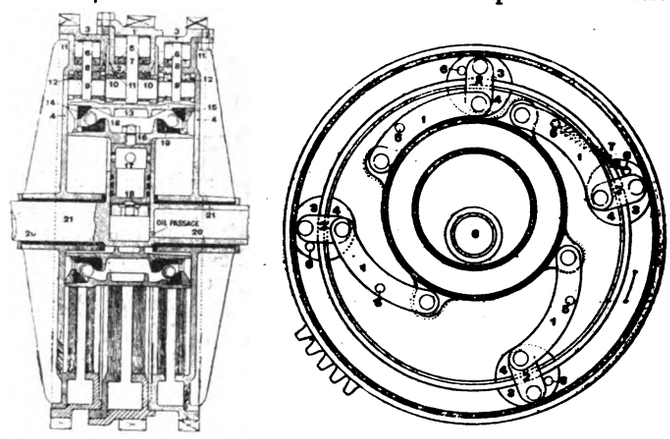


Fig. 7.—The Hutton Variable Gear.

When the eccentric is quite central, no movement is conveyed to the strap, but as soon as a small amount of eccentricity is given to the sheave, the strap gyrates and each of the lugs on the strap describes a circular movement equal to that of the eccentricity of the sheave. The greater the eccentricity of the sheave, the greater the circular movement of the lugs, and consequently the more reciprocating movement is communicated to the links, and through them to the periphery of the gear.

The provision of large ball bearings between the sheave and the strap reduces the friction in the gear to a minimum, and the provision of large wearing surface on the shoes (3 and 4) and large diameter pins reduces the wear and tear to negligible amount. The control of the gear is effected through a small lever on the steering wheel, which operates inlet and exhaust valves. The inlet valve is supplied with oil from an accumulator on the dashboard in such a manner that the opening of the valve admits pressure fluid to the ram (17) in the gear, and thus increases the movement of the gear and the speed of the car. The opening of the exhaust valve allows the pressure fluid to escape, thus decreasing the movement of the gear and reducing the speed of the car. It will, of course, be understood that when the eccentric is at the centre the gear is motionless and may be used practically as a clutch. It is therefore practicable to eliminate the clutch on a car provided with this gear. This will eventually be done in the Hutton car; but, in view of the fact that so many drivers are accustomed to control their cars largely by means of the clutch, it is thought desirable, in the first instance, to retain the clutch, and only to eliminate it when the new method of control becomes more familiar. This gear also takes the place of the differential, and a very simple reverse is obtained in practice without the addition of any further mechanism save the reversing levers. It may therefore be said that in this gear the motorist has clutch, differential, reverse, and all speeds in both directions in one compact combination.



Figs. 8 and 9.—Details of Hutton Variable Speed Gear.

The whole mechanism operates in an enclosed gear case, which is kept half full of lubricant. The accumulator, which forms the central feature of the hydraulic control apparatus, is placed on the dashboard; it consists of a chamber in which a spring is confined between two pistons. One end of this chamber forms a storage for oil, under pressure, which is distributed to those portions of the gear operated by its means, and the other end forms an elastic device for eliminating shock when starting up the speed gear. This end of the chamber, in fact, is placed in series with the cylinder contained in the speed gear shaft, so that the strap and links are actually operated by an elastic medium instead of by an incompressible element, such as oil or water, under pressure, would be without this arrangement. The accumulator is charged constantly by means of a slow-moving pump, operated by the second speed shaft of the motor.

With regard to the transmission of the power to the rear road wheels, the periphery of the two discs of the variable gear, which travel in opposite directions, is provided with spur teeth, each disc meshing with its own pinion on a side shaft (Fig. 7). On the rear ends of the latter are bevel pinions

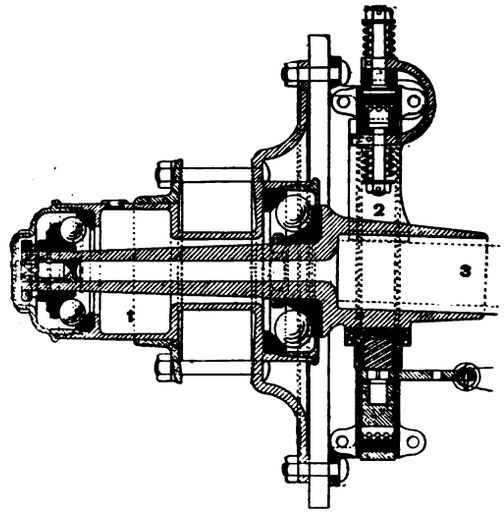


Fig. 10.—Section of Rear Hub and Expanding Brake on Hutton Car.

gearing with bevel wheels on the cross shaft. On the ends of the latter are sprocket wheels, which convey the power to the rear road wheels by side chains in the usual way. To obtain the reverse motion, the spur pinions, which are free to slide on their shafts, are each disengaged from their discs and brought into mesh with the other.

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Fig. 10 is a sectional elevation, through the end of the axle and the hub of one of the rear road wheels. The external and internal brakes are coupled direct to a flange on the hub of the wheel, to which also the driving sprocket is attached. The chief feature of the hub is the large diameter (1¼ in.) of the balls adopted for the anti-friction bearings. The axle is a nickel steel tube, and the axle-end carrying the ball races is a nickel steel drop forging. The double rear brakes are applied by hand and by oil pressure, the first being expanded within the brake ring in a manner entirely similar to the clutch, except for the manual application, and the second by hydraulic pressure through an oil ram attached to the two free ends of the half brake bands, the oil under pressure being admitted to the ram by means of a lever on the steering wheel.

The success of "metal to metal" brakes, as is the case with "metal to metal" clutches, depends entirely upon a successful and reliable system of lubrication. The brakes on the Hutton car, both internal and external, are supplied constantly with oil, under pressure, from a special lubricator. Consequently the action of the brake, like that of the clutch, is a sweet and gradual one, and the firing or seizing up of the parts need not be feared.

Fig. 11 shows the general arrangement of the steering apparatus. The steering screw is carried between ball thrust bearings, and a spring device is inserted in the horizontal steering arm, which eliminates shock to the steering apparatus, and thus makes it unnecessary to provide complicated devices for the taking up of undue wear of these parts. Nickel steel tubes of large diameter are used for the steering rods and the steering arms, as well as for the tubes of the steering pillar. The valves

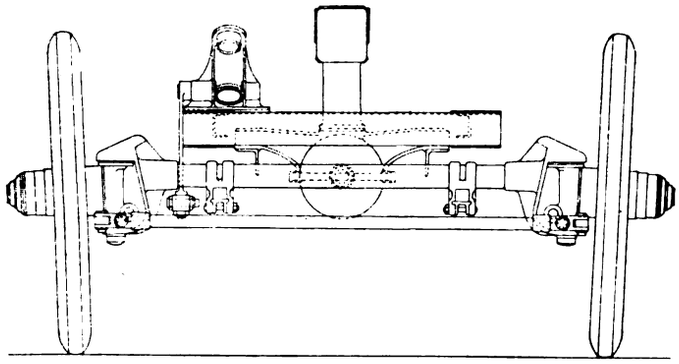


Fig. 11.—The Hutton Front Axle and Steering Gear.

for the hydraulic control are manipulated by means of rods attached to the lower end of these tubes, which are controlled by three levers at the top of the steering column—one for the sparking, one for the brake, and one for the variation of speed. The segment over which these levers work is clearly marked: brake, on—off; speed, increase—decrease; spark, advance—retard. The steering axle head is of special cast steel; the swivelling axle is a nickel steel drop forging, and the hub, as is also the case with the rear wheels, is of cast steel. It will be seen that the weight of the fore-end of the car is transmitted to the wheels through a ball race in the head, while at the same time all side stresses, which would be liable to interfere with the perfect movement of this race, are eliminated by means of the central pin, upon which the swivelling axle turns. This ball-bearing makes the steering of the car very easy. The central pin is hollow and will contain sufficient lubricant to keep the hub ball races in good condition for many months. Inch balls are used, and the ball races are of equally ample dimensions. It will also be apparent from the construction of these hubs, that although they are very large in diameter, they are light in weight; the construction, in fact, is tubular, similar to that of many other portions of the car. From the illustrations and description which we have given, it will be seen that much thought and ingenuity have been bestowed in the design and construction of the Hutton car.

MESSRS. STIRLINGS, LIMITED, have constructed a tramway-car, driven by petrol, for the Corporation of Perth.

IMPROVEMENTS IN CHANGE-SPEED GEARS.

A GENERAL improvement is noticeable in change speed gears of the sliding type and their containing cases, and the objections which have been urged against them in the past are now practically without foundation. The use of gears of large pitch, with properly beveled tooth faces, has minimised the difficulty of securing instant and noiseless engagement; the employment of an appropriate grade of metal for the gears, which combines great toughness with full susceptibility to the hardening process, secures a high measure of durability, while the employment of the jaw clutch to secure a direct drive upon the most used speed has placed the sliding gear system—with all its other advantages—on a full parity with the planetary system in the important respect of directness of application of the power and the absence of intermediary mechanism. Not content with securing a direct drive with gears turning idly, some manufacturers have arranged so that even the idly revolving gears are thrown out of mesh and the ideal of "gearlessness" is fully attained. How much actual mechanical advantage is secured by throwing these idle gears out of action is, considers an American writer, problematical, and the advantage attained may be nearly balanced by the complication entailed. Considering the existing prejudice against idle gears, it is at least a valuable "talking point."

Important refinements have been introduced in the lubrication of sliding gear systems, and the splash method, which is universally employed for the oiling of the gear faces, is now generally entirely distinct from the oil supply of the shaft bearings, it being recognised that a certain amount of metal chips is likely to be cut from the opposing gear faces after extended use, which, if allowed to enter the bearings, may work havoc upon the shafts and their bushings. The bearings are consequently in many instances protected against the entrance of oil from the splash, and fed by separate tubes from a magazine oiler or from grease cups. The employment of non-fluid lubricant for this purpose secures the incidental advantage of greater cleanliness, as there is less escape of lubricant to the external portions of the case.

All the smaller gears of the train are now usually cut upon the blank which forms the gear shaft, and if all gears could be so formed it would be highly advantageous in some respects, although it is hardly to be expected. The gears which are not formed integrally with the shaft are usually mounted upon flanges which are parts of the shafts themselves. Frequently the gears are held by means of bolts passing through the gear web and the flange, these bolts being depended upon to withstand the torque. If the bolt holes are accurately spaced so that each bolt receives its fair proportion of the turning moment, and the bolts are well secured, this arrangement may be all right, especially if the gear is splined to the shaft as well; but if the bolts do not accurately centre their holes one of them may be sheared off, drop into the gear case and cause serious trouble. It would seem that the flange and the gear might readily be provided with engaging jaws which would assume the torque and relieve the bolts of all responsibility save of holding together the two parts.

THE Governor of Upper Austria has ordered the official purchase of a 12-14-h.p. Peugeot car for certain tours of inspection in his domain, and will make use of the vehicle in districts where the railway connections are few and far between.

EVERY automobile speaks a language that can be understood by the exercise of a little patient effort. Then when a car signals that its carburettor is not working right, that a sparking plug needs attention, or that the lubrication is faulty, the understanding hearer knows precisely what to do and can remedy the trouble at once, thus saving himself both annoyance and expense.

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CONTINENTAL NOTES.

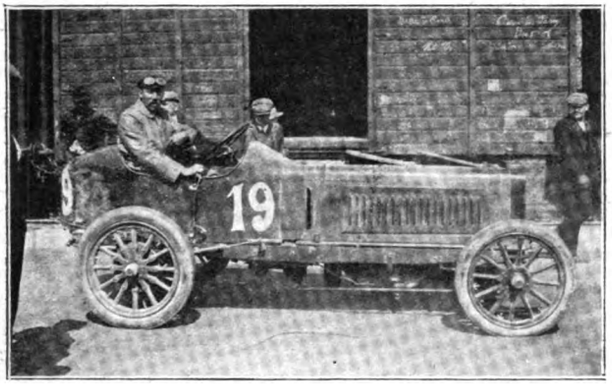
Record Breaking at Ostend.

Marvellous as were the speeds attained on Monday of last week at the trials in connection with the Ostend automobile week, they were eclipsed on the occasion of the flying kilometre speed trials on the Snaeskerke road on the 20th inst. Dealing first with the racing section, Seguy on a Gri on secured the first place, among the motor-bicycles his time, being 36 2-5 sec., Coppin on a Red Star being second in 40 4-5 sec.; Rigal's machine in the heavy motor-cycle class broke down and was pushed home in 12 min. 35 2-5 sec. In the voiturette class, Edmond on a Darracq established a new record — 30 2-5 sec., equal to seventy miles an hour. In the light car class Hanriot again demonstrated the speed of his Clement-place on a C.G.V. in 50 sec., while in the over £1,200 class Baron De Caters was first on his Mercedes in 30 secs. After the trials Rigolly, Baras and Le Blon each endeavoured to set up new times for the flying kilometre, but the best speed attained was 22 1-5 sec. by the first-named.

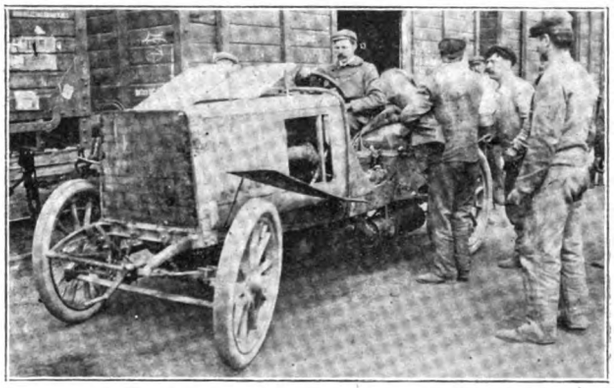
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The Dauphine Automobile Week.

The programme of the automobile week which the Automobile Club Dauphinois, of Grenoble, is organising for the week ending August 7th has now been issued. The meeting will open on the 3rd by the reception and weighing in of the competitors. On the 4th there will be a run for touring cars of 308 kilometres, from Grenoble to La Mure, La Salle, the Col Bayard, Saymes, Briancon and back to Grenoble, *en route* the times over a six kilometre stretch on the Laffrey Hill will be timed. On Friday, August 5th, there will be another run



Baras on his Darracq.



H. Farman on the Panhard Racer.



The Scene at the Weighing-in at Bastogne.

THE CIRCUIT DES ARDENNES. (*See page* 463.)

Bayard. He was allowed a second trial, as on the first, owing to mistaking the signals, he stopped his engine before completing the kilometre. On the second attempt he got away smartly and covered the kilometre in 26 4-5 sec., thus creating a new world's record for this class of car. It was, however, in the heavy car class that the fastest travelling was witnessed. And here again the speed of Gobron-Brillie racers was demonstrated in a striking fashion, Rigolly covering the kilometre in the new world's record time of 21 3-5 secs., equal to a speed of over 100 miles an hour. The Darracq racer driven by Baras is now in splendid condition, as is evidenced by the fact that his time was only 2 5 sec. longer than that of Rigolly. In the Tourist section, the honours of the day fell to Boyer cars in the under £160 and £240 classes, and to Serpollet steam cars in the under £400 and £600 and £800 categories. In the under £1,200 class Delesalle secured first of 190 kilometres, from Grenoble to Les Echelles, Montmelian, Gieres, and Uriage, the times being taken on the climb up the Col du Cucheron. Saturday, the 6th, will be spent at Uriage-les-Bains, the programme for the day comprising a 500-metre speed trial and a fete at the Casino. The meeting will close on the 7th with a gymkhana, a battle of flowers, and a banquet. The awards in the touring competition will be based on the points gained for regularity of running, speed on hills, average speed, fuel and water consumption, comfort and cost of car.

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Hill-Climbing in Austria.

Under the auspices of the Austrian Automobile Motor Club, a hill-climbing competition is to take place on August 21st, over the ten kilometre Schottwein-Semmering course. Competitors will be classified as follows:—(1) Motor-bicycles of maximum

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weight of 50 kilos.; (2) motor-cycles between 50-65 kilos.; (3) cars between 250-400 kilos.; (4) cars between 400-650 kilos.; (5) cars between 650-1,000 kilos.; (6) touring cars with body having at least four seats and carrying two persons and 140 kilos. of luggage. In groups 1-5 the first receives a prize of honour, the second a silver medal, and the third a bronze medal of the Austrian Club. In group 6, five prizes of honour will be distributed. A trophy is put up for the machine making the best time; this has to be won in three successive years before becoming the property of the winner. Mr. Clarence Gray Dinsmore, who won it for the second time in September of last year, is defending the cup. Entries will be received until the 10th August at the Generalsekretariat des Oesterreichischen Automobilklubs, Karntnerring 10, Vienna.

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The Calais-Dover Motor-Boat Race.

Great interest is being shown in the forthcoming motor-boat race from Calais to Dover, and quite an extensive list of prizes will be offered for competition, including one for boats using heavy oil as fuel and one for vessels using denaturated alcohol. All competitors will be required to obtain from the naval authorities a *permis de navigation*. It will be seen from the appended list of entries that there will be a large number of English competitors in the race.

CRUISERS.

Name of Boat.	Owner.	Engine.
2ND SERIES.—Boats from 6½ to 8 metres in length.		
Amiral Bruix I.....	Cœuilte, Grisel and Co.	Ader.
Triplex	,, ,, ,,	Delahaye.
Noémie	Société Hérald	Herald.
Le Nogentais.....	G. Caillois	Darracq.
Commercial	Commercial Motors, Ltd.	Commercial Motors, Ltd.
Titan IV.	Pitre et Cie	—
Avenir VII.	,, ,, ,,	—
3RD SERIES.—Boats from 8 to 12 m. 19 in length.		
Napier Minor.....	S. F. Edge	Napier.
Vas-Y	A. Jean	Delahaye.
Abeille d'Or	Peghoux	Abeille.
Suzy.....	De Dietrich	De Dietrich.
4TH SERIES.—Boats from 12 m. 19 to 18 metres in length.		
X	X. Miall Green	Humoono.
FISHING BOATS.		
Maurice	Bourgain, Seillier, Prudhomm.	Cazes.

RACERS.

2ND SERIES.—Boats from 6½ to 8 metres in length.		
Morthe.....	Cazes	Cazes.
X	Berliet	Berliet.
Princess-Elisabeth	Pirmez	Delahaye.
La Rapee III..... ...	A. Tellier fils	Panhard.
X et Marsouin II....	G. Cailloi	Darracq.
Mercedes III.....	Charley	Mercedes.
3RD SERIES.—Boats from 8 m. 01 to 12 m. 19 in length.		
X	E. Campbell Muir	Mercedes.
Trefle à 4.....	E. B. Thubron	Richard Brasier.
Durendal.....	F. E. Beadle	M.M.C.
Napier II.....	S. F. Edge	Napier.
Hutton I.	J. E. Hutton	Hutton.
Hilda	E. Heirman	Germain.
N'a pas Pied (ex-Napier)	H. Kapferer	Napier.
Fer de Lance	Lord Howard de Walden	Hutton.
Gardner Serpollet...	H. Legru	Serpollet.
Hotchkiss	H. Fournier	Hotchkiss.
Mercedes IV.....	A. Védrine	Mercedes.
Bayard.....	A. Clement	Clement.
4TH SERIES.—Boats from 12 m. 19 to 18 metres in length.		
Quid	Amblard and Co.	Cazes.

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An Automobile Week in the Vosges.

The Syndicat Initiative des Vosges et de Nancy is organising an automobile week to be held from the 7th to the 13th August. On the first day there will be a run from Nancy to Strasburg, a distance of 143 kilometres, via Luneville, Raon, Le Dona, and Schirmeck. On the 8th the run will be continued to Saint Dié, 147 kilometres; on the 9th Colmar, 81 kilometres, will be visited; on the 10th the tour will be extended to Epinal, 95 kilometres, the day's run including a trip up the Col de la Schlucht. On the 11th Bussang, 90 kilometres, will be reached; on the 12th Belfort, 46 kilometres, the tour finishing at Contrexeville-Vittel, 134 kilometres, on the 13th August.

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A German Automobile Congress.

An automobile congress is to be held at Breslau from the 18th to the 21st August, under the auspices of the German Automobile Union and the Silesian Automobile Club. The meeting will open with a reception on the 18th, while on the 20th there will be a run to the Furstenstein Castle, where the visitors will be entertained to lunch by the Prince of Pless.

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A Five-Cylinder Motor.

The Société Decauville, of Paris, having given the matter of multi-cylinder motors long attention, are of opinion that five is the number to be employed where more than four are desired, and a five-cylinder Decauville will therefore probably be a feature of the next Salon.

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The 1905 Gordon Bennett Race.

Baron Henri de Rothschild is reported to be interesting himself in a proposed course for next year's Gordon Bennett race in the Aix-les-Bains district. The suggested course—Aix-les Bains, Chambery, Albertville, Annecy, Aix-les-Bains—is said to be most suitable for the race from every point of view.

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Another French Public Service.

The company which is running the public motor-car service between Havre and Etretat now proposes to establish similar facilities between Havre and Caudebec-en-Caux. The route will be along the valley of the Seine, stopping-places being provided for at all the principal villages passed through

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A Danish Motor-Cycle Reliability Trial.

In a recent motor-cycle endurance trial in Denmark, held under the auspices of the Dansk Motor-cycle Club, twenty of the starters completed the journey. Fourteen of the machines which finished the trip were of German construction. The first prize was won on a Westfalen machine, of which there were four among those that classified, while the next four machines were Adlers, of which there were eight in the competition.

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The Swiss Automobile Club.

The annual meeting of the Automobile Club of Switzerland took place recently in Zurich. M. Aloys Naville was elected president, M. Charles L. Empeyta first vice-president, and M. Camille Rochette second vice-president. In speaking of the past year the president stated that motoring had become one of the most popular sports in the Swiss republic and that the few national manufacturers of motor-cars and cycles were doing well and becoming prominent in the European market.

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Public Services in Germany.

Slowly but surely the motor-car is being adopted for public service work in Germany. One is about to be started between Hexenthal and Freiburg (Breisgau), while in the Duchy of Brunswick a service is projected between Brunswick, Salder and Hallendorf and a number of other villages not served by the railways. A public service between Emmerich and Cleve is also under consideration.

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A Military Motor Service in Bosnia.

The military authorities in Bosnia propose to establish a motor military post service between places not served by railways. The first vehicle is now at work; it was built by the Austrian Daimler Company, and is designed to carry between 13 cwt. and 14 cwt. of mails and five passengers. The motor is designed to use either petrol or alcohol as fuel, while the road wheels are shod with solid rubber tyres.

THE Winton Company has just brought out a four-cylinder car. The engine is of the horizontal type with the four cylinders each 4 3-8 in. bore by 5 in. stroke) set transversely across and on one side of the frame. Only two speeds forward and a reverse are provided, the power being transmitted through a universally-jointed shaft and bevel gear to a rear live axle.

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MOTOR CYCLING NEWS.

FOR every time a motor-cycle goes wrong—even in the most insignificant detail—there may be a score of occasions when it is beyond criticism. Nevertheless, the one troublesome occasion will vastly outweigh the twenty enjoyable ones in the mind of the rider. The latter are rarely thought of, scarcely ever dwelt upon. The owner of a machine may ride fifty or one hundred miles without a hitch, and think nothing of it; but let one thing go wrong and he will frequently remember only it, and wonder why he ever had anything to do with such an unreliable "contraption."

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THIS state of chronic fault-finding is inseparable from all new things. When the safety bicycle became popular, when the pneumatic tyre put in an appearance, and so on down the scale, the same disposition to find fault on all occasions was observable. But as every improvement connected with the bicycle had to run the same gauntlet of criticism, so each and all of them finally outlived it. It will be so with the motor-cycle. The disposition to throw up one's hands in mingled horror and resignation every time the mixture is wrong, the sparking is not regular, or the belt slips, will ultimately disappear.

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THE more a rider uses a motor-cycle the better he will understand it, and know how to use it and take care of it, that is, provided he has some glimmering of mechanical knowledge. If he is without this, however, it were far better that he never crossed the saddle of a mechanically-propelled bicycle. For it is a fact, and it might as well be understood at the outset, that the rider who would not know how to screw up a nut if he attacked it spanner in hand—and there are not a few of this type of person still about—has no business with a motor-cycle.

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IT may be said for the motor-cycle, however, that even at this early stage of the movement there is a very marked lessening in the number of troubles encountered. If only ordinary care is taken it is not necessary to start out on a motor-cycle run with the fear constantly in one's mind that the return journey will be made by train or on foot. It is quite possible, as recent trials have conclusively proved, to come through a run without a mishap of any kind, and the chances of immunity from trouble will become greater as the months go by.

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ON Saturday last the Irish Motor Cycle Union carried out their third series of speed trials at the Silver Strand at Portmarnock. This series of competitions have become very popular and Saturday's trials attracted the entry of Bert Yates, of Coventry, who won two of the four competitions on the card. The events in which Yates was successful were the classes for single motor-cycles weighing under 120 lbs. and 150 lbs. respectively. He was second in the class for motor-cycles carrying two, A. Summers winning. The sands were not in quite as good order as usual, the high winds of the week making them very "wavy" in parts, and consequently the times were not remarkable, the best performance being that of C. "Arburettor," who did 52 1-5 secs. for the flying kilometre in winning the open class.

CLASS A (for machines weighing 120 lbs. or under, without petrol or accumulators). One mile, from standing start. First heat: F. A. Wallen, 2½-h.p. Triumph; 2. J. G. Drury, 2-h.p. Triumph. Time, 1 min. 50 secs. Second heat: B. Yates, Coventry, Humber, 1; R. W. Stevens, Dublin, 2¾-h.p. Griffon, 2. Time, 1 min. 41 secs.

Final:—B. Yates, Coventry, 1; F. A. Wallen, Dublin, 2. Time, 1 min. 41 secs.

CLASS B (for machines weighing 150 lbs. or under, without petrol or accumulators). One mile, from standing start. First heat:—C. B. Franklin, 2¾-h.p. F.N., 1; R. F. Franklin, 2¾-h.p. F.N., 2; A. Summers, 3-h.p. Triumph, fell. Won easily. Time, 1 min. 51 secs. Second heat: B. Yates, Humber, 1; F. A. Wallen, 2½-h.p. Triumph, 0; J. G. Drury, 2-h.p. Triumph, 0. Won easily. Time, 1 min. 36 secs.

Final:—B. Yates, Coventry, 1; C. B. Franklin, Dublin, 2. Time, 1 min. 37 secs.

CLASS D (for motor-cars built for and carrying two, driver and passenger to be of an aggregate weight of twenty stones). One mile standing start.

Final: A. Summers, 3-h.p. Triumph bicycle with trailer, 1; B. Yates, Humber Olympia fore-car, 2. Time, 2 min. 4 2-5 secs.

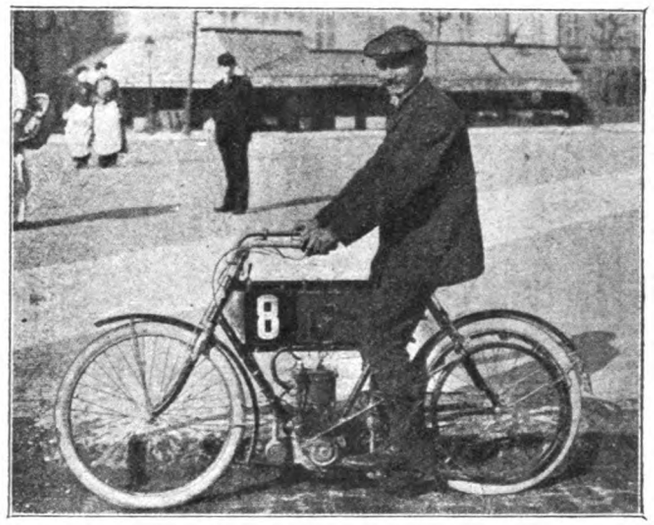
CLASS C (for single motor-cycles unrestricted as to weight). One kilometre, flying start:—C. "Arburettor," 3-h.p. Excelsior, 52 2-5 secs., 1; A. Summers, 3-h.p. Triumph, 54 1 5 secs., 2; C. B. Franklin, 2¾-h.p. F.N., 55 3-5 secs., 3.

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THE last date for entries for the "Albert Brown" trophy competition is September 5th. The trial is being organised by the Motor Cycling Club and will be one of reliability. The hon. sec. is Mr. C. W. Brown, Hollyville, North Finchley, N.

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ONE of the most successful motor-cycle clubs in the North of England is the Manchester Motor-Cycle Club, which has now seventy-five members. The club have held their first non-stop reliability trials over a 100 mile course. The first round extended over two days and has been most successfully carried out. There were twenty-three competitors. The first day's run was over a



Bonnard, a well-known French Motor Cyclist, on his Werner.

triangular course of 16½ miles lying between Knutsford, Holmes Chapel and Northwich, which had to be traversed nearly six times. Nothing of note transpired except that the Knutsford police interfered and stopped three of the men on the first day. The course for the second day was altered to an out-and-home route of fifty miles, starting between Knutsford and Holmes Chapel to Shrewsbury and back. In the two days' run no less than nineteen competitors out of the twenty-three completed the run within the time limit, and ten made practically non-stop runs as follows:—Messrs. Maitland, Andrews, Hall, Reece, Wilkinson, Clift, Boden, Bullock, Varden, and Withecombe, and thus qualify for the second trial. It has not yet been decided what form this will take.

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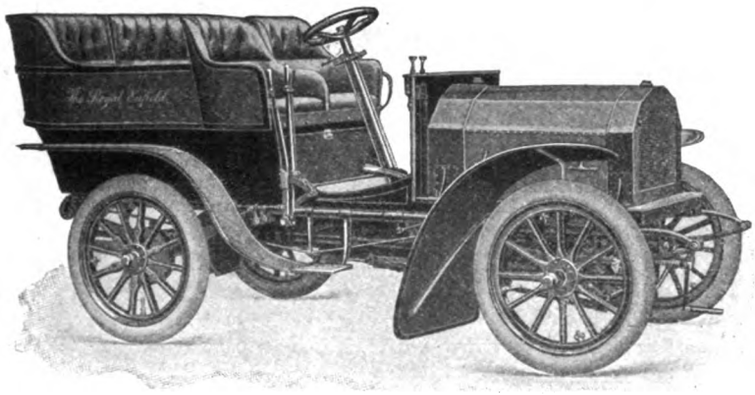
MONDAY next is the last day for entries for the Motor Cycle Challenge Cup competition which is being organised by the Motor Cycling Club. The competition will take place on the 27th prox.

THE Car and General Insurance Corporation, Limited, has opened a sub-office at 23, Bucklersbury, E.C., and new branch offices at the Standard Life Buildings, City Square, Leeds, and 29, Princess Street, Manchester.

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THE ROYAL ENFIELD 10-H.P. CAR.

IN addition to the 6-h.p. two-seated car illustrated in the *Journal* of April 2nd last, the Enfield Cycle Company Limited, are now turning out a 10-h.p. vehicle, of which a general view is given herewith. Like the smaller car, the frame is of tubular construction, in the fore part of which is set a two-cylinder engine of their own construction. The cylinders are 4 in. in diameter by 5 in. in stroke, with inlet and exhaust valves operated mechanically off one cam shaft, Longuemare carburettor and centrifugal governor. The two cylinders and water-jacket are cast in one piece; the valve chambers are also an integral part of the cylinder, this construction ensuring reliability of running. The crank shaft gives large and ample wearing surface for the thrust bearings, and also for the connecting rod bearings. The fly-wheel is of large proportions, ensuring regularity in the running of the engine. The latter is cooled by a gear-driven pump and honeycomb radiator. We may add that the normal speed of the engine is 850 revs. per min.; a pedal accelerator is, however, provided, by means of which the governor can be cut out. The tubular frame is carried on four springs slung so that they will give a comfortable suspension under the most trying conditions. The change speed gear gives three speeds forward and one reverse, controlled by one lever, the drive on the top speed being direct. Both foot and hand brakes are provided, the former acting directly on the transmission shaft from the change-speed gear. Several excellent arrangements have also been



devised in other parts, while the comfortable tonneau should make the vehicle a popular one. We may add that the Enfield Company are building a special factory for the motor-car branch of their business, which will, when completed, rank as one of the largest in the Midlands.

THERE are about 200 cars registered in Leeds and an equal number of motor-cycles.

AT the annual show of the Cardiff Horticultural Society, a class for decorated motor-cars was an attractive feature.

IN Norfolk, Mr. F. Garner, of Watton, and Mr. T. N. Elvin, of East Dereham, are undertaking the manufacture and repair of motor-car bodies.

ON Saturday last Mr. W. L. Duck drove a 20-h.p. Winton touring car from London to Brighton and back on the top gear, both traffic and hills being negotiated successfully without change.

MR. E. A. GOLBY, of Batley, sends word of the help recently rendered him by Mr. W. Corbett, motor agent, of North Road, St. Helen's, whom he recommends as a friend to motorists in distress.

THE Finchley Road Motor Garage has been opened by the Artillery Wheel Works, Limited, at Lymington Road, Hampstead, N.W. This is to be open night and day, Sundays included. A neat tariff card has been issued by the proprietors.

SOME USEFUL NOTES.

IN the majority of petrol cars the speed of the engine may be controlled either by the throttle or by the ignition, or by both, and it is a matter of some difficulty for the novice to understand why two different devices should be provided for the same purpose, when apparently one would accomplish the object. The logical conclusion to be drawn is that by using the two devices in combination more efficient control may be secured, but how the two controlling means are operated to always secure the most efficient control is generally quite a puzzle to beginners. The engine, preferably, should always be so controlled that the power necessary to drive the car at the required speed is generated with the least consumption of fuel. This is desirable not only because of the saving in fuel, but because an excess of fuel burnt simply results in greater wear of the bearing surfaces, more heating of the cooling water, and in a higher temperature of, and consequently more noisy exhaust.

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CONTROLLING the speed of the engine by the ignition alone is very wasteful, as the engine at a given speed always consumes the maximum amount of fuel for that speed, regardless of the load. The engine takes in a full charge at each suction stroke, and the speed can only be reduced by wasting the greater proportion of the energy contained in the charge. With a throttle, on the other hand, the charge per suction stroke is reduced when the speed of the motor is reduced, and with the throttle control the fuel consumption may be very closely proportional to the load on the engine.

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WHILE control by throttle alone is therefore inherently more economical than control by ignition alone, the highest economy can only be secured by controlling simultaneously both the throttle and the ignition. Practically speaking, there is, states the "Horseless Age," for each speed of the engine a definite ignition lever position which gives the best results. This is not absolutely correct, as the speed of combustion depends upon the richness and purity of the charge, and consequently when the engine is throttled and runs at light load, at a certain speed, the best period of ignition is slightly earlier than when running at full load on a purer charge at the same speed. The difference is slight, however, and to simplify matters may be neglected here.

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THERE is, then, for each engine speed a most advantageous position of the ignition lever found in practice by trial. Retarding the ignition from this position will cause the engine to slow down, and advancing it beyond this point will cause the motor to produce a pounding noise readily distinguished by the trained ear. When the motor pounds or knocks in this manner it is a sign of great strain on the moving parts, and advancing the ignition lever too far should therefore be carefully avoided.

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DURING periods of adjustment, when it is impossible to have the spark occur at just the right moment, it is always better to have it occur late rather than early. Consequently, when the car is running slowly with the ignition lever set to conform to the particular speed, the throttle should first be opened, which will cause the engine to speed up, and then the ignition lever should be adjusted to the new conditions. On the contrary, if is desired to decrease the engine speed, the ignition lever should first be set back, and the throttle then closed. Also, when the car is changed from a lower to a higher gear the engine will be pulled down in speed considerably immediately the high gear is engaged, and the spark should therefore be retarded just before or at the moment the clutch is thrown in.

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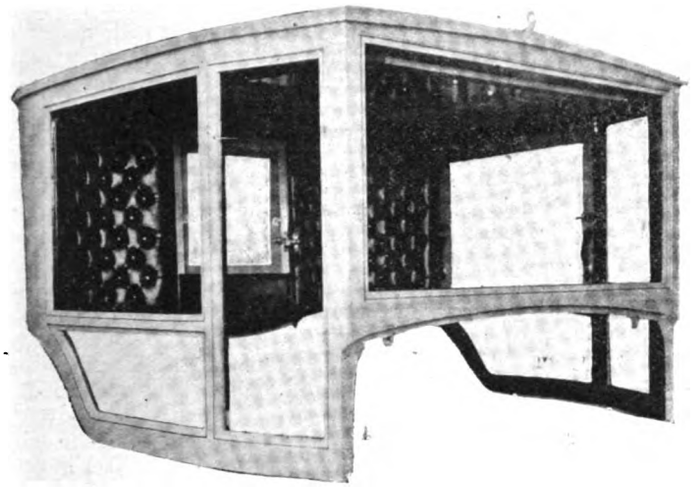
STUDY your car, whether you have a chauffeur or not. You will be well repaid. The man who gets the best service is the one who knows his servant, understands its little kinks and is ready in emergencies to apply his knowledge. Half the repair bills of motoring can be saved by a little thinking.

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HERE AND THERE.

LORD ARMSTRONG has just been supplied with a 18–28-h.p. Mercedes by the Northern Counties Motor Garages, Limited.

THE accompanying illustration shows one of the special brougham tops recently introduced by the Lacre Motor-Car Company, Limited. One of the chief features of the top is that



it is easily fitted to any open car. The front and side windows slide up under the roof and are secured with special fasteners, which do away with any noises that are so objectionable in many such contrivances.

COL. R. E. CROMPTON is shortly going to the United States as one of the delegates of the Institution of Electrical Engineers to the International Electrical Congress which is to be held in connection with the St. Louis Exhibition in September.

MESSRS. THOMAS SHAW, LIMITED, have recently added to their premises in Dundee a well-equipped motor garage. Storage space is available for some twenty or thirty cars, while an inspection pit capable of accommodating three cars is one of the features.

THE educational committee of the Y.M.C.A., Detroit, U.S.A., has appointed a number of leading local automobile constructors as members of an advisory committee for its motor school, feeling that to properly care for the needs of the school it is necessary to have a committee of practical automobile and gas engine manufacturers with whom the instructors may take counsel on questions that may arise.

THE formal opening of the club rooms of the Toronto Automobile Club of Toronto, Canada, took place on the 4th inst. Delegations from Cleveland, Buffalo and a number of important Canadian towns gathered at the King Edward Hotel, where a banquet was given. After dinner several speeches were made, in which one of the principal subjects was the good feeling between motorists in both Canada and the United States and the urging that all should work in favour of the common cause.

THE United Motor Industries, Ltd., have lately introduced a new series of electric lamps for motor-cars, to take the place of acetylene and oil lamps. Fitted with a 12-volt bulb—which is the one recommended—they give, owing to their construction, a most remarkably good light, as has been shown by actual test on a very dark night. The U.M.I. inform us that they find it is quite safe to drive a car at a good speed by the aid of these lamps only, on a pitch dark night, and of course they get over all the trouble of cleaning and save much weight. Another advantage is that they are materially cheaper than gas head lamps. The lamp consists of a metal body formed into a correctly-shaped reflecting surface, through the centre of which a fixture for a small incandescent lamp projects. From the back of this fixture the leads run to the battery. The front of the body of the lamp is closed with a hinged door carrying a double convex lens, which collects and distributes the light of the lamp to the best advantage.

AN automobile club has just been formed at Chaux-de-Fonds, Switzerland.

THE new city hospital at Cincinnati, U.S.A., is to be provided with motor-ambulances.

MESSRS. S. HOLMES AND COMPANY, of Bradford, have taken out a licence for the sale of motor spirit, and motorists passing through the town can be assured of a supply at any hour.

A 2,255-MILE trip across the United States from south to north was completed last month for the first time by Mr. C. L. Joy on a Winton car. He started from Lia Juana, in Mexico, and drove northward through mountainous and level country in California to Seattle.

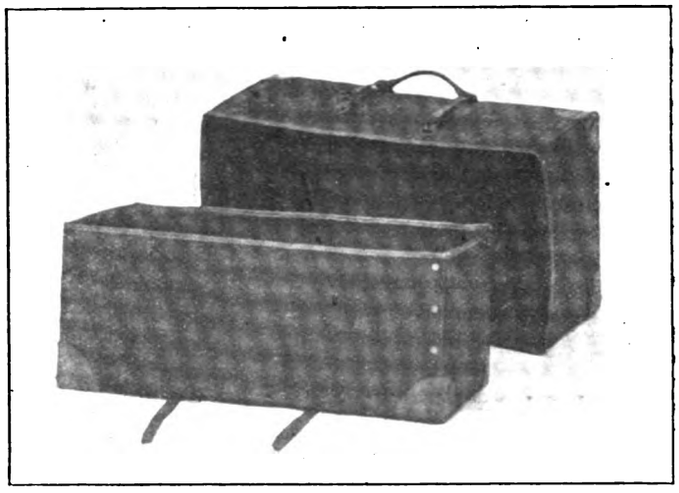
IN consequence of a rumour to the effect that the dynamo is no longer fitted upon Decauville cars, the Motor Car Company, Limited, ask us to mention that this method of keeping the batteries charged has been found to be perfectly satisfactory, and consequently the dynamo is supplied in every case where desired by the purchaser.

WITH the permission of the first district committee of the Renfrew County Council, the Western Section of the Scottish Automobile Club have treated two portions of roadway with "Westrumite," and one portion with crude oil. So far, the results are satisfactory and a special note is being kept by the surveyor as to the utility and durability of the operations.

DURING the two weeks ended July 16 the number of motor-cars registered in London was 136 and the number of motor-cycles 36, making the total number registered up to that date 3,904 and 2,773, respectively. During the same period 360 licences were issued and general identification marks for motor-cars were assigned to four manufacturers or dealers, the total number of licences and general identification marks issued being 9,664 and 274 respectively.

THE Anglo-American Oil Company have just published a revised edition of the list of agents from whom automobilists may obtain their supply of the well-known Pratt's Motor Spirit. Besides giving the names and addresses of nearly 3,500 agents in districts of London and provinces, Scotland, Ireland and Wales, it contains the regulations regarding motor spirit under the Locomotives and Highways Act, 1896; index marks of the County and County Borough Councils in Great Britain; railway receiving days, and information regarding the rates of carriage for motor spirit.

MR. EDWARD KENNARD, whose enthusiasm for motoring is unbounded, sends the accompanying photograph of a valise which he had made for him, and which he found perfect when on tour.



Mrs. Kennard possesses a duplicate, and Messrs. Dunhills are now making the handy little wallet. It is to be known as the Kennard valise.

AMONG the visits to be paid by the Institute of Journalists during their Conference at Glasgow is one to the Hozier Company's Engineering Works.

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As mentioned in a recent issue, Mr. Thos. Shaw, of Dundee, driving a 15-h.p. Napier with four people up, has succeeded in covering the 676½ miles which lie between London and Inverness in 31 hours 35 minutes. The route taken was *via* Doncaster, Durham, Berwick, Edinburgh, Glasgow, and Dundee. The run was a non-engine-stop achievement throughout, no trouble of any kind being experienced. The Palmer Cord tyres, with

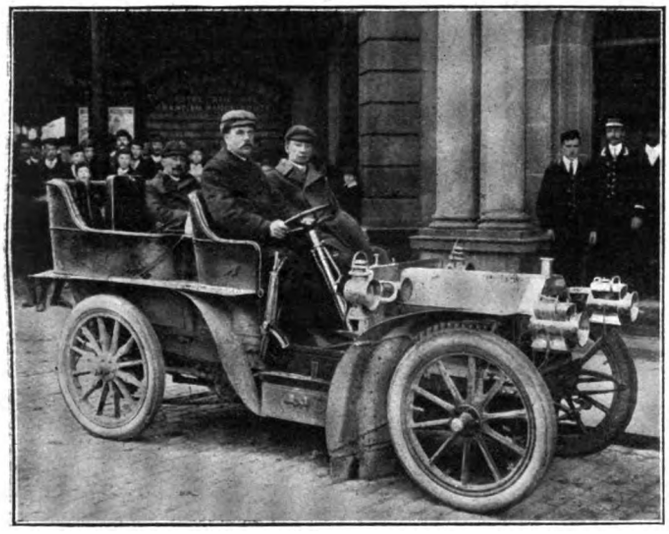


Photo by [*MacMahon.*

which the car was shod, stood up without the least sign of deflation, nor was there any delay in procuring petrol or oil *en route*. With the exception of a thunderstorm the journey was accomplished under most pleasant conditions, and the fact that the London to Glasgow and London to Inverness records were lowered by 1 hour 55 minutes and 5 hours 43 minutes respectively further increased the travellers' gratification. Our illustration shows the car on its arrival at Inverness.

"The Automobile Industry" is one of the volumes of Books on Business now being published by Messrs. Methuen and Company. It is written by Mr. Geoffrey de Holden-Stone, who has found other works on the motor-car "sketchy and circumambulatory" or possessed of other defects which left room in the literary firmament for the present work. The method of description has enabled the author to achieve the "well-nigh impossible task" of bringing the matter "actually up-to-date." More than that need not be said.

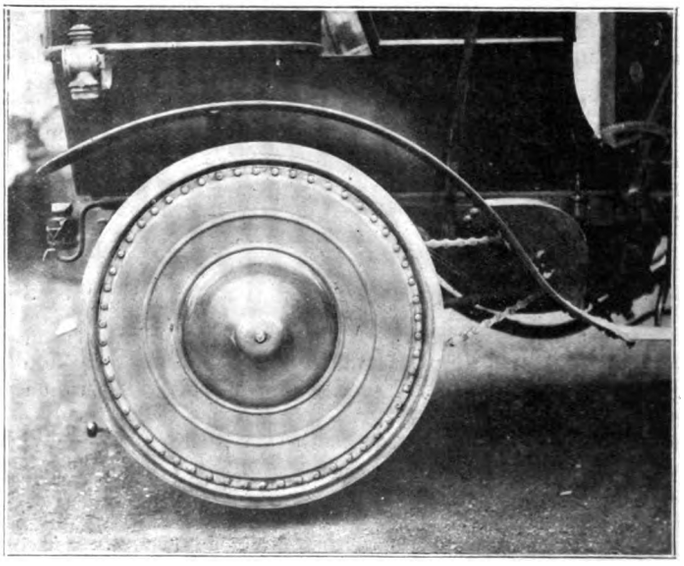
Messrs. W. Martin and Company, cycle and motor engineers, of West Ham, have sent us photographs of an invalid chair they have lately introduced. The chair is built up cycle-fashion with thin weldless steel tubing. The back rest can be tilted at any desired angle by the occupant, spring pegs fitting drilled holes in quadrants on either side securing it in the desired position. The side frame tubes are open throughout the entire length, so that a couple of sticks or crutches may be carried therein. Five springs are fitted which effectually break up all road vibration, so dangerous in some cases. The chair can be collapsed into a small space in 40 seconds by folding the back rest, with the arm rests flat on to seat, and by unscrewing three screws the front wheels and steering wheel are detached from the frame and pack under the seat. For persons suffering from the more acute forms of paralysis, etc., the chair should be invaluable, more especially as it is so portable, when folded, that it can be taken in an ordinary motor-car or railway carriage. The large wheels are fitted with Dunlop tyres, and the small rear-steering wheel with solid rubber tyres. The weight of the chair complete varies from 35 lbs. to 45 lbs., according to the strength necessary to carry the invalid's weight. It may interest motorists generally to know that a chair such as described is in use by a gentleman owning a Lanchester car, who, when visiting or touring, carries the chair folded up on the "deck" of the car.

Mr. Andre A. Godin, the British agent for the Ducellier motor lamps, is at present in the United States for the purpose of fixing up an American depot for these well-known light-givers.

Smokers on cars have always found it difficult to light either a pipe or a cigar, and to overcome this difficulty Messrs. L. A. Beckett, Limited, have brought out a cigar and pipe lighter. The device is simply connected up to one of the 4-volt accumulators used for ignition purposes on petrol cars, and by simply pressing a button in the handle a coil at the end instantly glows with a red heat. We have tried one of the lighters and find it most effective and convenient. It can also be used as a tester for accumulators, and, further, will light up acetylene lamps and even paraffin lamps if good oil is used. Needless to say it is wind and rain proof and is always ready.

Price's Patent Candle Company, Limited, have sent us a sample of a new lubricant they have lately introduced for treating the chains of motor-cars and cycles. The compound, which is known as "Cirogene," and is the result of two years' experiment, combines the tenacity of wax with the valuable lubricating properties of the finest tallow and graphite. It has been prepared to meet the repeated demands of motorists for a material which should perform the functions of a lubricant, should not be expressed from the links by the action of the chain, should prevent the admission of dirt to the links, and, while free from injurious action itself, should protect metal from the corrosive action of the air and moisture. To apply "Cirogene" to a chain, a small quantity of the former must be put in a metal vessel and melted by heat, while the chain must be removed from the car and thoroughly washed in paraffin oil. In the case of smaller chains it may be possible to find a shallow vessel of sufficient capacity to permit of the immersion, in the liquid "Cirogene," of the whole chain, at once, when coiled up. In the case of larger chains, the chain, after washing, is to be suspended on a pin, or preferably on a small spare sprocket running free on a bearing on the wall, directly over the vessel containing the liquid. The chain is then to be immersed in sections, a few links at a time, in the melted material, each section being permitted to remain in the bath till it attains the temperature of the liquid, in order to ensure the complete permeation of each link by the lubricant.

We are able to give an illustration of the Arthur Robinson patent compensated spring wheel which Messrs. J. W. Brooke and Company, Limited, have lately constructed for Mr. Arthur



Robinson, of Beccles. The illustration shows the wheels jacked up ready for the removal of the cover plate to obtain a view of the interior. The time occupied in removing the plate is only three minutes.

The Farrington Motor Works, of South Street, Chichester, have every facility for the repair of cars—a fact of interest to motorists attending Goodwood.

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CORRESPONDENCE.

A MOTORIST'S PETROL EXPERIENCES.

To the Editor of *The Motor-Car Journal.*

Sir,—There are certain precautions, in connection with car management, which become a matter of habitude, and yet which may well strike the casual onlooker as superfluous. Possibly the motorist himself at times is tempted to relax his vigilance, but at a heavy cost. For instance, there is the matter of filling up one's tank with petrol. The usual thing, of course, is to use a gauze funnel, handkerchief, or a piece of linen, to filter the liquid as it flows into the tank; but when one has poured out scores and scores of gallons without observing any sediment it is easy to think lightly of the precaution, and possibly abandon it occasionally if in a hurry, and a tundish is not handy. But it does not pay! It is easy enough to suppose that the petrol manufacturers are scrupulously careful, and that the presence of grit within their cans is rendered practically impossible. But mistakes will happen, as I was forcibly reminded the other day, for after emptying a two gallon tin into my tank I was horrified to find quite a number of particles of dirt remaining on the gauze membrane of my tundish. Some were as large as good sized pellets, while there were plenty more which would have worked sad havoc with my carburettor but for the fineness of the gauze.

For the benefit of fellow motorists I may point out here what, of course, no experienced hand needs to be reminded of, namely, that nothing is more aggravating to a driver than interruption of the petrol flow through the presence of minute particles of sediment. They return again and again to the charge like hungry flies, and are more baffling even than troubles with the ignition. "Filter your petrol" is a maxim which cannot be too seriously laid to heart at the outset of every automobilist's career.

In another direction, too, I have lately had an illustration of the fact that one must not regard the petrol-can as necessarily without flaw. Before starting on a journey I had placed a couple of tins in my tonneau, after the plan adopted by many others of carrying a reserve, and keeping it as such by buying on the road whenever feasible; you thus make it worth people's while, to stock petrol in various parts of the country, and are always sure of having some at hand in case you do not come across an agent. At the end of the journey I found the floor of the car quite wet, and on examination discovered that petrol had been oozing out of one of the cans—in minute quantities, of course, but it was escaping all the same. Now one is accustomed to believe that one could build a fire round a tin of petrol, and that unless the heat were sufficient to melt the joints there would be no conflagration. But that a leaky tin is a possible, if uncommon, factor to be reckoned with is shown by the circumstance above described.—Yours truly,

J. W. Macpherson.

MOTOR UTILITY.

To the Editor of *The Motor-Car Journal.*

Sir,—Although the value of the motor-vehicle is naturally most appreciated in connection with the conveyance of passengers and the transportation of goods, there are adaptations of which it is capable which should—when fully understood—increase its popularity with manufacturing and commercial firms. In every motor-vehicle we have a portable engine, whose power can be utilised for a large variety of work by simply providing a short length of flexible shafting which can be connected up to the engine shaft, or to one of the countershafts. Take the case of a builder or contractor engaged in the erection of a large building, and using a motor-wagon for the transport of his materials. The vehicle might be fitted with a winding drum, and after it had been placed into a suitable position a rope or chain from the lifting tackle might be led to the drum through a snatch block, and the power of the motor utilised not only to discharge the load, but also to hoist it up to the necessary elevation at once. For girders and other heavy goods the low speed would be used, and for quick, light lifts one of the higher gears. When not required for transport purposes, the motor, by means of a flexible shaft, might operate a circular saw on the site of the building, and thus save a large amount of hand labour.

Similar conditions obtain in many other cases. The farmer, for instance, frequently has to engage a portable engine for his work. The heavy motor-wagon could not only enable him to transport his produce to markets which were formerly inaccessible, but the motor itself could also be used for operating the various machines which are often worked by hand, or in a clumsy fashion by horses.

Turning now to pleasure vehicles, the well-equipped country house of the future will have its motor-vehicle for station work, and it is quite easy to conceive that a car provided with a length of flexible shafting might extend its field of usefulness very widely under such conditions. It might be used for pumping water from a well to an overhead tank for supplying the house, and also for operating a churn, chaff-cutter, and other similar machines. These few instances will serve to indicate some of the directions in which the usefulness of the motor-vehicle can be increased, and by a little careful thought the list might be largely amplified, and manufacturers will see that by the addition of simple attachments, the cost of which would be comparatively small, they might largely increase the selling power of their vehicles.—Yours truly,

Tintagel.

CONVERTING FROM TUBE IGNITION.

To the Editor of *The Motor-Car Journal.*

Sir,—I should be much obliged if any reader of the *Journal* could inform me if it is possible to satisfactorily convert a tube ignition car to electric, say wipe contact and trembler coil? The car I am thinking of altering is an old 6½-h.p. Daimler, with tube ignition; speed on level, good surface road about twenty miles per hour. The engine has two cylinders, and governs on the exhaust with a governor of the hit and miss pattern. Would the increased acceleration of the engine and consequent vibration (solid tyres) prove too much for the old car, and cause very much increased wear on engine bearings, etc.?—Yours truly,

E. F. L.

[The change can be done with good results, the increased acceleration having no appreciable effect on the car. The wipe contact and trembler coil would be most suitable. The governor would have no effect on the firing, this practically remaining the same as at present. The wear on the engine bearings would not be any greater than before.]



A Motor Meet at Saint Tropez, near Nice.

EXPERIENCES WANTED.

To the Editor of *The Motor-Car-Journal.*

Sir,—As a regular reader of the *Journal* I am somewhat disappointed that other subscribers do not more frequently contribute a warning note as to the cause of their breakdowns. It is a truism that we learn more from our mistakes than from our successes, although doubtless the cynically-minded might say that we learn still more from the misfortunes of our friends. I do not yet own a car, but hope to do so before August is out. Are these all "yarns" that I hear of the frequency of breakdowns? A friend tells me that he was visited at his place in the country last Sunday by two parties on cars. One took half an hour to restart his motor; the other could not start it at all, and had to leave it there till a mechanic from London came down next day. Another acquaintance is in the surgeon's hands with a dislocated shoulder, from being thrown out of a car. So far as I can follow the account, he was coming home with a loose chain when it jumped the sprocket and the car overturned. It is needless to add to the list of breakdowns. I only give the latest which have reached my ears.

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and from reliable sources. It seems to me a great pity that those who have such accidents do not contribute to your pages an account of what happened, why it happened, and how it was put right. Must we all buy our experience in the bitter market of affliction? Doubtless to many motorists these breakdowns bring their own lessons, so that they never occur a second time, but they would be promoting the sport, removing prejudice, and encouraging beginners like myself by publishing a kindly note of warning and advice. They can do it under a *nom de plume* if they feel that their exploits have been too ridiculous. As I have every intention of making known my own failures when I start on them, will no one tell us how he has been "hung up"?—Yours truly,

RUSTICIAN.

[We are always ready to welcome letters on the lines suggested by our correspondent, and there is no doubt that those who can supply useful hints as to how to obviate difficulties are rendering good service to the movement.]

HITCHON'S PATENT TRANSMISSION GEAR.

TO THE EDITOR OF *The Motor-Car Journal.*

SIR,—In answer to your correspondent in the *Journal* of the 9th instant, I may state that I drive two cars—one heavy and one light—which have the above gear fitted to them. I will not trespass on your space in enumerating all the advantages of this gear, but for the benefit of your correspondent I will state briefly a few. In the first place, the ease of manipulation is a source of astonishment after one has been accustomed to the ordinary sliding gear, and I find in the handling of these gears that the claims made for them are fully borne out in practice.

The change, whether to a higher or lower speed, is made so quickly that the driving is continuous, and consequently no sudden impulse of the car occurs at the period of change. The required gear, cushioning on the roller clutches, permits of a silent change, and makes the fouling of the teeth an impossibility. The adaptability of this gear for hill-climbing is beyond dispute; by the non-release of the clutch and the rapidity of change to a lower gear the momentum of the engine is maintained, and the ascent of steep gradients is accomplished with scarcely any perceptible loss of speed. The advantage here gained is that cars may be built with less engine power; consequently there may be fewer working parts, which means less depreciation, and economy of fuel and lubricant.

The durability of the gear becomes conclusive when I state that after two and a half years' wear the gear wheels are apparently as good as when first fitted to the car. The use of these gears has removed the fear of indirect stripping, and renewals through such, and eliminates from motoring the annoyance of breakdowns *en route*, and the laying by of the car in the hands of a repairer, ofttimes for an indefinite period. To my mind, an outstanding feature of these gears is the rapidity of change, and their application in all cases of emergency.—Yours truly,

E. W. ADAMS.

HORSE v. MOTOR.

TO THE EDITOR OF *The Motor-Car Journal.*

SIR,—I should be glad to learn from your readers the respective merits of horse and trap *versus* motor-car, from the point of view of convenience and also expense, the latter to be exclusive of first cost. Can anyone give me the cost of a motor-car to go to and from the station (two miles each way) twice daily, and occasional drives with four passengers? The above information will be of service.—Yours truly,

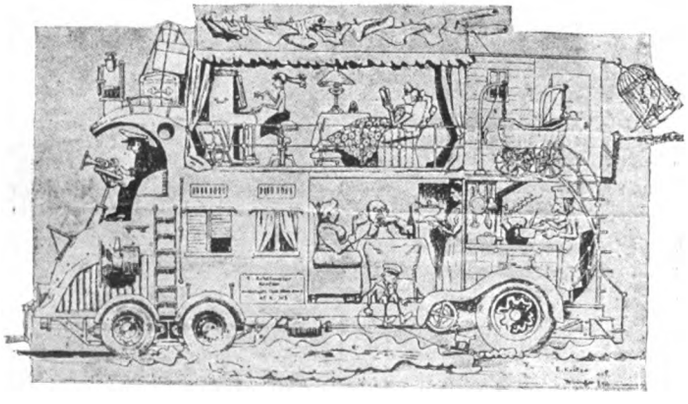
PRACTITIONER.

KNOCKING IN THE ENGINE.

TO THE EDITOR OF *The Motor-Car Journal.*

SIR,—I would advise "Puzzled Novocastrian" to make sure that the flywheel of his engine is keyed absolutely tight on the crankshaft. If it is ever so slightly loose it will set up an appalling knock.—Yours truly,

AD SUM.



A Motor Caravan. Reproduced from a Russian Sketch furnished by Mr. C. Friswell.

THE MOTOR CAR ACT.

TO THE EDITOR OF *The Motor-Car Journal.*

SIR,—Regarding the paragraph in your *Journal* of the 16th inst., notifying that 3,768 cars and 2,697 cycles have been registered in London up to July 2nd (and goodness knows how many licences and general identification marks for dealers have been granted), and bearing in mind that this returns applies to London only, it occurs to the ordinary motorist to inquire in what manner he, or the public in general, has benefited from this large addition to the income of the County Council. Have the roads been improved in any way? Where are the caution boards that were to be erected? And to what extent have these funds been utilised towards mitigating the nuisance from dust, so troublesome to all users of the roads? Surely the expense of collecting the money cannot have been very heavy, as the onus of registering and obtaining a licence rests on the motorist.—Yours truly,

INQUISITIVE.

QUERIES RE IGNITION.

TO THE EDITOR OF *The Motor-Car Journal.*

SIR,—I have a 4½-h.p. Pieper car fitted with a make and break ignition, and I do not think the engine pulls as well as it ought to on hills, although it runs at a very high speed on the level. I would like to know if an Auto-trembler would be a improvement, as I believe it gives a better spark at low speeds, or would a trembler coil be superior?—Yours truly,

M. BROWN.

We would strongly advise a trembler coil instead of Auto-trembler, although the latter is very good. A reliable trembler coil can be purchased for about £2 from any of the leading electrical accessory concerns.]

THE BLACKHEATH CLUB.—We shall be glad to have the address of the Secretary of the Blackheath Automobile Club, several readers in the district being desirous of communicating with that gentleman.

MOTORING IN THE ISLE OF WIGHT.—"Toura" writes asking for information from any reader of the *Journal* as to the best way of taking a car over to the Isle of Wight.

MOTOR-CAR CRADLE AND TURNTABLE.—Replying to "J. F. L.," the address of the makers of the motor-car cradle and turntable illustrated in a recent issue is Webb's Patent Motor Carriage Cradle, 12, Shaftesbury Road, Hornsey Rise, London, N.

MOTORING vistors to the Lake District will be interested in learning that Mr. J. Braithwaite, cycle and motor agent, Windermere, keeps a stock of motor spirit, also cylinder oils, grease, etc.

THE Sussex Hotel, St. Leonards, keeps a supply of petrol, grease, oil, etc., and has garage accommodation for automobiles. The hotel is only three miles from the Bexhill track.

AN effective show card, with portraits of "the men at the wheel" for England in the Gordon Bennett race, has been issued by the makers of the E.I.C. plugs which were used by the three British competitors.

THE Derwent Engineering Company, who have a large garage at Central Square, Workington, Cumberland, inform us that not only are motor repairs carried out, but a stock is kept of petrol, cylinder oils, grease, etc.

MESSRS. HARVEY FROST AND COMPANY, the makers of the "H. F." Vulcaniser, are moving into larger premises at 39, Great Eastern Street, E.C. A repairs department is being established, and all kinds of tyre repairs will be executed.

MESSRS. J. C. MEREDITH, LIMITED, have sent us a copy of the latest section of their price list, in which are full particulars of the G.O.M. system of converting the various contact breakers to wipe pattern One or two new patterns of sparking plugs are illustrated, and we may also, while on this subject, mention that the firm are now supplying a mica tube which will fit the De Dion plugs, all ready to go into the plug.

FROM the Civil Service Motor and Cycle Agency, Limited, comes a price list of cars, motor-cycles, and various accessories for which this company are agents. One good feature of the catalogue is a comparative statement showing the principal features of different makes of motor-cycles, which should be of real value to those about to go in for that form of automobilism. Another useful list comprises some of the best known cars, classified according to cost. Lamps, sparking plugs, motor horns, batteries, etc., all find mention in this comprehensive list.

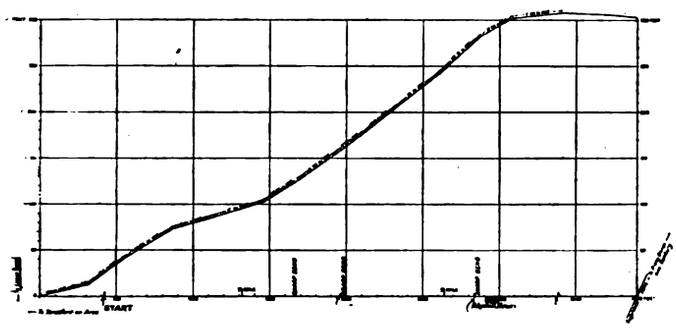
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CLUBS AND ASSOCIATIONS.

THE MIDLAND HILL CLIMB.

THE Midland Automobile Club's President's—Mr. J. Broughton Dugdale—Cup was competed for last Saturday at Sun Rising Hill, midway between Stratford-on-Avon and Banbury. Out of an entry of thirty-eight only three failed to put in an appearance. The weather at the start was everything that could be desired, but later on rain came down heavily, and somewhat marred the proceedings, making the ascent a difficult task to the majority of cars. A large gathering was present, and the hon. sec., Mr. T. C. Aveling, is to be congratulated for the excellent way in which everything was carried out. The following are the official times:—

Name of Driver.	Make of Car.	h.p.	m.	s.
J. A. Holder ...	Mercedes ...	40 ...	5	18⅘
J. B. Jarvis ...	Jarvis & Weekes...	7 ...	12	1⅗
J. Spencer ...	Ariel ...	15 ...	6	56
E. M. C. Instone ...	Daimler ...	28 ...	4	49⅗
P. Martin ...	Daimler ...	28 ...	4	49⅘
E. W. Lewis ...	Rover ...	8 ...	6	45
A. Farnell ...	Daimler ...	28 ...	4	50⅖
J. H. Deykin ...	Wolseley ...	6 ...	7	26⅖
E. F. Baker ...	Duryea ...	12 ...	5	36⅗
T. Thornycroft ...	Thornycroft ...	20 ...	5	12⅘
E. Manville ...	Daimler ...	28 ...	4	58⅖
A. Bush ...	Daimler ...	28 ...	5	26⅘
W. H. Cook ...	Argyll ...	10 ...	7	40⅗
Cecil Edge ...	Gladiator ...	14 ...	6	39⅖
J. W. H. Dew ...	Speedwell ...	9 ...	7	39
A. J. Dew ...	Léon Bollée ...	24 ...	5	20⅕
E. T. Meadich ...	Léon Bollée ...	24 ...	6	9⅗
C. E. Forman ...	Forman ...	14 ...	8	41⅕
S. F. Edge ...	Napier ...	20 ...	4	51⅕



Profile of Sun Rising Hill.

G. F. Reading ...	Wolseley ...	10 ...	6	27⅘
Major Lloyd ...	Wolseley ...	6 ...	7	0
C. S. Baynton ...	Wolseley ...	10 ...	7	42
L. de Rothschild ...	Mercedes ..	60 ...	5	1
G. Baxendale ...	Thornycroft ...	20 ...	6	23⅖
F. S. Bennett ...	Cadillac ...	6½ ...	7	34⅕
R. A. Cobb ...	Star ...	12 ...	6	29⅗
J. Lisle ...	Star ...	7 ...	7	9⅕
G. H. Lanchester ...	Lanchester ...	12 ...	7	19⅕
C. G. Garrard ...	Garrard ...	6½ ...	10	35
A. A. Remington ...	Wolseley ...	6 ...	8	4⅘
A. E. Crowdy	Wolseley ...	28 ...	5	10⅘

Owing to the muddy condition of the surface at the second control, C. G. Garrard had considerable difficulty in getting his 6½-h.p. tri-car away. There was ample power in the engine, but the driving wheel slipped on the greasy surface. C. E. Forman also had trouble at the second control. He allowed his car to be deluged with rain, which worked its way into the clutch and caused it to slip. A. E. Crowdy, on a 28-h.p. Wolseley, which, by the way, looked like one of the 1903 G.B. racers, had a bad side slip, but recovered, although it must have cost him a little distress of mind, and apparently worried him for the rest of the journey.

A farmer in the neighbourhood who is a county councillor and objected to the competition being held at Sun Rising Hill, showed his protest by employing all his farm hands to march up and down the hill during the progress of the climb with a number of horses and carts, and this was going on all the time, much to the amusement of some spectators and to the indignation of others.

At the conclusion of the competition the members, officials, and friends dined at the Shakespeare Hotel, Stratford-on-Avon.

SCOTTISH.

ON the invitation of Mr. W. Strang Steel, of Philiphaugh, a meet of the club took place at Philiphaugh on Saturday last. A large number availed themselves of Mr. Steel's kind invitation and about 150 members and their friends put in an appearance before half past one o'clock. The Edinburgh cars travelled by Eskbank, Stow and Galashiels, while the members from Glasgow and the West drove *via* Clyde Valley, Lanark, Biggar and Peebles, and, in addition, members came from other and more distant parts, as Ayr, Moffat, Dumfries, Crieff and Dumbarton. After lunch, which was served in Mr. Steel's magnificent dining hall and in a marquee on the lawn, the health of the host was cordially pledged and his hospitality fittingly acknowledged. The house party,

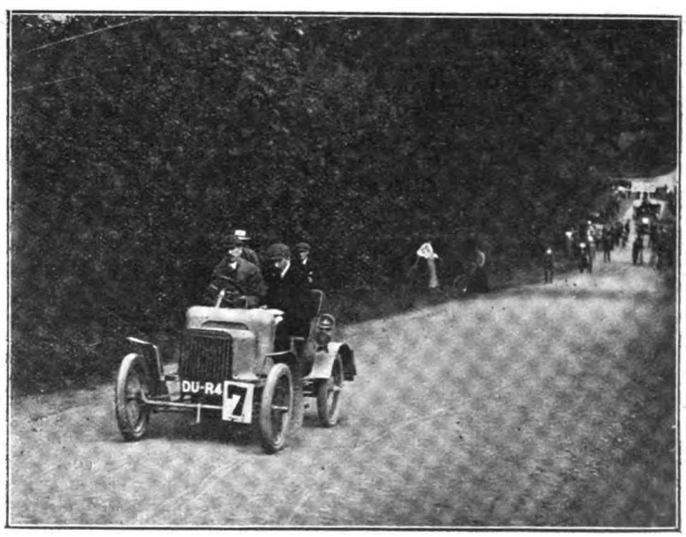


The Sun Rising Hill Climb.—Motorists at Ann Hathaway's Cottage at Stratford-on-Avon

which included Lord Napier and Ettrick and Lady Napier, Sir Charles Hartley, and others, were most attentive to the guests, who inspected the magnificent gardens and policies outside and the art and ornamental treasures in the mansion house with interest. After an unpromising early morning in some parts of the country, the day turned out fine, and the well-made Border roads and the magnificent scenery in the valleys of the Tweed, the Ettrick, and the Yarrow made the run a most enjoyable one.

LINCOLNSHIRE.

THE meet of the Lincolnshire Automobile Club on Saturday was to Sherwood Lodge, Sir Charles Seely's place, near Nottingham, and twenty cars, with about seventy passengers, attended. The invitation was first conveyed to the members by Mr. C. H. Seely, M.P. for Lincoln, when speaking at the annual dinner of the club in the winter. The route to be taken was by way of Southwell, but the roads were so bad



The Sun Rising Hill Climb.—Mr. E. W. Lewis on the new Rover Car making the ascent

beyond that a letter was sent to each of those who had accepted, suggesting coming into Nottingham, thence by the Mansfield road. This was taken by many, though some of the Lincoln motorists went from Newark to Mansfield, thence to Sherwood Lodge. Several cars had bad punctures, and that and the very unfavourable weather caused several to be unable to fulfil their acceptances. On arrival, the cars were driven up to the house and the occupants were received by Sir Charles and Miss Seely, and by Mr. and Mrs. C. H. Seely and Mr. F. E. Seely,

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with Major and Mrs. Leach. After the reception, lunch was served in a marquee on the lawn, a string band playing selections. Before the repast was finished a very heavy thunderstorm came on, and prevented anyone getting away to more substantial cover. The time, however, passed pleasantly, for there was plenty to talk about. When the storm had temporarily subsided the unique treasures of the house were inspected, and here again the time passed very pleasantly indeed. A halt was called till the rain had stopped, then, after tea had been handed round, the cars were driven up to the house and Sir Charles and his visitors bade each other good-bye. In every way it was a very pleasant and successful meet, and thoroughly enjoyed by all, although the weather was so unfavourable.

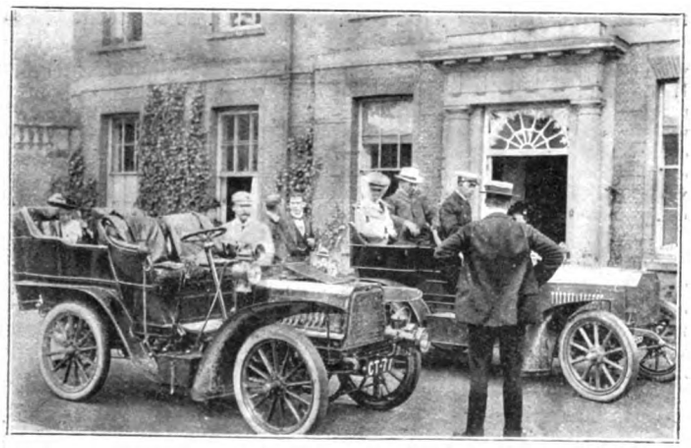
Among those present were Sir Hickman Bacon, Bart., president, 12 h.p. Panhard; Mr. C. A. Moreing, 15-h.p. Limousine Panhard; Capt. H. C. Newsum, Mr. J. R. Richardson, Col. M. Warrener and Dr. G. M. Long, Lincoln, 18-h.p. Richardson: Rev. and Mrs. Stoodley, Dowsby, 4½-h.p. De Dion; Dr. and Mrs. Sharp, Brant Broughton, 12-h.p. Richardson; Mr. and Mrs. Tomlinson, Sleaford, 5-h.p. Bardon; Mr. and Mrs. T. W. May and Dr. Gilpin, Bourne, 12-h.p. Wolseley.

MANCHESTER.

On Saturday last the Manchester Automobile Club had a week-end run to Ellesmere, Salop, which is between sixty and seventy miles from Manchester. In the morning some rain fell and the weather was generally threatening, so only eight cars turned up at the Bridgewater Arms (the Club's headquarters at Ellesmere). Sunday, however, was a bright day with plenty of sunshine and no dust, making the run for those who joined it highly successful.

THE LADIES' CLUB.

On Saturday last the members of the Ladies' Automobile Club and their friends were entertained to afternoon tea at Hanworth Park by Mrs. Ainslie. Tea was taken under the trees, after which the members either



The Meet of the Lincolnshire Club at Sherwood Lodge.

strolled through the grounds, listening to the bands of the 2nd Royal Derbyshire Regiment and 21st Lancers, or played in ten minute croquet and tennis tournaments. There were about fifty friends present, among them being the following members of the club:—Baroness Campbell von Laurentz, Mrs. Daniels, Mrs. Herbert Lloyd, Mrs. Morrison, Mrs. Bruce Porter, Miss Honeyman, Miss G. Honeyman, Miss Pilcher, the Misses Dorothy and Maud Pilcher, Mrs. Turnor and Miss d'Esterre-Hughes (Secretary).

WEST SURREY.

The club gymkhana was held at Eashing, Godalming, on Saturday last, over 100 members and friends being present. Twelve cars were entered for the competitions, of which ten came to the scratch, the events including a "garage" race, in which the cars had to manœuvre into a 20-ft. square enclosure with a narrow right-angled entrance; tilting at the ring, bending race forwards and backwards; ladies' bending race, the ladies, however, competing in the other events as well as that allotted to them alone, with much success; starting race, in which the competitors had to run 100 yards, start their car, and drive back; passenger race, where the cars had to drive 150 yards to a table on which were envelopes containing coloured ribbons, take one, drive a similar distance to where the ladies acting as passengers were sitting, pick out the one wearing corresponding coloured rosette, hand her into tonneau, and drive to finish, the confusion inevitable at the second stop causing much amusement; and puncture race, drive 300 yards, change inner tube, and drive another 300 yards, which latter event only brought out a field of three. The winners were:—Garage race, Mr. R. W. Buttemer (Decauville); second, Miss Crothers (9-h.p. Argyll). Tilting, Miss Crothers; second, Colonel Fairtlough (12-h.p. Darracq). Bending race, Mr. R. Crothers; second, Mr. Buttemer. Ladies' bending race, Miss Crothers; second, Mrs. Pullman (5-h.p Peugeot). Starting race, Mr. Buttemer; second, Mr. Sichel (7-h.p. Daimler). Passenger race, Mr. R. Crothers; second, Mr. Buttemer. Bending race backwards, Mr. Buttemer; second, Mr. R. Crothers. Puncture race, Mr. Ponsford (8-h.p. Clement); second, Mr. Buttemer; third, Dr. Fennings (Ader). Times of winners: 14 and 14½ minutes. The programme, which commenced at 3 p.m., was not completed till 7 o'clock, all the races but the last bringing out a full field. The prizes (supplied by the United Motor Industries and Messrs. Dunhill) consisted of clocks, tool rolls, voltmeters, horns, and the like. The attendance was good, and would have been larger but for a few showers, which kept several intending visitors away.

YORKSHIRE.

The Yorkshire Automobile Club had a most successful motor parade and gymkhana on Saturday last at Harrogate, and it is anticipated that there will be a good surplus to hand over to the Lifeboat Fund. In all forty or fifty cars took part, and the result of the judging was as follows:—

Motor Parade.

Class 1—
1st.—Mrs. S. Dixon, Bradford (Spyker).
2nd.—Mr. Penrose Green, Leeds (De Dion).

Class 2—
1st.—Mrs. Peglar, Leeds (Darracq).
2nd.—Mr. Gordon Learoyd, Huddersfield (De Dion).

Gymkhana.

	min.	sec.
Bending Race—		
1st.—Mr. Walter Booth, Clayton, 6-h.p. Prunel ...		59⅘
2nd.—Mr. Walter Jackson, Baildon, 24-h.p. Brush ...	1	3⅘
Coach-house Handicap—		
1st.—Mr. Symonds, Harrogate, 14-h.p. Talbot	2	3
2nd.—Mr. Thos. Whitaker, Horsforth, 10-h.p. Lanchester	2	24⅘

Tug-of-War—
Lifeboat Crew *versus* Fire Brigade.
Lifeboat Crew *versus* Motorists.
Lifeboat Crew winners.

Motor-Cycle Obstacle and Bending Race—		
1st.—Mr. F. Greenwood, Leeds, 2¾-h.p. Bradbury ...	1	11
2nd.—Mr. G. E. Martin, Leeds, 1½-h.p. Bicycle ...	1	20⅘

Legal Limit Race—
1st.—Mr. E. Broadbent, Bradford, 6-h.p. Rochet.
2nd.—Mr. Mitchell, Harrogate, 10-h.p. Lanchester.

The judges were:—The Mayor and Mayoress of Harrogate, Mr. and Mrs. Penrose Green, of Leeds, Councillor Holgate, of Harrogate. At the conclusion the prizes were distributed by the Mayoress. The time-keeping was in the hands of Messrs. F. J. Borland, of Leeds, and J. Chippendale, of Harrogate. The members of the Committee of the Yorkshire Club officiated as stewards, and the Harrogate Football Club kindly placed the ground at the disposal of the Y.A.C. Altogether a splendid afternoon was spent, and the rain kept off until the prizes were distributed, after which it poured down.

CLAIM AGAINST A MOTORIST.

A motor-car running down case has been heard at the Herefordshire Assizes. The plaintiff was Thomas Morgan Jones, farmer, Glewstone, and the defendant Dr. Gerald Edwards, of the Sports Club, London. The defendant and his friend Dr. Bush were motoring through Glewstone, near Ross, and it was alleged that on going down a hill at an excessive speed they ran into the plaintiff, who was riding a pony in the opposite direction. The plaintiff was thrown to the ground with his pony, both having been struck by the front of the car. The defendant, it was stated, did not stop, but about a hundred yards further on the car stopped owing to something going wrong with it. The plaintiff sustained serious injuries and was confined to his bed for six months. For the defence it was denied that the car was on the wrong side of the road and that the defendant went on after the accident. The defendant said he pulled up thirty yards further on. A verdict was given for the plaintiff with £250 damages.

POLICE TRAPS.

Surbiton is the scene of some well-devised police traps, and motorists should exercise care in driving through the town.

In Portsmouth Road, Putney, is a measured distance of 220 yards.

The trap between Lancaster Gate and the Queens Road Station of the Central London Railway is becoming notorious.

In the village of Moortown, on the Leeds and Harrogate road, is a carefully devised trap.

The traps at Buckden and Water Newton, to which we recently made reference, are still in active operation.

Between the fourth and fifth milestone on the road out of Grantham to London motorists should be wary.

The police in the Washington district on the Worthing road have started their old game. On Saturday they had a trap set on this road about a mile on the London side of the hill, and although the road then was like a sea beach, they stopped a motorist and told him that he was travelling at 28 miles per hour—an exaggerated view that should make other drivers careful.

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MOTOR-CARS IN THE UNITED KINGDOM.

As an appendix to his paper at the Sanitary Congress on Tuesday, Mr. E. Shrapnell Smith gave the following return of the number of motor-cars, motor-cycles and driving licences at Midsummer Day, 1904.

Authority.	Index Letters.	Total Cars.	Total Cycles.	Total Licences.
ENGLAND.				
County Councils :—				
Bedfordshire	B M	81	199	390
Berkshire	B L	243	214	577
Buckinghamshire	B H	146	213	493
Cambridgeshire	C E	56	145	304
Cheshire	M	273	258	858
Cornwall	A F	89	121	256
Cumberland	A O	79	155	275
Derbyshire	R	166	207	428
Devonshire	T	154	187	393
Dorset	B F	141	125	400
Durham	J	145	192	416
Essex	F	—	—	—
Gloucestershire	A D	161	187	348
Herefordshire	C J	55	79	169
Hertfordshire	A R	221	330	752
Huntingdonshire	E W	25	83	173
Isle of Ely	E B	28	70	122
Isle of Wight	D L	57	72	145
Kent	D	682	760	2,029
Lancashire	B	489	526	1,623
Leicestershire	A Y	91	157	327
Lincolnshire (Holland)	D O	34	111	174
Ditto (Kesteven)	C T	66	103	214
Ditto (Lindsey)	B E	60	124	263
London	A	3,619	2,606	8,933
Middlesex	H	603	759	2,148
Monmouthshire	A X	46	78	151
Norfolk	A H	212	189	522
Northamptonshire	B D	104	196	363
Northumberland	X	154	146	318
Nottinghamshire	A L	152	202	477
Oxfordshire	B W	85	123	253
Peterborough, Soke of	F L	14	59	112
Rutlandshire	F P	15	45	41
Salop	A W	123	121	293
Somersetshire	Y	245	304	695
Southampton (Co. of Hants)	A A	328	365	997
Staffordshire	E	211	293	831
Suffolk (East)	B J	101	101	274
Suffolk (West)	C F	74	69	185
Surrey	P	752	720	2,141
Warwickshire	A C	147	260	698
Westmorland	E C	36	91	142
Wiltshire	A M	242	241	577
Worcestershire	A B	121	166	521
Yorkshire (E. Riding)	B T	46	68	150
Yorkshire (N. Riding)	A J	101	104	225
Yorkshire (W. Riding)	C	333	405	1,282
Sussex (East)	A P	246	239	788
Sussex (West)	B P	125	182	418
		11,777	12,750	34,662
ENGLAND.				
Country Boroughs :—				
Barrow	E O	25	31	76
Bath	F B	30	59	88
Birkenhead	C M	36	50	120
Birmingham	O	432	518	885
Blackburn	C B	26	48	91
Bolton	B N	52	62	114
Bootle	E M	6	11	27
Bournemouth	E L	120	84	204
Bradford	A K	126	104	252
Brighton	C D	98	147	227
Bristol	A E	151	284	551
Burnley	C W	25	46	73
Burton-on-Trent	F A	21	37	62
Bury	E N	15	13	22
Canterbury	F N	37	40	55
Chester	F M	25	35	60
Coventry	D U	62	170	477
Croydon	B Y	160	216	430
Derby	C H	56	77	133
Devonport	D R	8	16	30
Dudley	F D	15	23	38
Exeter	F J	23	24	67
Gateshead	C N	11	17	41
Gloucester	F H	19	29	72
Grimsby	E E	23	60	83
Great Yarmouth	E X	16	21	37
Halifax	C P	39	24	82
Hanley	E H	21	34	27
Hastings	D Y	43	53	97
Huddersfield	C X	78	30	109
Ipswich	D X	44	36	104
Kingston-upon-Hull	A T	54	131	230
Leeds	U	176	182	456
Leicester	B C	72	139	295
Lincoln	F E	42	72	157
Liverpool	K	240	270	540
Manchester	N	392	322	780
Middlesbrough	D C	25	41	73
Newcastle-on-Tyne	B B	70	86	379
Newport, Mon.	D W	20	43	63
Northampton	D F	40	58	147
Norwich	C L	54	54	129
Nottingham	A U	79	148	227
Oldham	B U	27	52	94
Oxford	F C	38	110	250
Plymouth	C O	25	76	114
Portsmouth	B K	106	155	365
Preston	C K	28	74	117
Reading	D P	54	75	175
Rochdale	D K	11	19	47
Rotherham	E T	11	33	37
St. Helens	D J	22	26	110
Salford	B A	39	49	88
Sheffield	W	117	176	340
Stockport	D B	26	34	61
Southampton	C R	90	102	212
South Shields	C U	13	10	36
Sunderland	B R	54	38	129
Walsall	D H	22	51	81
Warrington	E D	31	49	63
West Bromwich	E A	8	19	34
West Ham	A N	47	171	228
West Hartlepool	E F	21	61	100
Wigan	E K	26	30	56
Wolverhampton	D A	73	80	175
*Worcester	F K	28	29	57
York	D N	26	77	146
		4,050	5,541	11,325
WALES.				
County Councils :—				
Anglesey	E Y	24	21	33
Brecknockshire	E U	26	24	56
Cardiganshire	E J	14	21	32
Carmarthenshire	B X	28	55	94
Carnarvonshire	C C	35	37	88
Denbighshire	C A	42	49	120
Flintshire	D M	29	31	78
Glamorganshire	L	131	216	404
Merionethshire	F F	13	28	47
Montgomeryshire	E P	12	32	54
Pembrokeshire	D E	19	22	61
Radnorshire	F O	10	15	15
		383	551	1,082
County Boroughs :—				
Cardiff	B O	56	118	251
Swansea	C Y	37	85	127
		93	203	378
SCOTLAND.				
County Councils :—				
Aberdeen	S A	38	69	144
Argyll	S B	19	8	32
Ayr	S D	58	53	170
Banff	S E	6	20	29
Berwick	S H	12	21	44
Bute	S J	7	4	1
Caithness	S K	7	9	13
Clackmannan	S L	11	14	36
Dumbarton	S N	44	30	130
Dumfries	S M	43	31	91
Elgin	S O	17	34	75
Fife	S P	55	68	182
Forfar	S R	33	38	156

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Authority.	Index Letters.	Total Cars.	Total Cycles.	Total Licences.
SCOTLAND, *County Council (cont.)*:				
Haddingtonshire	S S	40	13	62
Inverness	S T	16	16	43
Kincardine	S U	14	6	22
Kinross	S V	6	10	8
Kirkcudbright	S W	28	21	70
Lanarkshire	V	93	78	224
Linlithgow	S X	17	10	30
Midlothian	S Y	38	41	124
Nairn	A S	3	8	11
Orkney	B S	7	7	4
Peebles	D S	25	15	44
Perth	E S	43	64	155
Renfrew	H S	41	20	102
Ross and Cromarty	J S	12	10	22
Roxburgh	K S	27	17	54
Selkirk	L S	12	15	33
Stirling	M S	55	47	142
Sutherland	N S	7	8	13
Wigton	O S	7	15	34
Shetland	P S	2	13	1
		843	833	2,301
Registration and Licensing Burghs:—				
Aberdeen	R S	32	59	148
Dundee	T S	51	26	114
Edinburgh	S	174	119	446
Glasgow	G	195	138	398
Govan	U S	2	7	18
Greenock	V S	11	10	21
Leith	W S	17	20	37
Paisley	X S	40	28	102
Partick	Y S	8	12	51
		530	419	1,335
IRELAND.				
County Councils:—				
Antrim	I A	23	42	75
Armagh	I B	18	16	40
Carlow	I C	15	28	42
Cavan	I D	5	5	15
Clare	I E	7	13	19
Cork	I F	24	29	68
Donegal	I H	11	15	19
Down	I J	33	65	118
Co. Dublin	I K	95	148	266
Fermanagh	I L	3	14	15
Galway	I M	7	17	25
Kerry	I N	5	18	26
Kildare	I O	22	61	83
Kilkenny	I P	14	16	36
King's Co.	I R	10	22	28
Leitrim	I T	7	4	4
Limerick	I U	7	6	16
Londonderry	I W	2	10	13
Longford	I X	3	12	8
Louth	I Y	10	35	49
Mayo	I Z	10	16	20
Meath	A I	15	26	42
Monaghan	B I	2	6	7
Queen's Co.	C I	8	25	52
Roscommon	D I	4	10	6
Sligo	E I	5	6	7
Tipperary (N. Riding)	F I	6	6	19
" (S. Riding)	H I	22	17	41
Tyrone	J I	7	30	40
Waterford	K I	4	8	27
West Meath	L I	10	15	25
Wexford	M I	21	53	74
Wicklow	N I	21	33	55
		456	827	1,380
County Boroughs:—				
Belfast	O I	85	130	215
Cork	P I	11	28	39
Dublin	R I	79	192	368
Limerick	T I	7	14	26
Londonderry	U I	4	15	23
Waterford	W I	22	18	35
		208	397	706

CONVICTIONS AGAINST MOTORISTS.

Place.	Summoned for	Fine.
Bow Street (London)	Driving more than ten miles an hour in St. James' Park	40s., etc.
Dublin	Not producing licence	2s. 6d.
S.W. London	Driving to common danger	20s.
Lambeth	Endangering the public	£3.
Banbury	Driving to public danger	£5.
Tonbridge	No light at rear	5s.
Maidstone	Dangerous driving	20s.
Croydon	" "	£5*.
Heywood	No number	1s., etc.
Birkenhead	" "	5s , etc.
Newcastle-under-Lyme	Furious driving	£5.
Crawley	Driving dangerously at Bolney	£20, etc.
Hove	Not stopping when requested by the driver of a horse	40s., etc.
"	No light	2s. 6d.
Steyning	Beyond legal limit	£5 8s.
Southport	Dangerous speed	10s., etc.
Leeds	" "	£3, etc.
Altrincham	No light; furious driving and refusing to stop	£8.
Plymouth	Dangerous speed	£5.
Bristol	Furious driving	21s., etc.*
Knaresborough	Non-production of licence	10s., etc.
Blackpool	Driving beyond legal limit	40s., etc.
Maidstone	Driving motor wagon dangerously	20s., etc.
Kingston	Driving furiously	£3.*
Perth	Failing to stop when requested	£2 2s.
St. Neots	Driving to common danger	£6, etc.
Ross	Using motor-car with index mark obscured	10s., etc.
Biggleswade	Driving to common danger	£5, etc.
S.W. London	Exceeding legal speed	20s., etc.
Birmingham	Reckless driving	20s., etc.
Wilmslow	No rear light	5s., etc.
Cardiff	Dangerous speed	£10, etc.
Swansea	" "	£5, etc.
Shoreham	Beyond legal limit	£5.*
Otley	No rear light	20s., etc.
Yarmouth	Driving at dangerous speed	£1, etc.

* Notice of appeal given.

CASES DISMISSED.

ON Saturday, before the Woking Bench, summonses were brought against two motorists "for unlawfully driving a motor-car at a speed which was dangerous to the public having regard to all the circumstances of the case." One summons was issued against Captain Benett Stanford for an offence which was alleged to have been committed on the 1st July at Ripley Street, and the other was against Mr. Mendelssohn for an offence alleged to have been committed at the same place on the 17th July. Mr. Staplee Firth defended in both cases. Evidence was given by Sergeant Jarrett, supported, in Captain Benett Stanford's case, by a farm assistant, and in Mr. Mendelssohn's case by P.C. Pink. Mr. Firth submitted that there was no real evidence of actual danger in the first case, and that it was becoming a fact well established in law by the result of appeals to Quarter Sessions that there must be some substantial evidence of danger before the Court before Section 1 of the Motor Car Act could be put into force. The Bench said there was not sufficient evidence before the Court to justify a conviction against Captain Benett Stanford, and this summons was dismissed. In Mr. Mendelssohn's case the police swore that the car was driven at a speed of twenty-six miles an hour along a roadway half of which was dug up, leaving a passage way of seven feet wide for vehicles to pass along. The case was, however, dismissed.

AT Warwick, on Monday, H. J. Lee, of Coventry, was summoned by Superintendent Ravenhall for driving a motor-car in a manner dangerous to the public. Last week defendant was summoned under the regulations of the Local Government Board for driving to the common danger, and the case was dismissed on the legal objection raised by Mr. Maddocks that these regulations had not been put in by the prosecution. In the present instance defendant was summoned for the same offence under the first section of the statute, and after the evidence had been repeated Mr. Maddocks took the further objection that the case, having already been heard and determined, was *res judicata*. It was a fundamental principle of English law that a person could not be tried twice for the same offence. He quoted various authorities in support of his objection, which was allowed by the Bench.

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THE

Motor-Car Journal.

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COMMENTS.



AN important trial of motor transport took place one day last week, when the 20th Middlesex (Artists) used this means of sending their regimental stores and camp equipment down by road to Newhaven. They employed one of the Cadogan Garage and Motor Company's petrol lorries, which carried successfully over 5½ tons of stores at an average rate of seven miles per hour from London to Newhaven. This is a development of the automobile for military service that should go quickly forward, effecting, as it does, economy in time, money and labour.

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Motor Ambulances.

DURING the Motor-Car Exhibition at the Agricultural Hall, in March last, several of the members of the Metropolitan Asylums Board attended the display and conversed with makers as to the possibility of having a motor ambulance. Now we learn that at a recent meeting of the Board the Ambulance Committee reported that, in their opinion, the time had arrived when the question of adopting motor-cars for the general conveyance of patients to the managers' hospitals and elsewhere should be considered. The question of what was the most suitable form of motor was, in their opinion, one which could only be answered satisfactorily by an expert in motor-construction. They, therefore, recommended "that the Ambulance Committee be authorised to employ an expert to advise them on the question of the employment of motor traction for the Board's ambulance at a fee not exceeding twenty guineas." This was agreed to, and we hope something practical will result.

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Police Interest in the Trials.

VERY gratifying is the reception that the police of the Midlands and West are giving the light car trials to be organised by the A.C.G.B.I. Lieut.-Col. H. S. Walker, the Chief Constable of Worcestershire, has written to Mr. Basil Joy, saying that he will be "glad to do anything in my power to assist your Club in these trials, as it is by the improvement of small cars that the general public will derive the greatest benefit." If this view were generally entertained by the police authorities there would be less of the prosecution that almost amounts to persecution in many parts of the country. Evidently the pleasure of the forthcoming event will not be marred by a repetition of the ridiculous police performances on the occasion of the run to Winchester in last year's trials of the A.C.G.B.I.

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The Small Car Trials.

IT has now been decided that the motor-cars in this trial will start from Hereford on the morning of Monday, the 29th inst., and go over route 1, viz., to Worcester and back *via* Bromyard. They will also go over the same route in the evening. On Tuesday route 2 will be taken, as marked on the map and on page 493, and so on throughout the week, the last run being to Kington and on through Walton and Titley on the Saturday. There will be three hill climbs, one on Monday on the way to Worcester, viz., Frome's Hill; one on the Tuesday on the way to Ludlow, viz., Dinmore Hill, and one on the Wednesday on the return from Leominster, viz., the north side of Dinmore Hill. Each of these routes are approximately fifty miles, and the cars will have to do each journey without a stop, the award being given to the car in each class which makes the most non-stop runs.

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A Display at Cardiff.

IN connection with a horticultural show at Cardiff, an interesting motor-car display has been held. Several competitions were included in the event. Mrs. Gibbon-Brookes won the cup presented by the South Wales Motor Company for the best decorated car. The silver cup offered by the South Wales Automobile Club for the most expert driver was awarded to Mr. C. E. Evans, Mr. Graham winning the second prize, this being the gift of the Cardiff club. A locally-built motor-car was adjudged the smartest turnout on the ground, and Mr. H. M. Gregory was heralded as the most expert amateur driver, Mr. A. E. Reynolds being second. The event was a great success, and should prove a factor in popularising the motor-car in the locality.

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In Essex.

MUCH indignation has been aroused among Essex motorists by the revived activity of the police, which has found vent in the preparation of "motor traps" at Dunmow and other places through which many motor-cars pass daily. Nearer town, at Romford and some of the suburbs, unusual antipathy seems to find expression against motorists, and we would suggest that if the police of the county and those of the Metropolitan division who do duty in the district want to enforce the law they will be better engaged in looking to the drivers of market wagons and of hay carts that come lumbering along the roads at midnight. Lights are rarely carried, and in seven cases out of ten drivers are sleeping on the top of the load, the foremost horse in the slow procession being responsible as guide. Motorists out late at night in the eastern suburbs find these not only a nuisance but also a menace to their safety; and the sooner the police attend to their legitimate duties the better will it be for all concerned.

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Motor-Cars on the Roadside.

AT Ambleside, the Rev. Arthur Leigh, vicar of Rydal, was charged with obstructing the highway at Rydal by leaving a motor-car thereon for a long and unnecessary period—to wit, thirty-five minutes—on the 22nd ult. P.S. Langhorn stated the case, and said he saw the car some distance from Rydal Vicarage, by the roadside, unattended. He sounded the horn, but no one appeared. A passing gentleman said he thought the car belonged to Mr. Leigh, and he went towards the vicarage and saw Mr. Leigh, who said he had left it there while he went to lunch. The road was 22 feet wide, and the car was

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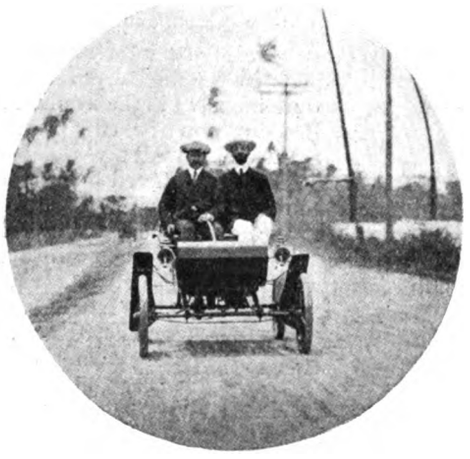
5 ft. wide. He only took the measurements by striding. The defendant said he had been accustomed to leave his car there and had not received any complaints. The car was by the road-side, on the grass part. The road was 24 ft. 8 in. wide, and there was 5 ft. 9 in. of grass part on which the car stood. There was a clear roadway of 21 ft. The Bench dismissed the case, but said the police were right in bringing the charge, one of those queer qualifications that are becoming the rule in motor-car cases.

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The Bank Holiday Traffic.

THOUSANDS of automobiles, from huge touring cars to the little motor-cycle, have been upon the roads during the last few days. Attracted by the glorious weather of the bank holiday season, their owners have come out upon the roads, and it is a remarkable fact that accidents—so freely reported and exaggerated—have been so few that even the usual crop of letters against motorists that follows a holiday has failed to appear. The distribution of wealth that is associated with motor touring must be a great factor in the prosperity of the countryside, as is indicated by the refurbishing of hotels, the establishment of repair shops, and the general revival that one sees in rural districts.

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An Oldsmobile in Hawaii.

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3s. for Knocking Down a Policeman.

OUR list of convictions against motorists every week affords material for some interesting comparisons, and a correspondent at Carlisle sends particulars of a case at Bradford where a driver was fined 3s. and costs for "endangering a policeman." The defendant was driving a horse and cart, and knocked down a policeman, who subsequently informed the magistrates that the cart was being driven at a furious rate. The defendant, instead of pulling up, drove quickly away. Had a motorist knocked a policeman down the incident would have been reported in all the papers, and a severe fine imposed. A fine of 3s. is worth contrasting with some of the fines for less harmful offences on the part of motorists.

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The Census of Cars.

DOUBTLESS some surprise will be expressed on reading the census of motor-cars which we were able to publish in the *Journal* of last week, to see that in some cases, in both Ireland and Scotland, the number of motor-cars registered exceeded the number of licences granted. These, however, need not alarm even the most nervous Parliamentary representative of some of these distant parts. In the Isle of Shetland, for instance, only one driving licence has been granted while fifteen cars have been registered, and in Donegal and Leitrim the number of cars exceeds the number of licences. In the early days of 1904, when folks were less used to Lot No. So and So, than they now are, many London motorists sent to those districts where low numbers were likely to prevail, in order to the avoid the four—it will probably soon be five—figures that new motorists will have to place upon their cars. By the way, it was rather curious to read in the Parliamentary proceedings of the day on which we went to press last week that the Local Government Board were preparing a list of the number of cars registered, and licences granted up to April 1st last for the enlightenment of legislators. Why April 1st should have been selected as the date on which to draw the line only a Government official can explain. Evidently it is the intention to keep three months behind the Press.

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Wimbledon and Motor-Cars.

WE wonder that two hundred residents in such a district as Wimbledon should have been found to sign a petition to the local council, not only complaining of motor-cars, but also asking that they should be stopped from going on the road altogether. At the last meeting of the London County Council, Mr. W. Sanders, a newly-elected alderman, tried to raise a laugh by suggesting that, owing to their perfume, motor-cars should be prohibited from the London parks, a course which the chairman of the committee that looks after the Open Spaces pointed out as impossible. Now that these wise Wimbledon residents are urging that the smell of motor-cars along their roads at nights is an evil state of things which they do not deserve leads to the reflection that it is impossible to please some people. Even if transplanted to the island of Juan Fernandez they would not be any happier than was Alexander Selkirk.

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Educating the Doctors.

IN connection with the visit of the British Medical Association to Oxford, the Oxford Cycle and Motor Car Company organised an exhibition of motor-cars, motor-cycles and accessories in the Corn Exchange and a large marquee adjoining. Several of the vehicles shown had been driven direct to the University town from the works where they were made, thus giving the medical men, who showed their interest in the display, an opportunity of judging of their reliability. Many well-known types of cars were on view, and it was made clear to the medical profession that there is no lack of choice for those who would adopt the modern means of locomotion.

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The Regulation of Motor-Wagon Traffic.

THE Main Roads Committee of the Lancashire County Council report that the recommendations of the Departmental Committee appointed to collect evidence and report upon the motor-wagon traffic include :—The gross weight and the weight unladen to be painted on the wagon; the compulsory weighing of wagons on registration in the presence of an official; the compulsory weighing of wagons when required if wagon within quarter of a mile of a weighing machine; the width of tyres to be in proportion to gross load; the speed to be in proportion to weight and not to exceed eight miles an hour; with india-rubber tyres the speed not to exceed twelve miles an hour; every motor-car and trailer above three tons to have springs. The Main Roads Committee, having in view the great amount of damage still being caused to the main roads in the county by heavily-laden motor-wagons, have urged upon the Local Government Board the desirability of issuing the proposed new regulations at the earliest possible moment, and hope that the Board will publish them before the Parliamentary recess.

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Speed in Cumberland.

THE Highways Committee of the Cumberland County Council have had before them an application from the Keswick and Millom Urban District Councils and the Cockermouth Rural District Council asking the County Council to schedule roads within their districts against motor

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traffic, and applications from the Bootle and Whitehaven Rural District Councils and the Millom Rural Parish Council requesting the County Council to establish a speed limit for motor traffic within their districts. The Committee have resolved "(a) that the applications for speed limits be adjourned for the present, pending a further trial of the provisions of the Act; (*b*) that application be made to the Local Government Board to close against motor traffic the road from the Old Toll Bar to the gate leading to Castle Hill on the Ambleside and Keswick road, and about half a mile in length; (*c*) that the application from the Cockermouth Rural District Council be deferred, pending receipt of plans, sections, and particulars."

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Some Return for Fees.

In view of the large number of automobiles which have been registered throughout the country, it would seem desirable that motorists should use their local influence in securing some return in the way of improvements in the roads for the increased revenue they have brought the county exchequers. Surrey, for instance, has received no less than £1,600 in the way of registration and licensing fees, and motorists in that county have a right to ask whether anything for their benefit has been done with the money. At the same meeting of the Surrey County Council at which these receipts were reported, it was mentioned by some opponents of the new movement that the rateable value of property along the main roads was seriously depreciating in consequence of the dust nuisance which had been created by motor-cars; but, on the other hand, some very representative house agents have declared that whilst perhaps the value of houses on the main roads may not have gone up, there has been a great rise in the value of business premises on main roads.

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Raising the Value.

In fact, the tendency of the motor-car is rather to change the character of the property on roads to some extent, and it is interesting to learn that the value of the many mansions on side avenues has gone up in consequence of the increased competition owing to people leaving main roads where business premises have become increasingly valuable, due largely to the motor-car. We have often remarked upon the revival of prosperity which has come over the great arteries of traffic, so that it is rather unfair of county councillors to urge that the motor-car has a retrograde tendency, whereas impartial investigation will prove that it is really re-acting on the general welfare.

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Motor Omnibus for Bromley.

Another development of the motor-car in the public service may shortly be expected at Bromley, in Kent, where the Borough Council has decided, on the report of a specially-formed Motor Traffic Committee, to obtain statutory powers to enable them to provide and run motor-omnibuses and other general powers in connection therewith. The outskirts of the borough are being developed for residential purposes, and the early inauguration of a motor-omnibus service should do much for the prosperity of the place. Councillor Weeks, who has been a leading advocate of the innovation, estimates that a sum of between five and six thousand pounds will be sufficient to commence the service, which can then be extended as circumstances demand.

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Motor-Car v. Railway.

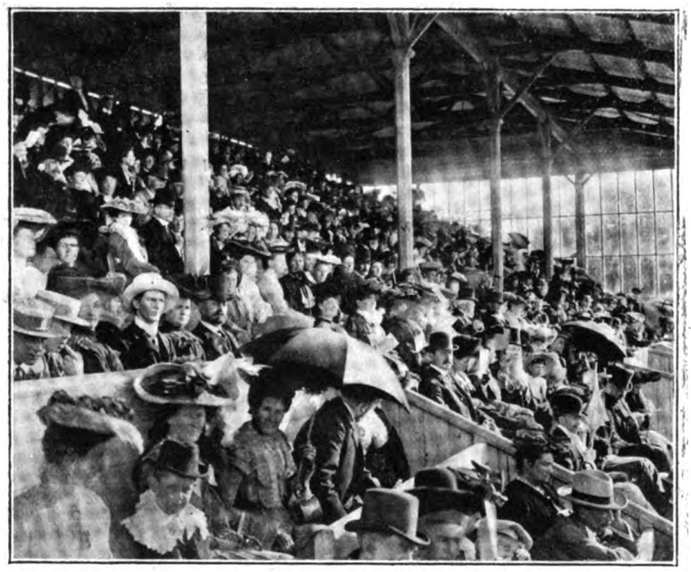
Two railway chairmen have just declared that the motor-car has had an adverse influence on their receipts from horse traffic, and now comes the news that it is doing something to lessen fares in the interest of the public. High Wycombe, which a few years ago displayed a marked hostility to automobilists, is served by the Great Western Railway, which has enjoyed such a monopoly that a return fare of 5s. 8d. from London to the chairmaking centre nas been stoutly maintained. But the Uxbridge and Harrow Railway Company had arranged, on the completion of their line as far as the former place, to run a motor-car to High Wycombe, charging a through fare of four shillings. The G.W.R. have responded by dropping their fare to three shillings, a figure which will probably destroy the motor-car's chance of success, thus killing the bird that brought the reduction, a variant of the old adage quite in keeping with this commercial age.

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Motors and Manslaughter.

Making use of two motor-car cases involving accidents which came before the courts last month as a test, the editor of the current "Monthly Review" has a sermonette with the striking title of Motors and Manslaughter. The article is more sympathetic than would appear from the title—more fit for a halfpenny horrible daily paper than a sedate half-crown magazine. The main point seems to be a recognition of the fact that the automobile is unveiling a new condition of things; that the coming of the car is altering the circumstances of life. This is a fact which must be accepted by all men. And having been accepted there remains only to construct special motor tracks whereon fast moving cars can disport themselves "all out." The idea is not new, but it is one that should not be overlooked, and although we express our displeasure with the title of the article we would endorse the conclusion at which the editor arrives.

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The Crowd at an Australian Motor Gymkhana.

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A Speed-limit Granted.

The fact that the Local Government Board have conceded to the wishes of the people of Beverley, in granting their application for the five-mile speed limit through certain streets of the town, will doubtless do something to stiffen the opposition which the automobilists of Leeds are organising to the application of the Corporation of that town for permission to limit the speed of motor-cars within a radius of two miles from the junction of Briggate and Commercial Street to ten miles an hour. We can quite understand the desire of the Corporation to bring motor-cars to a crawling pace at the point named, but to insist upon that for a two miles radius is, to those who are acquainted with the district, really absurd. We would remind the Yorkshire Club, who are taking the leading part in opposing the proposed restriction, that no such regulation has been found necessary in the City of London, where the common sense of motorists and police has been sufficient to prevent accidents without the interference of opponents whose prejudice often gets the better of their wisdom.

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THE BEXHILL MEET.

HEARTY was the welcome that the townspeople of Bexhill-on-Sea gave the motorists who entered the place at the end of last week to be in readiness for the Bank Holiday festival. The town is the only one in this country that has a motor track, which would have been more freely used but for the opposition of one of the residents some time ago. That incident can, however, be forgotten, in view of this week's reception, and of the splendid success that has characterised the Meet.

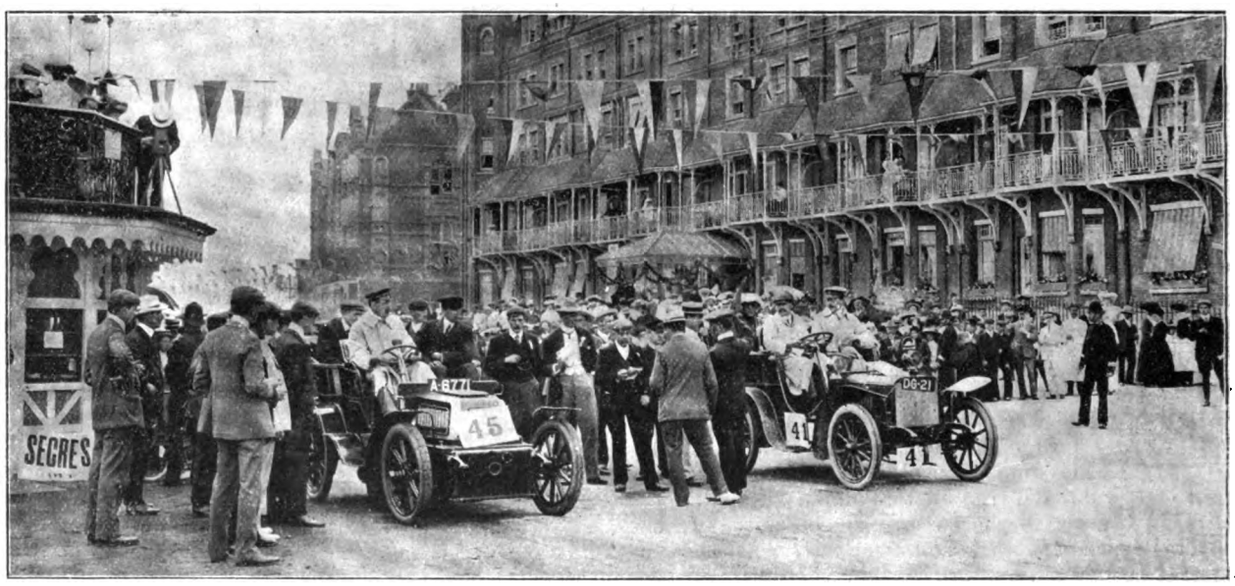
The Marine Parade was gay with bunting on Monday morning when the programme was begun, and all the hotels seemed filled with motorists. The first event was a contest of "the best-appointed motor-cars in procession, suitable costume of driver and passengers being taken into account." About sixty cars participated in this competition, assembling near the Town Hall and taking a route leading through the main streets of the town and in front of the Hotel Metropole, where the judges—the Countess de la Warr, Lady Mary Sackville, Lady Frances Hope, Mrs. Mary Bathurst, and Mrs. Stratton—reduced the number to ten. A subsequent review of this selected few resulted as follows:—

1. Mr. Walker Munro (Brockenhurst), 25-h.p. Napier.
2. Mr. Gurney Preston (Beckenham), 28-h.p. Mercedes.
3. Mr. S. F. Edge (London), 20-h.p. Napier.

After luncheon the races were held from a standing start near the Sackville Hotel, and along the kilometre course terminating in a gradient of one in ten and a-half on Galley Hill. The first race was for cars costing £200 or under, Mr. H. Sturmey's 10-h.p. Duryea, driven by Mr. E. Baker, making the best time of 1 min. 12 secs. in its heat. The competitors were divided into seven heats, and the spectacle of two cars running side by side added zest to the proceedings.



Mr. J. Lisle's 12-h.p. Star v. Mr. C. Johnson's 12-h.p. New Orleans.



Mr. H. Du Cros's 15-h.p. Ariel v. Mr. H. Hall's 15-h.p. Darracq.

Photo by] PREPARING TO START. *[Argent Archer.*

In the class for vehicles costing over £200, but not more than £400, the 14–18-h.p. Hallamshire, driven by Mr. F Churchill, proved the fastest, covering the kilometre in 1 min. 20 3-5 sec., beating a 12-h.p. light Star by one-fifth of a second, this heat proving the fastest and most exciting of the seven that were run in the class.

Class E—for cars costing over £400 and not more than £500—produced seven heats and some good times, two 15-h.p.

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Darracqs—one driven by Mr. D. S. Graves, in 1 min. 9 1-5 sec., and another by Mr. H. Hall in 1 min. 10 sec., being notable, while two others of this type also won their heats.

The largest entry came forward in the next class, for touring cars costing more than £550 and not more than £750, in which ten heats were run off, Mr. H. A. Walker on a 30-h.p. Darracq being the fastest in 1 min. 1 1-5 sec.

Then came the section for cars costing more than £750, but not more than £1,000, and here Mr. Percy Martin's 26-h.p. Daimler covered the distance in 53 4-5 sec., Mr. S. F. Edge's 20-h.p. Napier being second in 55 1-5 sec.

Six heats were necessary for the last class, this being for touring cars irrespective of price, and carrying five passengers. Here some of the times were remarkably close, the best being on Mr. A. L. Guinness's 60-h.p. Mercedes, which travelled the kilometre in 50 3-5 sec.; Mr. S. F. Edge's 20-h.p. Napier took 52 sec., beating Mr. Charles Cordingley's 60-h.p. Mercedes by 4-5 sec. Mr. S. Girling also made a good run on a 28-h.p. Wolseley.

On Tuesday morning the second and third heats were run off in glorious weather, some variety being imparted to the racing by a motor-cycle handicap, the machines being started off in quintettes. Mr. W. W. Genn was first on an Eland motor-bicycle fitted with a Minerva engine, Mr. T. H. Tessier on a Bat being second.

Considerable interest was taken in the semi-finals and finals of the various events, the ultimate results being as follows:—

Class C.—Mr. H. Sturmey's 10-h.p. Duryea (1 min. 14 1-5 sec.), 1; Mr. E. W. Lewis's 8-h.p. Rover (1 min. 40 sec.), 2.

Class D.—Mr. W. Whiteway's 14-h.p. Regal (1 min. 20 2-5 sec.), 1; Mr. J. D. Lyons' 10-h.p. Vinot-Deguingand (1 min. 27 2-5 sec.), 2.

Class E.—Mr. Hall's 15-h.p. Darracq (1 min. 11 sec.), 1; Mr. A. H. Walker's 15-h.p. Darracq (1 min. 11 1-5 sec.), 2.

Class F.—Mr. A. H. Walker's 30-h.p. Darracq (1 min. 1 3-5 sec.), 1; Earl de la Warr's 18-h.p. Daimler (1 min. 7 3-5 sec.), 2; Mr. G. Baxendale's 20-h.p. Thornycroft (1 min. 9 1-5 sec.), 3.

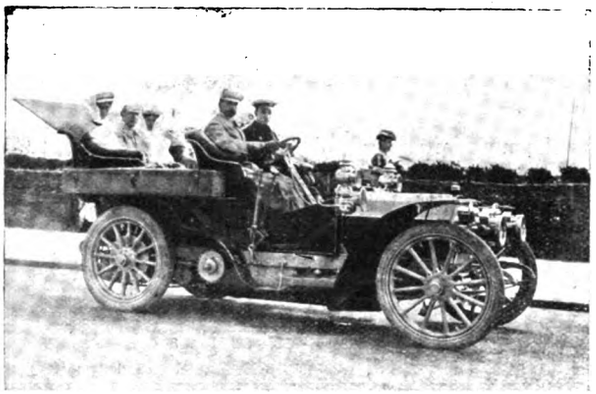
Class G.—Mr. S. F. Edge's 20-h.p. Napier (51 3-5 sec.), 1; Mr. P. Martin's 26-h.p. Daimler (52 sec.), 2; Mr. U. Stratton's 28-h.p. Daimler (53 2-5 sec.), 3.

Class H.—Mr. A. L. Guinness's 60-h.p. Mercedes (46 4-5 sec.), 1; Mr. A. Dews, 24-h.p. Bollée (59 3-5 sec.), 2.

It will be seen that the fastest time of the day was that of Mr. Guinness on his 60-h.p. Mercedes, this being equivalent to 48 miles per hour. Nearly two and a-half years ago M. Serpollet travelled over the same course, with a flying start, at the rate of fifty-two miles per hour, a speed that excited amazement. The fact that forty-eight miles was accomplished on Tuesday from a standing start occasioned far less comment than did M. Serpollet's performance—a fact which must be regarded as a tribute to the progress made by the industry in less than three years.



Mr. W. Munro's Napier.—Winner of the Competition for the Best Appointed Car.

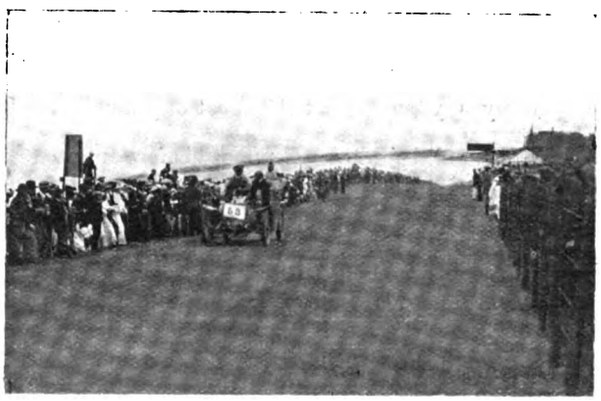


Mr. Gurney Preston on his 28-h.p. Mercedes, which took Second Prize in the Competition for the Best Appointed Car.



Mr. Culley on his 10-h.p. Ford Car.

Photos by]



Mr. A. H. Walker on his 30-h.p. Darracq.

[Mr. E. Kenealy.

On Wednesday the programme included a procession of florally decorated cars, a battle of flowers and a gymkhana, the latter bringing the series of interesting events to a successful conclusion. The proceedings were largely of a social character, preserving to the end the harmony of the week.

The organisers may be heartily congratulated on the way in which the Meet was carried through, and not only was the safety and convenience of the public adequately considered, but attention was also given to the needs of the Press. During the progress of the event several protests were made, but all were disallowed. Everything worked smoothly—starters, stewards and marshals attending closely to their duties, while the members of the various local committees were ubiquitous in their desire to make the event a success. This it certainly was, and already conversation has turned on the possibility of holding two Meets at Bexhill next year—one for touring, the other for racing cars.

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SOME USEFUL NOTES.

COMPARATIVELY few owners of motor-cars, whether they look after their vehicles personally or not, know how to keep the paint on the body in proper condition, and it is frequently, and often unnecessarily, the case that a car that has been in use only a few months acquires a dull, lustreless appearance, without any of the brilliancy which is so conspicuous and attractive on a new vehicle. This does not arise from hard usage, in a majority of instances, but simply from a lack of knowledge of the proper treatment it should receive. A really fine piece of carriage painting cannot be accomplished under several weeks, and from twelve to sixteen successive coats of fillers, colours, surfacers and varnishes are put on and rubbed down by hand and the most painstaking care exercised, especially in applying the last coats of varnish, when perfect atmospheric conditions and a certain temperature are required in order that the best results may be attained. While it is hardly to be expected that a moderate-priced car will be finished in this expensive manner, still the painting is done with considerable care and is a delicate piece of work, easily losing its beauty if not correctly treated, but retaining its brightness for a long time if it is.

ONE of the most important points to be observed is that no water should be allowed to remain on the varnish for any length of time. Wherever water has rested the varnish will be found dull and cloudy, and a spattering of water, if not removed, will leave behind it a spotted appearance. Of course the same is true of oil, only to a greater extent, and it cannot be removed too quickly.

WHEN the car is to be washed, use cold water. A hose is very convenient for this work, but avoid using too much force in the stream. The hose may be used for the rougher part of the cleaning. After this go over the varnish with a sponge and clean cold water. Avoid warm water, for it will in a very short time take all the life out of the varnish, leaving a dull, dead surface that is anything but handsome. Keep the water clean and keep the sponge constantly rinsed out, so that you will not be rubbing particles of grit over the smooth surface. Even the finest dust will do great execution if well rubbed into the varnish, and it is not necessary to say anything about the effect of grains of sand.

LUMPS of dried mud should be well soaked before an attempt is made to remove them. Though soap is sometimes used in cleaning carriage painting, painters usually regard it as injurious as well as unnecessary, and the finest carriages are as a rule simply washed with cold water. After the rough washing with the hose and the subsequent thorough removal of grit and dirt with the sponge, the water should be removed and the body rubbed with a chamois leather. The importance of getting rid of every particle of dirt in the sponging will now be appreciated, as it would attach itself to the chamois and leave its mark in the varnish. The final rubbing should be done with a clean, dry and soft chamois. Try this and you will, remarks the "Automobile," be surprised, if you have never tried it before, at the fine appearance of the paint—that is, if it has not been injured by neglect or otherwise.

EVEN with the most careful washing the varnish will, in time, lose a certain amount of its original gloss, and it then requires treatment of another sort. Get from some reliable concern what is known as varnish renovator, made especially for brightening up carriage painting, and also lay in a stock of cheesecloth. Apply a small quantity of the stuff on a piece of cheesecloth, and then take a clean piece and rub it off. The secret of this business is the rubbing. After you have rubbed for a while and the cloth gets dirty, take a clean piece and rub some more. Keep on rubbing with clean pieces of the cheesecloth until they do not become discoloured. Great care must be observed, however, in using this renovator that none of it is permitted to remain on the paint, as it will destroy it in short order. Do not attempt to polish too great an area at one time, but take it in comparatively small sections, say a panel at a time, and do it thoroughly before going to another portion. This process will improve the varnish, to some extent at least, no matter how bad it may be, but, of course, it cannot be expected to restore to its original condition a surface that has been badly injured through hard usage or neglect.

THE RELIABILITY TRIALS FOR MOTOR BOATS.

THE judges of the Reliability Trials for motor-boats, Major Lindsay Lloyd, Lt. Mansfield Cumming, and Capt. R. E. T. Dixon, with commendable promptitude have prepared their report, in which, after dealing with the number of competitors and general arrangements of the trials, they express their satisfaction at the results of the trials and at the proved reliability of the boats taking part. Only two of the sixteen starters failed to complete the twenty hours' run, five boats making complete non-stop runs.

The report proceeds with an appreciation of the good performance of the Seal and the Vosper boats using ordinary paraffin, and of the good general condition of all the boats at the termination of the twenty hours.

One of the most important recommendations of the report is dealt with at some length, viz., that of the safety of boats fitted with internal combustion engines, and the effects of this recommendation should be evident in next year's Trials.

The question of convenience of general arrangement of details is also treated of, the Napier Minor and the Maudslay boat being taken as examples of excellence in this direction.

After expressing approval of the general lines of the present trials, suggestions are made as to further points for marking in future trials, with a recommendation that further trials should be held. The report concludes by recommending the following awards:—

Class I.	—	—
Class II.	Seal Motor Company, 2½-h.p. 18ft. launch.	Gold medal.
Class III.	Vosper and Company, 12-h.p. 22 ft. launch.	Gold medal.
	Mitcham Motor Company, 6-h.p. 22 ft. launch.	Silver medal.
Class IV.	Maudslay Motor Company, 20-h.p. 25 ft. launch.	Gold medal.
	Woodnutt and Company, 10-h.p. 30 ft. launch.	Silver medal.
Class V	Mr. S. F. Edge, 55-h.p., 35 ft. launch.	Gold Medal.
Class VI.	J. I. Thornycroft and Co., 20-h.p., 30 ft. launch.	Silver medal.

The judges express their satisfaction with the admirable fashion in which Mr. Basil Joy, the Secretary, organised the Trials.

AT Westerham Hill, on Wednesday, A. A. Chase and A. E. Lowe decided a motor-bicycle hill-climbing match for £25 a side. The conditions were that each man should ascend the hill three times at half-hour intervals. Lowe, who had met with an accident a few days previously, rode with both legs bandaged. Nevertheless he made a very plucky effort, and, on the aggregate, was only beaten by 4 2-5sec.

THE Automobile Club wishes to direct the attention of the public to the worthlessness of records of non-stop runs which are not officially certified. The Club has a stringent code of rules for properly carrying out such trials, and regulations have been provided for the protection of the public. It is formulating further regulations to prevent irregular trials by unauthorised persons in the future.

GREAT interest is being taken in the cross-Channel motor-boat race from Calais, to Dover which will take place on Monday next. The final list of entries was issued officially on Wednesday. Thirty-two vessels will compete, of which seven are English, three Belgian, and the remainder French. The competing craft will be exhibited in dock at Calais on Sunday, and at half-past one on Monday will start in the race. The French Government is providing a flotilla of torpedo craft to accompany the boats to Dover, and the French Automobile Club is running one of the fast Channel steamers from Calais to Dover.

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THE RAVEL "INTENSIVE" MOTOR.

IN his new motor, M. J. Ravel, of Paris, has endeavoured to obtain a higher power within a definite bulk and weight; and hence the name "Intensive" applied to his latest production. Petrol motors of what is called the four-cycle type are, as well known, almost exclusively adopted at present. Such motors comprise, in principle, a cylinder in which moves a piston which actuates the driving-shaft, and above the upper dead-point of which is situated a chamber that contains the distributing parts and the ignition device. The operation of such a motor is as follows:—The piston being supposed to be at the end of its up-stroke, when the flywheel causes the piston to descend, a partial vacuum is formed in the rear of the latter, the admission-valve opens automatically under the action of the vacuum, and a certain quantity of explosive mixture enters the cylinder. At the end of the down-stroke, the piston again rising under the impulsion of the flywheel, the admission-valve closes, and the explosive mixture admitted is compressed into the chamber above. As the volume of the latter is less than that

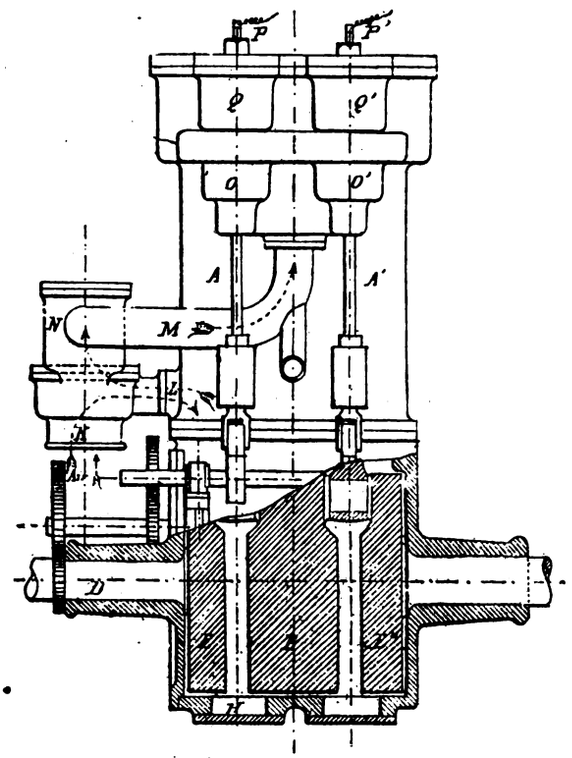


Fig. 1.—Part Sectional Elevation.

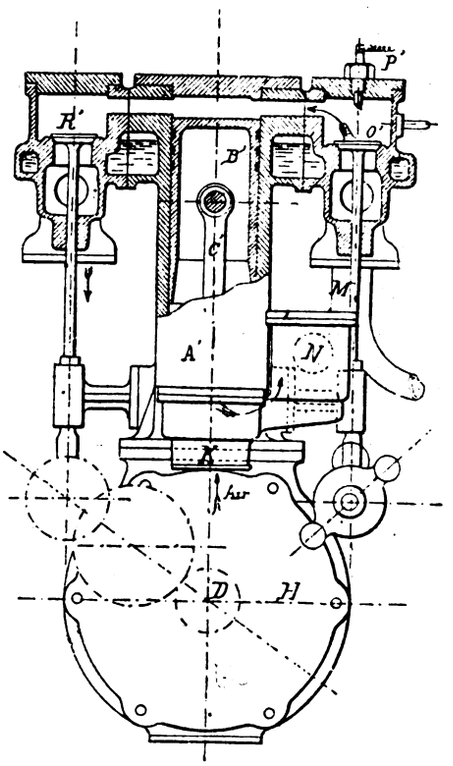


Fig. 2.—Cross Section.

of the space in the cylinder unoccupied by the piston, there results a compression of the mixture varying in degree with the ratio between the two volumes just mentioned. When the mixture is ignited in an appropriate manner in the vicinity of the upper dead-point, there ensues an explosion which develops a pressure of from 175 to 220 pounds to the square inch. The piston, upon being driven downward through such pressure, gives the flywheel a sufficiently strong impulsion to permit it to effect the other strokes, while the products of combustion expand; that is to say, lose their temperature and pressure. Just before the end of the down-stroke, a communication with the exterior being established, while the pressure is still in the vicinity of 45 pounds to the square inch, the exhaust begins, and the piston, in rising, forces to the exterior, as far as to the end of its up-stroke, the products of the combustion that has just taken place. A new admission then occurs, and so on.

It will thus be seen that if we have a free cylinder space of a definite volume, and force the mixture into a chamber of another definite volume, we shall obtain a compression of, say, from 35 to 45 pounds that will produce an explosive pressure of from 175 to 220 pounds, the expansion bringing the pressure to the neighbourhood of 45 pounds and the exhaust to that of the atmosphere. The mean pressure during the motive stroke will be practically from 65 to 75 pounds per square inch of piston surface, corresponding to a definite power for a definite velocity. Upon the whole, under fixed conditions of velocity and piston surface, of richness of the explosive mixture, and of ratio between the volume of the cylinder space and that of the compression chamber, we shall have for a given cylinder charge expanded in one cylinder a definite mean pressure corresponding to a likewise definite power.

If, then, through some arrangement or other, we succeed in having two cylinder charges instead of one, of the same explosive mixture, and compress both in one double chamber, we shall finally have a double mass of an identical explosive mixture, at the same degree of compression, giving the same explosive power; but if, instead of expanding this double mass in two cylinders, we expand it in but one, the products of combustion will begin to escape at a pressure much higher than the preceding, and the mean pressure will be increased in definite proportions, and be, practically, nearly doubled. We shall thus succeed in obtaining a power that is sensibly double, within a volume and weight that remain sensibly the same.

This is what M. Ravel claims to have succeeded in doing in his "Intensive" motor (Figs 1, 2, & 3), which consists of two vertical cylinders, *A A'*, placed side by side, and the pistons of which move at the same time. These pistons, through the connecting-rods, actuate the driving-shaft, *D*, which carries crank-discs, *E E' E''*, that act as flywheels. The whole is placed in a casing, *H*, the free space in which is reduced as much as possible by the bulk of the pieces which it contains. This casing is capable of communicating with the exterior through a butterfly-valve placed at *K*, and a conduit, *L*; and, with the compression chamber of the two cylinders, through the same conduit, *L*, and another conduit, *M*, between which is interposed a carburettor, *N*. The conduit, *M*, terminates beneath the admission-valves, *O O'*, above which are located the sparking plugs, *P P'*. The exhaust-valves are on the other side, at *R R'*. A circulation of water assures the

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cooling of the valves and cylinders, and a governor keeps the velocity within definite limits. The admission and exhaust-valves are all mechanically controlled. Let us now see how the motor operates :—One of the pistons, say B', for example, being at the end of its up-stroke during the working period, the other one, B, will be likewise at the upper dead-point; but, at the time of the admission-period, the piston, B', forced downward, will carry B along with it, and both will drive before them the air that fills the lower part of the two cylinders. At this moment, the admission-valve, O, being open, this air, passing through L and M, will enter the cylinder, A, after becoming carburetted by traversing N in part. At the lower dead-point, the exhaust will be continued in A', while the admission will cease in A. The pistons, then returning in an opposite direction, will form a vacuum; and pure air, entering through the valve, K, will flow into the casing, H, and fill the lower part of the cylinders, while the exhaust that follows an admission will finish in A', and the compression that follows an explosion will take place in A. We thus see the four cycles completed in each of the cylinders alternately, the bottom charging the top. It should be noted that the two cylinders that suck the air admit at the same time two charges of explosive mixture, which are forced into a single compression chamber of

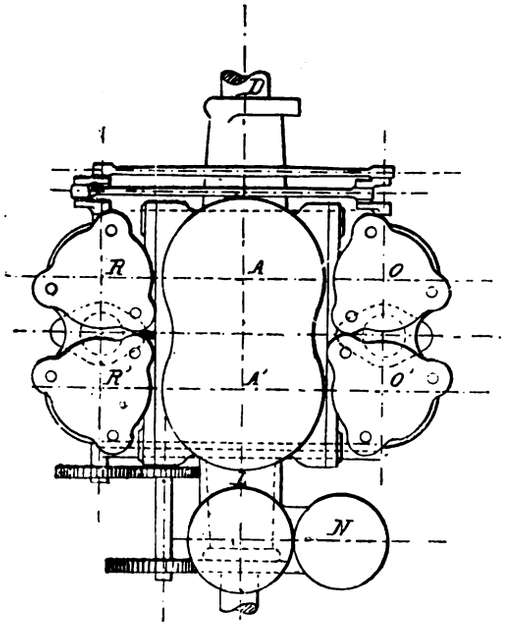


Fig. 3.—Plan.

double the volume of an ordinary one. Since the governor closes the admission-valve when the velocity becomes too great, there is less admission, and, consequently, a feebler compression, explosion and mean pressure, which re-establish the equilibrium.

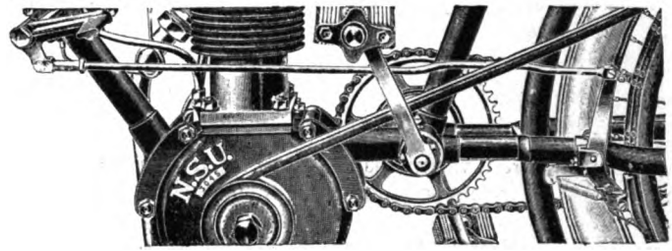
FROM Mr. D. M. Weigel, who is spending his honeymoon on a 20-h.p. Talbot car in Switzerland and Italy, comes a picture postcard from the top of St. Bernard.

MESSRS. J. W. BROOKE AND COMPANY, LIMITED, Lowestoft, in addition to building motor-cars, are now devoting considerable attention to motor-boats, and have just issued a very complete catalogue, in which full particulars are given of the Brooke craft and of the engines of the same.

THAT Messrs. Brown Brothers, Limited, have gone very deeply into the motor business is evidenced by the bulky catalogue of motor vehicles, parts and accessories, etc., which they have lately issued, and of which a copy lies before us. The list is fulla illustrated and is one of the most comprehensive works of its kind so far issued, the firm having endeavoured to include everything that is in every-day use by the trader who deals in motor materials. A number is alloted to every article, so that no difficulty is experienced in ascertaining the prices, which are given in a separate list.

MOTOR CYCLING NEWS.

FOLLOWING the example of British motor-cycle builders, the Neckarsulmer Fahrradfabrik are now devoting attention to the construction of tricars. Their latest production in this class of vehicle is provided with a powerful foot brake acting on the



outer surface of the belt pulley attached to the rear wheel. The brake is applied by the driver's left foot, and is extremely powerful; in addition, band brakes are provided in connection with the hubs of the front wheels.

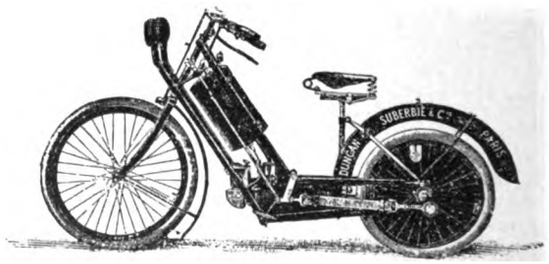
ALREADY about fifty entries have been received for the Auto-Cycle Club's reliability trials, which start on the 15th inst.

HAROLD WILLIAMSON, of Coventry, on a 3¼-h.p. Rex motor-bicycle, last week accomplished the journey from Land's End to John o' Groat's in 48 hrs. 36 min., thus beating Mill's recently-made record by two hours. Mr. J. Urry was the official timekeeper.

AT the sports meeting at Preston Park, Brighton, on Monday, as there were no entries for the three miles open motor-cycle handicap, Mr. Le Courtier made an attempt to establish a five mile motor-cycle track record. His time was 11 min. 55 secs.

INCLUDED in the sports meeting held by the St. John's Athletic Club at Tunbridge Wells on Monday was a three miles scratch open motor-cycle race. The permit granted by the Automobile Club for the event was for machines with engines not exceeding 76 in. bore by 76 in. stroke, or the equivalent volume swept out. The following were the winners. Heat 1: W. W. Genn, Wimbledon, 6 min. 14 secs. Heat 2: C. E. Bennett, Canning Town, 5 min. 58 2-5th secs. Heat 3: H. Boghurst, St. John's, 6 min. 9 4-5th secs. Heat 4: J. Perkins, jun., Leyton, 6 min. 19 2-5th secs. Final: 1, Bennett; 2, Genn; 3, Perkins. Time, 4 min. 54 2-5th secs.

THE rules of the Auto Cycle Club to be submitted at the special general meeting on the 5th inst. define its objects as (1) to administer the rules and regulations of the Automobile Club of G.B.&I. for the government of motor-cycle racing; (2) to encourage and foster the pastime of motor-cycling; (3) to provide a social club and a centre of information on motor-cycling matters; (4) to safeguard the rights and privileges of members and affiliated clubs, and to take action, where advisable, in cases where



A Motor Bicycle of 1896.

general principles affecting the rights of motor-cyclists, as a whole, are involved. Another rule provides that it shall be under the supreme control of the Automobile Club of G.B.&I., which shall have the power of veto upon any decision considered by the Committee of that Club to be detrimental to the interests of the Automobile Club or of the sport or pastime of motoring.

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MOTOR-BOAT RACING AT RYDE.

THE British International Cup for motor-boats was competed for in the Solent on Saturday last. The cup was presented for a competition among boats using any form of power, by Sir Alfred Harmsworth, in 1903, and was raced for in that year in Queenstown Harbour. There were no foreign entries which complied with the rule that the competing vessel shall be constructed wholly in every particular in the country which it represents. The race was therefore confined to English boats—one entered by Messrs. S. F. Edge, Limited, one by Messrs. Thornycroft, and one by Messrs. Wort and Beadle, and was won by Messrs. Edge. This year greater interest has been evoked in motor-boat racing, and the entries were as follows :—

Country.	Name of Competitor.	Maker of Engine.	H.P.	Length.
England	S. F. Edge, Ltd.	D. Napier & Son	55	35ft.
„	„ „	„ „	90	40ft.
„	J. E. Hutton, Ltd.	J. E. Hutton, Ltd.	150	39·95ft
„	Thornycroft & Co.	Thornycroft & Co.	120	40ft.
„	Lord Howard de Walden	——	150	40ft.
France	M. A. Clement	Clement	180	40ft.
„	M. H. Legru	Gardner-Serpollet	100	39·3ft.
„	Richard-Brasier	Richard-Brasier	82	30ft. 2¼in.
U.S.A.	Smith and Mabley	Smith & Mabley	150	39ft. 10⅞in.

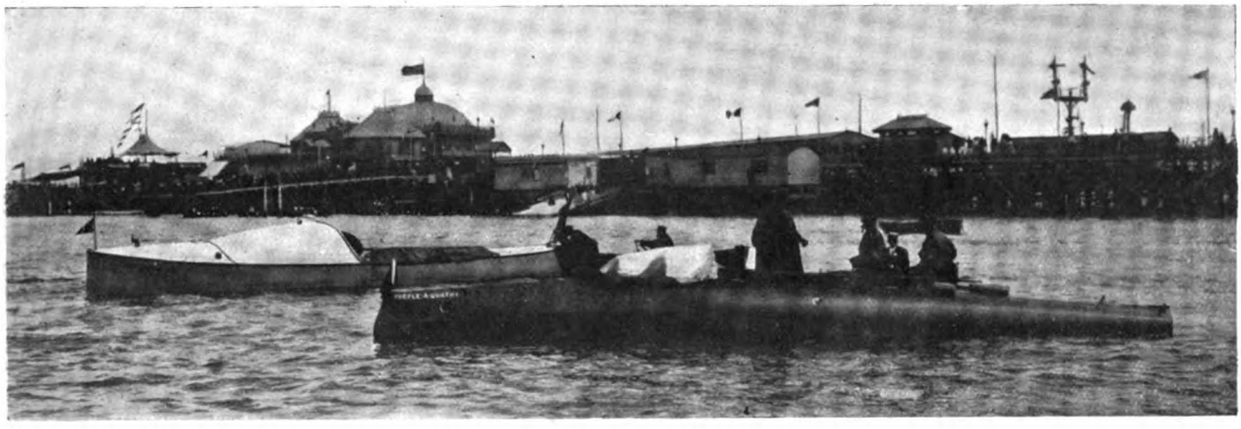


Photo by] Napier Minor and Trefle à Quatre Ready to Start for the Final. *[Stephen Crabb.*

On Friday a series of eliminating races were held to select three out of the five English competitors to represent this country in the International event. The course was from the starting line off Ryde pier, round three mark boats off Osborne and back to the pier, a total of about 7·7 knots. Owing, however, to absentees the preliminary contest cannot be described as an exciting event. The first boat to appear on the scene on Friday and to pass to the committee enclosure at the end of Ryde Pier was Mr. Edge's new boat Napier II. She came up with a fine dash, throwing spray out from her bows on each side. The first heat was to be a race between this boat and Thornycroft's, but the latter failed to put in an appearance owing to the inability to get her into racing form in time. Thus it came about that Napier II. started alone over the course. Immediately the starting gun was fired, and simultaneously with the lowering of the Blue Peter, Edge got away, and in a short time he could scarcely be distinguished owing to the spray and foam around him. As he was having a walk-over, a pace at the rate of 12 knots would have been sufficient to qualify him for taking part in the cup race, but he apparently wished to give the spectators an idea of the speed capabilities of his boat and completed the round in 27 minutes 26 seconds.

The second heat was also a walk-over, and another of Mr. Edge's boats, the Napier Minor, had it all her own way. She got round the course in 27 minutes 14 seconds. The third heat also proved a disappointment. This was to have been between the second boats (if any) in the previous races and that of Mr. J. E. Hutton. The latter did not come in at the outset, but subsequently went over the course alone. However, she did not complete the round, for after covering some 50 yards or so she came to a sudden stop and was towed back home. This left the two boats Napier Minor and Napier II., to contest the cup on behalf of Great Britain.

The international contest took place on Saturday, the competitors being favoured with magnificent weather until just before the final heat, which, at the express wish of the King, who was present on the Royal yacht, had been postponed until four o'clock, when the rain came down in torrents, and for a time almost completely obscured all but the nearest objects. The heats were brought off prompt to time, and the first one bid fair to be full of interest, the competitors being fully representative of the three countries interested. Messrs. Smith and Mabley's American boat, with its 150-h.p. engines, occupied the inside berth, Mr. Edge's Napier II. the centre, and the third was reserved for the Clement boat with engines of no less than 180-h.p. The first two boats were early in position, but the Clement only drew up on first gun-fire, and then instead of staying there went off on a little tour of its own. On getting into position again, its propeller fouled a mooring-chain. At gun-fire the Yankee boat shot away with the lead, the English boat starting slowly and going off on a course to starboard. Mr. Edge had some trouble with one of his engines, and it was three minutes before he got them both going, by which time the American boat was a mile to the good. Just before rounding the mark-boats for the return journey, however, the front engine of the American boat failed through the sparking contacts fouling, with the result that she fell back and Edge overhauled her, passed, and won by about 44 sec., in 24 min. 19 sec.

For the second heat the Serpollet steam launch failed to appear, and the English Napier Minor drove over in 23 min. 21 sec. The third heat was also a drive over, this time for the French Richard-Brasier boat Trefle-à-Quatre, which covered the course, after a false start, in 25 min. 20 sec.

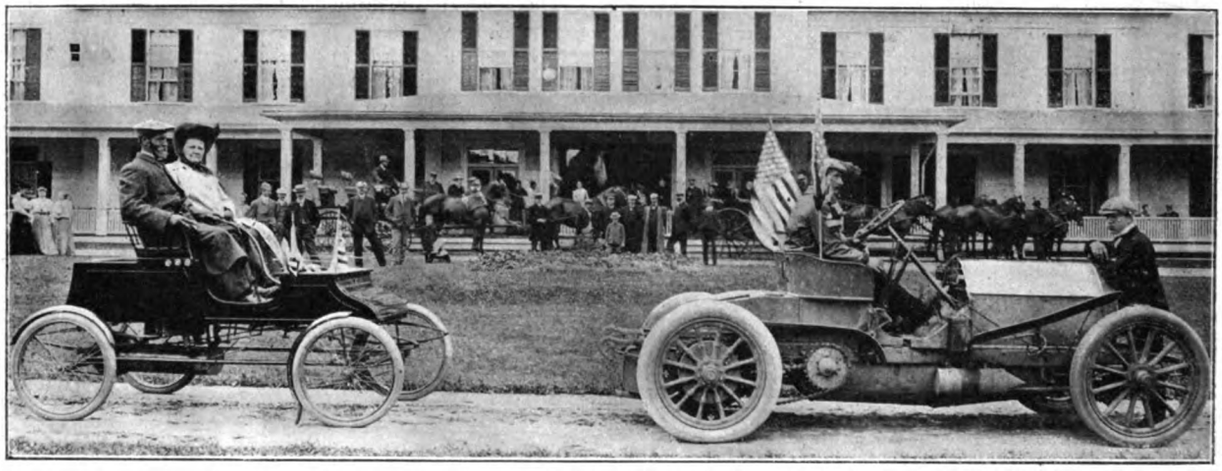
For the fourth heat the two Napier boats—the winners of the first two heats—contested together, and after a fine race Mr. Edge's boat won by 17sec., although it got away very badly. The time was 24min. 7sec. Unfortunately in the course of the race, Napier II. struck some floating obstacle, and started one of her forward plates so badly that she leaked too fast to make it safe to run her again, so Mr. Edge took the helm of Napier Minor for the final, in which he had to meet the Trefle-à-Quatre.

Shortly before four the King arrived in his yacht, and took up a position outside the other shipping and in line with the pier and mark boat, and it was arranged that the boats should finish under the bows of the Royal yacht. On the firing of the gun Napier Minor was under weigh instantly, quite two seconds before the French boat, and started with a good forty yards' lead. Hopes ran high, not to be disappointed, for when the

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competitors once more came in sight the English boat still led. She was fully a minute in advance when the Royal yacht was passed, and secured the cup for England. The Napier Minor's time was 23 min. 4 sec., as against 24 min. 27 sec. of Trefle-à-Quatre. On passing the line the two boats circled the Royal yacht, and Mr. Edge performed some striking evolutions to show the King the great control he had over her.

A protest has been entered against the winner by the owner of the Tréfle, on the ground that, having been beaten, Napier Minor was not eligible to run. The point will have to be settled by the committee, but it is not expected that the result will be upset. The contests were conducted by the Marine Motor Committee of the Automobile Club, assisted by a sub-committee appointed by the Royal Victoria Yacht Club, the judges being Major F. Lindsay Lloyd, R.E., Captain R. T. Dixon, R.E., and Lieutenant Mansfield Smith-Cumming, R.N.



The Mount Washington Hill Climb.—Mr. F. E. Stanley on his Steam Car and Mr. H. Harkness on his 60-h.p. Mercedes.

MOUNTAIN CLIMBING IN AMERICA.

[From our own Correspondent.]

SINCE annihilating time on the sands of the now world-renowned Ormond-Daytona Beach and vainly seeking new fields for glory, the motor-car has fearlessly challenged and boldly conquered Mount Washington, the "Monarch of New England," whose summit reaches an altitude of 6,292 feet.

That this feat has been accomplished by more than twenty automobiles of various types is one of the best possible proofs of the practical development and reliability of the motor-car over all kinds of roads, and under the most adverse conditions.

Where the event was held, a narrow carriage road climbs continuously 4,659 feet in a distance of eight miles—an average grade of 582 feet to the mile, or about 12 per cent., but in several places reaching 20 per cent.—where, with the many curves and sharp turns, the slightest divergence from the beaten track would hurl both driver and car over steep cliffs and precipices, hundreds of feet below. With a surface rough and uneven, broken by three hundred and fifty "water-bars," and rendered still more dangerous by the loose, rolling rocks, all the records made are remarkable, and especially those of the winners, Mr. H. Harkness, in his 60-h.p. Mercedes, in 24 min. 37 3-5 sec., and Mr. F. E. Stanley, in his 8-h.p. Stanley steam car, in 28 min. 19 3-5 sec.

Some comparisons of the time consumed in ascending by different modes of travel are interesting in this connection. On the other side of the mountain, over a route of only three miles, the famous cog-wheel railroad, the first of its kind in the world, ascends in the schedule time of 1 hour and 20 minutes, and descends in 1 hour and 15 minutes; while over the carriage road used by the motor-cars, horse-drawn vehicles average three hours and a-half in making the ascent. The first record breaking trial with horses, which established a record of 1 hour and 17 minutes, was made by Mr. Jacob Vanderbilt, brother of Commodore Vanderbilt, and Mr. Wm. Turnbull, of New York, in August, 1883. The next attempt was in September, 1884, when Mr. E. V. R. Thayer, of Boston, made a new record of 1 hour 9½ min., which has not yet been broken, although in September, 1887, it came within 17 sec. of being equalled by Dr. W. Seward Webb, a son-in-law of Mr. W. H. Vanderbilt, and Major and Mrs. W. Boelum Wetmore. Dr. Webb's horses suffered severely, one of them dying soon after reaching the summit, which caused legal measures to be taken preventing any further attempts. All these trials were made with six horses attached to a light vehicle.

Now that it has been thoroughly demonstrated that motor-cars can make the ascent at a high rate of speed, under apparently insurmountable obstacles, with improved conditions of the road any reliable machine will soon be able to drive from base to summit in 45 min., with comfort and safety, so opening up a field not only for touring through some of the most beautiful scenery imaginable, but leaving the fair valleys and passing up to an altitude where forests of spruce and fir gradually become dwarfed, until vegetation entirely cesses, save for a few hardy grasses and Alpine flowers, till, amid a desert of great loose boulders, one reaches the summit of the "Crown of the White Mountains," with its wonderful panoramic view of the hills and vales, rivers, lakes and villages, stretching from Canada far to the south, and from the Atlantic to the Adirondacks.

During the rest of the year motor-cars will not be allowed on the road, the managers desiring to limit it to the exclusive use of carriages, as coaching tours to the summit have for many years been one of the most interesting features of this part of the United States.

In case of petrol becoming accidentally ignited, it is useless to try to extinguish the flame by means of water, as the spirit will float on it and continue to burn. Dry sand is very effective as an extinguisher, and a supply should be kept constantly on hand where petrol is stored or used.

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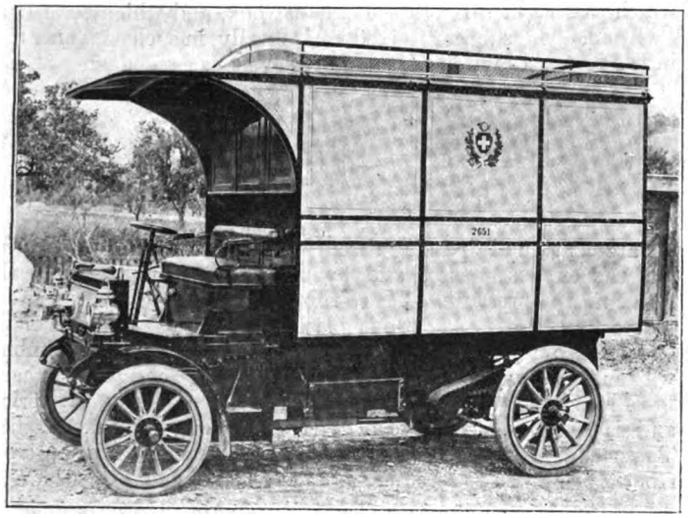
Some motorists are not sure as to the best method of effecting a good speed change. There can be no definite laying down of the law on this point, as no one car is exactly the same as another in this respect, but it may safely be said that in reducing one's speed, *i.e.*, in changing from a high gear to a lower, a better change is effected if the clutch is not completely withdrawn; just a gentle pressure on the pedal is all that is required. Care must be taken that the order of things is not reversed, as omitting to withdraw the clutch when changing from a low speed to a higher one will probably result in a broken gear.

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HERE AND THERE.

ACCORDING to the police returns there are now 294 motor-cars in Budapest.

THE "Orion" motor vehicles, for which Messrs. Moss and Woodd are British agents, are now being used by the Swiss



postal authorities. The accompanying illustration depicts one of the vans lately put in service in Zurich; it is designed to carry loads of 30 cwt.

A GARAGE to accommodate fifty motor-cars has been opened at Auckland, N.Z.

THE election of Mr. Allan H. Bright to the House of Commons adds another enthusiastic motorist to the ranks of legislators.

DURING the renovation of 119, Piccadilly, W., the Devonshire Club will extend hospitality to the members of the A.C.G.B.I.

THE Earl of Dalhousie, Viscount Baring, Viscount Enfield, Major Jameson, M.P., and Mr. Louis Sinclair, M.P., are among the last batch of candidates for election to the A.C.G.B.I.

AT the last meeting of the Cardiff Health Committee it was stated that the motor-wagons in use by the Corporation had effected a saving of £100 as compared with horse haulage.

MESSRS. LAMB BROS. AND GARNETT have issued an instructive and interesting little pamphlet entitled "Electric Ignition for Motor Cars," a copy of which they will be pleased to send to any reader of the *Journal* applying for the same.

WE regret to learn of the death of Mr. Julius Harvey, the principal of the firm of Messrs. J. Harvey and Co., which occurred on Thursday last week. The business will be transferred to Messrs. Price and Belsham, 52, Queen Victoria Street, E.C.

AMONGST the monthly journals of interest to motorists is the "Home Counties Magazine," edited by Mr. W. J. Hardy. Rambles in Surrey, historical notes on Whetstone and Reigate, and some interesting notes and queries on places in the Home Counties generally, make up a very readable current number.

A WINTON tonneau car carrying five persons, with luggage, has recently made the journey from the city of Mexico to Guadalajara. The distance is between five and six hundred miles, and in many places there is no road whatever. The car arrived in good condition and was the object of curiosity to all the natives *en route*, most of whom had never seen a motor-car before.

MR. C. L. GLIDDEN, of Boston, has offered to the American Automobile Association a cup valued at £200, which is to be known as the Glidden trophy, and to be open to the world for competition. The cup is to be awarded for the best efficiency shown by any car in an annual tour, the cars to be driven by their owners, and under such restrictions and conditions that motorists rather than manufacturers will be inclined to compete. The competition is to be in the nature of a thousand miles endurance contest, the vehicles to run one hundred miles a day for ten days.

AN application has been made to the Bridlington Town Council for a motor-car licence for street service.

MESSRS. WHITE AND POPPE, who hitherto have made a speciality of motor-cycle engines, are introducing a 7-h.p. two-cylinder motor for cars.

THE Lacre Motor Company send us a copy of a special pamphlet they have issued giving full particulars of the Lacre electric cars. It shows the cost of upkeep of these vehicles to be £175 per annum.

THE Municipal Association of Victoria are inviting representatives from each municipality to meet in conference to consider the advisability of establishing a bye-law for general adoption by the various municipal bodies concerning motor traffic.

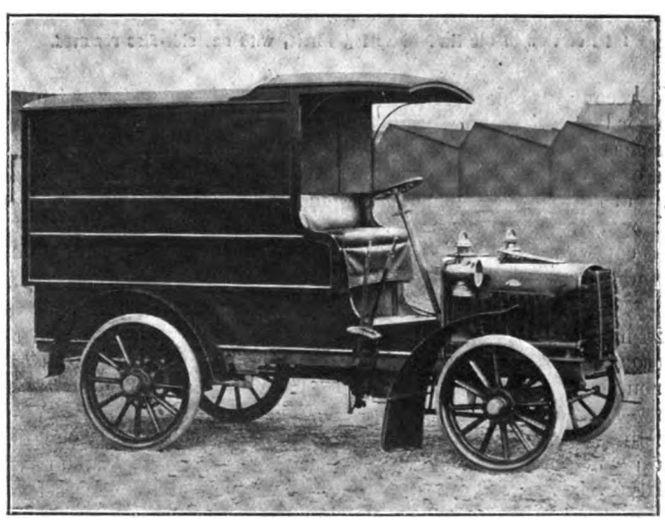
THE Dustless Roads Company, Limited, has been registered with a capital of £5,000 to carry on the business of manufacturers of and dealers in dust laying, cleansing, and disinfecting preparations, materials for binding together broken stone, gravel, sand, and the like, dealers in slag and furnace refuse, &c.

BOWEN'S ELECTRIC AND MOTOR BOATS, LIMITED, is the title of a company registered with a capital of £20,000 to acquire the freehold yacht building and electric works on Eel Pie Island, Twickenham; to adopt an agreement with Mr. K. Bowen; to construct and establish, on Eel Pie Island or elsewhere, a dock, workshops, etc., and to carry on the business of builders of and dealers in motor-boats, etc.

AT the recent Ardennes Race, Lieut.-Col. Mark Mayhew on his Napier finished in 7 hours 27 mins. 42 secs., and Mr. Andrew Fletcher, on a Mercedes in 7 hours 53 mins. These gentlemen were the first of the team representing England in the recent race, and it is worthy of note that, although many tyre troubles were recorded, neither of these gentlemen lost a single second during the whole of the race from this cause. We may add that both cars were fitted with Continentals.

IT is estimated that there are at the present time about 125 owners of motor-cars in Montreal, of whom more than half are members of the Automobile Club of Canada, formed last month. American automobiles are in great favour, but English cars are sold in a large proportion, while a few of the best known French vehicles have also been imported. The motor-cycle is not yet in great favour, but among those in use there are several of American make.

THE Ryknield Engine Company, Limited, which is now devoting attention to commercial as well as pleasure motor-vehicles, has lately completed the delivery van illustrated herewith. The



motor power is supplied by a 10-h.p. double-cylinder engine having mechanically-operated inlet valves; two forward speeds of respectively twelve and six miles per hour and a reverse are provided. The vehicle, which is fitted with a roomy van body with wide doors at the back, is designed to carry loads up to fifteen cwt.

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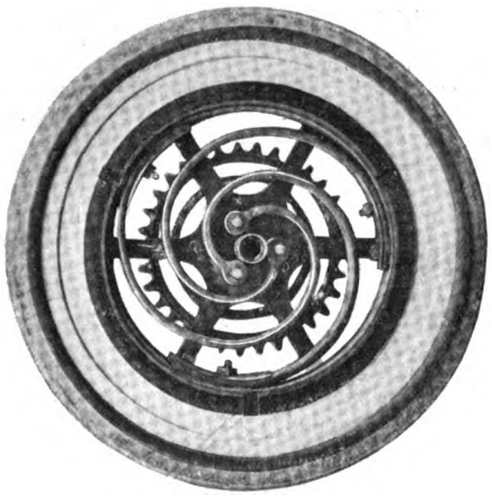
AT Teignmouth a motor-boat is proving a popular attraction to visitors.

THE man who is fearful that his car is going to give him trouble is seldom disappointed.

A NEW motor garage and repair shop has been opened at 2, Murray Street, Perth, by Mr. Buchanan Shiell. Accommodation is available for about thirty cars.

"CANN, LIMITED," is the name of a firm that has recently been formed with Mr. C. E. Cann as managing director. The company has established a new and complete plant for the construction of all kinds of motor bodies at 12 and 13, Miller Street, Camden Town, London, N.W. The premises selected are especially suitable to this business, as they are within a few minutes of the West End via Regent's Park. Mr. Cann is well known to the motor trade and to motor-car owners, as he was connected for over sixteen years with Messrs. Thrupp and Maberly, and during the last two and a half years has had control of the work of that firm.

MR. H. HALFORD has introduced a new spring wheel, the construction of which is apparent from the accompanying illustration. Three strong springs are the central feature of the invention, which is entirely free from loose parts or joints likely to cause complication. The wheels will be placed on the market by the Halford Spring Wheel Syndicate, Limited, 2, Gresham Buildings, Basinghall Street, E.C., for any make of car, whether chain or gear driven.



Interior view of the Halford Spring Wheel, with one side-disc removed.

We recently took a trip on a 7-h.p. Panhard fitted with the Halford spring wheel, and went over some very rough road surfaces with a remarkable absence of vibration. The spring drive prevented the car from jumping when the clutch was let in, and it was evident that all shock is avoided by the use of this wheel. Thus the easy riding of pneumatic tyres is imparted to a car with solid tyres, while the absence of worry on account of punctures is a substantial advantage.

MR. C. G. WRIDGWAY lately made a second attempt to run a 24-h.p. Peerless touring car 1,000 miles without stopping the motor, and again was forced to capitulate, this time because his carburettor became clogged with a bit of waste. The start from New York was made early on the 12th ult. and the New York-Boston route followed. On returning to New York on the first round it was necessary to replace the radiator, which was badly damaged, with a new one. This was done successfully, the motor running all the time, and the car was again started for Boston only forty-five minutes behind time. After running 650 miles the carburettor began to work badly and finally failed entirely, stopping the motor. The clogging was attributed to the fact that petrol had to be poured into the tank without straining, the funnel having been lost. After removing the obstruction Mr. Wridgway continued the run, finishing 1,040 miles in a total elapsed time of 66 hours 45 minutes.

THE "Lester" is the name given to a new silencer or exhaust box for petrol motors which has recently been introduced by the Lester Exhaust Box Company of Birmingham. It has been designed to obtain silent running with the minimum of back pressure. As will be seen from the illustrations, the gases enter the box without obstruction from baffle plates or internal chambers; they then issue through a number of holes in a series of tubes which pass right through the exhaust box, and which are open at each end. The silencer is fixed horizontally, in such a manner that in the forward motion of the motor-cycle or car currents of cold



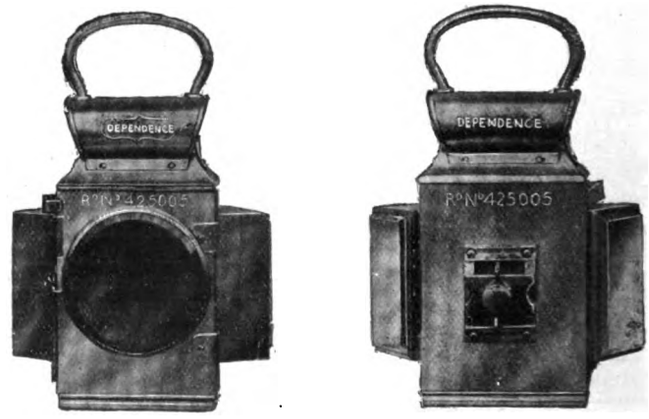
air are continually passing through the tubes, effectively clearing out the exhaust gases, and by their cooling effect materially reducing the pressure. These tubes also serve to secure the end plates together. A cut-out plate is fitted to the end of the silencer, so that free exhaust may be available for hill climbing without the noise resulting from cutting out the exhaust box altogether. This plate is kept closed by a spring, and is opened by stranded wire and ring, or thumb slide. The silencer is made in a variety of sizes and can be obtained from Messrs. J. C. Meredith, Limited, Birmingham.

THE Motor Volunteer Corps have a busy programme for the present month, duties being arranged in Essex, Hampshire, Berkshire, Suffolk, Worcestershire, and County Cork.

THE Ascot Motor Works, Limited, has been registered with a capital of £2,000 and registered offices at Windsor-road, Ascot, Berkshire.

MR. REGINALD EGERTON'S appeal case in Ipswich, which the Motor Union did not support, owing to the action of the Eastern Counties Automobile Club, which voted against giving aid, has, after all, had considerable assistance. Mr. Burton, a member of the committee of the Eastern Counties Club, got up a subscription among the members, and no less than £31 18s. 6d. was collected towards the costs of the appeal.

WE have given the "Dependence" tail lamp manufactured by Messrs. J. and R. Oldfield, Birmingham, a short trial, and find that the two side lights are a distinct advantage in allowing one to see by a turn of the head whether the lamp is alight, and also



Front and Rear Views of "Dependence" Lamp.

as a guide when backing the car. The lamp can be supplied to burn either paraffin or oil. We consider the latter gives a much more reliable light, as, owing to either excessive vibration from an old car or an inferior quality of paraffin, the light is apt to jolt out over a rough road.

MESSRS. S. BOWLEY AND SON call attention to the fact that other firms have made use of the distinguishing bright red-coloured cans as used by them since the introduction of the patent rectangular 2-gallon cans. They ask that motorists should see that every can is wired, sealed, and bears their name.

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CONTINENTAL NOTES.

More Motor Postal Services in France.

Motor-car services for the transport of the mails between Auxy-Beaune and Boiscommun-Nebelle (Loire) and between Saint Amant and Thenemille (Cher) are about to be inaugurated. Similar services are also projected between St. Leonard and Bourganeuf and between Grenade and Jeaune.

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The 1905 Gordon Bennett Race.

Following the example of the A.C.G.B.I., the Italian Automobile Club has now formally sent in a challenge for the Gordon Bennett Cup, so that there are already nine competitors for next year's event.

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Hill-Climbing at Dijon.

The hill-climbing competition up the Val-Suzon Hill, near Dijon, organised by the Bourguignon Automobile Club, was held a few days ago. The road up the hill is 2½ kils. long, the gradient in some places being as much as 8½ per cent.; it also comprises some nasty turns. In the motor-bicycle class the best time was made by M. Herson-Macaiel on a 2¾-h.p. Griffon (2 min. 55 2-5 sec.). H. Cottereau was first in the voiturette class, he climbing the hill on a 7-h.p. Cottereau in 7 min. 16 sec. Dr. Morlot on an 18-h.p. Darracq secured the premier position in the double-cylinder car class in 6 min. 29 3-5 sec. The best time of the day (2 min. 40 sec.) was made by M. Serpollet on a 9-h.p. Serpollet steam car.

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The Spa Automobile Week.

The Circuit des Ardennes over, the motorists who are just now sojourning in Belgium transferred their attentions to Spa, where, however, the weather proved somewhat unkind. The meeting should have opened on Wednesday of last week with a hill-climbing competition from Spa to Malchamps, a distance of five and a-half kilometres, but, on account of the bad state of the roads, it was postponed. In the afternoon the mile hill-climb for the Spa Cup, held by Barbaroux (Benz Parsifal), was run off, but many of the competitors decided not to start owing to the "skiddy" nature of the course. The cup was eventually won by Tart, his time for the mile, on the Panhard racer, being 1 m. 10 sec., Hautvast (Pipe) being second, in 1 m. 17 1-5 sec., and Amblard (Hotchkiss) third, in 1 m. 51 3-5 sec.

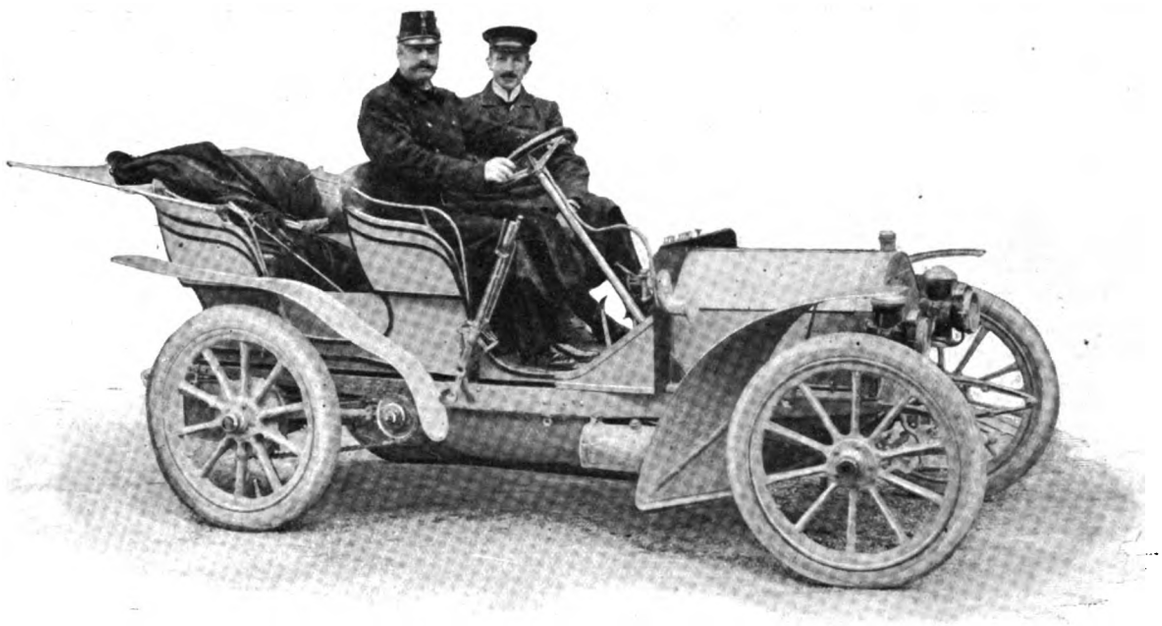
Motor-Cycle Racing in the Rain.

Thursday brought with it no improvement in the weather, but nevertheless a 100 kilometre race for motor-cycles was run off. André, on a Sarolea, was first in the motor-bicycle class, in 2 h. 15 m. 8 sec.; and Meura, on a machine of the same make, made the best time, 2 h. 27 m. 58 sec., in the heavy motor-cycle class.

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The Spa-Malchamps Hill Climb.

The hill-climbing competition was run off in the afternoon, but the event lost a good deal of its interest owing to the fact that the Panhard and Darracq racers did not compete on account of the bad weather. Hautvast (Pipe) made the best climb in the heavy car class, his time for the 5½ kilometres being 3 min. 33⅘ sec. Guders, on a Clement-Bayard, secured the first place in the light-car category; time, 4 min. 12⅗ sec. In the voiturette section Grandjean, on a Renault, was first in 12 min. 9⅖ sec.; Verschaere, on a Sarolea, secured the premier position in the heavy motor-cycle class in 6 min. 45⅖ sec.; while in the motor-bicycle category Olieslagers again rode his Minerva to victory in 4 min. 33⅗ sec. Friday's event was a 120-kilometre touring competition, which was won by Hautvast on a 15-h.p Pipe car.



The Archduke Leopold Salvator of Austria on his 18-24-h.p. Austrian Mercedes. [*Allgemeine Automobil Zeitung.*

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More Royal Converts.

The aged King of Denmark is the latest convert to automobilism, he having made a number of runs on a 24-h.p. Adler car during his recent stay in Wiesbaden. Queen Wilhelmina of Holland has also just made her automobile debut, she having lately travelled by car from her palace at Apeldoorn to Vollenhofe, a distance of 150 kilometres, to attend the wedding of one of the ladies of her suite.

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Hill Climbing in Austria.

THE Schottwein-Semmering hill climb, which is being organised by the Austrian Automobile Club, has been postponed from August 21st to September 21st.

MOTOR-CAR trips to the Lizard and Mullion have been among the attractions of Falmouth during the last few days.

THE attention of the East Sussex County Council has been drawn to the speed of motorists on the roads at Alfriston.

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CORRESPONDENCE.

HORSES v. MOTOR-CARS.

To the Editor of *The Motor-Car Journal.*

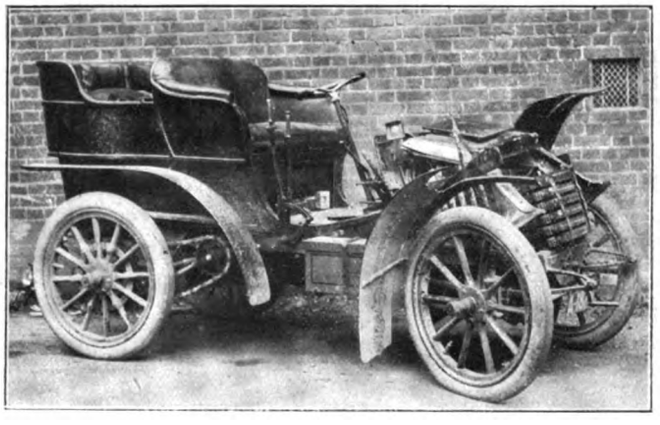
Sir,—The comparison between horses and motor-cars is never one that can be dealt with in exact terms. Horses have been used, for example, for many branches of work for which they are very poorly adapted, and from these they may be ousted by automobiles, just as they were ousted from the mail service by the railways long before the railway service was as perfect as it is to-day. Automobilism will naturally attack its utility work first at the points where horse service is weakest. Then, by slow degrees, it will enlarge its sphere, growing gradually to greater perfection by adaptation to the more and more severe tasks imposed upon it. Understanding of automobile mechanism will spread at the same time among the public; men fitted to take care of motor-cars will become more numerous and less exacting; and after a decade or two it will be found that motor-cars may be substituted for horses without subsequent disappointment, even if no other factors are considered by the purchasers than reliability and economy of the machines as machines.—Yours truly,

Moderator.

UNIVERSAL REAR LIGHTS.

To the Editor of *The Motor-Car Journal.*

Sir,—We hope, in the interests of motorists in general, you will be able to reproduce the enclosed photograph of a wrecked Panhard which we have just brought from Hounslow to repair. It is a deplorable fact that slow-moving vehicles are not forced to show a rear-light, whereas a fast-moving motor-car has to suffer a legal penalty if the rear light even blows out unseen. The accident occurred last week at midnight, with drizzling rain, and was due to a market gardener's wagon crawling along



in the centre of the road, with the driver in charge asleep or nearly so. The wagon was not seen by our client till right upon it, and of course it crashed into back of same. Fortunately, although thrown out, no one was injured. We think it is high time these slow-moving vehicles should be forced to show a rear light, and the bringing of these accidents forward in your valuable journal will, we think, tend to bring about the much-needed reform.—Yours truly,

Letzer and Jordan.

A SUGGESTION TO HOUSE BUILDERS AND ARCHITECTS.

To the Editor of *The Motor-Car Journal.*

Sir,—A big revolution will have to come about ere long in the methods of the suburban house builder. Already he has had to consider the housing of the cycle, and now it is the storage of a motor-car that requires his attention. I am not suggesting that the builder should include a *garage* in his plans, though in due time that may be done in the case of mansions, for there is no need to plant a car as far away as possible, like a horse, lest the odour of the stable reek should be wafted through the windows.

The consideration I have in view is that of the approach to one's back garden. If one looks round "villadom" generally, one finds innumerable houses behind which there is room to keep a car, and from the appearance of the dwellings themselves it may also be assumed that the means exist to acquire and maintain a horseless vehicle; but of room to drive it in and out there is often none whatever. In many cases this is not unavoidable; houses, it is true, are often built too closely together to permit of a motor-car being driven between the intervening spaces, but in the numerous examples I have in mind there might have been left ample room for the purpose if the growth of automobilism had been foreseen.

Another difficulty which may frequently be found, even where there is just width enough to drive a car in and out, is the extreme awkwardness of the approach. I can recall several cases in which, to reach the motor-shed, the car has to be driven up a slope of one in eight! To get up it with a run the driver must needs slip through his garden gates at a fair speed, with only inches of clearance on either side. The ascent is thus difficult enough, but coming back is worse. The car has to be wheeled out, and allowed to drop by gravity, with a tight hand on the side brake; and steering a car backwards in a confined space, and graduating the power of the brake application at the same time, are not the simplest of operations.

This difficulty of manœuvring a car in and out of his own domain, though it vexes the soul of the suburban automobilist, serves at first one useful purpose. The one in eight gradient may be the exception, but the narrow space and awkward corners are probably the rule, and the result is that the owner, on acquiring his first car, soon of necessity learns how to use his reverse, and how to shave between gate-posts without a splitting of his splash-guards. These accomplishments being learned at home, and at the very outset of his driving career, reduce the possibility of trouble in actual traffic; but once he has become dexterous he will naturally continue to lament the inconvenience he suffer every time he takes the car out of its shed. And this brings me back to the point; the suburban builder, in his future operations, may reasonably be invited to consider the requirements of that rapidly-growing class, the owners of motor-cars, for they are by no means going to b merely the men who live in mansions, nor even those who keep a carriag —Yours truly,

Up-to-Date.

TYRE QUERIES.

To the Editor of *The Motor-Car Journal.*

Sir,—I should be obliged if you or some of your readers could inform me as to the way to determine the size of a tyre. I have a 3½-h.p. De Dion, and I want to get a new tyre for one of the wheels; the old tyres are Dunlop and are not marked save for a 3½ marked in a circle. The rims are 22 in. diam. (cycle type). When you talk of a 28 or 30 in. wheel or tyre, where are the measurements taken from, and what does a 28 x 3½ or 700 x 90 mean?

Frank W. S. Hodson.

GOGGLES.

To the Editor of *The Motor-Car Journal.*

Sir,—Much has been heard of late of the influence of automobilism on the eyesight, and alarmist reports have been freely circulated as to the bad effect of motoring on the eyes. Dr. Trousseau, a leading French eye specialist, declares that a person with sound eyes cannot suffer from a trip on a motor-car, unless, of course, some foreign substance, such as dust or grit, is admitted to irritate the eyelids. Hence he recommends the use of goggles when on dusty roads in windy weather. But there is now such a variety of styles of goggles that the choice is not an easy one. Dust will penetrate through the most minute aperture. It is therefore necessary that the lining of the goggles should fit the contour of the eye-sockets. After buying the goggles, the lining should be worked over, re-cut, and re-pressed, if necessary, to obtain a regular and close fit. Linings of very pliable skin are frequently used, as they absorb no moisture, and are less liable to deteriorate than those of taffeta. The rims of the goggles should be as light as possible, and should adapt themselves to the form of the face, especially to the curve of the nose. Many opticians are making goggles, but few are adequately studying the subject, and there is room for many new shapes and styles in addition to those already on the market.

T. J. Dickinson.

WEAK POINTS IN CARS.

To the Editor of *The Motor-Car Journal.*

Sir,—Though we sometimes see descriptions of cars in which weak points are absent, such desirable vehicles are rarely to be met with in a material form, and the lines on which a large proportion of the advance made during the past few years has proceeded consist in the suitable and convenient location of such parts as must "go" under continuous wear or abnormal strain. The coming of the pneumatic tyre, the weak point *par excellence* of the modern car, is chiefly due to its being a preferable victim to road inequalities rather than that wheels, springs, or machinery should suffer, and its eminent suitability for roadside repair.

Two mishaps to a car which recently came under my notice are a good illustration of the advantage of having weak points in convenient places. The car was one in which the application of the foot-brake did not disconnect the engine, and a sudden stoppage to avoid a collision resulted in the shearing of a rather weak key connecting the engine shaft with the gear—no very troublesome repair, which was made apparently with a stronger key to avoid a repetition of the mishap. Shortly afterwards, similar circumstances, same neglect to ungear; result, a badly-stripped driving sprocket. Of course, neither need have occurred, and neither reflected on the car, but it is certainly preferable that the part to give way, even with careless driving, should be an easy one to replace. In another case, a pump firmly connected to the driving shaft broke one of its gear-cogs, and, of course, was jammed to destruction; while in another car I recently saw, the connection, also a direct one, avoiding the trouble of friction wheels, etc., was made by a simple wire

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staple, which, though amply strong enough to drive, would certainly give way and save the pump in case of its jamming. The worst point about gear-driven live axles is that the bevel gear, usually the first part to "go," is an inconvenient and expensive replacement; one might almost suggest that weakness in the shaft or its universal joints would be preferable; while in such minor matters as studs, a weak centre that would avoid the necessity of drilling out if broken commends itself as a minor consideration in building a "fool-proof" car.

AMATEUR MECHANIC.

ELECTRIC CIGAR AND PIPE LIGHTER.—Replying to several correspondents, the electric cigar and pipe lighter referred to in our last issue can be obtained from Messrs. L. A. Beckett, Limited, 31-32, King William Street, E.C.

"HOLTITE."—A reader enquires as to where "Holtite" jointing material can be obtained.

THE BLACKHEATH CLUB.—The secretary of the Blackheath and District Automobile Club is Mr. A. Roberts, Madgelands, Beaconsfield Road, Blackheath, S.E.

THE SUN RISING HILL CLIMB.—The Garrard Manufacturing Company, Limited, write with reference to our report of this competition that the horse-power of their suspended tricar is 5 at 1,500 revolutions. The time of the Napier driven by Mr. S. F. Edge should have been given as 4 min. 48⅘ sec.

BEXHILL.—The Anglo-American Motor-Car Company write to say that the Cadillac car which was entered for the Bexhill speed trials did not compete, owing to the fact that it did not arrive from the States in time for the competition, and on this account the company's entry was withdrawn. The Cadillac car which did compete was one privately owned and entered.

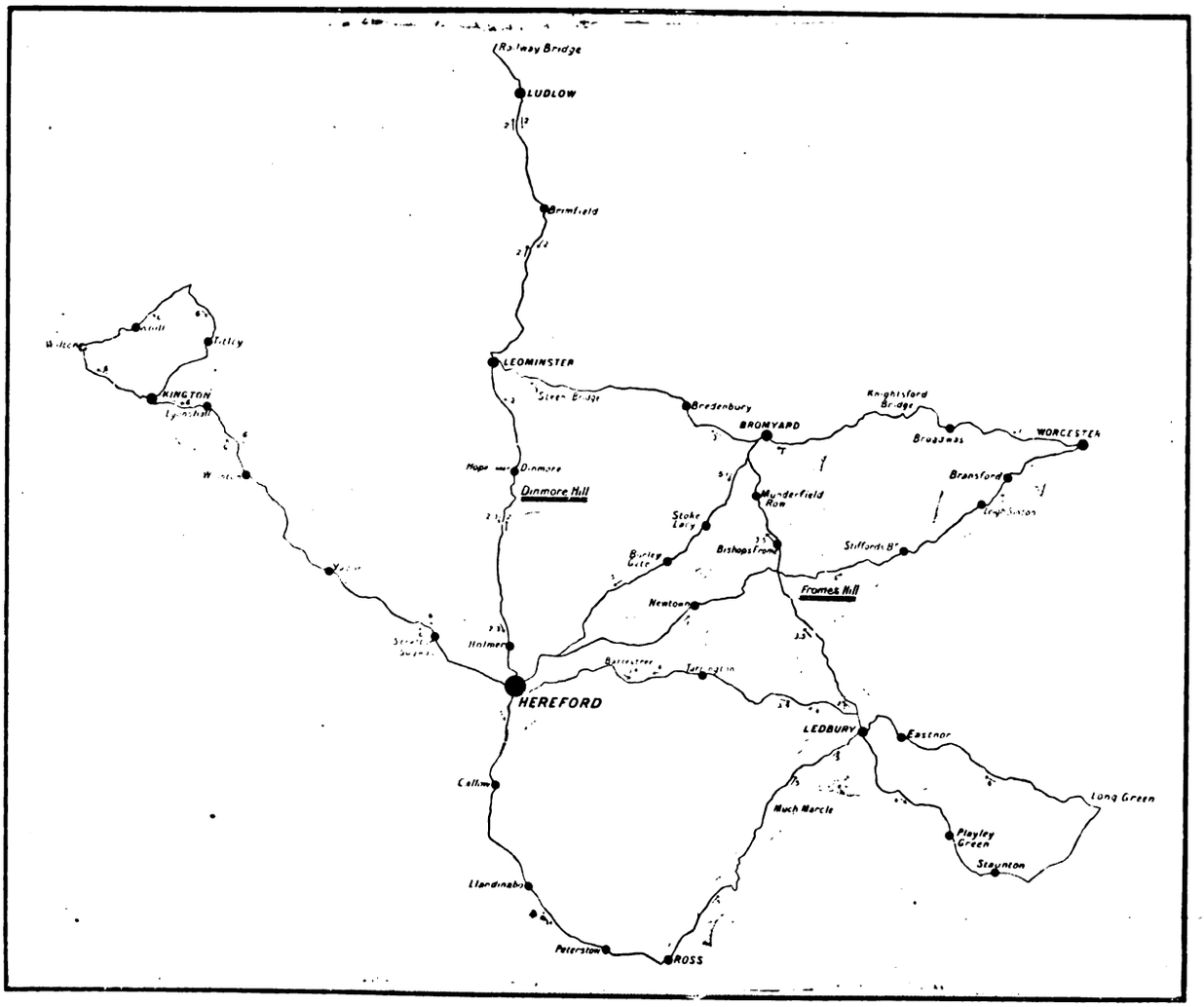
MOTORING IN THE PARKS.

AT the Marylebone Police Court, Mr. Denman was called upon to decide a case of some importance. Henry Rose, of 10, Speedhurst Road, Chiswick, was summoned by the police for riding a motor-cycle in the Inner Circle, Regent's Park, contrary to the regulations of the Commissioners of Public Works and Buildings, and also for failing to produce his licence on demand while driving in the Inner Circle, a public place.

Mr. J. F. Mortimer, barrister, appeared for the defence at the instance of the Motor Union, and submitted that the Commissioners had no power to prohibit, but only to limit, the admission of "cycles mechanically propelled" to the Inner Circle, and that under the new Motor Car Act no power was reserved to them to make fresh regulations in regard to such cycles. He also submitted that since the defendant was prohibited from using the Inner Circle with his motor-cycle, it not being a public highway, he was not bound to produce his licence.

Mr. Denman, in giving his decision, said the regulations did not totally prohibit the use of motor-cycles in the park, but only in a certain portion known as the Inner Circle; and such a regulation was within the powers of the Commissioners. They were also empowered to regulate the park in the interest of the public, and he did not see, therefore, why they should not be allowed to prohibit cycles mechanically propelled from being used in any particular portion of the park. Finally, he found that the defendant ought to have produced his licence, as he was using a highway to which the public had access. In view, however, of the fact that these were the first summonses of the kind that had been taken out, and that this was practically a test case, he merely imposed a nominal penalty of 5s. with 2s. costs, on each summons, in the hope that the case would be taken as a sufficient guide for the future.

Mr. Mortimer intimated that he might have to ask for a case to be stated on the points raised.



Map of Routes for the Automobile Club's 1904 Reliability Trials. (See page 479.)

A SUMMONS AMENDED.

AT the Bristol Police Court, Percy Ogden was summoned for recklessly driving a motor-car. Mr. Wise (from the Town Clerk's office) appeared to prosecute, and Mr. F. E. Weatherly was for the defence. The latter pointed out that, according to the manner in which the summons was drawn up, three offences were alleged—viz., driving recklessly, driving at a speed dangerous to the public, and driving in a manner dangerous to the public. He contended, however, that there could only be one charge in one summons. Mr. Wise replied that he proposed to proceed on the charge of driving at a speed dangerous to the public, and the summons was amended accordingly.

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CLUBS AND ASSOCIATIONS.

GLOUCESTERSHIRE.

On Saturday last, at the invitation of one of its members, Mr. J. H. Hewitt, the Gloucestershire club met at this gentleman's seat, Maugersbury Manor, near Stow-on-the-Wold. Several members had intimated their inability to be present owing to the commencement of the holidays and other engagements. A good attendance would, however, have been ensured had the weather been at all propitious. The previous day had been hopelessly wet, discouraging those with good intentions for the morrow, and Saturday morning broke with bursting clouds and a falling barometer. Soon after four o'clock the first car arrived, and the occupants were met at the entrance by their genial host and Miss Hewitt. The period before tea was occupied in pleasant conversation, while members admired the exterior of the picturesque old Cotswold mansion, and the well-kept lawns and arboricultural beauties. The house possesses some excellent old oak panelling and carving, which was noticed with much interest by some of the members. In the drawing-room members noticed pictures from the brush of the late Frederick Goodall, R.A., which were of added interest in that the morning papers had announced his death. At such meetings, when attended by either large or small numbers, examination of the cars is an important item on the programme. The host's most serviceable De Dietrich car came in for inspection, as did also a member's Trimo, which had developed locomotor ataxy owing to a broken exhaust valve mechanism. During the visit the Stow Rifle Band discoursed sweet music on the lawn in front of



Capt. Cole, J.P., winner of the Lincolnshire Club's Driving Competition at Asgarby. Dr. Cragg, the Hon. Sec. is sitting on his left. The lady and gentleman standing by the car are Mr. and Mrs. George Godson, who entertained the Club.

the house. After bidding adieu to their host and hostess, with many expressions of appreciation, the members commenced the homeward journey. Some six miles out of Stow-on-the-Wold a member's car, with a party of four, was found resting at a roadside inn, having been victims of side-slip, mud, and rain.

KENT.

At a committee meeting of the Kent Automobile Club held on the 20th ult., Mr. Granville M. Kenyon, of Wycliffe Lodge, Bromley Park, was appointed honorary secretary and treasurer of the club in the place of Dr. Dowding. Mr. Kenyon will be pleased to hear from gentlemen desirous to become members. The Kent Automobile Club is affiliated to the A.C.G.B.I.

LINCOLNSHIRE.

Driving Competition at Asgarby.

On Thursday afternoon of last week Mr. and Mrs. George Godson entertained the members of the Lincolnshire Automobile Club to a motor meet at their picturesque residence, Asgarby Hall. Upwards of a hundred motorists and their friends attended. Cars were present from all parts of the county, including the 15-h.p. Panhard Limousine belonging to Mrs. A. C. Moreing, of Riseholm Hall, Lincoln; Mr. C. W. Pennell's (Lincoln), 16-h.p. Martini; Mr. A. A. Padley's (Market Rasen), 10-h.p. De Dion; Mr. C. Linnell's (Market Deeping), 12-h.p. Wolseley; and Major Goddard's (Lincoln) 12-h.p. Richardson. Mr R. M. Wright (Lincoln) was on a 12-h.p. Richard-Brasier (1904 type). In connection with the event Mr. Godson arranged a driving competition, and this took place in the evening. The conditions of the contest were that the competitors should start from a motor-house on Mr. Godson's premises and make an outward run of about a quarter of a mile, negotiating four twists and a turn on the way, in addition to climbing a short hill—with a gradient of 1 in 6—just before reaching the turning-point. The chief difficulty of the competition was experienced on getting back to the starting place, where it was necessary to reverse and steer the car backwards into the motor-house. This was not easy of negotiation. The narrowness of the road and the stiff rise to the entrance occasioned trouble, and some of the cars lost a good deal of time by having to make several movements—forward and reverse—before getting their cars home, and fulfilling the conditions of the competition. The following times were recorded :—

	Min.	Sec.
Capt. J. A. Cole (Roxholm), 12-h.p. Durkopp	3	1½
Mr. R. M. Wright (Lincoln), 8-h.p. De Dion	3	5
Mr. C. W. Pennell (Lincoln), 16-h.p. Martini	3	30
Mr. Holland, Jun. (Boston), 8-h.p. Peugeot	3	32
Mr. W. A. Tomlinson (Sleaford) 5-h.p. Bardon	5	30

The times were taken by Mr. Casswell (Boston), and Dr. E. H. Cragg (Billingborough), the club secretary, officiated as starter.

TRACK RACING IN AMERICA.

The fourth automobile race meet on the Empire City track, at Yonkers, N.Y., on Saturday, the 16th ult., was interrupted by a heavy storm before half of the events on the programme had been run. The meet was well attended, both the grand stand and the clubhouse being crowded. The first event was a ten-mile open race for cars weighing from 881 to 1,432 lbs., of any motive power. Of the seven entries, five started and only three finished the ten miles. The starters were a 40-h.p. Decauville, a 10-h.p. Franklin, a 30-h.p. Renault, a 30-h.p. Christie, and a 20-h.p. Mercedes. This event was won by Mr. W. Gould Brokaw's Renault, driven by M. G. Bernin, the time, 10 min. 13 2-5 sec., being claimed as a new record for light cars. All the intermediate miles, from one up, were also made in record time.

In the fifteen-mile free-for-all race for cars of any motive power weighing from 1,432 to 2,204 lbs. only three cars lined up, viz., a 60-h.p. Mercedes belonging to Mr. A. G. Vanderbilt, and driven by Paul Sartori; a 40-h.p. Decauville belonging to and driven by Mr. G. Vaughn, and a 60-h.p. Mercedes belonging to Mr. Geo. Arents, jun., and driven by Carl Mensel. Sartori got away quickest, and continually increased his lead, completing the whole fifteen miles in 14 min. 40 sec.

At this point a heavy downpour converted the track into a river of mud, and it was decided that the other races should be postponed until the following Monday, when the unfinished events were duly run off. The first was the final heat of the fifteen-mile open race, which was won by Mr. A. G. Vanderbilt's 60-h.p. Mercedes, driven by Mr. Sartori. Time, 14 min. 44 2-5 sec. Sartori continued, after completing the fifteen miles, and established new records from sixteen to twenty miles, inclusive, the time for twenty miles being 19 min. 37 1-5 sec.

The next event was a handicap race, which furnished some interesting finishes. Vanderbilt's Mercedes started on scratch, and the greatest time allowance was accorded to Mr. A. E. Morrison's 24-h.p. Peerless, viz., 1 min. 40 sec., this car being the first in the final heat. In this race Vanderbilt's Mercedes was disabled and had to be towed off the track. It appears that the driver had neglected to fill the radiator, and the engine overheated to such a degree that the two forward cylinders burst.

TROUBLES OF A MOTORIST.

The Protector Lamp and Lighting Company, Limited, of Eccles, were sued at Birmingham Assizes on Saturday by Mr. Charles Kitchen, of Penns, for £98 12s., the price of a motor-car. In the alternative he claimed damages for breach of warranty. The plaintiff, it was stated, was attracted by the appearance of one of the defendants' cars, and on the assurance that it would carry himself and wife "uphill, downhill, or anywhere" he gave an order for one. He paid £20 on account, and visited Eccles while the car was awaiting the finishing touches. He was driven on it through the streets of Manchester, and there the first casualty occurred, a collision with a cart damaging the vehicle. The car was delivered in December, the balance of the purchase-price having been paid previously. One of the company's employees, who journeyed to Birmingham to instruct the plaintiff in driving, took him on a trial trip to Coventry, and on the way, according to the plaintiff's evidence, a delay of nearly two hours occurred through a cotter-pin coming out of the valve. Afterwards they went "jiggety-jogging" to Coventry. On the return journey a difficulty with the sparking plug brought them to a standstill, and altogether the trip was no enjoyable. After the instructor had left for Manchester the plaintiff's first experience of his new car was that it refused to carry him home, and he had to get out and push it. He complained to the defendants, and the car was taken back to the works. For the defence, evidence was given that the behaviour of the car had been misrepresented. The troubles which arose were only of a minor character, and such as were common on trial trips. On being returned to the works the car was found to be in good running order. The jury found a verdict for the plaintiff, and awarded him £50 damages.

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MOTOR VEHICLES IN RELATION TO MUNICIPAL SERVICE.*

By E. Shrapnell Smith.

Evidence of the rapid growth of automobilism is to be found in the number of registrations under the provisions of the 1903 Act. There are 212 registering authorities for the United Kingdom, to whom, on June 18th, I sent a circular letter and form. It is interesting to observe that official records show the most sanguine calculations to be largely below the actual numbers, viz., 18,340 cars and 21,521 cycles, for the fourth week in June The figures for the county of Essex only, of the whole 212 registering authorities, are wanting. These figures do not include manufacturers or dealers, who use general identification marks, which cover more than one car each. In London alone, for example, there are 270 such registrations. The total number of driving licences is 53,169 to the same date. The interval of one month has, of course, allowed of all-round additions to these figures. I have made inquiry in certain cases and computed the actual position to-day at 20,076 cars, 22,916 cycles, and 58,000 driving licences.

The Dust Problem.

The dust problem is, admittedly, one for every user of the highway, but it should be the pre-eminent concern of the municipal or county surveyor. The country to-day looks for salvation to the Highway Authorities in this matter, and, above all, to their executive officers. The cure for this really intolerable disturbance of road detritus lies neither in the extermination of automobilists nor in the imposition of ridiculous speed limits. The remedy appears to lie in the gradual laying of metal that has been steeped in tar or other similar liquid, with proper consolidation and limited binding matter. The use of surface treatment can be urged as an adjunct or expedient only and not as the final solution *per se*. This aspect of highway maintenance—the reduction of the dust nuisance—affects the county and urban surveyor more than the municipal engineer. Prevention is better than cure, hence the growing conviction that the construction of dustless roads must form an important branch of work for the municipal, urban, or county engineer and surveyor.

Motors for use in municipal work, as distinct from the general use of motors by members of the public, will require consideration by more than one committee. Not a few authorities have seen a return for the outlay on the purchase of a light car for their surveyor or engineer. The motor provides a ready means of inspecting outside work, particularly in urban and county areas, and such freedom of locomotion saves both time and money by enabling the officer to supervise in person without curtailment of his indoor hours or administrative work. A number of public bodies are now alive to the wisdom of facilitating the work of their engineers by the provision of a motor. In several cases the bicycle has given way to the motor-bicycle, and that in turn place to the motor-car. A good two-cylinder car to seat four can be bought for £300, and the running cost, with a youth at £1 a week, should not exceed £150 a year for an average distance of 180 miles per week. The advantage of a four-seated car is that members of committee can make inspections, as is so often necessary, with the minimum loss of time, and the tonneau can be removed for other purposes if desired.

I shall pass over the application of motor-power wagons in tackling overhead electric equipment, likewise the use of motors in fire brigade work, and before taking the main subject shall refer to motor-omnibus services. The first consideration is that, compared with electric traction on rails by the trolley system, a service of motor-'buses necessitates one-sixth of the capital expenditure. Æsthetic views may also carry weight at times, for some towns resent the laying of rails and the use of overhead wires. The largest experience has been gained at Eastbourne. The greatest expense has invariably been in replacing rubber tyres, which are essential to comfort for passenger services. This item has reached 8d. per car mile—in some cases—but improvements in manufacture, and in the methods of securing the tyre to the rim, have now reduced this by three-fourths. The cost per car mile, inclusive of depot expenses, repairs, depreciation, driver, stores, sundries, and supervision, will vary from 8d. to 9d. for a sixteen-passenger 'bus, and will be under one shilling for a double-decker. where a sufficient number of 'buses are run to reduce the incidence of management. The increase in width to 7 ft. 6 in., and the higher speed of 12 miles an hour, which are permissible under the new regulations, render the prospects of the motor-omnibus particularly attractive both for complete services and for feeder purposes. Where the traffic stops are numerous, as in London, a hydraulic variable speed gear, with an infinity of ratios between the extremes instead of the usual three or four steps, is of value with the internal combustion engine, which is in greater vogue than steam for this work.

The majority of vehicles built since January 1st, 1900, have been above the tare of 3 tons unladen. Such vehicles have, in point of fact, been on the streets, as light locomotives, entirely on sufferance, though no action has been pressed on the score of weight, on account of the lack of clear definition in the Act. Separate returns furnished by 195 of the 212 registering authorities show a total of 843 motor-cars "above 2 tons unladen," all of which may be regarded as goods vehicles, and at least 90 per cent. as steam-propelled. There are, after making a careful estimate for the remaining seventeen authorities, about 950 heavy motor vehicles in the United Kingdom. The total number of public passenger service vehicles is returned at 332 by 190 authorities, which yields an approximate total of 470 in the United Kingdom after proportionate correction. These cars vary from six to thirty-six in seating capacity. Both sets of figures are computed to date, and this is a solid argument to advance in support of the purchase of motors for heavy transport, as soon as the new regulations appear, because it means that a buyer now places his feet on the heads of so many pioneers who have gone before.

I inquired of the borough engineers of 216 principal authorities, by circular letter and form dated June 15th, as to the use they are making of heavy motor vehicles. It is evident that the principal economies are found to be effected in the cartage of heavy materials, and in street watering, and that dust or refuse disposal is doubtful, unless there is a long lead to the tip or destructor. The general experience appears to confirm the accepted commercial figure of £7 10s. per week as the inclusive working cost of a motor wagon, when the mileage does not exceed 220 and single shifts are worked, It is for each authority to say whether they can replace present expenditure to that extent or more by the adoption of motor haulage. If not, they have nothing to gain by the change, The future of the heavier vehicles is assured now that we are to have a larger tare, which will enable constructors to build with sufficient power, strength and wheel dimensions. It is to be hoped that those who have been sacrificed in the earlier stages will find some recompense.



If Dick Turpin came to Life Again.

*From a paper read before the Conference of Municipal and County Engineers, in connection with the twenty-second Congress of the Sanitary Institute, on Tuesday, July 26th, 1904, at Glasgow.

REDUCTION OF A PENALTY.

At the Liverpool City Sessions, Archibald Ford appealed against a conviction and a fine of £20 inflicted by the stipendiary magistrate on June 29th on a charge of having driven a motor-car in a manner dangerous to the public. Mr. Morris, on behalf of the respondent justices, explained that the alleged offence was committed on June 5th, and the maximum penalty had been imposed under the Motor Car Act. P.C. Jones deposed that at 11.10 p.m. on Sunday, June 5th, the appellant, who was driving a motor-car, arrived at the Landing-stage from a Birkenhead ferryboat.

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He drove away along the Landing-stage. Witness called upon him to stop, as he was proceeding at too high a speed, having regard to the traffic on the Stage. The appellant stopped his car opposite the offices midway between the Woodside berth and the floating bridge. Witness told him that he must not drive at more than a walking pace whilst on the Stage. The defendant started off again, and when he had covered a dozen yards he put on speed, and ran up the floating bridge at a speed of nine or ten miles an hour. The Stage was crowded at the time, and several people had to get out of the way. Evidence of the excessive speed was given in corroboration. The appellant said he had driven at five miles an hour whilst on the floating bridge. He could not, in fact, have exceeded that speed having regard to the gear of the machine just then. He denied having increased the speed after parting from the constable. The Recorder decided that the appellant had driven at too high a speed upon the Landing-stage, but that the penalty had been excessive. He reduced the penalty to 40s., and affirmed the conviction with costs.

CONVICTIONS AGAINST MOTORISTS.

Place.	Summoned for	Fine.
Bristol	Reckless driving	£2, etc.
Aberdeen	Driving without licence	30s., etc.
Kidderminster	Driving a motor-cycle on foot-path	£1, etc.
York	Driving at dangerous speed	20s., etc.
Marlborough St, W.	Driving dangerously	21s., etc.
Sheffield	Not keeping record of car out with dealer's mark	10s., etc.
Birmingham	Reckless driving	40s., etc.
Northampton	Reckless driving	£5, etc.
Dublin	No number	10s., etc.
Co. Down	Not stopping when requested	40s., etc.
Leeds	Driving to public danger	£3, etc.
Marylebone	Beyond legal limit	£2, etc.
Croydon	,, ,,	£5, etc.
Manchester	,, ,,	£5, etc.
Bangor	,, ,,	£5, etc.
Birmingham	Reckless driving	10s., etc.
New Ross	Riding motor-bicycle without licence	2s. 6d., etc.
Carlisle	Unilluminated rear number	1s., etc.
Gorey (Ireland)	Failing to produce licence	10s., etc.
Wareham	Not stopping when requested	£2, etc.
Kingston	Excessive speed in Richmond Park	£3, etc.

CASES DISMISSED.

At the Leeds City Police Court, Joseph Higginson, jun., of Stockport, was summoned for committing a breach of the Motor Car Act. According to the evidence of two policemen, a motor-car registered in the defendant's name travelled over a measured distance at Moortown on the 9th ult. at the rate of 22 miles 888 yards an hour. In cross-examination, Mr. F. A. Reed, of Huddersfield, who defended, elicited that the officers did not stop the car. They did not know who the driver was, but they took the number of the car. Mr. Reed pointed out that there was no evidence to show that the defendant was the actual driver of the car, and he submitted that under these circumstances the prosecution must fail. The Bench sustained the objection, and the case was dismissed.

Capt. William Phayre Ryall, of Frome, at the Frome Petty Sessions, was summoned for having on the 17th July, in the parish of Frome, unlawfully driven a motor-car at North Parade at a speed which was dangerous to the public, having regard to all the circumstances of the case. After hearing the evidence, the Bench retired to consider their decision, and on returning said they thought the police were perfectly justified in bringing that case before the Court, but they had decided to dismiss it on payment of the costs, and they cautioned defendant to be careful in future of the speed at which he drove through the town.

In Dundee Sheriff Court, James Cox, Lochee, was charged with having driven a motor-car at the rate of 30 miles per hour on 10th June last on the public road between Dundee and Coupar-Angus. For the defence, Mr. Cox stated that the car was not travelling faster than 20 miles an hour, while further evidence went to show that it was impossible to take the correct speed of a motor-car by an ordinary watch. The correct time could only be obtained by stop watches. After further evidence Sheriff Campbell Smith found the charge not proven. He stated that what the law required in a case of that kind was evidence that left no room for reasonable doubt, and he did not think the charge had been proved by conclusive evidence.

At Kingston, A. E. Grottick, of Wandsworth, was summoned for negligently driving a motor-bicycle on the Portsmouth road, Surbiton, on July 3. William Watson, of the Black Horse public-house, Guildford, said that on the Sunday afternoon in question he was proceeding along the Portsmouth-road by the waterworks, pushing a truck in the direction of Windows' Bridge, when he was run into from behind by a motor-car and knocked down and rendered insensible. By Mr. R. F. Gibson (who defended): He did not identify defendant. Ernest Day, of East Molesey, also saw the accident, but he could not say that it was defendant who knocked Watson down. Mr. Gibson said the defendant admitted being on the road on a tricycle with a fore car, but denied touching anyone. He remembered passing the man Watson by about some six feet, and after going on about forty yards he heard a noise. Turning round, he saw there had been an accident, turned and took the man to the hospital. The case was dismissed.

John Stubbs was charged at Stafford with riding a motor-bicycle along Bridge Street, on the 8th inst., without having a licence. The defendant said the bicycle did not belong to him, and he was simply riding it on trial. He was ordered to pay the costs.

POLICE TRAPS.

It is said that at Bassett the police have covered a portion of the road with a dust-laying preparation and have set up a trap thereon.

The police have promised the city authorities of Birmingham to keep a sharp lookout on motorists travelling in the suburbs.

Loughborough must be added to the list of places where the police are unfriendly enough to lay traps.

A correspondent informs us that there is a trap on the main road from Bolton to Preston, starting nearly a mile short of Chorley Town Hall, and continuing to the top of the hill.

Mr. Brynmor-Jones, K.C., M.P., uses an electric landau or driving when in town.

Some experiments are being made in Paris with a new dust-laying preparation known as "Pulverante."

The road leading from Epsom to Ashstead Park past Ladas Inn and over the Common will be closed during the present month.

The United Motor Industries, Ltd., inform us that Castle accumulators were used by the winner of the International Cup for Motor Boats, and by Mr. H. Williamson on his Land's End to John o' Groat's motor-cycle record.

Dr. Marshall, the Crown Seneschal of the Isle of Man, is the first doctor in Manxland to join the ranks of motorists. He has purchased a Cadillac car, and his former coachman, having had a course of lessons in motor-driving, is now his chauffeur.

Mr. C. De Rouet, until recently with the Motor Manufacturing Company, Limited, has now joined the Metropolitan Engineering Association, 38, Deansgate, Manchester, which is establishing a depot for the sale of Thornycroft wagons and cars.

Motorists passing through the little town of Stone, Staffordshire, will find petrol and motor accessories at the depot of Messrs. Evans and Sons in the High Street. The firm are local agents for Wolseley and other cars, and report an increased interest in automobilism in the district.

TO CORRESPONDENTS.

All communications intended for insertion in this Journal or relating to Editorial matters should be addressed to The Editorial Department. Motor-Car Journal, *39 and 40, Shoe Lane, London, E.C., and must be written on one side of the paper only. Letters must in all cases be accompanied by the name and address of the writer, as no notice will be taken of anonymous communications.*

The Editors cannot undertake to return MSS. or drawings, although every effort will be made to do so in the case of rejected communications. Where such are regarded as of value, correspondents are requested to retain copies.

To insure insertion communications and contributions must be in the Editor's hands by Tuesday forenoon of the week in which the same are intended to appear. Disappointment may be caused by non-compliance with this rule, and to avoid this earlier receipt, if possible, is necessary.

The Editors do not hold themselves responsible for the opinions expressed by their correspondents, or for statements and facts which do not appear in the editorial columns.

The Editors and Publishers beg also to state that they will accept no responsibility for unsolicited contributions, even if used, unless payment for same is directly specified in forwarding, and the terms arranged before publication.

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THE

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COMMENTS.

A Club for Hull.

ANOTHER automobile organisation has been formed in Yorkshire, and a strong committee has just been elected to organise the Hull and District Automobile Club. Mr. G. M. Heald is acting as hon. secretary, *pro tem*, the motorists convening the first meeting being Dr. W. H. Coates, Messrs. W. C. Dawson, A. Hagestadt, F. J. Hamlyn, A. E. Lowry, and G. M. Heald. The preliminary meeting was held at the Imperial Hotel, Hull, and great interest in the proposed club was shown by those present. Dr. Coates was in the chair, and urged the formation of such an organisation. A resolution was passed that a club be formed, and that it be entitled "The Hull and District Automobile Club."

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Motor Traction in Ireland.

IN the House of Commons, Mr. J. Delvin asked the Chief Secretary to the Lord Lieutenant of Ireland whether he was aware that Mr. Cowan, the chief engineering inspector to the Local Government Board of Ireland, had reported that it would cost over £12,000 sterling to prepare between nineteen and twenty miles of the existing public roads in the Derry No. 1 district for the running of motor vehicles, under the scheme of Lord Iveagh and the Right Hon. W. J. Pirrie, between Derry, Clandy, Park and Fermoy; and that, in consequence of the cost, the scheme had been rejected by the Derry County Council; if so, would he state how many motor vehicles had been placed on the Irish roads up to the present under the Iveagh-Pirrie scheme, and at what cost to the several districts; and whether, in view of the cost which the scheme was likely to involve to the local ratepayers, he would refuse to accord any further the support and co-operation of the Irish Administration. Mr. Wyndham, the Chief Secretary for Ireland, replied that Mr. Cowan's report was to the effect stated. The county surveyor also estimated the cost at over £12,000, and the county council declined to adopt his report on the ground that it "would effectually block any further consideration" of the motor-car scheme in the district. He understood that the county Antrim service would be opened at an early date.

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One Speedometer v. two Chronographs.

A NEW point in the police court proceedings against motorists was brought out last week by Lieutenant-Colonel Mark Mayhew, when summoned at Marlborough-street Police Court for exceeding the ten-mile speed limit with his motor-car in Hyde Park, on July 8th. The chronographs of Sergeant Filce and Constable Sullens indicated that the car, tested over a measured furlong, travelled at more than seventeen miles an hour. Lt.-Col. Mayhew, however, urged against that evidence the fact that he drove according to his "speedometer," which showed that he was going at only ten miles an hour, and stated that drivers desirous of travelling at the regulation speed, and being law-abiding persons, had adopted that instrument for the purpose. Mr. Denman expressed a desire to know more about the "speedometer," which was shown to indicate "zero" when the car stopped. It was pointed out that it only worked while the car was in motion. The magistrate, in giving his decision, had to rely on the evidence, as the "speedometer" could not be taken from the car and brought into court. There were, the magistrate said, two pieces of mechanism showing the same result, namely, more than seventeen miles, against one which indicated ten miles, and this method, so far, was the only one that could be adopted for speed tests. Consequently a fine of 20s. and costs was imposed.

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Motor Traffic Regulations in Australia.

THE conference of municipal delegates of the Melbourne area, which met to consider the advisability of framing regulations to control the speed of motor-cars in Australia, has decided to recommend that a Bill be introduced into Parliament, based on the English Act of 1903, limiting the speed of cars to ten miles an hour in the city and twenty miles in the suburbs. The conditions of that Act are also: Registration of all cars, the carrying of registered numbers, and that only licensed drivers should be allowed to drive the vehicles; registration fee for all cars to be £1 and 5s. for a cycle, while the driver's licensing fee would be 5s. per annum; the driver would also be held responsible for the careful and accurate handling of his car. From what we can gather, remarks "The Australian Cyclist," it is hardly likely that such stringent regulations will become law in Melbourne for many years at least, and if the municipal gentlemen responsible for such freakishness desire to kill the industry all at once, they are going the best way to do so. In fact, we do not regard their suggestions at all seriously. It is one thing to make recommendations, but quite another to carry them into law, when a strong body, such as the Automobile Club of Victoria, is in existence.

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Awaiting Experience.

AT the seventeenth annual meeting of the proprietors of Messrs. McNamara and Company, Limited, the well-known Post Office contractors, held on Tuesday, Alderman J. Pound, J.P., the chairman of the company, said the shareholders would remember that he stated last year that they had a motor-van on trial. The result of an extended trial, although not absolutely satisfactory, was of such a nature as to justify the directors in having two vans of regulation style and size, specially built for further experiments. These were now working regularly and doing good service; but it still required further time to ascertain if the cost of running, maintenance, and repairing came out cheaply, and was as reliable as horse traction. At any rate, it was the desire of the directors to keep well abreast of the times, and to be prepared to supply motor-vans, if demanded, for the purpose of the business, as soon as they can be economically worked and maintained.

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After Beverley, Colchester.

ENCOURAGED by the concession made to the Beverley Town Council by the Local Government Board, the wiseacres of Colchester have been discussing the speed of motor-cars passing through that ancient and pleasant town, with a view to the adoption of a limit of speed. One alderman delighted his colleagues by the suggestion that a Local Government Board inquiry might secure the end in view, as it had done in the case of the Yorkshire town. Whereupon others became emboldened and openly advocated a limit of ten miles an hour. In the end no real harm was done, although it was said that a sub-committee of the Watch Committee would report on the subject, and also make proposals with regard to the provision of signs at dangerous corners. Evidently the motorists of the eastern counties must be vigilant.

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Width of Trunk Roads.

AT the instance of the Roads Improvement Association the Hon. Arthur Stanley, M.P., has placed the following notice of motion upon the agenda paper of the House of Commons :—"That, in view of the very large expenditure on street improvements by local authorities in setting back the frontages of existing buildings for the purpose of street widenings, it is desirable to place some limit on that expenditure by widening trunk roads, and particularly those passing through the suburban areas of large towns, before building operations commence, and that, in the opinion of this House, legislation should be introduced by the Government to provide that no new building shall be erected within fifty feet of the centre of a trunk road, the local authority paying suitable compensation for unoccupied land within the existing fences."

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The Limits of Journalism.

AT a meeting of the Council of the Society of Motor Manufacturers and Traders, held last week, the following resolution was adopted :—"It having been considered by the Society that the dealing with enquiries and recommending cars for purchase by some automobile papers, both in their columns and otherwise, is detrimental to the industry, resolved unanimously that this Council is of opinion that it is against the best interests both of the trade and the buying public for any automobile journal to take commissions or make any profit in connection with the sale of cars recommended in its columns or otherwise." With this resolution the *Journal* is quite in accord, since it endorses the view we recently expressed as to the desirability of the Press holding aloof from business of the kind.

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Modern Missionising.

THE great missionary tour upon which General Booth, of the Salvation Army, is now engaged suggests a contrast to the way in which John Wesley reached the people. Ambling along on a shaggy old nag, the earlier revivalist was greeted very differently to the reception accorded the General in the old Cornish towns on Tuesday. Wesley was stoned; General Booth has been received by mayors and people with enthusiasm. To the one locomotion was difficult; the motor-car has eased the way for the other, and we have the spectacle of an old man of seventy-four adapting himself to a new method of travel with a confidence that will not be misplaced.

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A Triumph of Organisation.

THE tour that has been mapped out for the four cars provided for the accommodation of the General and his staff officers will again prove the organising capacity of the Salvation Army. Halls have been booked, chairmen appointed, hotels secured, garage accommodation provided, petrol supplies ensured, and a score of other details have required attention. The failure in any one department will lessen the success of the whole trip; hence we may be justified in regarding the event as something in the nature of an automobile reliability trial as well as a great evangelical campaign. For here are the conditions of ordinary touring reproduced on a grand scale. After a glance at Land's End, the tour started with an address at St. Just, on Tuesday afternoon, and another at Penzance in the evening. Through Cornwall and Devon the motoring missionary has pursued his way, and on Monday next will lecture at Taunton, Bridgwater, and Wells, Tuesday's programme including Trowbridge, Chippenham, and Stroud.

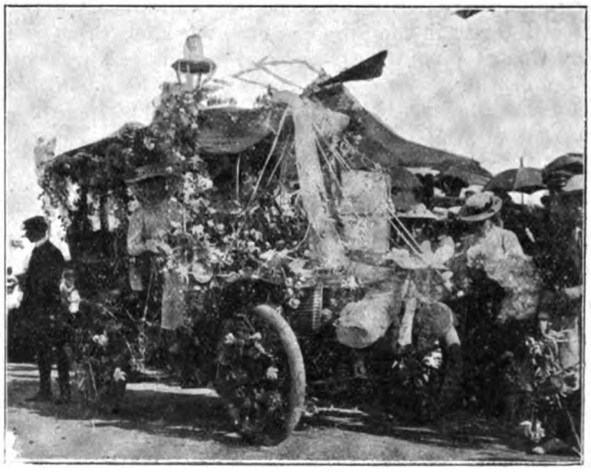
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The Exhilaration of Motoring.

THIS is not General Booth's first automobile experience. He has had several motor trips and has always recognised the convenience of the car. More than that, its exhilarating effect has been useful to him in his work, and on this he is probably relying to get through the arduous trip upon which he is now engaged. Several gentlemen of advanced years and engaged in public affairs have recognised this result of motoring, and the Archbishop of Dublin has publicly testified to the bracing effect of a motor-car trip. The day is not far distant when the dignitaries of all religions and denominations are likely to do much of their pastoral work by means of the motor-car.



Mrs. Harvey du Cros on her Clement Car (1st prize).



Mrs. Manville on her 16 h.p. Daimler (2nd prize).

Photos by] [Mr. E. Kennard.

THE BATTLE OF FLOWERS AT BEXHILL.

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Ministers and Motors.

ALREADY the automobile is appreciated by scores of ministers throughout the country, who find it a useful convenience in their parish work, and whether their automobile is a car or a cycle matters not. The recognition of the new locomotion by all sections of the community is inevitable, and this fact should be appreciated by the motor trade even more, perhaps, than has been the case in the past.

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Manœuvres without Men.

LT.-GENERAL SIR JOHN FRENCH and the staff of the 1st Army Corps are in the Midlands for the purpose of studying the country from a strategical point of view, in the course of which imaginary bodies of troops are engaged in working out a scheme of military operations. The party numbers sixty-eight officers and forty servants, and twenty-six motor-cars are being employed in the work. British troops to the number of 70,000 were supposed to be located at various points in the West Midlands, and General French handed these troops over to different Generals present, and by the aid of large maps explained to them the duties they were expected to perform. The officers then left Droitwich in motor-cars and proceeded in different directions in order to ascertain the best positions to take up for defensive or aggressive purposes, where there were good supplies of fodder and water, and the best means of communication between the headquarters and different bodies of troops, for concentrating reserves, etc. A very wide field was to be covered by the officers, it being expected that some of them would proceed beyond Birmingham before returning to report at Worcester.

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Indeed it is Serious.

THE persecution which motorists have recently suffered has been of a particularly pernicious character. The chief cause, we believe, arises from the dust on the road. The recent dry weather has caused this to be abnormally obnoxious, but we would point out that the fault of the dust arising has not been entirely owing to motorists. Little dogs, little boys, cycles, horses, everything in the moving way has caused the dust to rise, but a mark has been made against motorists, and the various summonses issued have not been on account of excessive speed, but for driving to the common danger. Consequently many of our friends have had their licences endorsed, a disgraceful proceeding, and one for which we owe no thanks to those who were responsible for the measure under which such persecution is possible.

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Motor-Omnibuses for London.

COINCIDENT with the half-yearly meetings of the London Omnibus Companies, when the oft-repeated story of the good intentions of the directors to adopt motor-omnibuses in the "early future" has again been told, comes the news that the London Power Omnibus Company, whose experimental service in the north-west of London has been in operation for the past seven months, have completed their tests of over 160,000 miles. The results have been so satisfactory that last week arrangements were concluded for adding fifty motor-omnibuses to the service. These are being built by Stirlings Motor Construction Company, of Edinburgh, and will be constructed with certain modifications that have been found by actual experience desirable to fully meet the special requirements of London traffic. As the motor-omnibuses belonging to the company run over two and a half times the mileage per annum of the ordinary London 'bus, a service of 100 motor-omnibuses would be equivalent to an addition of 250 omnibuses so far as public convenience is concerned. The ascertained revenue per mile of the motor-omnibuses of the London Power Omnibus Company, with half the passenger capacity of the horse-'buses, is within a fraction of the revenue per car-mile as estimated in the published accounts of the London General and Road Car Companies. The new omnibuses of the London Power Omnibus Company will carry sixteen passengers and be speeded to twelve miles an hour.

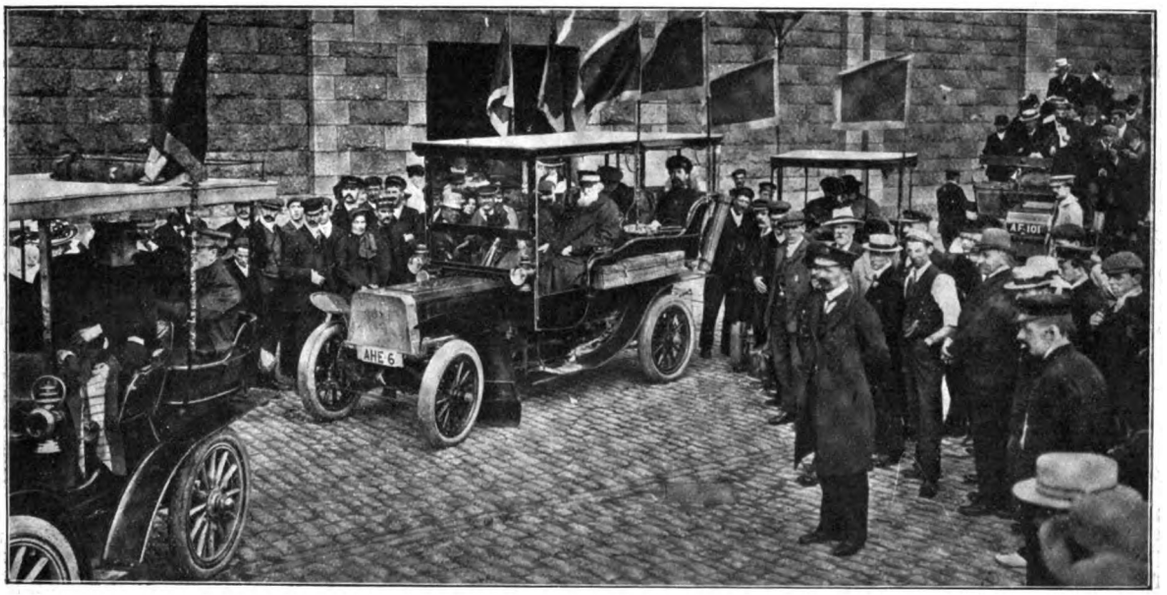


Photo by] **General Booth's Motor Tour—Leaving Penzance for Land's End.** *[Gibson and Sons, Penzance.*

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Dust.

HE was a philosopher as well as a politician who described dirt as "matter in the wrong place." The same definition might also be given of dust; although it would be difficult to assign to the latter its proper place. In towns we are worried by the dust in our streets, and this is all the more deplorable having regard to its constituent elements, which must be a serious menace to the health of the community. When automobiles have supplanted the horse from our city thoroughfares we may hope to have one source of disease removed. But, it is also pointed out, the dust area is being removed from cities to country, and many a once verdant hedgerow is now sicklied o'er with the pale dust of the road—the result of a combination of bad road surfaces and good motor-cars. For, while it

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must be acknowledged that some motor-cars throw up a great quantity of dust, it must also be recognised that there are others which are quite well behaved in that respect, and that the neglect of the problem of the construction of roads suitable for the new traffic is largely responsible for what people are pleased to call "the dust nuisance."

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After the Motor-Boat Race.

On Monday evening a banquet was given by Sir William Crundall at Dover, and was attended by nearly 200 guests, including a large number of ladies. There was a preponderance of Frenchmen, and the gathering was one of the most successful we have ever attended. Everything passed off with the utmost enthusiasm, and the international character of motoring and motor-boating was proved by the cordiality with which all fraternised. "God Save the King" and the "Marseillaise" were sung several times, and the speeches, individually and collectively, were of the most cordial description.

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Municipal Service.

The area of the municipal employment of motor wagons is wider than is generally imagined, ranging from Bournemouth and Folkestone to Newcastle and Glasgow. The universal experience is that the adoption of mechanical vehicles has resulted in considerable economies, and even at Folkestone, where the steam watering cart costs twice as much to maintain as did the old horse system, the fact is recorded that three times the work is done. At Chelsea, Hampstead, and Bournemouth greatest economy is effected in cartage work, and at Reading and Westminster in the rapid removal of big loads. At Cardiff and Blackburn there is considerable economy in dust and refuse collection and disposal. Unfortunately, the cost of repairs varies considerably; but there is a cheerful tendency towards a reduction on this account.

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Fees for Motor-Lorries.

In the report of the Highways, Bridges, and County Buildings Committee presented at the last meeting of Nottingham County Council it was stated that the Chairman and the County Surveyor had had an interview with the Local Government Board on the subject of the recent report of the Departmental Committee appointed to inquire as to the desirability of the Local Government Board issuing regulations increasing the maximum weights of motor-cars, with the view to the more general use of motor-lorries. As a result the committee had instructed the clerk of the Council to request that the Board would not proceed further with the regulations in question without further inquiries being made. In the opinion of the committee more evidence should have been taken by the Departmental Committee to show the effect of this new class of traffic on roads outside urban districts. The committee also considered that power should be given to County Councils to charge owners of the lorries an annual licence fee as in the case of ordinary locomotives, and that such lorries should be classed as locomotives. The fees would be some, though insufficient, compensation for the damage done to the roads.

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Dangers for Motorists.

An interesting point has been raised by Mr. S. H. Sparks, of Wellington, who has asked the Plympton (Devon) Rural District Council for damages for injuries sustained to a motor-car that was capsized through a heap of stones being left on the road within the area of the said council. This is a point of something more than local importance, and one to which county surveyors and others should give their closest attention. Not only in Devon, but in many other counties, the habit of leaving stones on the roadway unrolled is much too frequent, and it would be well if the Motor Union would look into the legal aspect of the matter with a view to compelling local authorities to keep the roads as free from danger as is possible.

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The International Motor-Boat Race.

The International Commission for the British International Cup for motor-boats has sat in London at the head-quarters of the Automobile Club to adjudicate on the protest lodged on behalf of the owners of the Trèfle-à-Quatre through the French Automobile Club against Mr. Edge's victory on Napier Minor in the final for the Harmsworth Cup on July 30. The commission, having carefully studied the rules under which the race was run, upheld the French protest and awarded the race to the Trèfle-à-Quatre. The ground for the protest was that although Napier II. had beaten Napier Minor in the fourth heat, Mr. Edge had run Napier Minor in the final heat, whereas the programme laid down that the winner of the fourth heat was the only boat qualified to compete in the final. There is no rule which provides what shall be done if two boats belonging to one country are eligible for the final, and the Commission based its judgment on the fact that the provision made in the official programme had been acquiesced in. The commission recommends that such additions to the rules be made as are necessary to provide against similar occurrences in the future.

The Dorset Automobile Club have held a successful meet at Eastbury Park, near Blandford, by invitation of Mr. Henry Farquharson.

Last Saturday Mr. and Mrs. Ochs were at home to their numerous friends at their beautiful place at St. Anne's Hill, Chertsey. Large numbers of guests assembled and enjoyed the delightful afternoon.

The cars employed on General Booth's tour were provided by Messrs. Bath and Sons. The dust coats, goggles, and other "Motorities" for General Booth's use have been supplied by Messrs. Alfred Dunhill, Limited.

As we go to press we learn by telegraph that Mr. J. Robertson, of Buenos Ayres, has just established a new record from John o' Groat's to Land's End on a 12-14-h.p. three-cylinder Argyll car, he having covered the distance in 42 hours 5 min., thus beating the previous record by 3 hours 20 min.

One of the surprises of the Bexhill meeting was the victory of the 10-h.p. Duryea in Class C. The vehicle, a three-wheeled one, and likewise three years old, not only made the best time in its class, but covered the kilometre at a rate of over 33 miles an hour, a speed not equalled by any of the higher-priced cars in Class D.

Mr. Wm. Glass, having joined the firm of Messrs. Ormiston and Glass, pen manufacturers, London, E.C., is giving up the Firefly Motor Company, which he has carried on for some time at Croydon. The business, together with the plant and stock, is as a consequence being offered for sale as a going concern.

Prince George Mourousy and Prince and Princess Paul Mourousy of Roumania have been motoring through the home counties of England, returning at frequent intervals to London, where they have been entertaining several distinguished guests. On Wednesday they left for Paris, but will return next month for a tour in the north.

The other afternoon Bexley Square, Salford, had an animated appearance, as a dozen motor-cars assembled to convey to Llandudno as a pleasure outing a party organised by Alderman Rudman and Mr. Newton, of the King's Street Garage, Salford. The party, which numbered about fifty, included the Mayor of Salford, the town clerk, the borough treasurer, and other officials, together with several councillors. The ex-Lord Mayor of Manchester was also one of the guests.

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MOTOR-BOAT RACING.

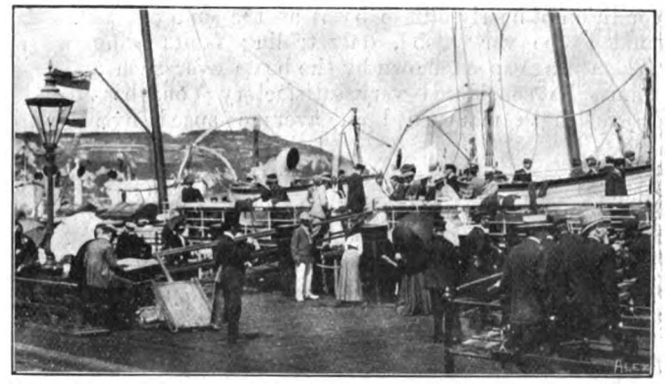
MONDAY'S great international motor-boat race was a success in every way. Magnificent weather, a calm sea, universal good feeling and a fine race were factors that should leave only pleasant memories with those who were fortunate enough to follow the race from Calais to Dover, and also to enjoy participation in the international courtesies which followed at the generous instance of Sir William Crundall, the mayor of Dover.

Leaving Dover on the "Queen," a large party of English motorists set forth to Calais, where the quays and harbour presented a very effective sight. Thousands of spectators lined the former, and a score of little boats were manœuvring for position between a couple of mark boats off Calais pier head and the sands in front of the Casino. A goodly number of passengers were taken aboard, and interest was quickly centred in the start for the International Race organised by the Automobile Club of France for trophies presented by President Loubet and Count Recopè.

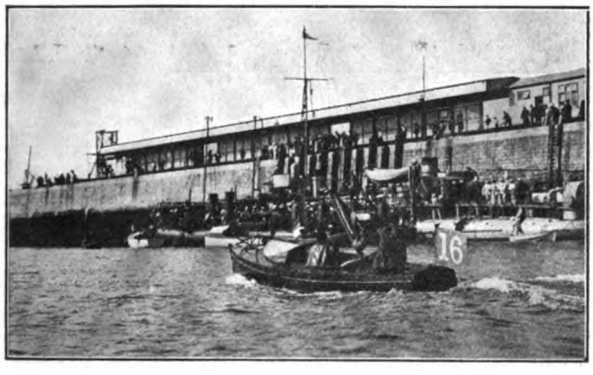
	H.	M.	S.
Princess Elisabeth	1	7	21
Titan II.	1	9	44
Marsouin II.	1	34	7 1/5
Tréfle-à-Quatre	2	29	31
Marthe	2	42	23 2/5
CRUISERS			
Vas-y	1	57	19
Le Nogentais	2	3	7 3/5
Suzy	2	11	59
Noémie	2	13	40 4/5
Camelia	2	26	56 3/5
Marcotte	2	28	10
Triplex	2	30	59
Jack	2	35	11 3/5
Amiral Bruix	2	49	41 2/5
Dalifol	2	54	8
Hummono	3	3	14



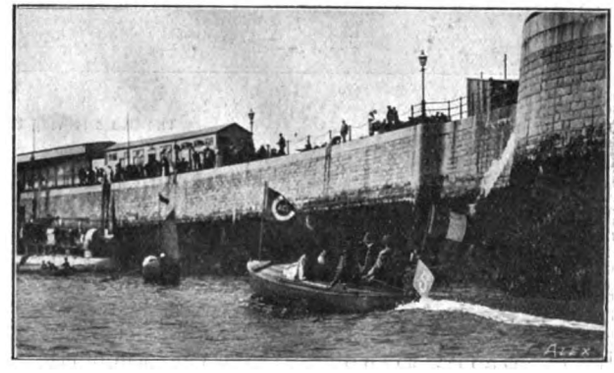
Mercedes IV., the Winner of the 8-12 metre Racer Section.



Spectators boarding the "Queen" at Dover.



The Clement-Bayard at Dover after the finish.



Mr. Beadle's Durendal at Dover.

Two minutes before a quarter to two o'clock the starting gun was fired and Henri Fournier's Hotchkiss made the most notable start, getting away in splendid style, but stopping within 500 yards of the pier owing to trouble with the sparking plugs. Interest was quickly transferred to the Mercedes IV., entered by M. A. Vedrine, and the Napier Minor with Mr. S. F. Edge at the wheel. These were leading, closely followed by Tréfle-à-Quatre, sailing for the first time with the British flag, Titan II., Le Nogentais, Marsouin II., Princess Elizabeth, Camelia, Admiral Bruix, and Triplex.

Originally the entries for the race numbered nearly forty, but only twenty-one got into position for the start at Calais, and all but one reached Dover, the official times being as follows:—

RACERS.

	H.	M.	S.
Mercédès IV.	1	0	7 2/5
Napier Minor	1	5	25 2/5

FISHING BOATS.

Maurice	3	13	5
Aurore	3	45	56

At first it appeared that Napier Minor would hold her own, but Mercedes IV. entered Dover Harbour two miles ahead of the English boat, thus winning the International award. The Belgian Princess Elisabeth, owned by M. A. Pirmez, was third. In the cruiser class M. A. Jean's Vas-y won the Sevres vase presented by President Loubet, while Count Recopè's cup for the first boat using paraffin for fuel was given to M. V. Caze's Marthe.

The race was followed with intense interest, and on one of the French destroyers following the boats was M. Pelletan, the French Minister of Marine, whose presence was a recognition of the important character of the event on behalf of the French Government.

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THE MOTOR-BOAT RELIABILITY TRIALS.

LAST week we gave a summary of the report of the judges in the Reliability Trials for Motor-Boats organised by the A.C.G.B.I., together with a list of awards. The two features, says the full report of Major Lindsay Lloyd, Lieut. Mansfield-Cumming, and Captain R. T. Dixon, which have been considered the most important in making the awards have been :—Reliability, *i.e.*, non-stop runs and good general condition after the twenty hours, 100 marks out of 300 being given to each of these points; a smaller number of marks were awarded for speed, safety, and economy.

These are the first Trials of Reliability for motor-boats that have ever been organised, and as such have been a great success, the results proving more satisfactorily than could have been anticipated the complete reliability of the motor-boat. No less than fourteen boats out of sixteen starters completed the two days' run, the number of stoppages being comparatively few and unimportant; five boats made absolute non-stop runs on both days. The condition of nearly all the boats at the end of the trial was found to be very good, only trifling faults being noticeable. The average speed shown by the boats over such a long period must be considered very satisfactory; one boat of only 35ft. in length maintained an average speed over the whole twenty hours of nearly 14 knots, a performance that could probably not be equalled by any steam launch of her size under similar conditions. With regard to the comparative safety of boats fitted with internal combustion engines, it would appear that a large number of makers of the petrol engine do not seem to have sufficiently considered the details necessary for the perfectly safe use of this fuel. Although it would not appear to be difficult to protect the pipes and the fittings of the tanks from injury, and the consequent evil effects of leakage, yet except in one or two cases this has been overlooked. This may possibly be due to the apparent haste with which many of the boats had been finished, and it it hoped that in future trials sufficient time will be given from the announcement of the holding of the trials to the actual date of them for the manufacturers to equip their boats, not merely with the simple propelling machinery, but also with well thought out and finished arrangements for making the same perfectly safe and convenient as well as reliable. We would suggest, therefore, that marks should be given for these points.

With regard to future trials it appears that the general lines of the recent tests are very satisfactory, but we would suggest that the following points receive the consideration of the Committee with a view to marks being awarded if possible :—(1) Exhaust cooling and silencing. (2) Seaworthiness. (3) Ease of control and handling. (4) Wash (for river boats). (5) Arrangement and design. (6) Discontinuance of the use of aluminium for boats for sea work.

SOME USEFUL NOTES.

SOME motorists test the spark of a motor by removing the high-tension wire from the plug and holding it near the frame when contact is made. This method is all right so long as the wire is held quite close (about 5-16 in.) to the frame. If the wire is held some distance away a large spark may certainly be produced, but the coil may be injured, as the insulation can easily be broken down in this way.

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MESSRS. GROUVELLE AND ARQUEMBOURG, the makers of the well known G.A. radiators, have lately given their opinion as to the best method of cleaning out these devices. They write:—"In reality it is very rare that any incrustation forms in the pipes of radiators, as incrustation only takes place when the water is at boiling point, which ought not to take place in a radiator. When it does, it is an indication that the radiator is not large enough. The same remark does not, however, apply to the water-jackets of the motor, where the water often reaches a very high temperature. In cases where incrustation does happen to form in radiators, a small quantity of hydrochloric acid should be added to the water, and this caused to circulate for a time, making sure afterwards to thoroughly remove all traces of the acidulated water." Messrs. Grouvelle and Arquembourg point out that while incrustations are rare, deposits are frequently formed on the internal walls of the pipes, due to impurities in the water. These can, however, be removed by sudden injections of water by means of a pump.

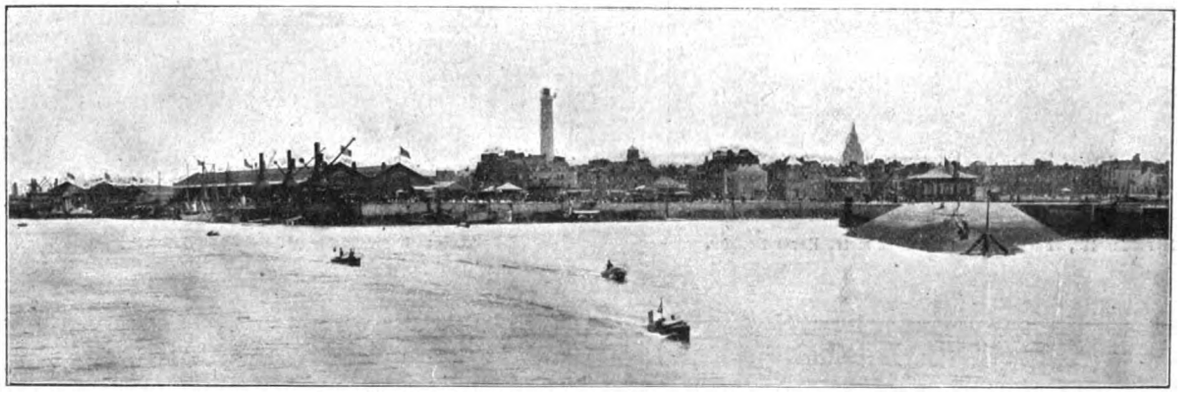


Photo by] The Boats leaving Calais. (*See page 501.*) *[Mr. E. Keneally.*

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MANY motorists have been troubled by the refusal of chains to stretch equally on each side, an annoying state of affairs that is made worse by any attempt at adjustment that throws the countershaft and back axle out of parallelism with each other. It will generally be found that the right-hand chain stretches most, and some light on the subject may be given by the somewhat similar behaviour of springs. It has been our experience, corroborated by that of other drivers, that springs more frequently break on the right side than the left, and a simple and probable explanation offers itself: the real *fons et origo mali* is the hay-motor! The centre of a road is usually in a much worse state than the sides, owing to the destructive effect of horses' hoofs, and the rule of the road causes us to drive habitually somewhat towards the left; thus the right-hand chain is apt to get more dust and dirt thrown on it, while, owing to the greater roughness of the surface on that side, it is doing more work in pulling its wheel; the differential, though equalising the total effort, not compensating for the jolts and sudden strains. Moreover, when going over stones, the right wheels get the worst of it as a rule. Tyres also give some confirmatory evidence of this view, which, if correct, should hold good in the opposite sense on the Continent, where the rule of the road is reversed. Perhaps some who have had Continental experience could throw additional light on the matter.

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THE OLDSMOBILE TONNEAU.

MESSRS. JARROTT AND LETTS, Limited, are now placing before British motorists a new Oldsmobile of greater power and larger capacity than the little runabout which they have popularised on this side of the Atlantic. They will, of course, continue to market the familiar 6-h.p. vehicle, but in the new model they have a vehicle more fitted for touring purposes, although characterised by a similar economy in price.

The new Oldsmobile has a tonneau body, as shown in the accompanying illustration, the motor being of 9-h.p. and horizontally located, the cylinder being 5½ in. bore by 6 in. stroke.

An extra heavy crank shaft is used, which has three wide main bearings, these with the worm gear being lubricated by the splash system from the crank case. The cylinder, water jacket and cylinder head are cast in one piece, and the valves are mechanically operated. The motor is set with the cylinder head at the forward end of the machine, under the footboard, so that the working stroke of the piston drives down upon the crank shaft instead of up. In this way the wear upon the cylinder walls caused by the weight of the piston is prevented. The fixed half of the main bearings is set at an angle of forty-five degrees, thereby taking both the chain pull and the motor thrust upon a solid bearing, eliminating any chance of breaking stud bolts. When necessary the cylinder can be removed from the crank case without disturbing any other part of the motor or the crank shaft; flywheel and transmission gears can also be lifted off without disturbing the rest of the motor.

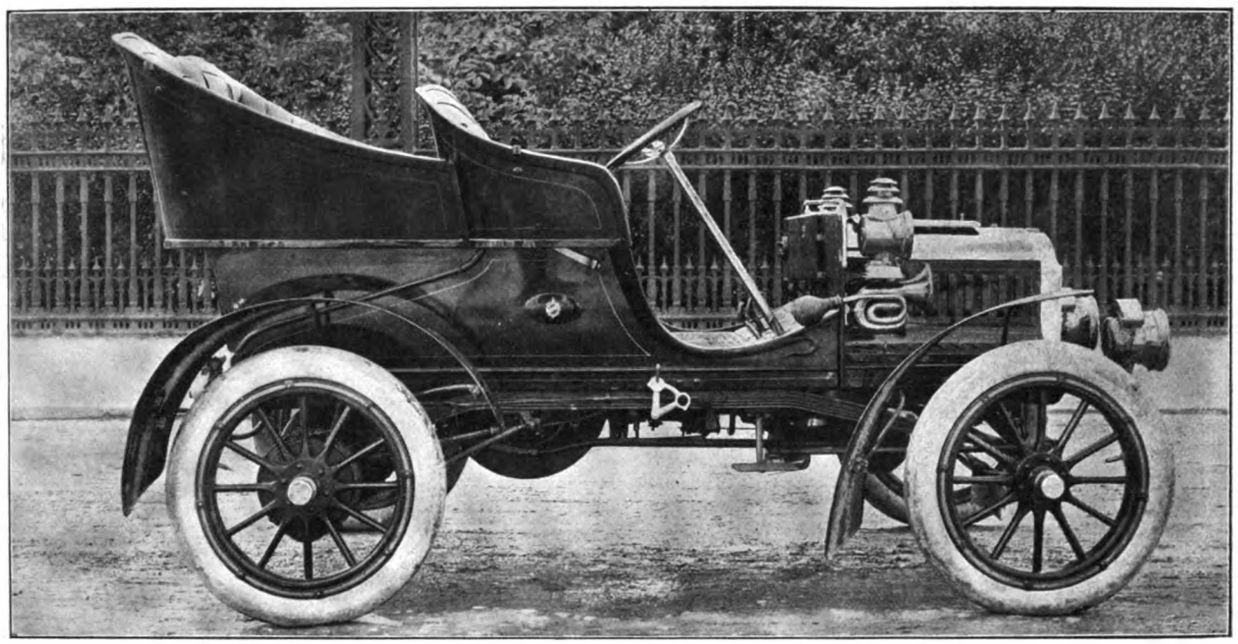
The transmission, of a new type, runs direct on high speed, with friction clutch having metal to metal faces. Two speeds and a reverse are provided. Wide bronze bushed wearing surfaces are a feature of the gears, which are oil encased.

The angle steel frame upon which the motor is hung completely supports the body, and as the body is separate at the dashboard it can easily be removed by the loosening of the four bolts for the inspection of the motor. The bonnet, dashboard, brake levers and steering post all remain attached to the frame. The brakes act upon the hub of the wheels and differential, so that the machine can be stopped on any grade, even if there has been an accident to the chain, rear sprocket, differential, or to one wheel.

The steering apparatus is of the worm gear type, the steering post tilting back and forward at the axis of the gear, enabling the wheel to be adjusted to the comfort of each individual driver. The spark and throttle levers are located on the steering wheel convenient to the driver's hand. High and low speed are obtained by a controlling lever at the seat, and reverse and brakes are operated by foot levers. The carburettor is of the simple Olds design, the throttle control being by lever on the top of the steering wheel. The tool equipment comprises everything necessary. The finish is an automobile green with black trimmings.

High-tension ignition system is fitted. The induction coil and switch are placed on the dashboard, and the commutator on the cam shaft. The bonnet is of sheet metal, with brass trimmings, at the front being a honeycomb radiator, and inside are the water and petrol tanks, each of five gallons capacity, and the batteries.

The well-known Oldsmobile side springs have been provided, so that the passengers do not find inconvenience from road inequalities. Artillery wood wheels, with pressed steel rims and 3½ in. pneumatic tyres, are fitted. Among other features of interest is a safety device for preventing back fires, the sector when moved back to allow the entrance of the starting handle opening the relief and shifting the sparking lever back to late position.



General View of the Oldsmobile 9-h.p. Tonneau.

In the design of the body due regard to the convenience of the passengers has been paid. The front seats are divided, and the tonneau is very roomy, while the seats are arranged to give an unobstructed view of the road ahead. The tonneau is removable, and the rear portion of the frame can then be utilised for luggage, etc. The new vehicle, which has a wheel base of 7 feet 10 inches, is to be placed upon the market at a figure which should command the notice of the Man of Moderate Means who seeks good appearance and reliability as well as economy in his automobile.

MESSRS. SYDNEY LEE AND COMPANY, LIMITED, the old-established firm of trade auctioneers, advise us that H.M. Government have acquired their salerooms at Furnival Street, Holborn, E.C., where they have sold for nearly two decades past, and they will remove from their premises during the ensuing fortnight. The final sales at their rooms will be held on Thursdays the 18th and 25th inst., when a large stock will be sold without reserve. The address of their new salerooms will be shortly announced.

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CONTINENTAL NOTES.

Another Public Service in France.

A public service of motor-cars was inaugurated last week between Trouville and Villers. Nine journeys per day are made in each direction.

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The Gordon Bennett Race.

It is well known that the Gordon Bennett race proved very costly to the German Automobile Club, but it was hardly expected that the accounts would show a loss of £7,250. The guarantors of the expenses fund have been called upon to pay 80 per cent. of the amount for which they undertook to be responsible.

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A Motor-Cycle Relay Ride in Germany.

The German Motor-Cyclists' Union has decided to organise a motor-cycle relay ride in September next from Stuttgart to Kiel, *via* Heidelberg, Frankfort-am-Main, Marburg, Bielefeld, Hanover and Hamburg, a distance of 530 miles. The course will be divided into eight sections of about 66 miles each.

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Motor-Cars in Military Manœuvres.

At the forthcoming Austro-Hungarian military manœuvres motor-cycles and cars will form a prominent feature. Some thirty members of the Austrian Automobile Club and Motor Cycle Union who volunteered for service have already been drafted into various corps. The military authorities intend to thoroughly investigate the suitability or otherwise of motor-vehicles for military service.

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Public Services in Switzerland.

Quite a number of new public services are projected in Switzerland. It is intended to start a service of electric motor-'buses between Interlaken and Wilderswil, in the canton of Berne. The establishment of a service between Yverdon-Sottons-Moudon, canton of Vaud, is also contemplated. A regular service is to be inaugurated between Frauenfeld and Steckborn, in the canton of Thurgau. It is also proposed to increase the number of motor-'buses running on the recently opened lines Muenchwilen-Fischingen and Muenchwilen-Turbenthal, in the same canton.

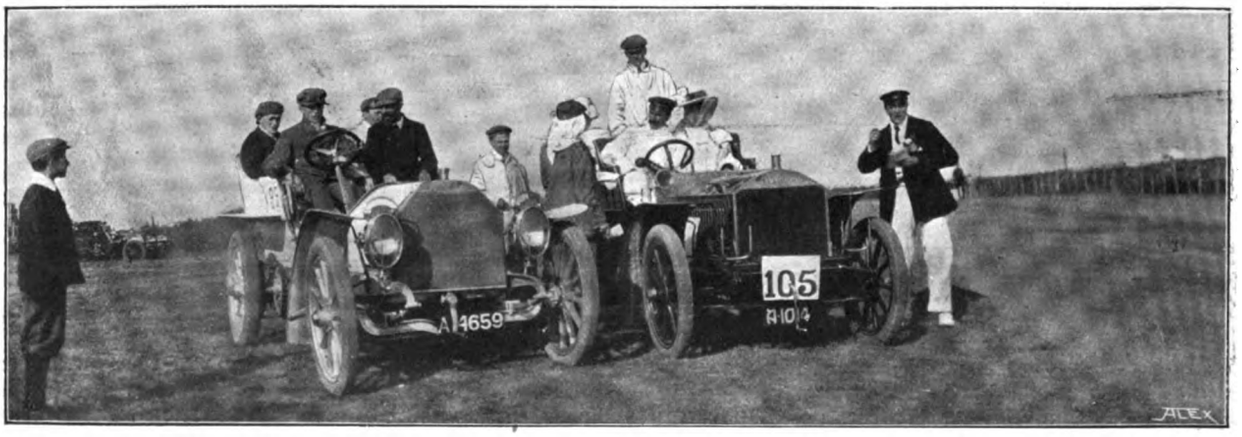
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Laying the Dust.

A new system of road tarring, said to possess superior merits both as regards efficiency and economy, has recently been brought to public attention in France. It is due to M. Girardeau, county surveyor of Fontenay-le-Comte (Vendee). With this system, it is claimed, the tar penetrates into the road-bed, thus increasing the life of the tarred coating. The amount of tar used is one kilog. per square metre, or nearly 2 lbs. per square yard.



Mr. J. H. Dew's 24-h.p. Bollee v. Mr. J. Miller's 24-h.p. Fiat.



Mr. A. L. Guinness' 60-h.p. Mercedes v. Mr. S. F. Edge's 20-h.p. Napier.

Photos by] THE BEXHILL MEETING. [*Mr. Frederic Coleman.*

A German Automobile Congress.

As has already been announced, an automobile congress is to be held at Breslau from the 18th to the 20th inst. Among the papers to be read are one, "The Technical Development of the Automobile," by Herr Max R. Zechlin, one on "Overcoming the Dust Nuisance," by Her Leo van Westrum, the inventor of Westrumite, and one on "What the 1904 Gordon Bennett Race Taught us with regard to Road and Track Races."

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The Dauphine Automobile Week.

The Dauphine automobile week was brought to an end on Sunday last. The programme included a 530 kilometre touring competition, in which the highest number of marks was secured by M. Cormier, on a De Dion. In a 500 metre speed trial with a standing start and a stopping finish, the best time, 40 secs., was made by M. Vitalis, on a 35-h.p. Rochet-Schneider.

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MOTOR CYCLING NEWS.

THE most important of the competitions of the Motor-Cycle Union of Ireland took place last week, when the 200 miles Reliability Trial from Dublin to Waterford and back for the prizes presented to the Union by the proprietors of the "Irish Cyclist and Motor News" was decided. The contest took the form of a team race confined to teams of four riders, each of whom was mounted on the same make of machine. The pace was limited to twenty miles an hour, with a minimum of fifteen, and for each minute gained on the minimum, or lost on the maximum time, one mark was deducted. For further stoppages on the road no penalties were enforced, but the competitors were required to execute whatever repairs or adjustments might be necessary with implements carried on their machines, and without outside assistance save from those in their own team. Four teams took part in the competition, two of them being mounted on Triumph bicycles and two on F.N. machines. One of the latter teams was not able to get the full number of four starters, and consequently the competitors numbered fifteen. It speaks eloquently for the reliability of the modern motor-bicycle that of the fifteen competitors eight completed the journey within the limits of time fixed by the committee and received full marks. The most successful team was the Triumph No. 2, the full number of riders completing the run. Two of the Triumph No. 1 team had trouble in the earlier stages of the competition and retired at Carlow, fifty-one miles from the start. The No. 2 F.N. team also had trouble in the earlier stages of the journey, and of the No. 1 team, two of the riders retired about half-way on finding the roads very wet. The performances taken all round are remarkable in many ways, particularly when it is taken into account that for about two-thirds of the journey the roads were wet and rain fell unremittingly during the day. The result was as follows:—

Triumph Team, No. 2:—
A. Summers, 100 marks.
L. Summers, 100 marks.
G. Mayne, 100 marks.
J. G. Drury, 100 marks.

F. N. Team, No. 1:—
C. B. Franklin, 100 marks.
R. F. Franklin, 100 marks.
T. R. Turpin, retired.
W. B. Martin, retired.

Triumph Team, No. 1:—
R. M. Talbot, 100 marks.
T. W. Murphy, 100 marks.
R. W. Stevens, retired.
F. A. Wallen, retired.

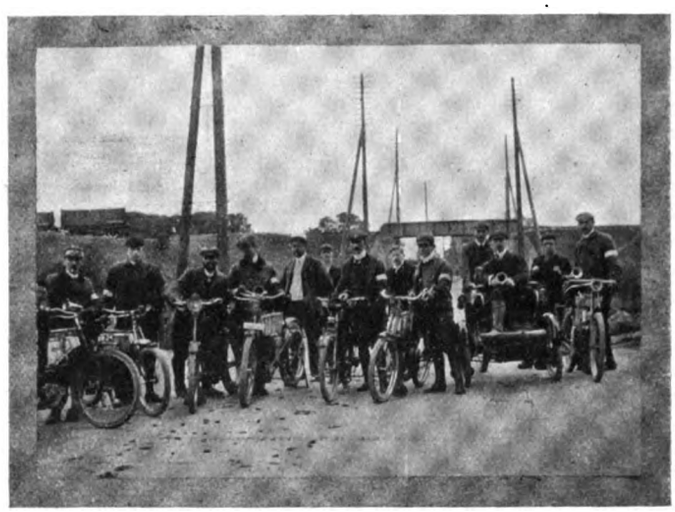
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WE have received some additional particulars of the Land's End—John o' Groat's record made by Mr. H. Williamson on a 3½-h.p. Rex motor-bicycle, to which a brief reference was made in the last issue of the *Journal*. The rider started from Land's End at daybreak, 4.15, on the 28th ult. It had been raining incessantly for a week in the West of England, making the roads in a very heavy and greasy state. Consequently the speed to Worcester, which should have been the fastest of the whole journey, was much below what was expected, and night fell between Warrington and Wigan, in which latter town a heavy fog made it somewhat difficult riding. Trouble was also experienced at the latter town with lamps. Afterwards, getting clear of Wigan, fast time was made through Preston nearly to Lancaster, when a puncture prevented that town being left till midnight. The next trouble experienced was a puncture, or rather two punctures together, on the famous "Shap." In repairing these considerable delay occurred owing to the darkness, and the brow of the Shap was not passed until day was breaking. From here through Carlisle, Lockerbie, Lanark, Stirling, to Perth very good progress was made. After leaving Perth for Inverness through the Grampian Hills, whose roads are celebrated for being the worst in the whole route, and which, owing to dry weather, were, if possible, in a worse condition than ever, a good average was kept up, and, excluding the time taken for a puncture just above Kingussie, the 115 miles was covered in about four hours and three-quarters.

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AT Inverness considerable delay was caused through two more punctures. After crossing Cossack Ferry, and trusting on a fast road from there to Tain to pick up the time lost, Mr. Williamson was again delayed by punctures, and after crossing Mickle Ferry, by which time night had set in, he experienced difficulty with his lamp and finally rode without a light. From this point to Berriedale the roads were in a very loose condition, patches of stone being met every 200 or 300 yards over most of the distance, and consequently progress was very slow. However, despite these troubles, he reached the top of Berriedale brae by daybreak of Saturday, and covered the last forty odd miles to John o' Groat's in one hour and twenty minutes, arriving at 4.51 a.m. on Saturday, the 30th ult. Throughout the whole of the journey, except for punctures and lamps, he experienced no trouble whatever. Stops for refreshment and replenishing for oil and petrol were made at Exeter, Worcester, Wigan, Carlisle, Perth, and Inverness.

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The Motor Cycling Club's Selection Trial for the Team for the Brown Trophy Competition.
Photo by [*E. W. Ashworth.*

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ON Saturday last the Motor-Cycling Club held a competition to select a team of riders to take part in the inter-club contest at Oxford on the 27th inst. The trial consisted of a fifty miles non-stop run from Redbourne to a point twenty-five miles along the Coventry road, and return. Eight members started off at 3.45, viz., Messrs. Arnott (Princeps), Hulbert (Hulbert-Bramley), Crundall (Humber), Densham (Anglian), Reeves (R. and P.), Sale (Quadrant), Maffert (Bat), and Wells (F.N.) Out of this number Crundall was the only one who did not complete the run, his failure being due to the breaking of a coil trembler spring. The remaining seven members had afterwards to compete in a series of starting and stopping tests. The course measured off was just a mile out and home, and seven stopping places were comprised in the distance. The best times for the mile were:—Densham, 3 min. 14 2-5 secs.; Reeves, 3 min. 31 3-5 secs.; Maffert, 3 min. 38 secs.; so that, in all probability, these three will figure in the team.

THE directors of the Great Northern Railway Company (Ireland) have satisfied themselves that for short distances, such as between Belfast and Lisburn, or Dublin and Howth, or the Ardee Branch, economy could be gained by the use of motor-cars for passengers and perhaps greater frequency of service. They are now, as a trial, taking tenders for four steam cars.

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ACCESSIBILITY.

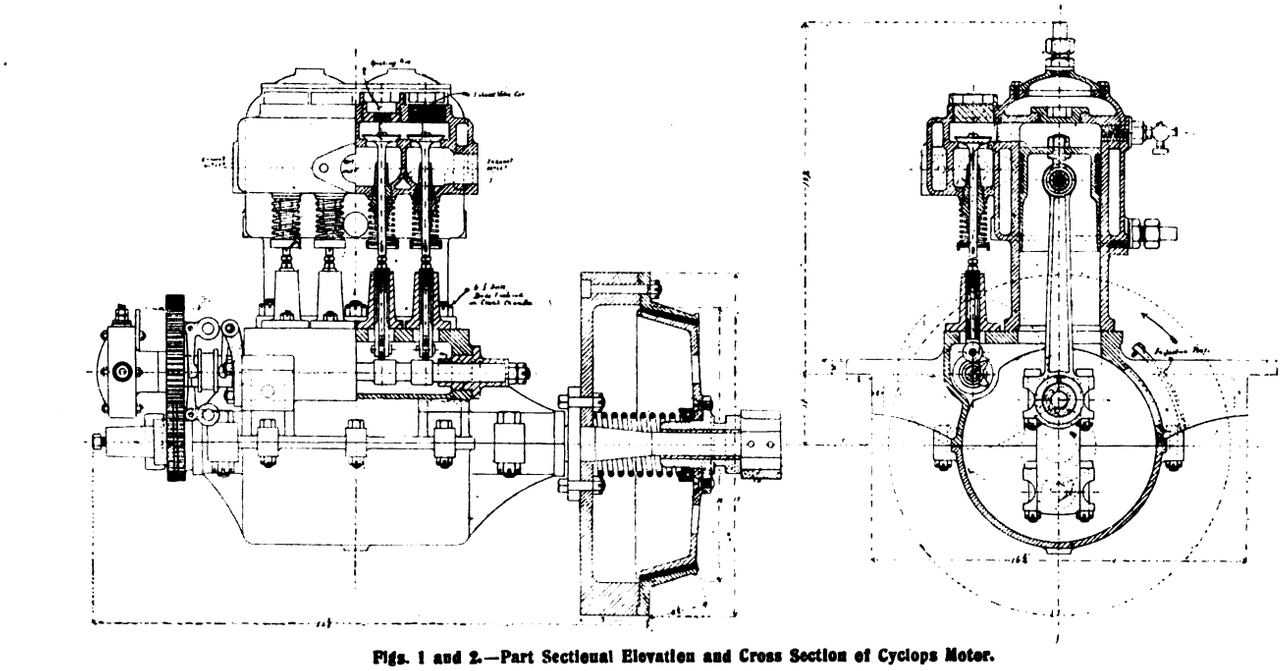
ACCESSIBILITY of parts, and especially of parts subjected to wear, is one of the most essential features of any motor or motor-car. In the earlier automobiles probably no feature of value was more neglected than this. The inventor began with his motor, placing it on the frame, and then piling the accessories and other parts around it wherever room could be found. The result was that, as a rule, whenever something on the engine broke or needed readjustment, practically the whole vehicle had to be pulled to pieces to get at the parts affected and repairs on the road were almost out of the question. The earlier workers naturally did not take the broad view of the whole combination of a vehicle like present designers, who have many models to serve as their guides. Probably, also, they failed to appreciate the importance of accessibility, which, although it might have been forecasted by a theoretical consideration of the nature of the machinery employed and the conditions under which it works, has only been fully established by road experience with actual machines.

In a petrol vehicle that which requires most frequent attention is the motor, or, to come down to narrower limits, the valves and ignition mechanism of the motor. The motor should therefore be so designed that all the parts constituting the valve and ignition mechanism can be easily withdrawn and without disturbing any of the other parts. This requirement has received full consideration in the design of many of the better petrol motors of to-day, and we now have examples which are probably not far from perfection in this respect. However, it is not sufficient that the parts of a motor be easily dismounted when the latter is placed on the shop bench or on a testing stand. The motor must be so placed in the vehicle that these same parts are readily accessible when it is in position. This requirement demands the exercise of no little ingenuity on the part of the designer when determining the general arrangement of parts and when designing the body. It is certainly objectionable to be compelled to get below the vehicle to reach certain parts.

A ready accessibility of parts not only aids in quickly repairing a fault; it also facilitates locating it. Locating the defective part and removing it from the machine usually consume the greater amount of time lost on the road, and a reduction in the time lost through such delays greatly increases the practicability of automobiles. The whole problem we are here dealing with may be summarised as follows:—The various operating parts of a vehicle must be so assembled that they can easily be taken off when required. The parts must be compared with each other as regards rapidity of wear and liability to damage, and those most affected must be placed in the most accessible positions. The mechanism must be divided into groups which are as nearly as possible independent of each other.

THE "CYCLOPS" PETROL MOTOR.

WE herewith give two sectional views of a new two cylinder petrol motor which has lately been introduced by the Cyclops Motor Works, of Staniforth Street, Birmingham. The engine, which develops 8-h.p. at a speed of 900 revs. per min., comprises two cylinders 3½-in. bore by 4-in. stroke. The cylinders, with their heads and water-jackets, are made in one casting, so that there are no water joints to give trouble. The inlet and exhaust valves are both mechanically operated off one cam shaft, which can be detached endwise by simply taking off two nuts. The valves, valve-lifters and guides are all interchangeable. A feature of the pistons, which are each provided with four rings, is, that they are turned both inside and out, so that they retain their rotundity, and consequently maintain a uniform compression. The gudgeon pin, it will be noticed, is supported from the top of the piston. The crank chamber is of aluminium, with large removable door to allow the big end of the connecting rod to be inspected. The engine is arranged for the usual electrical ignition, with wipe contact located in front. The flywheel is made to act as part of a clutch of the internal type. Great care appears to have been taken in the design of the motor, very ample bearings being provided. We understand that the Cyclops firm are also engaged on the construction of a four cylinder engine on similar lines.



Figs. 1 and 2.—Part Sectional Elevation and Cross Section of Cyclops Motor.

A COMMITTEE of the Automobile Club of Havana, Cuba, recently waited upon President Palma, requesting his support of a movement to hold automobile races in the Cuban capital during the early autumn.

AN immense album, containing pictures of all the members of the Chicago Automobile Club in their cars, is being made by the official photographer of the club for the reading room of the club-house. In addition to the name of the persons, the make and horsepower of the car will be given, together with other data of interest.

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TOURING BY MOTOR-CAR.

TO derive the maximum of pleasure from a motor tour, it is essential that no serious trouble be experienced with the car. Nothing is more vexatious, when touring by automobile, than to be subjected to long delays on account of repairs. Some day there will be a repairing establishment at every cross-road, or, perhaps, there will be automobiles that never break down. At present, these are things which must be done without, wherefore every man who takes a long tour or a short one commits an inexcusable folly, and earns any misfortune that may befall him, if he fails to include in his touring equipment a number of spare parts and a full complement of tools.

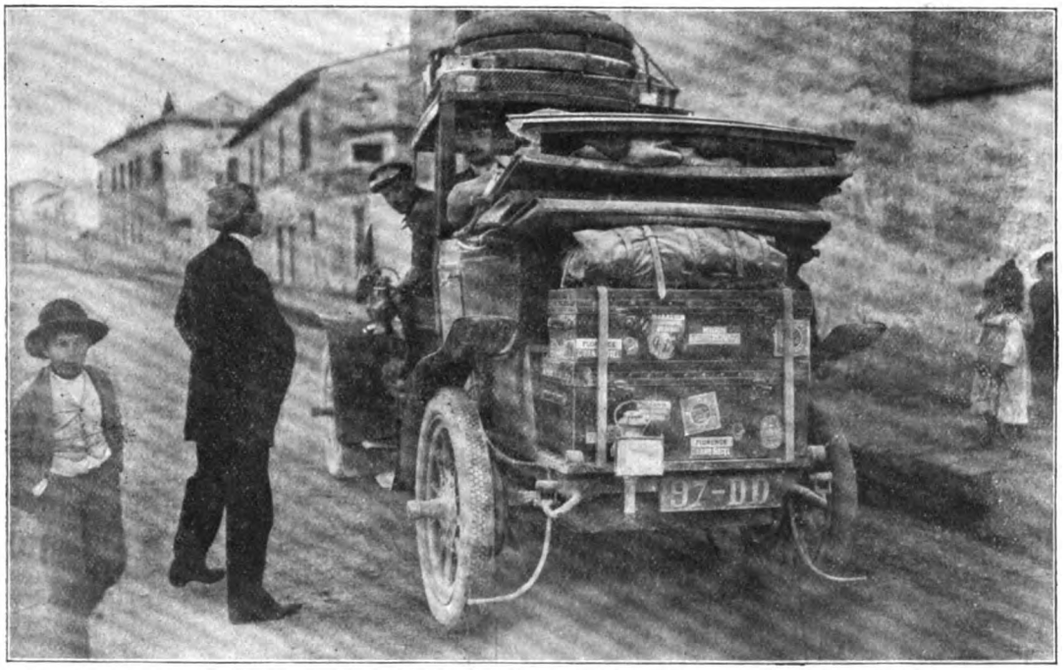
Many a motorist has seriously injured his car, and perhaps walked miles, because he lacked a few steel balls or rollers, to replace broken ones in the wheel bearings, or a spare inner tube for the tyres, or a reserve sparking plug, or a spanner to open the carburettor, or enough oil, or a little emery to grind a valve seat or a needle valve, or any other of a wide range of articles that in the aggregate might weigh fifteen or twenty pounds at most. Such a motorist deserves to have trouble. He is like a horseman who would take out his steed with a loose shoe, an engineer who would start on his run without fuel and water, or a ship captain who would venture on the high seas without chart and compass.

No motor-vehicle, however well made and designed, will run surely and indefinitely upon mere pulling of levers. It must be cared for—groomed, provided with fuel and lubricant, electric current, and new parts when necessary; adjustments and inspections must be made from time to time, and every precaution exercised to avoid misusing it. On the highroad, inconveniently far from expert aid, a motorist is wholly dependent upon the knowledge and materials he has at hand. He need not be an engineering expert, but if not, he should have a well-indexed book or at least a pamphlet of directions to inform him in an emergency. He need not make of his car a travelling machine shop, but he certainly should carry a few tools and spare parts. Different cars require different equipments. As a general rule, two classes of parts, supplies and tools should be carried—those most likely to be needed, and those likely to be most difficult to obtain.

In the first class are such things as the different parts of bearings, spare inner tube and outer cover for tyres, sparking plugs, springs for inlet and exhaust valves, extra chain links, spare accumulator, files, wrenches, spanners, screwdrivers, punches, a cold chisel, a hammer, a small vice, wire nippers, and tyre repair outfit. In the second class would fall extra bolts and nuts, a hand drill stock, plenty of fuel and lubricant, calcium carbide for acetylene lamps, a small soldering kit, etc.

It takes considerable thinking and not a little planning to make one's first tour a success—to keep up satisfactory progress and get a rational enjoyment out of the new experience. Then in all probability, especially if one has a genuine liking for that sort of thing, the whole problem seems simpler and easier than at first thought possible. Bad weather or poor roads, or both, accidents and the like, may temporarily cloud this view, but in the end it is sure to prevail. Advance schedules have a certain value to the entirely unacquainted motorist, since they often help him to decide between different routes for the same district, give him an idea of the roads and nature of the accommodation along the way. Long descriptions may be read before one starts out and possibly taken along on the car; but it is safe to say that not once in a hundred times are they referred to in the tour.

The most in smallest compass is undoubtedly furnished by a convenient size and accurate scale map of the district to be covered. One in need of essential information should find, if possible, someone who has gone over the same route in a motor-car, which is the best possible way of solving the matter. The average native is to be depended upon only for strictly local directions; not always for that; prove what he tells you by another if opportunity affords, nor be surprised if both are proven wrong by subsequent developments. Ask the hotel keeper or the householder rather than the man found walking along the highway. When the tourist comes to know any district thoroughly through experience, the opportunities for the makeup schedules suited to his times and convenience, as well as to the speed and power capabilities of his car, will develop far ahead of the possibilities for using them. Fortified in this way, if the ready motorist happen to find himself at almost any point, with much or little time to spend touring, he can, remarks the New York "Motor," make his plans in short order with confidence in his ability to carry them out. As one's mastery of the subject advances, too, the difficulties in the way relatively diminish. He can put in many a day advantageously which another would very likely waste.



Touring on the Continent.—A well-equipped Car.

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MOTOR COOLING PROBLEMS.

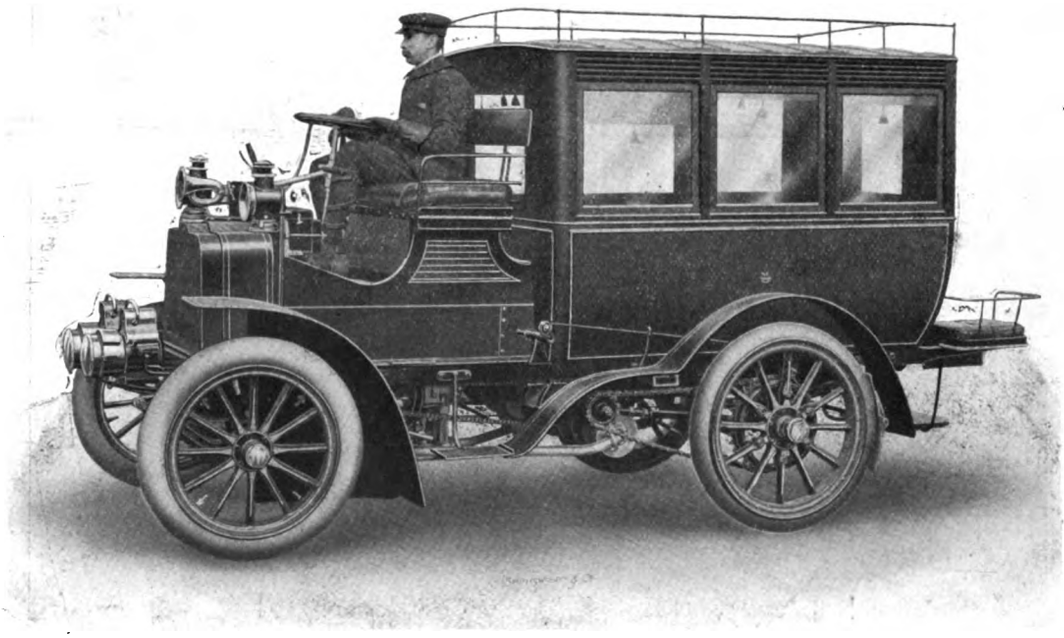
RECENT competitive events have shown that in many cars the water cooling system is one of the most vulnerable parts, and the experience of private users has largely confirmed this point. In most cases the trouble experienced is not inherent in the system, but is due to irrational arrangement of the parts, or to faulty construction. The general practice of leading the water into the jacket at the lowest point and leading it out at the highest is undoubtedly based upon the fact that this course of the water assists circulation, for water has a natural tendency to rise as it becomes heated. On the other hand, in a vertical engine with such a course of the water the cooling effect is greatest where least needed—that is, at the lower end of the cylinder—and least where most needed, viz., around the valves and cylinder heads. With positive pump circulation it would be possible to force the water downward through the cylinder jackets, but the danger of steam pockets forming would thereby be increased. If the pump was not absolutely positive and liable to cease working at low engine speeds, it would, of course, be inadvisable to attempt to force the water downward through the jacket, as with the counterforce, due to the heat imparted to the water in the jacket, the pump would simply cease operating so much sooner.

The most serious ill effect of forcing the cooling water from the coolest to the hottest end of the jacket is a loss of thermal efficiency. For highest efficiency the temperature of the entire cylinder should be just below the point where the heat interferes with lubrication, and it is obvious that if the temperature of the upper end of the cylinder is not too high for this, the temperature of the lower end must be much below the most advantageous point. The many objections to circulating the water through the jacket from top to bottom have been partly overcome in some cases by jacketing only the upper part of the cylinders.

The usual practice in designing the radiators required has been to make the radiating surface proportional to the horse-power of the motor. While this rule may, considers the "Horseless Age," give fairly satisfactory results, it is obviously not scientifically correct, because the heat absorbed by the jacket water increases as the surface of the cylinder, or as the square of its linear dimensions, while the power increases as the third power of the linear dimensions. Consequently a motor of double the horse power of another (and the same number of cylinders) does not require twice the length of radiating coil, a very fortunate condition, as otherwise the cooling of the large, powerful motors now coming into use would involve considerable difficulties.

THE WOLSELEY PRIVATE OMNIBUS.

WE illustrate herewith one of the latest productions of the Wolseley Tool and Motor-Car Company, Limited—a 24-h.p. private omnibus with seating accommodation for twelve passengers. As will be seen, in this car the standard Wolseley lines have been largely departed from. The driver's seat is placed well forward, and allows of a roomy body being fitted. The car is hung fairly low in order to secure stability when travelling fast. Two seats are arranged at the back to carry footmen; these are so arranged that they may be detached when not in use. The roof is made strong enough to carry passengers' luggage, while the 'bus top is made detachable, allowing the vehicle to be converted into an open wagonette for summer use. The front wheels are shod with pneumatic and the rear wheels are fitted with Sirdar solid tyres. The motive power is supplied by a four-cylinder horizontal engine having cylinders 4½ in. diameter by 5 in. stroke, and running at a normal speed of 800 revs. per min. The ignition is by coil and accumulators, while the water-cooling is maintained by a slow-running rotary pump and a honeycomb radiator, the latter being a new departure for the Wolseley Company. Half-compression cams and exhaust valve lifters are provided to ease the compression when starting the motor. The ignition can be advanced and retarded from the steering pillar, and in addition the speed of the engine can be regulated by means of a throttle on the admission pipe. An auxiliary throttle is also fitted in conjunction with the brake pedal, so that as the brake is applied the supply of gas to the motor is further cut down. The transmission is on the usual Wolseley system, that is, by Renold silent chain from engine shaft to gear box, and by side roller chains from sprockets on the differential shaft to the driving wheels of the car. Four speeds forward and a reverse are provided. The vehicle has a wheel base of 7 ft. 6 in. and an overall width of 5 ft. 3 in.; the weight of the *chassis* is 20 cwt., while that of the complete car is approximately 26 cwt.



The Wolseley 24-h.p. Private Omnibus.

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HERE AND THERE.

FAULTY carburation is the motor's indigestion.

AN automobile club is in course of formation at Warsaw, Poland.

THE Grand Duke of Saxe-Weimar has ordered a 35-40-h.p. Benz-Parsifal car.

THE German Automobile Club proposes to organise another motor-boat race in the autumn.

THE United Motor Industries, Limited, have just issued a new edition of their catalogue of motor parts and accessories. A number of additional articles are included in the list, a copy of which can be obtained on application.

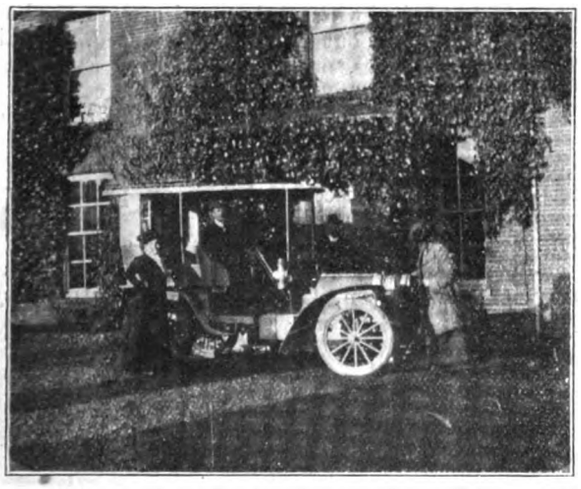
THE Caledonion Motor-Car Company, Limited, have secured on a 10 years' lease the large and central premises lately occupied by Campbell's, Limited, carriage work department, in Bon-Accord Street, Aberdeen, which they will occupy in October.

AT the Motor-car Exhibition held at Oxford in connection with the meeting of the British Medical Association, the Mayor, Dr. E. A. Bevers, took very great interest in the exhibits, and before leaving accepted a set of the Wilton-Cox puncture-resisting device for the tyres of his car.

THE police commissioners of St. Louis, U.S.A., have authorized the purchase of two high-speed motor-cars, which will be stationed in the Forest Park section for use in causing the arrest of violators of the motor traffic regulations. An experienced driver and a policeman will be in each vehicle, which will be provided with a speedometer.

THERE is such a thing as too much tinkering. If you have a mechanician who is inclined toward mechanical ingenuity, it is well sometimes to restrain him. Keeping a car in good condition does not mean trying to improve upon the work of the car manufacturer. The latter did the best he knew, and very likely he had years of experience to guide him.

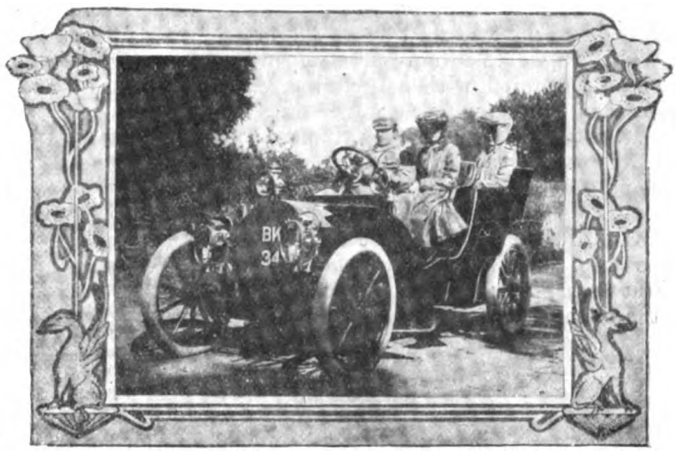
THE Britannia Motor Garage Company, Limited, has been registered with a capital of £20,010 in shares of £1 each, and 200 founders' shares of 1s. each, to carry on the business of keepers of motor-garages and show or sale rooms, manufacturers and vendors of motor-cars and vehicles, etc., and to adopt an agreement with Messrs. J. H. Adams and T. Underwood. There will be no initial public issue.



A 16-h.p. Argyll at Whitwell Vicarage. The Car is fitted with a special body known as the "Stradbrook," made by Messrs. Botwood and Egerton.

AN excellent preparation is found in the See fluid for vulcanizing patches on inner tubes and covers of motor tyres. The fluid exempts the patch from liability to leakage, and is not affected by heat or wet, while it has the further advantage of being easily applied, and is quite inexpensive. The fluid is handled in this country by the Otto-Bennett Motor Company, of 8, Snow Hill, London, E.C.

IN his report on the trade of Central Italy for 1903 the British Consul states that if a larger number of commercial travellers extended their visit to Central Italy British manufacturers would benefit by substantial orders. He adds that the number of motor-cars in Rome is increasing, and considers that a good local agency for the sale of British motor fittings, tyres, etc., would do a remunerative business.



Mr. and Mrs. J. Buckwood, of Southsea, on their 18-28-h.p. Mercedes Car.

A PUBLIC service has lately been started by the Central Motor Touring Company between Blackpool and Garstang, a distance of sixteen miles. The vehicle, a 12-h.p. Milnes Daimler twenty-seated wagonette, makes two journeys a day in each direction. A number of interesting villages are passed through, and while passengers taking return tickets from either terminus are given preference, a scale of intermediate fares has been arranged.

ON Thursday last Mr. Williams, of the firm of Messrs. Deasy and Company, Limited, started from London on a Martini car, with the object of making a tour over practically the whole of the United Kingdom. The tour is for business purposes only, there being no idea of record breaking, the object being to demonstrate in every large centre the capabilities of the Martini, not only as a hill-climber, but in every other department of automobile excellence.

To drive a motor-car in Chicago it will be necessary in future to pass an examination so elaborate and rigid that it has been denounced as "absurd" and "ridiculous" by motorists of that city. The new regulation establishes a board of registry, and requires that every driver shall be registered, for which a fee of 12s. 6d. is charged annually. Intoxicated and reckless persons are prohibited from being registered. Persons having defective eyes who have the defects remedied by glasses "shall have the glasses securely fastened to the nose by a steel frame." The board of registry are charged with ascertaining that all applicants are physically and otherwise capable of operating a motor-car before they are registered.

MR. H. TAYLOR sends us particulars of a tour he has lately made on his 10-h.p. Decauville. "Starting from Ealing, I struck the Great North Road at Finchley and drove straight away to Glasgow—411 miles. During this journey I was obliged to adjust the commutator spring; but, with the exception of this item, I never touched the engine from start to finish. During my stay in Scotland I took daily and week-end trips from Glasgow, which served as headquarters, and one week-end did a round of 250 miles. I did not spare the car in the matter of hills; but she went up them all splendidly, including the 'Devil's Elbow.' I took the same road home to London as I had followed out, and during the return journey the tyres fully established their claims to spoiling a record run by two punctures. The engine was never touched throughout the whole of the time, with the exception of the adjustment of the spring above mentioned. I estimate that in all I covered 1,650 miles."

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AN automobile club has just been formed at Toulon, France.

A GARAGE has been opened by Messrs. Richardson, Limited, at St. Peter-at-Gowt, High Street, Lincoln.

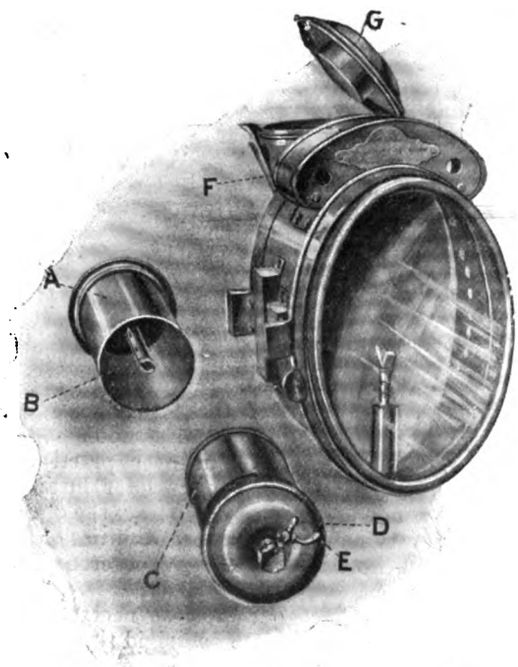
THE Wolseley Company have just delivered a 16-h.p. Siamese phaeton to the War Office for the use of the Inspector of Iron Structures.

THE Mors motor-car lately owned by the Marquess of Anglesey, and most sumptuously fitted for long touring, has just been knocked down at auction for £825.

THE Highgate Motor-Car Company's Successors, Limited, has been registered with a capital of £1,000 to carry on the business of motor and cycle manufacturers and dealers, &c.

IN Little Donegal Street, Belfast, Messrs. J. B. Ferguson and Company have garage accommodation for a large number of cars and also carry a large stock of oils, spare parts, etc., for motorists.

ONE of the most difficult accessories to select for the motor-car is the lamp. Something towards the solution of the problem is to be seen at Gamage's, where the "Zanardini" acetylene lamp is a feature of the motor department. There are no rubber bags to cause trouble. All the parts are get-at-able, and it is possible to turn the gas off and on constantly till the carbide is used up, as the water is driven out of the carbide chamber immediately the light is turned out. At an exhaustive trial of motor lamps held by the Rhone Automobile Club last year, this lamp took the first prize, scoring high marks for the power of the light, its projection on the road, the steadiness of the flame, and the possibility of re-lighting time after time without re-charging. The front of the lamp is elliptical, and the reflector parabolic, while the accompanying illustration shows its various parts.



A, generator.
B, water tube.
C, screw down cap.
D, gas supply nipple.
E, gas tap.
F, air passage.
G, lid to generator chamber.

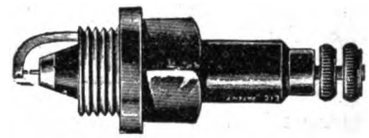
OUR French contemporary, "L'Automobile," as a result of the subscription for the benefit of the mechanicians on the French cars in the Gordon Bennett race it recently opened, has divided a sum of £60 between the three men.

AT a bazaar in aid of a church restoration scheme at Saxmundham last week a motor-car was raffled. One hundred and thirty tickets at one guinea each were taken, the lucky number falling to Mr. Simpson, of Darsham, who, curiously enough, had purchased an automobile three days before.

MOTORISTS touring in the Blackpool district of Lancashire will find that there are still several tolls to be reckoned with. There is one over Freckleton Marsh, between Preston and Lytham, where sixpence is charged for a motor-car. At the Shard Bridge over the Wyre, on the road from Poulton to Stalmine, the charge is twopence per car and one penny for each passenger. What we consider an imposition is a charge of a shilling to drive a car across the small Gartford Bridge over the same river; it might, at least, be the same as that at the Shard.

MR. JOSEPH CHAMBERLAIN enjoyed a trip by motor-car from Welbeck to Belvoir Castle on Saturday.

MESSRS. BROWN, BROS., LIMITED, the wholesale agents for the specialities of the Electric Ignition Company, send us a sample of a new E.I.C. sparking plug, which has recently been introduced to compete with low-priced foreign mica plugs. The new plug, which is known as the model B, is lower in price than



the ordinary E.I.C., but it appears to be well made and reliable One of the special features of the plug is the tapered construction whereby each explosion of the engine automatically fastens the plug in its body, while subjected to expansion and contraction, making a perfectly gastight joint without the aid of packing and nuts and screws.

AT Bulawayo a Wolseley car plies for hire, conveying parties to the Matoppos and other places of interest.

MR. PEMBROKE COLEMAN has sent in his resignation as the official timekeeper of the National Cyclists' Union.

MESSRS. H. M. HOBSON, Limited, are opening a depot and garage for motor-cycles and cars at 85, King's Road, Chelsea, S.W.

THE Birmingham Brake Company has been registered with a capital of £7,500 in £1 shares, to carry on the business of motor and other brake manufacturers.

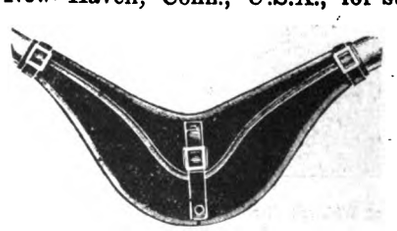
THE chairman of the Bridges and Roads Committee of Northumberland has declared against the suggestion for an application for a reduction of the speed limit to ten miles an hour in their county.

ON the lines of the *Motor-Car Journal's* Identification Card, that issued by Mr. T. Throup, of Bradford, has had a wide sale in the north. It gives diagrams of the new signposts and is of a size suitable for the waistcoat pocket.

WEST-END GARAGE, LIMITED, is the title of a company registered to carry on the business indicated in the title. The first directors are Messrs. T. F. Gillett and H. A. S. Glover. The registered office is at 188, Blythe Road, West Kensington.

ACTING under instructions from the Highway Commission, the police in Boston, U.S.A., recently stopped automobiles in all parts of the city in order to ascertain by an examination whether the owners had complied with all the requirements of the State law. It is reported that out of 248 cars stopped, 114 did not carry the required lamps, numbers, certificates, or badges, 62 drivers could not show certificates for either the car or himself, 29 had no certificates for the car, and 13 had no driving licences. Thirty-five cars had no numbers on the lamps, and 5 had no lamps. Two cars did not show the same number on the lamps and certificate. It is expected that many prosecutions will follow.

THE accompanying illustration shows a grease bag which has been devised and introduced by the Gilbert Manufacturing Company, of New Haven, Conn., U.S.A., for strapping over



steering connections or universal joints. The bags, which are filled with grease, protect the bearings of the joints from grit or water, and will, the makers' claim, keep them clear and well lubricated for an entire season.

THERE are now 5,840 motor-vehicles in Massachusetts, the highway commission of which state has during the last six months had £2,026 added to the treasury by the income from the granting of licences.

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CORRESPONDENCE.

EXPERIENCES WANTED.

To the Editor of *The Motor-Car Journal.*

Sir,—In reply to "Rustician's" letter in the *Journal* of the 30th ult., the statements he makes in his letter quite astonish me and would certainly prevent my purchasing a car if it gave so much trouble as the "two parties" seem to have experienced. I have had an 8-h.p. Argyll car for the last three years and can say it has given me the greatest satisfaction. I have not had the least trouble in starting the engine and have had very few breakdowns. The axle broke on one occasion through a flaw in the shaft, which might happen to any make of car.

I adopt the following method in starting. Turn on the petrol and slightly move the spill of the carburettor up and down a few times to get a good mixture, give the engine a few quick turns with the starting handle, then switch on the ignition, and the engine invariably starts on the first turn of the compression. The car must be kept thoroughly clean and all parts properly lubricated, the four-volt accumulator well charged, and the engine, after a run of forty or fifty miles, washed out with paraffin by injecting a small syringeful through the compression tap, give a few turns to the engine, and allow waste oil to drain off, and be sure to give a full charge of oil again before start. The wheels should be of equal size and a spare inner tube always carried, in case of a puncture. I think if "Rustician" follows my suggestions he won't have much trouble with his car. Of course, he is not going to jump on a car for the first time and do a twenty or thirty mile spin until he has gained a little experience in driving and handling a car, but with reasonable care he should learn to surmount any little difficulty that might crop up.

Get a good gauge pump and see the tyres are up to the necessary pressure, as it is a most important thing that the tyres are properly inflated. Do not forget to fill the petrol tank and keep it full. I was hung up on two occasions by neglecting this simple matter; and one more most important thing, keep a clear head before attempting to start on your journey, as by not taking this precaution may account for "Rustician's" acquaintance being in the surgeon's hands.—Yours truly,

W. F. Rowe.

THE BEXHILL MEET.

To the Editor of *The Motor-Car Journal.*

Sir,—While at Bexhill last week end, watching the motor races from my car, which was drawn up with others alongside the track, I was informed by a man, accompanied by a police constable armed with an official looking note-book, that I had the option of paying 10s. for standing room or of moving the car away, and apparently every car owner was in turn accosted in the same manner. Personally, I neither paid nor moved away (as I exceedingly doubted the legality of the claim), and I was not troubled further; but, as I saw other cars moving out of the line of spectators, I presume they believed the claim to be legal, and so probably some of those who remained had paid for the privilege of doing so. It would be interesting to know if there were any legal right to these payments, and if not, the Automobile Club should be asked to take up collectively the question of having the payments refunded.

If the claim be legal, I take it my case would not have been concluded with a refusal on my part to either move or pay. My name was not even taken.—Yours truly,

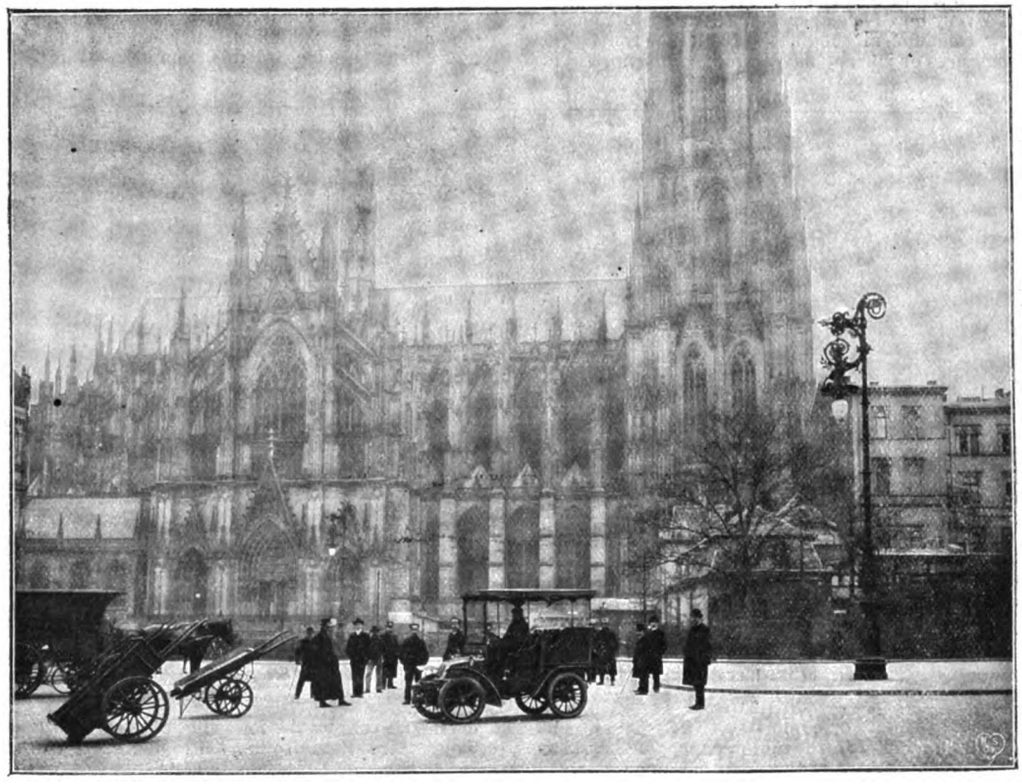
Ernest H. Arnott.

REGISTRATION.

To the Editor of *The Motor-Car Journal.*

Sir,—I should like to warn your readers not to be too anxious to register their cars before being actually in possession of same. Having sold my old car through an agent, I applied to the Middlesex County Council for transfer of my old number to my new car, a Darracq on order, which they granted me on payment of £1. Owing to protracted delay in delivery I cancelled my order and bought a car of another make. I applied to the Council for the alteration to be made in the register, but they replied to do so they would require another £1. Meanwhile, however, the buyer of my old car had applied for my number, which the Council gave him, so of course I cannot have that. Through being overanxious, I have had to pay £3 for two numbers, which I think is a great imposition, and in future will rather run the gauntlet with my old number till in actual possession of the new car before applying for registration. I think you will agree with me that some provision should be made to prevent a repetition of this downright imposition.—Yours truly,

Late 186.



A Cudell Car in front of the Cathedral at Cologne.

HORSE v. MOTOR.

To the Editor of *The Motor-Car Journal.*

Sir,—In reply to "Practioner's" letter in the *Journal* of the 30th ult. *re* the respective merits of horse and motor, I will try to give a brief *resume* of my two years' experience of a motor-car. Two years ago I bought a new 8-h.p. four-seated motor-car. My first troubles, occurring very frequently, were ignition troubles. These I soon overcame by having a wipe spark contact breaker put on instead of the previous trembler. Then my next trouble was with the tyres (Goodyear), of which I went through some dozen or so tyres in less than eighteen months, then I got Colliers fitted on the hind wheels, three of which were soon ruined by cutting by the rims. I then got other two tyres of same

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kind, but this time the makers put in new rims; these have been fairly satisfactorily. On my front wheels I have Continentals, which have done well. By this time fresh troubles began to arise, principally clutch slipping, engine getting almost red hot, universal joint bolts wearing out, etc. But the greatest trouble of all was that although there are at least a dozen of so-called motor engineers within thirty miles, there is not one who properly understands motor work. One firm, with their crack expert, took out the friction clutches to remove the cause of slipping, and punched the surface of the clutches with a steel punch, and charged over £7 for the work. Another firm of motor engineers tried to mend this by filing the surface of the clutches, and, with one or two minor repairs, charged between £13 and £14.

Another firm overhauled the car during last winter, took out the differential gear and replaced it by new wheels. The whole of the old ones I have got back with difficulty, and it can be seen that they should not have been touched. The cylinder head and crank case have been removed and fixed up innumerable times before this engineer (?) could set it right; the result is that the mechanism is now unreliable, and there is a bill of over £80 for this meddling.

Anyone giving up horses and taking up motoring must have a thoroughly good motor engineer within decent distance, and one who will be honest in his work and charges; but my experience is that such is impossible to find. I might give an instance. Some time ago I sent an accumulator to be recharged. It seems that in recharging one of the cells burst. The accumulator was sent by the motor firm to Coventry to be made right, and I am charged £1 8s. 6d. for this. My advice to "Practitioner" is, that horses are very much cheaper and much more reliable than motors. I must now conclude, although, if space had permitted, I could have given many instances of journey having to be given up, and of having to hire from the nearest place a horse and trap to get some urgent work done. There is too little written in the motor papers of the drawbacks of motoring, and too much about the pleasures.—Yours truly,

ANOTHER PRACTITIONER.

P.S.—I would be pleased to have readers' opinion of the charges, especially that for recharging accumulator.

THE CHOICE OF CARS.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—It is an undoubted fact, lamentable, no doubt, but none the less true, that the majority of cars purchased in this country are of foreign manufacture, a state of affairs now and then drawn attention to by weak-kneed wails and accusations of lack of patriotism from those interested in home productions, but none the less deserving of careful consideration by all who have the welfare of British automobilism at heart. What, then, it may be asked, determines the purchaser's choice of a car? In the case of the "old hand," it may generally be summarised as "reputation," a quality that may be acquired by a particular make by many years of good performance, or by some particularly successful public achievement, for which the chances in this country are painfully limited. The numerous contests held on the Continent have enabled many manufacturers previously little known to leap into temporary and profitable popularity, without detriment to the older and well-established firms. In the case of the novice it is seldom that he does not get advice from more experienced friends, who have probably, from the nature of the case, graduated on foreign cars. There is no doubt that the best English cars are at least equal in workmanship and durability to the foreign production; it is the fault of our manufacturers if they are not produced as cheaply; and, racing apart, they are as speedy as the ordinary user can require. But the facilities of determining which is the best are greater on the Continent than here, and the multiplication of trials, costly though it be, is the only way of hastening that survival of the fittest which, otherwise, time alone can effect, and which the publication of the makers' own opinion of their cars, in which some show such a pathetic faith, can do nothing to bring about.—Yours truly,

OLD HAND.

QUERIES RE PETROL CARS.

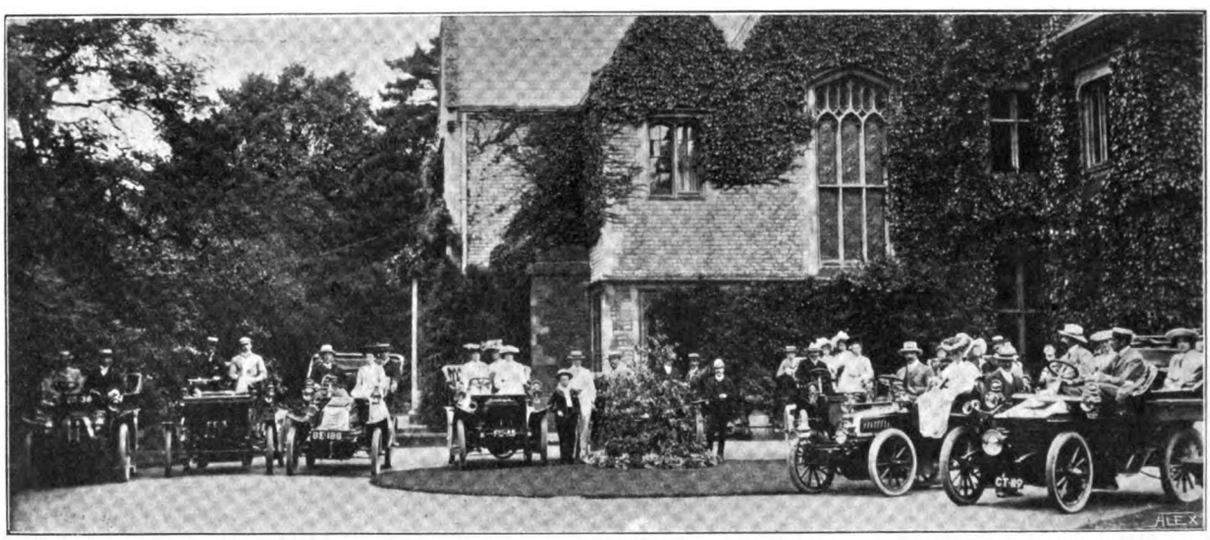
TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—Would any of the readers of the *Journal* kindly answer the following queries, which I think you will agree are of general interest? First, What are the general causes and remedy for the occasional bang or loud report in the exhaust box often heard on even new motors properly timed and valves correctly ground? The general idea is, of course, a misfire in the cylinder or a series exploded in the hot exhaust box. Is there a danger of exploding and firing petrol tank when adjoining?

Are there any cars fitted with both magneto and electrical ignition? Is the combination workable; or is it a fact, as I have heard from those who have tried, that they short circuit each other through the engine or frame?—Yours truly,

PETRO.

[The general cause of the loud banging in the exhaust box is a number of misfires in the cylinders; the charges are then passed into the silencer, and when sufficient gas is accumulated it is fired either by the hot exhaust box or by the following charges which are fired in the cylinder. This is most likely to happen in engines of two or more cylinders. There is not much fear of exploding or firing the petrol tank unless very close. There are several cars fitted with both high tension and magneto ignition which work very satisfactorily. If properly fitted, there is no fear short circuiting].



The Meet of the Lincolnshire Automobile Club at Westholme, Sleaford. (*See page* 513.)

CLEANING OUT A PETROL MOTOR.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—With reference to the injection of paraffin into a petrol motor to clear it of gummy oil, should the paraffin be put in so that it comes into contact with the valves in the combustion chamber? My engine is of the high speed type. Should I take out the sparking plug, inject a tablespoonful or so into the combustion chamber, and then turn the engine over several times? It would seem to me that this procedure would coat the entire engine with a layer of paraffin oil, which, when the engine heated, would burn. Of course most of the products of combustion would come out of the silencer, but it seems to me that there would also be a residue of carbon left, which would leave the engine in a worse condition than when it was gummy. I should like to have your opinion on this matter.—Yours truly,

NOVICIO.

[This is a very important item, and is best accomplished by means of paraffin or petrol, the former by preference. If no compression tap is fitted, it is best to remove the sparking plug and inject through the hole into the cylinder. The bulk of the paraffin passes the piston into the crank case and should be drawn off through the tap or plug provided in the base, after which a fresh charge of oil should be given. The paraffin has no effect on the cylinder walls, and does not leave a great amount of

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deposit. It really becomes mixed with the lubricating oil, and so prevents the piston sticking when the engine is cold or the oil gummy.]

BELT TRANSMISSION.

To the Editor of *The Motor-Car Journal*.

Sir,—How is it that inventors have given up trying to adapt the belt for cars? Every practical man knows that for flexibility, simplicity and noiselessness it would be peculiarly suitable if successfully applied. It seems to me that for connecting the two vibrating ends of drive in a vibrating frame the belt should be supreme—the conditions seem, indeed, to demand it.

Is the problem to be given up altogether? I have heard of belt-driven Benz cars running 5,000 miles without the belt being touched, and some time ago I saw a notice of some inventors having successfully used belt race cones. I should be glad to know the opinions of others on the belt question.—Yours truly,

J. B.

ESPRIT DE CORPS.

To the Editor of *The Motor-Car Journal*.

Sir,—I have in my possession a pocket voltmeter in purse case, by Peto and Radford, which was picked up on the road yesterday morning, August 2nd, in the parish of Hollingbourne, about five miles from my place on the Ashford road.

A 14-h.p. Clement (registered A but number unknown) had just previously most courteously stopped to proffer assistance and had allowed me the use of the selfsame voltmeter, which shortly afterwards was picked up some 200 yards from the place where I had stopped.

If you will kindly make this known through the columns of your valuable journal I shall be most happy to return the voltmeter to its owner, together with my best thanks for his courtesy and timely assistance.—Yours truly,

A. T. Falwasser.

Owner Wanted for Lamps.—Found on the Holyhead road beyond Fenny Stratford, about forty-five miles from London, two motor-car rear lamps. The same were picked up in the week ending July 23rd. They can be had by applying to Mr. C. A. Gibbons, motor-car agent, Fenny Stratford, Bucks.

CLUBS AND ASSOCIATIONS.

LADIES.

The Committee of the Ladies' Automobile Club have adjourned until October. At the last meeting the following ladies were elected to membership of the club:—Mrs. St. John Coventry, Miss Austin-Jackson, Lady Tennant, Mrs. Rideout, and Mrs. Philip Waterlow. The Committee have accepted Mrs. Wilson Noble's invitation to the members of the club and their friends to motor to Tangley Park, Guildford, on Saturday, Oct. 15th. This will be the only meet that can be arranged until next spring, and it is hoped that as many members as possible will be able to attend.

The club now numbers 307 members; the subscriptions for town and country members being five guineas, with an entrance fee of five guineas. Members who are elected on or after October 1st (in any year) only are required to pay one subscription for the period ending December 31st in the following year.

SCOTTISH.

The Western section of the Scottish Automobile Club held a meet at Abington, Lanarkshire, on Saturday last. The weather was very unfortunate, as during the entire afternoon it was wet, the rain at some times falling in torrents. Notwithstanding this and the fact that Abington is in a remote and exposed district, a dozen cars arrived at the hotel at the appointed time.

KENT.

The Kent Automobile Club are holding a hill climb at Detling Hill to-day, Saturday, at 1.30. After the climb the members are invited to Mr. Austen's residence at West Court, Detling, for tea.

VICTORIA.

The Automobile Club of Victoria has decided to hold a motor race meeting at Aspendale Park, near Melbourne, on Monday, 31st October. The racing will take place on a special gravel track, which is now being laid down by Mr. J. R. Crooke, the proprietor of Aspendale Park. The track will be 66 feet wide, banked at the corners, and is being constructed to allow a speed of between 50 and 60 miles an hour to be attained. An inter-state invitation race will probably be one of the leading features of the programme, which will also comprise an open car and an open motor-cycle race, besides many other interesting events.

LINCOLNSHIRE.

Another of those very pleasant gatherings for which the Lincolnshire A.C. has become noted took place on Thursday of last week, when the members were entertained to a garden party at Westholme, Sleaford, by Mr. H. A. Peake. Between 20 and 30 cars, carrying nearly 100 passengers, put in an appearance. Some of these were magnificently appointed vehicles. The photograph on page 512 shows several of these. Reading from left to right they are:—Capt. J. A. Cole, J.P. on a 12-h.p. Durkopp, Mr. Walter Pennell on a Locomobile, Mr. A. A. Padley on a 10-h.p. De Dion, Mrs. J. R. Richardson on an 12-h.p. Richardson, Mr. C. W. Pennell, J.P., on a 16-22-h.p. Martini, Mr. R. M. Wright on a 12-h.p. Georges Richard, and Mr. T. W. Mays on a 12-h.p. Wolseley. Others present were Capt. and Mrs. Gleed on a Baby Peugeot, Mr. W. Nissler and Miss Nissler, 8-h.p. De Dion, Dr. Gilpin, 7-h.p. New Orleans, the Rev. M. and Mrs. Wilkins, Baby Peugeot, Dr. Benson, J.P., and Mr. J. H. Carter 6½-h.p. Humberette, Capt. and Mrs. Newsum and Mrs. Livens, 18-h.p. Richardson, Mr. and Mrs. A. W. Holloway, Baby Peugeot, Dr. and Mrs. De Beauvais, 7½-h.p. Daimler, Mr. W. S. Foster, the Misses Foster and Mr. G. H. Hazlehurst, 24-h.p. Georges Richard, Mr. G. W. Jeffery with Mr. and Mrs. Fletcher Mercer, 12-h.p. Darracq, Mr. H. T. Pilley with Mr. and Mrs. Dodds and Mr. G. Holland 8-h.p. Peugeot, the Rev. T. A. and Mrs. Stoodley and Miss Farrer, 5½-h.p. Daimler, Mr. H. Rose with Mr. R. Connell and Mr. W. Connell 15-h.p. National, and Mr. Wilkinson and Mr. Yates on motor-cycles. Mr. Padley brought Mr. Stokes, a visitor from Johannesburg, who made his first trip on a motor-car, Mr. R. M. Wright brought the Rev. J., Mrs. and Miss Bell (Kettlethorpe), Mr. C. Pennell brought Miss Hart, and Mr. W. Pennell had Mr. Cyril Nelson on board. After partaking of tea the guests spent a most enjoyable time in roaming about the charming grounds. Croquet and other lawn games were provided, and a string band played selections of music at intervals. The company separated between 6 and 7 o'clock, having spent a most delightful time.

MOTORING IN THE PARKS.

Sir Albert De Rutzen on Tuesday gave his decision at Bow Street (London) Police Court in the case of Mr. Montefiore Mendelssohn, of the Albany, Piccadilly, who appeared before him on two adjourned summonses charging him with infringing the park regulations by driving a motor in St. James's Park at a speed exceeding ten miles an hour, and with failing to produce his licence when requested to do so by a police officer. The magistrate said that during the adjournment he had carefully considered the points of law raised on behalf of the defendant by Mr. Staplee Firth. It was, he remarked, argued by Mr. Firth that the regulations limiting the speed of motors in St. James's Park to ten miles an hour, which came into force this year, were *ultra vires* on the ground that the Parks Act, on which they were based, only mentioned vehicles, barrows, and trucks, whereas it had been ruled that a motor-car was a carriage. It was perfectly clear, however, that a motor-car was a vehicle, and he held that the regulations were good. He overruled, too, the other points raised by Mr. Firth, viz., that there ought to be proof that the regulations had been laid before the Houses of Parliament, and that there was no authority to impose a ten-mile limit without the consent of the Local Government Board. The magistrate went on to say that he knew nothing more uncalled for than the remarks which had been made to the effect that the police gave their evidence unfairly in motor-car cases because they were prejudiced against motors and their drivers. It would be just as unfair to suggest that magistrates were prejudiced. The police at Scotland Yard used motors supplied by the authorities, and it would be difficult to find anything more useful. Motors, however, were very powerful, and it was necessary to restrict their speed, especially in the parks. The police adopted the best known system of estimating the pace of motors, and it was evident that the defendant in this case had gone at the rate of about twenty miles an hour. For that offence he would be fined 40s. Referring to the summons against the defendant for failing to produce his licence, the magistrate said he was willing to believe his explanation that he did not think it necessary to carry it with him. It was perfectly clear, however, that the Legislature intended that drivers should carry their licences with them, and the defendant must pay 9s. costs.

THE ENDORSEMENT OF LICENCES.

After a motorist had been convicted at the Hadleigh Petty Sessions of an offence under the Motor Car Act, the Clerk asked him if he had his driver's licence, as it would require to be endorsed. Defendant expressed his opinion that the action was under the 1896 Act. The Clerk read a communication from the Home Secretary in which he was ordered that the offence should be entered upon it. Defendant said he read many cases in the newspapers where the fine was only 5s., and in no case was the licence endorsed. It meant a good deal to him, as he was a professional driver. The Clerk said the Bench had no option in the matter. The licence was accordingly endorsed.

POLICE TRAPS.

There is a police trap on the main road from London, about a quarter of a mile past Uxbridge, starting near a public-house on the right hand side of the road. The policeman is in the hedge further down. One of the directors of the West End Garage, Limited, the other day, had a narrow escape there, being just warned in time.

On the Leeds road, near Huddersfield, the police have a carefully-devised trap.

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IMPORTS OF AUTOMOBILES.

BELOW we publish our monthly official list of the imports of motor-cars, motor-cycles, and the parts thereof, into the United Kingdom during the month of April, 1904 :—

BELGIUM.

Shipped from	To	Description.	No.	Value. £
Antwerp	Harwich	Motor-cars	2	460
„	„	„ cycles	1	40
„	„	„ car parts	—	248
„	„	„ cycle „	—	1,193
Brussels	Liverpool	„ „ „	1	50
„	London	„ cars	2	500
„	„	„ car parts	—	330
Ghent	„	„ „ „	—	52
Ostend	Dover	„ cycles	2	56
„	„	„ car parts	—	6
„	London	„ cars	36	14,985
„	„	„ cycles	72	2,465
„	„	„ car parts	—	485
„	„	„ cycle „	—	543

Total value of imports from Belgium in April, 1904 ... £21,413
Total value of imports from Belgium, January–April, 1904 £90,313

FRANCE.

				£
Bordeaux	London	Motor-cars	2	340
„	„	„ car parts	—	35
„	Southampton	„ car	1	210
Boulogne	Folkestone	„ cars	57	20,738
„	„	„ cycles	14	518
„	„	„ car parts	—	3,779
„	Goole	„ cars	24	10,500
„	„	„ car parts	—	469
„	London	„ cars	111	33,730
„	„	„ cycle	1	24
„	„	„ car parts	—	1,317
Calais	Dover	„ car	1	340
„	„	„ car parts	—	59
„	London	„ car „	1	115
Dieppe	Southampton	„ car parts	—	110
Cherbourg	Grimsby	„ cars	16	4,170
„	Newhaven	„ „	104	42,280
„	„	„ cycles	13	418
„	„	„ car parts	—	9,984
Dunkirk	Hull	„ cars	3	780
„	London	„ „	1	400
„	Leith	„ „	2	865
Havre	London	„ „	1	300
„	Southampton	„ „	4	1,450
Marseilles	Liverpool	„ „	1	800
Nantes	London	„ cycle	1	90
Rouen	Glasgow	„ cars	5	1,254
„	„	„ car parts	—	116
„	Manchester	„ „ „	—	120
Treport	Leith	„ „ „	—	13,836
„	London	„ cars	48	14,170
„	„	„ car parts	—	3
„	Manchester	„ cars	2	385

Total value of imports from France in April, 1904 ... £163,685
Total value of imports from France in Jan.–April, 1904 £561,525

HOLLAND.

				£
Amsterdam	Goole	Motor-cars	4	1,835
„	„	„ car parts	—	24
Flushing	London	„ „ „	—	140
Rotterdam	Harwich	„ cycle	1	40
„	„	„ car parts	—	300
„	„	„ cycle parts	—	137
„	London	„ cars	7	4,205
„	„	„ cycles	26	646
„	„	„ car parts	—	401
„	„	„ cycle parts	—	18

Total value of imports from Holland in April 1904 ... £7,746
Total value of imports from Holland in Jan.–April, 1904 ... £16,076

SOUTH AFRICA.

				£
Cape Town	London	Motor-cycles	4	120

Total value of imports from South Africa, April, 1904 ... £120
Total value of imports from South Africa, Jan.–April, 1904 ... £260

GERMANY.

				£
Bremen	Hull	Motor-cycles	2	50
„	London	„ cars	9	2,575
„	„	„ cycle	1	31
„	„	„ car parts	—	58

Total value of imports from Germany in April, 1904 ... £2,714
Total value of imports from Germany Jan.–April, 1904 ... £19,838

UNITED STATES.

				£
Boston	Liverpool	Motor-cycles	2	50
„	Manchester	„ cars	3	218
New York	Glasgow	„ car parts	—	12
„	Liverpool	„ cars	28	4,700
„	London	„ „	62	14,216
„	„	„ car parts	—	158
„	Southampton	„ cars	20	4,6 0
„	„	„ car parts	—	6

Total value of imports from the United States, April, 1904 £23,960
Total value of imports from the United States Jan.–April, 1904 £50,613

CASES DISMISSED.

MR. PHILIP DAWSON, of Lawrie Park, Sydenham, was summoned before the Croydon County Bench on Saturday, the 6th inst., for driving a motor-car in the parish of Coulsdon, on the 16th July, at a speed exceeding twenty miles an hour. There was a great conflict of testimony. Mr. O'Gorman was in attendance to give evidence for the defendant, and after hearing Mr. Staplee Firth, who appeared for the defence, the Bench dismissed the summons.

A POINT in regard to motor-car prosecutions has been raised with effect at Stroud Police Court. Mr. A. H. Wilson, of Queen Street, Huddersfield, was summoned for driving his motor-car on two occasions at excessive speed. Mr. Reed, who defended, contended that the prosecution must fail because no one could identify Mr. Wilson as having been in the car or having driven it. The chairman accepted this view, and dismissed the summons, adding that he thought the law should be altered.

MR. PEEBLES, of Russley Park, Baydon, Wilts, was summoned at Swindon for driving his motor-car at a speed which was dangerous to the public on July 17th last at Swindon. Mr. Firth, who appeared for Mr. Peebles, cross-examined no less than ten witnesses for the prosecution, and the summons was dismissed.

CONVICTIONS AGAINST MOTORISTS.

Place.	Summoned for	Fine.
Harrogate	Dangerous driving	£3, etc.
Malton	No number	20s.
Acock Green	No licence	£3, etc.
Brighouse	No rear light	£1, etc.
Daventry	Dangerous driving	£5, etc.
Hatfield	No number	10s., etc.
Wilmslow	Dangerous driving	£5, etc.
Norton	Not stopping when requested	£2, etc.
Wooler	„ „	£1, etc.
Epsom	No number	5s., etc.
Wokingham	No rear light	20s., etc.
Richmond	No light and no licence	£4, etc.
Stone	No rear light	1s., and 10s. 6d. costs.
St. Neots	Ten cases of driving to the common danger	Fines ranging from £5 to £7 —total amount £57.
Malton	Riding motor-cycle without rear index mark	20s., etc.
Slough	Negligent driving	£10.
Greenwich	Fraudulent use of motor-car mark	£5, etc.
Hadleigh	No rear light	£2.
Colchester	Driving beyond legal limit	£2, etc.
Guildford	Driving to the common danger	£1.
Wareham	Not stopping when requested	£2, etc.
Kingston	No light	£1.
Brighton	Excessive speed	£5, etc.
Oxford	No number	10s., etc.
Thames (London)	No licence	£5, etc.
Dunmow	Not stopping after causing an accident	£1, etc.
Leeds	Beyond legal limit	£3, etc.
Huddersfield	Furious driving	£5.

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COMMENTS.



THE General Council of the Scottish Automobile Club have had brought under their consideration various cases of reckless or inconsiderate driving, and have resolved to make a general appeal to the whole membership on the subject. The fact that the Motor Car Act, 1903, expires on 31st December, 1906, and that prior thereto the entire legislation with respect to the use of motor-cars on the highways will again be under the consideration of Parliament, makes it imperative that during the interval the conduct of all automobilists should be such as will not only prevent antagonism and prejudice, but will gain appreciation and support on the part of the public. It is further of extreme importance, in view of various applications by Burgh and County Councils to the Secretary for Scotland for the closing of roads and limitation of speeds in their respective areas, that no cause of offence should be offered, and that the General Council's argument, in their notes of objections to these applications, that Section I. of the Act of 1903, which deals with reckless and dangerous driving and puts the responsibility on the driver, is a sufficient protection to the public, should be amply borne out. The General Council trust their assurance to the Secretary for Scotland, that a loyal observance of the spirit of Act will be given by this club, will have the invariable support of every member. This is essential to successful opposition to unnecessary restrictions.

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A Small Mercy.

A REPLY has been received by the Roads Improvement Association from the Board of Trade with reference to the points raised by the deputation which recently waited upon the Government Depa tment. Although the Board cannot promise to prohibit the use of centre poles on roads by tramway companies, they will be prepared to enact in tramway and light railway orders that centre poles shall not be used without their express consent. The Board do not consider that it would be advisable to fix a statutory limit as to the width of roads that might have the effect of prohibiting urgently needed lines. In dealing with applications for tramway and light railway powers, the Board always keep in view the nine feet six inches space referred to in Section 9 of the Tramways Act, 1870, and make provision to secure it wherever practicable. The concession, for such it is regarded by the Roads Improvement Association, with reference to the centre poles is one of great importance if local people will do their duty in seeking to influence the Board of Trade when occasion requires.

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Extraordinary Traffic.

AT the last meeting of the Chelmsford Rural District Council the Ingatestone Parish Council called attention to the damage that might be caused by heavy motor-engines to the roads, and asked the Council to consider the desirability of taking some steps to protect the ratepayers. The letter, in particular, referred to the motor-wagon used by a firm of brewers. Rev. E. P. Gibson thought it a very good suggestion, as their roads were practically being made into railways. The assistant-clerk, Mr. A. S. Duffield, said they would have to prove damage caused by "extraordinary traffic." Mr. Kidner thought there would be no difficulty in establishing it as "extraordinary traffic." This kind of traffic was entirely an innovation, and demanded new measures to meet it. The assistant-clerk remarked that this particular engine came under the heading of "light locomotives," and not traction engines. Mr. Conybeare said it weighed nineteen tons. It drew three truck loads of barrels, and each truck with its load weighed about fifteen tons. If that were a "light locomotive" he should like to know what a heavy one was. The clerk was instructed to reply that no action could be taken unless damage could be proved.

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Hastings Automobile Meet.

BEXHILL is evidently not to have the monopoly in the provision of a motor carnival for the entertainment of its visitors. Probably incited by the recent success at the neighbouring seaside resort, a committee in Hastings has arranged for an automobile meeting to be held in that town on Saturday, the 27th inst. The cars will assemble in Warrior Square at noon, and a procession will proceed up and down the Parade, prizes being awarded for the best appointed motor-cars taking part therein. Later in the day a gymkhana will be held, several interesting contests being arranged in connection with this. There is no doubt as to the attractiveness of such gatherings, but we fear that the organisation of the forthcoming event has been delayed somewhat too late to admit of entries from a distance.

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The Irish Programme.

ON the 6th and 7th of September an automobile meeting will be held at Portmarnock, co. Dublin, under the auspices of the Irish Automobile Club. An interesting programme of motor-cycling events has been arranged under the rules of the Motor Cycle Union of Ireland, and those for cars include five classes in the tourists' section and two in the racing section. In the latter, interest will doubtless be evoked in the contest for the Irish Automobile Club's 200 guinea challenge cup, now held by Mr. J. E. Hutton, and also the 100 guinea challenge cup in the possession of Mr. A. Rawlinson. This annual Irish meeting draws together the numerous motorists in the Emerald Isle, and has hitherto been well supported by owners of cars on both sides of the Irish Sea. Such help will doubtless be continued and even extended.

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Cars in the Cemetery.

THE Hove Town Council has been considering a clause in the report of its Cemetery, Parks, and Baths Committee resolving "to place a notice at the cemetery entrance requesting motor-car drivers not to drive their cars in the cemetery." One councillor innocently asked if the proposed notice was an "order" or a request, whereupon a long discussion

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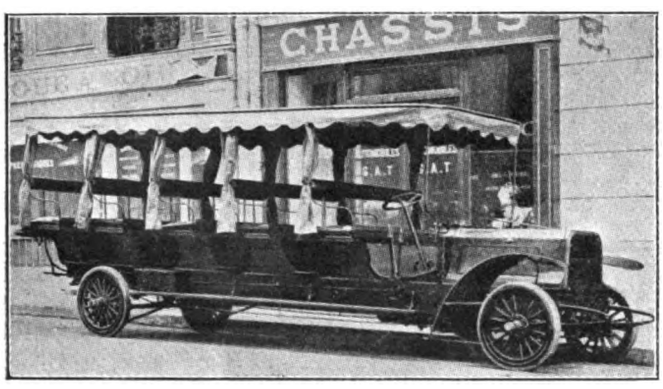
ensued, which was, appositely enough, unenlivened by a gleam of humour. Councillor Bedford not only failed to see any objection to motor-cars going into the cemetery, but he thought that before long such vehicles would be used at funerals. Councillor Voysey, too, thought that automobiles should be encouraged rather than prohibited, and moved the deletion of that part of the report authorising such a warning notice. Councillor Marks having expressed the view that motor-cars were "the vehicles of the future"—should he not have said the vehicles of the "past"?—the amendment was seconded, and only lost by one vote, whereupon, we note with relief, the council had "a hearty laugh." All's well that ends well.

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British Enterprise.

SOME animadversions having been made by enthusiastic newspaper correspondents on British makers of automobiles because they have not secured all the orders that have been out for public services, Mr. H. Austin has made a very complete reply. It must be borne in mind, he says, that the motor industry in this country is still very young, a point which is apt to be overlooked owing to its extraordinarily rapid progress. Hitherto the demand has lain chiefly in the direction of pleasure vehicles for private owners; nevertheless the possibilities of a self-propelled public service vehicle have by no means been lost sight of by our principal manufacturers, and had it not been that their resources have been taxed to the utmost to supply the demand for the ordinary type of car, it may be taken for granted that they would have been in a position to supply equally good commercial vehicles to those of Continental make. There are at least half a dozen English firms who are in a position to build and supply good reliable vehicles for public service. The main reason that orders for this class of vehicle have been placed away from England has been on the question of delivery, as it will be evident that a works already over-taxed with orders for other types of car must take longer to deliver special work than would otherwise be the case.

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The Motor Char-a-banc for Yarmouth. (See page 520).

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Motor-'Buses on the Coast.

THE automobile continues to advance in popular favour. In our "Continental Notes" this week we refer to French activity in providing cars for public service at Yarmouth. The vehicles in the neighbouring resort of Lowestoft have been a great success, and the Great Eastern Railway will doubtless extend the service next season. At the half-yearly meeting of the Great Western Railway, just held, Earl Cawdor emphasized the good results that had attended the running of automobiles in Cornish holiday resorts, and now we learn that in developing their undertaking the directors of the Torquay Motor-Omnibus Company have established a circular route between the Strand and St. Marychurch. This route will have a half-hourly service, starting at nine o'clock. The first 'bus proceeds by way of Wellswood and Babbacombe, returning down St. Marychurch Road and Union Street; and at 9.30 the second 'bus runs up Union Street and St. Marychurch Road, returning by way of Babbacombe and Wellswood. The communication is obtained by the St. Marychurch 'buses meeting the Tor and Torquay Station motors at Castle Circus and the Strand respectively. A long-felt need is thus provided for, and improved travelling facilities afforded which will doubtless be as much appreciated as the motor-'buses generally have been since they commenced running. At Morecambe, too, motor-'buses are proving a success, and at the moment of going to press we learn that the West of England Motor Service Co. propose to run a motor-'bus between Bodmin and Newquay.

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Motor Cases Only.

"ONLY motor cases will be heard in this court, all other cases in next court." Such was the opening remark of Sir William Chance at Guildford last Saturday. This state of affairs is remarkable, for here was a bench of magistrates in a county town recognising that all their time would be taken up in hearing motor prosecutions. Our own test for alleged driving to the common danger occupied nearly four hours, and a verdict in our favour was grudgingly given. What the other cases were we do not know, as we were glad to get into the fresh air again; but there were several others, at all events. In many of these cases a considerable amount of time is wasted in hearing evidence which, after it has been heard, the magistrates themselves declare to be inadmissible. This evidence is usually obtained by the police for the purpose of creating predjudice, and, although the magistrates themselves say it is not relevant, yet we are convinced it must leave some impression upon their minds. The persecution that is going on at the present time is beyond all belief, and it will soon be that the majority of motorists will have at least one endorsement on their licence. We know of several who already have three, while many have at least two, some of the endorsements being for driving when the tail light has gone out.

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A Surrey Combination.

A COMBINATION of most of the motorists in Surrey is being formed to defend their rights against the extraordinary opposition which they have now to encounter from the police and a large section of the public. For many months it has been apparent that the old days of the police trap have been revived with all the prejudice that could be fostered by local councillors armed with "a little brief authority." The Bench, too, has joined in the general attack on motorists and the proposed union of self-defence comes none too soon. In fact, it was urged upon the secretary and the solicitor of the Motor Union by the Editor of the *Journal* long ago, and it is really regrettable that something was not done earlier to bring the motorists of Surrey into line.

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General Booth's Tour.

GENERAL BOOTH has had experience of automobile ups and downs, and has taken advantage of the opportunities provided by punctures to attend to correspondence and to admonish the wicked on the roadside. When delays have proved of lengthened duration he has transferred his person to another car, leaving the stubborn vehicle to follow according to its own inclinations. As is usual on such trips, the Press car has suffered severely in this respect, and several times the journalists thus hindered in their work have looked towards the General as though they would like to say things. As for the leader of the Salvation Army, his vigour seems to have increased with his experience of motoring. "I am getting used to motors," he said when arriving at Okehampton after eleven hours' continuous riding, "and in fact I can now do business with my commissioners on a car." At the same time the General has not been wholly converted to automobilism, and declares the great

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fault of the car to be the "expense," which shows that, like John Gilpin's wife, he has "a frugal mind."

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A Dusty Spin.

ON Saturday the party left Ilfracombe, and, after an hour's delay caused by a puncture, made good pace towards Crediton. On the way they passed a constable who, with another person, was partially concealed in a gateway. The officer was busily occupied in consulting his notebook, and doubtless took the General's No. After Crediton, the dust, and when the cavalcade of cars reached Exeter the veteran leader was as white as a miller from the top of his cap downwards.

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A Defence Fund Suggested.

WHEREVER there are half a dozen owners of cars in a town or village, they should be encouraged to form a local committee to defend every case against any of their number who may be summoned. Only by such an universal movement can the great injustice of the present position be brought home to the people of the country and their representatives in Parliament, the latter of whom will have to settle the re-imposition or otherwise of the Act at the end of 1906. The Motor Union being a national organisation should open a defence fund, which should be freely available for the purpose of the litigation which local bodies may have to undertake. For such a purpose the trade would doubtless subscribe liberally, and there would be a good response if an active campaign were entered upon. But the period of sloth must be passed by and a determined plan of campaign undertaken, otherwise every driver's licence will soon be full of endorsements.

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Keep on the Right Side.

HIS Honour Judge Gye, at the Isle of Wight County Court last week, in giving judgment for a motorist, who was sued for damages by a cyclist who complained of having been run down, said he did not take the savage view that any stick was good enough to beat motor-car drivers. The Judge held that the cyclist was guilty of contributory negligence by riding on the wrong side of the road, and said he was afraid accidents happened through drivers of horse vehicles taking the view that motorists must keep out of their way under all circumstances. There should be mutual concession between drivers of motor-cars and other vehicles. This is a view that we should like to see more generally recognised than it is at present. Many of the accidents lately recorded as automobile mishaps have occurred owing to drivers of horse-drawn vehicles being on the wrong side of the road.

Notice Should be Given.

AT Chorley, on Tuesday, a useful point was successfully raised in defence of a motorist summoned for driving at an excessive speed. The defendant's solicitor claimed that the case failed because the constable who stopped his client did not tell him he would be prosecuted, but simply that he would be reported. The magistrate's clerk stated that the point for the Bench to decide was whether what the constable said was a sufficient notice that the defendant would be prosecuted. The Bench disagreed on the point, and the case was withdrawn, the clerk pointing out that it would have been sufficient if the constable had said "You may be prosecuted." Such little points as this should be noted and remembered by motorists, who never know when they may be prosecuted.

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The Police Method.

THE police are a resourceful set of individuals, and if they displayed the same ingenuity in the capture of criminals as they show in the trapping of motorists, the crime of the country would quickly decrease. Many motorists use the same road frequently, and this fact is noticed by the intelligent police-constable O, who is usually stationed at the same spot. He takes out his note-book, jots down the number of the car, and writes particulars as he chooses. Every time the same car passes the same process is repeated. The sequel is that at last the P.C. deems the motorist to have had sufficient run for his money, and then steps forward, raises his mighty hand, and announces to the astonished motorist he is going to issue a summons. His notebook is produced, and the numerous entries shown. This method of persecution refers chiefly to the south, and although not so great in the northern counties at present, it may extend in that direction. But "Oh, Law, thou art indeed divorced from justice,"

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The Hereford Trials.

ELSEWHERE we give particulars of the entries received for the forthcoming light car trials of the A.C.G.B.I., to be held in the Hereford district. These will be fully illustrated and described in subsequent issues of the *Journal*, and should attract considerable attention in South Wales and the western counties—a locality where motoring is becoming increasingly popular among the wealthy. The daily procession of forty small automobiles from the cathedral city should demonstrate the possibility of motor-car ownership to the man of lesser means, and there is little doubt that a goodly number of people will assemble in such important places as Worcester, Bromyard, Ludlow, Leominster,

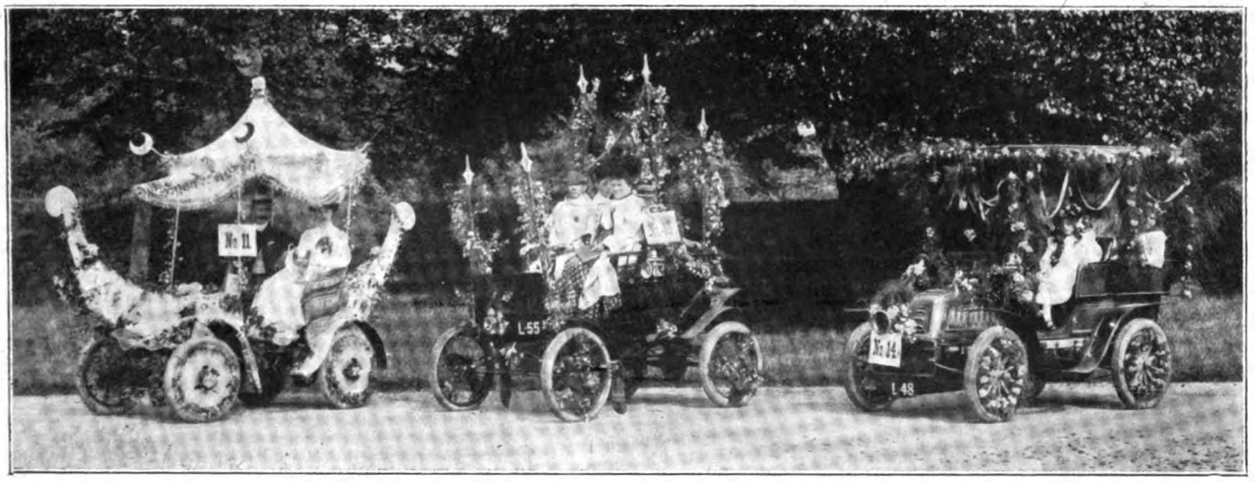


Photo by] The Display of Decorated Cars at Cardiff. (*See issue August 6th*). [*A. Freke.*

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Kington, Ross, and Ledbury, all of which towns will be visited during the course of the trials, a full programme of which will be given next week.

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Rules for Motor-Vans.

THE Local Government Board has drawn up regulations, which are expected to be in force by the end of this month, for heavy motor-cars or lorries. Metal-tyred vehicles are not to exceed a speed of eight miles per hour. If the unloaded weight exceeds three tons, and a trailer is drawn, or the axle weight is over six tons, the speed limit is reduced to five miles per hour. Non-metallic tyred vehicles may travel at twelve miles per hour if the axle weight exceeds three and is not more than six tons. If over six tons, the speed must be reduced to eight miles per hour. No motor-vehicle of over three tons weight unladen, used as a stage carriage or for the conveyance of passengers, will be permitted to draw a trailer. Six months will be allowed from the passing of the regulations for adapting old cars. After six months the new regulations will be enforced.

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Dangerous Hills in Surrey.

A LIST of the principal dangerous and precipitous places on the highways in Surrey was contained in a report presented by the County Surveyor at a recent meeting of the Surrey County Council. It was not proposed to take any action at present beyond instructing the County Surveyor to have warning posts erected at about sixty of the most dangerous hills. Mr. Longman criticised the action of the Highways Committee in not recommending that notices should be placed at all the dangerous corners, and asked how many accidents must happen before the committee could be induced to act. Mr. Ellis, the chairman of the committee, said that the list of dangerous corners in Surrey which they had received from the local authorities was incomplete. There were thousands of them, and it would be unwise of the County Council to specify any of them unless it could specify them all, for if a person happened to be killed at a place not marked then people might turn round and accuse the council of not doing its duty.

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Alertness still Necessary.

THERE would seem to be a fresh outbreak of anti-automobilism in many places, and several county authorities are seeking to restrict the legal rights of motorists on the road. At the quarterly meeting of the Anglesey County Council the Road and Bridge Committee have just recommended that the speed of motor-cars over the country roads be restricted to seven miles an hour, with the exception of the Holyhead main road, where it was to be ten miles. Captain L. Williams and Mr. Harry Clegg strongly opposed these stringent rules, and eventually it was resolved that a speed of twelve miles be allowed on the Holyhead and Menai Bridge road, or rather that application for the restriction should be made to the Local Government Board. Such instances are becoming so frequent that we would remind motorists not to relax the efforts lately made to perfect their organisation, local as well as national.

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Driving in Towns.

THE Committee of the Irish Automobile Club have addressed a circular to motorists dealing with the urgent necessity for special care when driving through Dublin city and suburbs. The feeling which prevails amongst a section of the public appears to be most acute at present, the circular says, and complaints have been made to the club, and, it is believed, also to the police, of inconsiderate and too fast driving, and of unnecessary blowing of horns. The Committee earnestly trust that the co-operation of motorists may be relied on when driving in Dublin to remove any grounds which may exist for this feeling. The warning of the Irish Club is one that should be regarded by all British motorists as well.

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Signposts in Hampshire.

THE Hampshire County Council have recently considered a recommendation to erect 274 warning signposts throughout the county, in accordance with Section of the Motor Car Act, 1903. The cost of carrying out the recommendation was estimated at £350, but it was also shown that motorists had already contributed £720 to the county in licence fees, and there was likely to be an annual income from drivers' licences of nearly £300. An amendment was, however, proposed to refer the matter back, and the Marquess of Winchester, supporting it, urged that it was better not to have any posts at all, because he thought that, if anything, they would tend to increase the danger. The Duke of Wellington was of a similar opinion, but the Hon. John Scott Montagu, M.P., thought that warning posts ought to be put up in extremely dangerous places. On a vote being taken, the amendment to refer back was carried by a small majority.

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Next Year's Racing.

THE committee of the Automobile Club have unanimously adopted the following resolution:—"That, in order to ascertain what are the best conditions for a form of racing intended to promote the improvement of touring cars rather than the construction of cars suitable only for racing at high speeds, the Club Committee, after consultation with the committees concerned, forthwith take steps to obtain permission for the running of such a race in the Isle of Man or elsewhere next autumn (1905), and announce to makers that the conditions will be those which were settled prior to the Gordon Bennett Race of this year, subject to such alterations as may be agreed to by this Committee." It is also of interest to note that entries for the Gordon Bennett Selection Trials, which will probably be held in the Isle of Man—although near Bristol and in Yorkshire have also been suggested—have been received from Lieut.-Col. Mayhew, Mr. John Hargreaves, Mr. Lionel de Rothschild, and Messrs. S. F. Edge, Limited.

PRINCE IBRAHIM, of Cairo, is at present touring in Italy on a 12-h.p. De Dion car.

THE 18-28-h.p. Mercedes car illustrated in the last issue of the *Journal* belongs to Mr. G. Brickwood, of Southsea.

THE Government of New South Wales have an expert in this country studying the progress of the automobile movement.

MOTOR-CAR trips in the pleasant district about Sydney, N.S.W., is a feature of the Colonial business of Messrs. T. Cook and Son.

WHEN *en panne*, be calm and endeavour to locate the trouble. Do not let your temper explode simply because the mixture will not.

A POLICE trap has been established near the South End Park at Beckenham, and is generally in active operation on Saturdays and Sundays.

VISCOUNT BARING, the Earl of Dalhousie, Baron R. A. L. Lehmann, and His Excellency D. G. Metaxas have been elected to membership of the A.C.G.B.I.

MR. C. H. DODD, of Reading, and Mr. G. T. Langridge, of Epsom, have been elected chairman and vice-chairman respectively of the General Purposes Committee of the Motor Union.

AN eight days' endurance run of 1,012 miles between San Francisco and Los Angeles, Cal., and back, is being jointly organised by the Automobile Clubs of California and Southern California for the coming autumn.

A PROSPECTIVE motorist is said to have asked the dealer whether the motor-car they were inspecting could stop in its own length? "Why," replied the agent, "it sometimes stops twice before it goes as far as that." And the client was satisfied.

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JOHN O' GROAT'S TO LAND'S END ON AN ARGYLL.

By E. J. Robertson Grant.

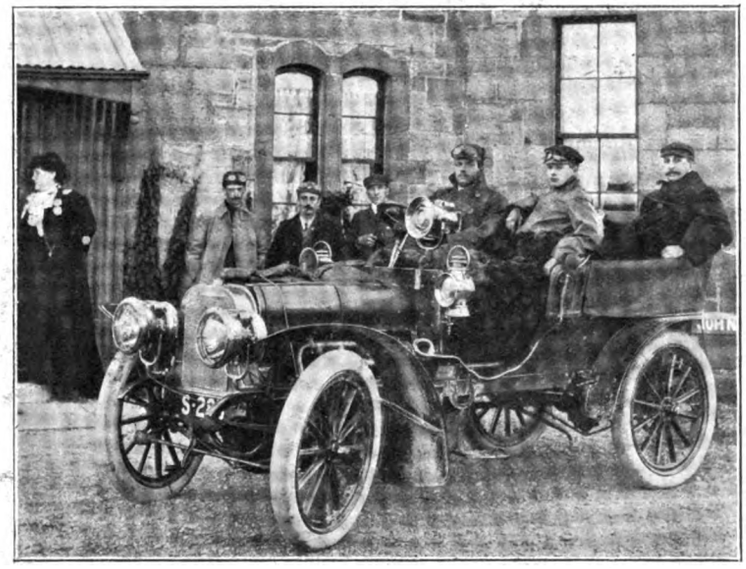
SOME little time ago I purchased a 14-h.p. "Argyll" car from the Hozier Engineering Company. The vehicle ran so well that I came to the conclusion that it was well able to do a trip from John o'Groat's to Land's End in as good if not better time than had yet been done. I consequently studied the roads a little and made preparations for the run. Accompanied by two friends we made a first attempt some ten days ago, but when about half way down we came to grief owing to running into a stray cow on our way over "Shap" in the mist of an early morning. Nothing daunted, but rather encouraged, we laid our plans again, and Sunday, the 7th inst., found us enjoying the hospitality of John o'Groat's Hotel, the while we studied the weather and discussed our chances of making an end-to-end record. The road was all mapped out, and a time table, allowing an average of twenty-one miles per hour for the 883 miles we had to travel, carefully prepared. The writer and his companion, Mr. J. Begg, at 3.10 a.m. on Monday, the 8th inst., set off amid the cheers and yawns of the folks in the hotel, all of whom had tumbled out of bed to give us a send off. The morning was dark and miserable, a heavy haze hung over the Northern Ocean, blotting out from our view the rough outline of the South Ronaldshay and forming a thick pall, through which the rays of the rising sun struggled to reach us. The way ran by the sea side over a road of heavy red clay, having here and there great pools of water, the result of the previous day's heavy storms. Luckily it did not actually rain, and our feelings improved as the sun succeeded in overcoming the mist and the temperature rose. After some fifty miles skirting the sea we drew away inland to get round Dornoch Firth. Along the rough and narrow Highland paths the car sped with never a falter, westward and southward, along roads almost deserted and without a house in view for miles. Approaching Inverness with the sun now high in the heavens, dust took the place of water underneath, and the railway began to dispute with us as to the right of way, a level crossing compelling our first halt, and robbing us of a non-stop to Inverness. Good weather and fine roads were ours for the next fifty miles, but Perthshire brought heavy rain accompanied by thunder, which somewhat dimmed our ardour and lessened our comfort, yet on we went, meeting many cars on their way to the north for the shootings, and passing every now and then parties of tourists on cars and horse-drawn vehicles on their way to visit one or other of the famous beauty spots of Scotland. On nearing "the fair city" we had unexpected trouble—a long sharp nail pierced clean through one of the rear Michelin tyres; protected though it was by a Grose non-skid band, the iron found its way between the studs and right through everything to the rim, on touching which it curled over and defied our endeavours to pull it out. This unexpected occurrence delayed us twenty-five minutes and made us fifteen minutes late at Perth. From the latter city westward to Stirling in the afternoon was good going over roads with a fine surface, and we made up time. At Stirling we had completed three hundred miles, and were again exactly on time, the first third of our journey having occupied 11 hrs. 50 min. Mr. Owen's garage provided a welcome supply of food, and not less necessary refill of petrol, and now, for a time, under convoy of a 20-h.p. Argyll from the Glasgow works, we proceeded through the busy and populous district in the vicinity of the Northern Metropolis.

Avoiding Glasgow itself, with its heavy traffic and watchful police, we proceeded by Lanark to Abington and the main road to the Border. At Gretna in the gathering gloom we lit our acetylene head lamps and in a drizzling rain began our attack on the long stretch of road from north to south of England. Without incident but for minor troubles with our wayward head lamps we dashed along all night, our way being picked with difficulty when the acetylene failed us; yet, despite the darkness (the moon gave us no assistance, but hid behind a heavy cloud the whole night), we only missed our way once, taking a private carriage way for the high road. Midnight found us running through Carlisle a few minutes ahead of time, with 410 miles behind us and somewhat more ahead. From Preston to Warrington all was well—roads good—ourselves sleepy and feel somewhat "seedy," yet determined as ever. Here our friend, Mr. Carlisle, of Manchester, took us in charge, provided us with supplies, and gave us a cheery pilotage through the Midland towns during the early morning hours.

Too sleepy to trouble much about the nature of the country through which we whirled, troubled only by the many flocks of sheep and herds of cattle that sought to claim a monopoly of the King's highway, we kept our eyes towards Bristol. In due time, and just when expected, we drew up at the depot of the Bristol Motor Company to take in our last supply of the needful for engine and man, and then we turned our car a little more to the west and began the last stretch of 200 miles to Land's End



Mr. H. Williamson and his Rex Mo or Bicycle on arrival at John o'Groats.



Mr. J Robertson Grant, of Buenos Ayres, leaving John o'Groats for Land's End.

TWO END-TO-END RECORD BREAKERS.

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At this stage of the journey we were welcomed everywhere by excited natives, all of whom seemed anxious to point out our way, and give us a cheery salute as we passed. By Exeter and Bodmin we went in the afternoon of the second day, a heavy thunderstorm daunting our ardour for a while. The deepening shadows found us at Penzance, where welcome shouts reached us, "This way to Land's End," Here's the road to the End." 9.15 p.m. (five minutes behind time) on Tuesday, found us very sleepy, very stiff, almost too hungry to eat, but very well pleased with ourselves, stepping from the car which had carried us so well at Land's End Hotel door.

Our total time for the 883½ miles, as attested by certificates, was 42 hrs. 5 min., thus beating the best previous record held by Mr. Cecil Edge by 3 hrs. and 20 min. Looking back on the run after a good rest, the remarkable feature even to ourselves is the closeness with which we were able to adhere to our time table. Despite our one delay we were never more than fifteen minutes behind time and arrived only ten minutes from our schedule. This is as good time keeping as that of the best long distance train, and better than that of most with which it has been our luck to travel. We did the whole distance on one accumulator. The engine, one of the Hozier Company's own build, ran beautifully from start to finish with never a falter, while the car gave no trouble of any sort.

On the 3rd prox. the Wolverhampton Club will hold some petrol consumption tests at Market Drayton. Motorists intending to enter should communicate with the hon. secretary, Mr. S. R. Rhodes, Lichfield Street, Wolverhampton, before the 27th inst.

A few days since, in an unofficial run, a 6½-h.p. Coventry Humberette, carrying its full complement of two passengers, climbed Sun Rising Hill from a standing start, including two voluntary stops, in 4 min. 50 secs. A Humber Olympia tandem reached the summit in 3 min. 10 secs., but did not observe the stops.

CONTINENTAL NOTES.

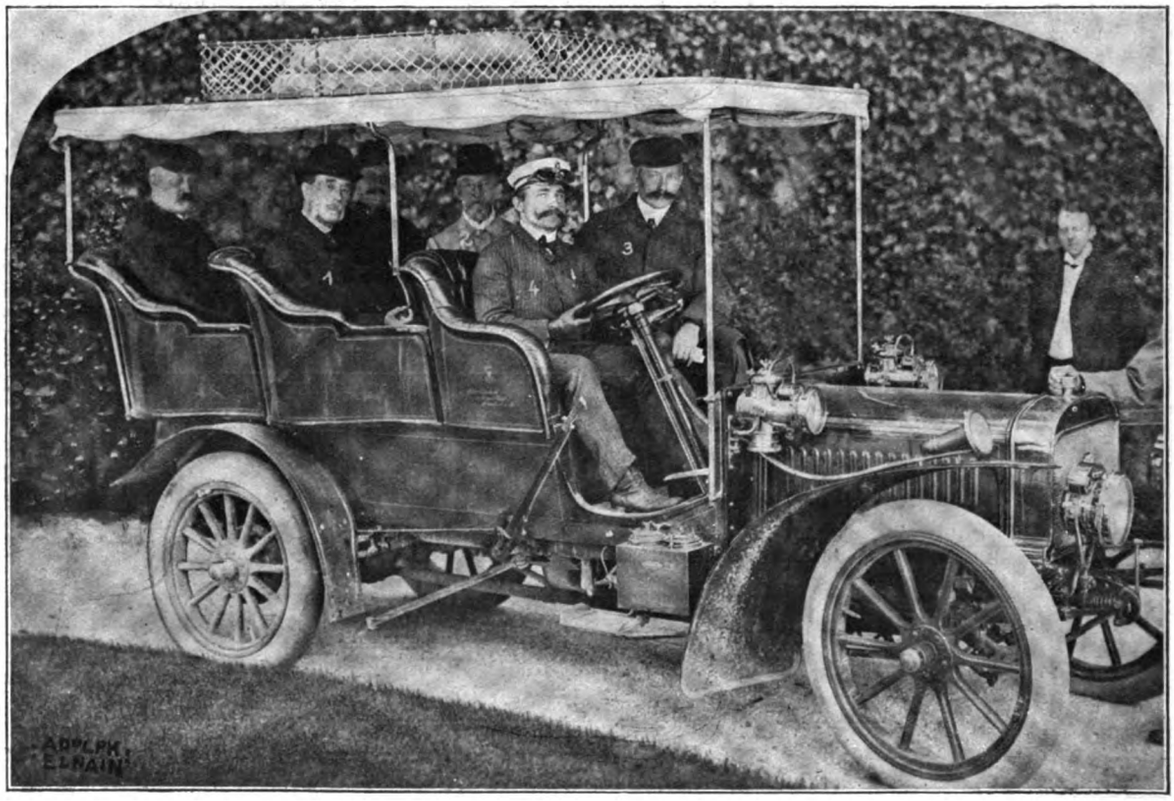
Royalty and Automobilism.

During his recent visit to Wiesbaden the aged King of Denmark enjoyed a number of runs in a 24-h.p. Adler car, visiting Frankfort-on-Main, Rumpenheim, and other places of interest in the district. He is stated to have been so pleased with the experience that he intends next year to make the journey from Copenhagen to Frankfort *en automobile*

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A Huge Motor Char-a-Banc.

A Parisian firm—Messrs. Gallet and Treffière—have lately completed a 22-seated motor char-a-banc, said to be the first of six they are building for a service at Yarmouth. The vehicle, which is propelled by a four-cylinder 16-h.p. engine, has a wheel base of no less than 15 feet. The car is chain-driven and has three speeds forward and a reverse. The road wheels are shod with solid rubber tyres.



The King of Denmark's First Motor Trip.

1. The King of Denmark. 2. Prince Hans of Denmark.

Motor-Boat Racing in Switzerland.

An International Regatta for motor-boats is to be held on the Vierwaldstattersee by the Lucerne Regatta Association on September 10th and 12th. The races for pleasure boats are to take place in two series on the 10th, thus:—1. Boats not over eight metres long, and of not more than 30-h.p. 2. Boats over eight metres long, and of not more than 50-h.p. September 12th is set apart for racing craft of unlimited h.p., but not more than twelve metres long.

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Motor Postal Vans in Russia.

The Russian post and telegraph authorities are about to inaugurate some experiments with motor-cars in connection with the transport of the mails in the St. Petersburg district.

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Motor-Cars for Mail Service in Denmark.

The commission recently sent abroad by the Danish Government on a tour of inspection with a view to reporting as

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to the adaptability of the automobile for short-route mail service has lately returned to Copenhagen. The commission, which was composed of officials from the post-office and other governmental departments and engineers appointed by the Government, visited a large number of places in north and central Germany, France and England. In the course of the report it is stated that from what they learned it was evident to the commission that the automobile gives excellent results where the modern machine has been employed in the public service. It is, however, only on the shorter routes that motor-cars have as yet been introduced into the postal service. If speed were not a consideration, it was evident to the commission that it would not be advisable to replace the present stage service with automobiles. On the other hand, if quicker delivery is the main object, motor-cars will best meet the requirements. It is the intention in Denmark, possibly, to replace the day coaches (stage service) by automobiles. It will be required that the automobiles have a speed of about twelve miles an hour on the average, which is about the speed maintained in the public mail service in foreign countries. The Danish Government has recently entered into a ten-year contract with a local company for the delivery of mails over the stage routes in Denmark proper. This company proposes, with the consent of the post-office department, and under its supervision, to install motor coaches in place of horse-drawn vehicles. This is an important branch of the postal service, since there are so many small islands without railways. The passenger and freight traffic would make many of the routes quite profitable. Four automobile omnibuses of French and, probably, German and Scotch manufacture will be given a three months' trial, beginning with September of this year. It is confidently expected that the experiment will be successful, and if so, that there will be a large demand during the next two or three years for automobiles of the omnibus type. The following are the rather severe conditions to be met before any particular make of car will be purchased. The body of the vehicle, exclusive of machinery, must be approved by the commission. The machine must be run 250 miles after coming from the factory, at the maker's expense, an inspector appointed by the commission being on board all the time. The car is then to be taken to pieces and each part carefully inspected, cleaned, and readjusted, and the car is to be run for three days at the expense of the maker. The car will then be forwarded to Copenhagen and run for three months by a driver furnished by the maker, who will be accompanied by a representative of the commission. The latter will pay the salary of the driver, will provide petrol and oil, and stabling for the car. The commission will pay one-third the price of the car on ordering it, one-third on its delivery in Copenhagen, and one-third at the end of the three months' trial, if it is found satisfactory. The trials are to be conducted under the supervision of the post office department, and from their decision there is no appeal. The car must accommodate sixteen persons, including the driver, and in addition be capable of carrying a load of one ton at an average speed of twelve miles an hour on a 9 per cent. grade. The commission has practically determined to try the "Schneider-Creuzot" omnibus, a car with a four-cylinder engine of 24-h.p., and accommodating twelve passengers inside and three on the platform.

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The Dust Nuisance in Bavaria.

A MEETING has been held in Munich with a view to forming a society for the purpose of dealing with the dust nuisance. It was convened at the instance of Dr. Herzog and Dr. Uebel, whose work, entitled "Roads free of Dust," was recently issued by the Association for Protecting the Interests of Bavarian Cyclists and Motorists. Dr. Uebel opened with a speech in which he reviewed the efforts of authorities and private individuals, both at home and abroad, to grapple with the dust problem. Finally, a motion proposing the foundation of a Society for the Prevention of Road Dust met with general acceptance, the object being to further all enterprises and experiments for the purpose of mitigating the dust nuisance.

Public Services in Austria.

A number of public services of motor vehicles is contemplated in Austria. Among others it is proposed to start a service between Carlsbad and Giesshubel-Sauerbrunn and one between Peterswald, Schonwald, Tellnitz, Arbesau, and Aussig.

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The Austrian Club.

The Austrian Automobile Club is considering a proposal to establish a testing laboratory on the lines of that of the A.C.F. It is also proposed to organise a trial of heavy motor-vehicles.

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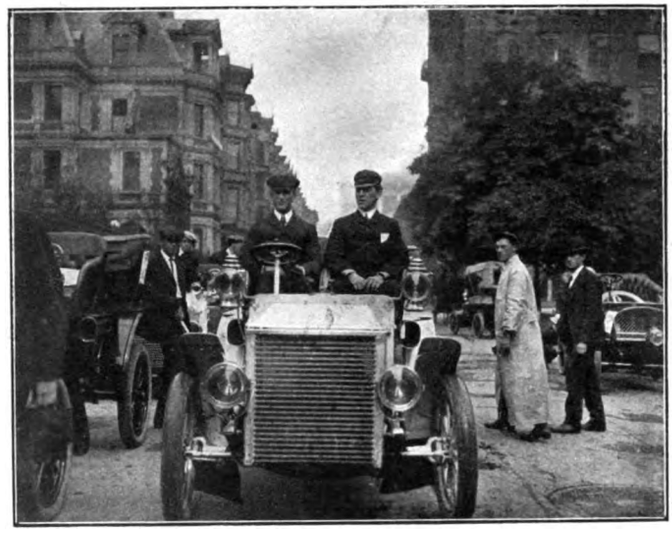
The Ventoux Hill Climb.

The Automobile Club Vauclusien, of Avignon, is organising a hill-climbing competition up Mount Ventoux for the 28th and 29th inst., the first day being devoted to the tourists and the second to the racing section. The course is about twenty-one kilometres long, and the average gradient eight per cent. The record for the climb (24 min. 50 sec.) is held by Rougier on a Turcat-Mery, but as several of this year's racers have been entered for the event it is expected that a new record will be easily established.

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An International Motor-Cycle Race.

As has already been mentioned in the *Journal*, an international race for motor-cycles, on the lines of the Gordon Bennett race, is to be organised by the Moto-cycle Club de France. The rules for the event have now been drawn up and challenges issued to all countries. An eliminating race is to be held on September 11th to select the French team, and the international event itself is to be held on September 25th, on a fifty-four kilometre circuit in Seine-et-Oise. The race is over a distance of 270 kilometres, so that the circuit will have to be covered five times. Challenges can only be sent through a club recognised by the French Automobile Club or the Moto-cycle Club de France. Each competing club may enter one, two, or three machines, and the fact that one country may only enter a single machine will not prevent another having three in the race. The event is restricted to machines weighing not more than 110 lbs. and made entirely in the country for which they are entered. A cup is being offered in connection with the event, to be held by the winning club, to whom challenges must be sent before February 1st in any year. It is to be hoped that England will send a team to compete in the cup race, full particulars of which can be obtained from the secretary of the Moto-cycle Club de France, 55, Rue Pergolese, Paris. It may be added that challenges for the first race will be received until September 7th.



One of the three White Steam Cars which took part in the Tour from New York to St. Louis.

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MOTOR CYCLING NEWS.

ON Monday the Auto-Cycle Club's reliability trials commenced, there being forty-five starters, comprising thirty-seven motor-cycles, two motor-tricycles and six quadricycles. Details of the runs have already been given. That of the first day was from the headquarters of the Auto-Cycle Club, in London, to Great Yarmouth, by way of Colchester and Ipswich. At the former place lunch was enjoyed and all the machines were kept well up to the legal limit. At Ipswich the local arrangements for timing were in the hands of Mr. J. R. Egerton. The first to arrive, at 2.35 p.m., was Mr. F. Cremonini, who was riding a 2¾-h.p. Star. He was missed by the first timekeepers, being much earlier than was expected, but passed Mr. Vulliamy at 2.40, closely followed by Mr. A. Jennings, of London, on a Mabon (3-h.p.). Next came Mr. P. Lambert on a 2¾-h.p. Griffon; Mr. W. King, of Cambridge, on a 3½-h.p. King; and Mr. S. Bramley Moore on a 4½-h.p. Hulbert-Bramley. Mr. E. J. Steele, on a 3-h.p. Rover, a rider on a 2½-h.p. Alldays, and Mr. H. Williamson on a 3¼-h.p. Rex, reached Ipswich before the previous three, but lost time in coming through the town. Much interest was aroused in Lowestoft by the passage of the motor cyclists through the town, and the competitors began to arrive at Yarmouth shortly after six o'clock. The roads from Ipswich to Yarmouth were much better than those on the earlier part of the journey, which were somewhat loose and pebbly. They experienced fine weather throughout the latter part of the ride, with a strong wind blowing in their favour. A large crowd gathered to witness their arrival.

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ON Tuesday the reliability run was resumed. Forty-one of those who started on the first day continued the journey from Yarmouth to Stamford. The distance was 203¼ miles, being by way of Norwich, King's Lynn, Ely, Cambridge, Hitchin, Bedford, Eaton Socon, and Huntingdon. Coil troubles on one machine and the buckled wheel of another, arising by the driver taking an awkward corner too sharply, led to the withdrawal of two entries. The first to arrive at Stamford were:—W. H Wells (Vindec), A. Hoffmann (Ariel), R. M. Brice (Brown), T. Hooydonk (Ariel), P. Lambert (Griffon), W. King (King), J. Platt-Betts (Rover), E. J. Steele (Rover), J. van Hooydonk (Phœnix Trimo), T. Silver (Quadrant), H. Tyler (Humber), and J. Thompson (Clyde). Up to eight o'clock twenty-four riders had arrived.

A TWO hundred miles non-stop trial on motor-bicycles was held on Saturday last under the auspices of the Motor Cycle Union of Ireland for a cup presented by the Ariel Cycle and Motor Company, Limited. The course was from Dublin to Waterford and back. The competing machines had to be of British manufacture. Six racers took part in the competition as under:—W. J. Thompson, Ma'low (Ariel); J. L. Dixon, Dublin (Hobart); T. W. Murphy, Dublin (Singer); F. A. Waller, Dublin (Triumph); G. Mayne, Dublin; (Triumph); and W. Keating, jun., Raheney (Triumph). Two of the riders had punctures in the first eighty miles, and three of them had other troubles before reaching Waterford. The remaining rider, W. Keating, covered 150 miles without a stop, but got a side slip, the rain having fallen heavily after leaving the turning point. The competition will be run off again before the end of the season.

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THE Coventry Motor Cycle Club has selected a team for the Motor Cycling Club team competition on the 27th inst., as follows:—Motor-cycles carrying two passengers: B. Yates, Humber tri-car; S. Wright, Excelsior bicycle and trailer (air-cooled). Reserves: V. Riley, tri-car; E. W. Harris, Singer tri-car. Single motor-bicycles, with engines of any dimensions: Riley (Riley); H. W. Duret (Singer). Reserve: H Starley (Starley). Motor-bicycles, not exceeding 76 by 76: R. W. Ayton (Triumph), B. H. Owen (Humber). Reserve: J. Wright (Riley).



The Auto-Cycle Club's Reliability Trials.—The Start at Regent's Park.

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A MOTOR-CYCLIST riding from Tunbridge Wells to Uckfield recently, shortly before midnight, was proceeding cautiously down a hill, when his acetylene lamp revealed three or four men standing across the road. He endeavoured to pass them slowly, when one of the men caught hold of the handle of his bicycle, and he was thrown violently to the ground and severely dealt with. Fortunately his assailants have been arrested, but the incident adds another terror to night riding.

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"THE New York and Philadelphia Limited" is the name given to a run from New York to Philadelphia and return, which the New York Motor-cycle Club is organising for the 28th inst. The "Limited" arises from the maximum and minimum time limits of fourteen and eleven hours, respectively, that have been fixed. To qualify for medals it will be necessary for competitors to finish within those periods of time. The distance to be covered is about 200 miles.

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THE STANLEY STEAM CAR.

THE Stanley steam car for 1904, as manufactured by the Stanley Motor Car Company, of Newton, Mass., presents no radical differences from the 1903 model, but a full description of the latest product may not be without interest. The frame consists of two tubular axles connected by a pair of hickory reaches. The underframe which is thus formed is strengthened against distortion by means of a triangular bracing. The rear axle consists of a cold-drawn steel tube enclosing the axle itself, of 1 1-16 inch diameter, which runs upon four sets of ball bearings containing three-eighth inch balls. Two of the bearings are near the springs, and two of them are close to the differential, which is of the bevel gear type, containing three pinions. On the composition spider of the differential is secured a brake drum and a phosphor bronze spur gear of eighty teeth which meshes with the engine gear and constitutes the driving mechanism. The rear axle tube, as well as the front one, is strongly trussed beneath. Means are provided for adjusting the gears of the differential to counteract any wear which may take place. The front axle is of the same size tubing as the rear one, and carries the inclined steering pivots, which are very substantial in character. Double elliptic springs of good length and wide spread are used throughout. Wire wheels of 28-inch diameter are employed, and are fitted with the standard form of clincher rims to fit any standard make of 28 inch by 2½ inch tyre. The body shows very graceful lines and provides a seat for two additional persons at the front by letting down a footboard. The space under this seat is occupied by the petrol tank and the pressure tank, the former of which holds thirteen gallons, which is said to be sufficient to run the vehicle 125 miles over ordinary roads. In the extreme rear of the body is the water tank, which has a capacity of twenty gallons, and is stated to contain a sufficient supply to operate the machine for forty miles on good roads.

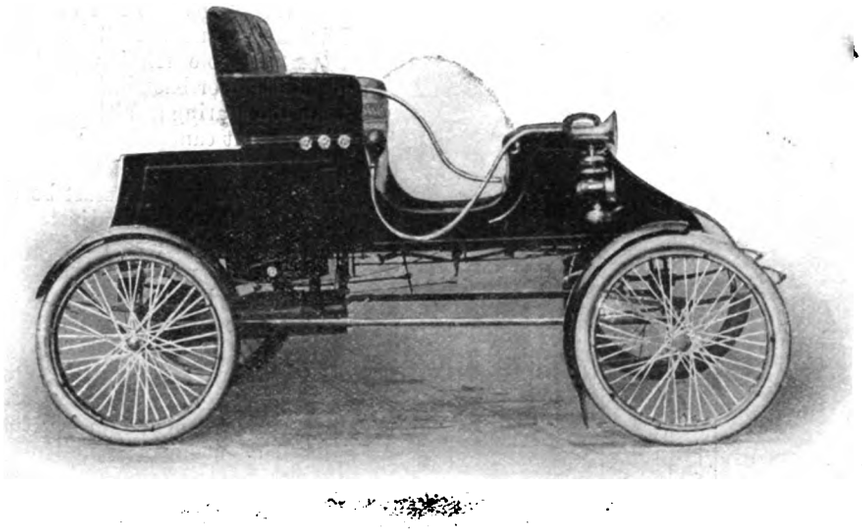


Fig. 1.—General View of Stanley Steam Car.

The boiler is worthy of particular description. It consists of a shell of one-sixteenth inch copper tubing, into the ends of which are flanged the crown sheet and the bottom sheet of the boiler plate punched for the reception of the copper flues. Electrically-welded steel rings are shrunk on hot to securely hold the crown sheet and bottom plate to the shell. Two hundred and ninety-five seven-sixteenth inch copper flues are expanded and flanged into the two plates, and the boiler shell is then wound with copper-plated piano wire under tension, the wire covering its entire length. The boiler is then tested with cold water under a pressure of 650 lbs. to discover any weeping or leaks. Besides the holes punched in the plates for the flues, there are additional holes for the super-heating tubes, to be described later. Special attention is paid to the flanging in of the flues in the bottom plate, their ends being completely flattened against the plate so that the fire cannot enter between the tube end and the sheet.

Toward the bottom of the water space of the boiler it inserted a tee which is closed by a plug of fusible metal. It terminates inside the boiler in two vertical tubes, and constitutes the safety device, which is intended to prevent accidental burning out of the boiler. When the water has fallen below the ends of these two tubes the circulation of the liquid which has hitherto been maintained in this pipe necessarily ceases, and the fusible plug, which normally is kept from melting by this circulation of water, is soon surrounded by steam which becomes very hot and finally attains a temperature sufficient to melt the plug and allow the escape of steam, which notifies the driver of low water.

The peculiar construction of the Stanley boiler, which enables a considerable degree of superheat to be maintained in the steam without the employment of metallic superheating surfaces carried at the fire temperature, well merits a brief review. The construction (Fig. 2) which effects this end is as follows: a main steam pipe leaves the steam dome of the boiler, and after passing the working throttle B, which is of balanced construction, enters the auxiliary throttle C. The pipe then returns through the crown sheet of the boiler and passes vertically downward through the water space and through the bottom plate. There it takes a circular bend and passes upward through the bottom plate, water space and crown sheet, where it again makes a circular bend and passes downward as before, and after passing up again terminates in the steam connection of the engine D, which is of a swivel construction, enabling the head end of the engine to move slightly in relation to the boiler. The figures in the drawing denote the vertical tubes through which the steam successively passes.

The principle which is employed to effect superheating with this construction is that of throttling and subsequently allowing the steam to expand in the superheating tubes which are exposed to the boiler temperature. The normal boiler pressure being about 400 lbs. and the engine being capable of operating on, say, seventy-five pounds pressure, it is obvious that a large degree of throttling is contemplated. After the working throttle is passed and the pressure so greatly reduced by "wire drawing," there is an opportunity for the steam to expand in the superheating pipes. Steam at this reduced pressure has a much lower temperature than that of the unthrottled steam, but the unthrottled steam, being in the superheating tubes and in contact with the water of the boiler, must necessarily abstract heat from it. If we assume that the steam in these pipes is saturated, it

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is obvious that the heat which passes in from the water space must go to superheating the steam. If, on the other hand, there is water or "priming" in the steam, the heat which will then be abstracted through the tube walls from the hot water will be utilised in evaporating that priming into saturated steam at the reduced pressure or even slightly superheat the steam. The degree of superheat which will be attained by this arrangement under a given throttle opening will be in proportion to the original dryness of the vapour received from the boiler. Superheated steam furnished to the engine results in very marked fuel economy, a minimum of cylinder condensation, and in an exhaust which contains so little water as not to be objectionably noticeable. Furthermore, as by superheating the vapour a larger amount of energy is imparted to each pound of it, a given quantity of water will carry the car farther than would otherwise be the case, resulting in an extensive radius of action.

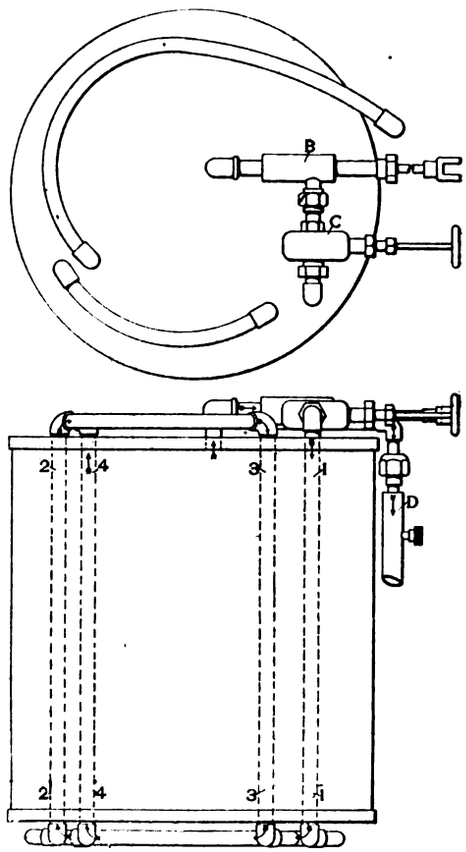


Fig. 2.—Plan and Elevation of Superheating System.

The maintenance of a water gauge of the ordinary form upon a boiler carrying 400 or 500 pounds pressure would be almost impracticable, and the Stanley Company has discarded this apparatus in favour of a mechanical water-level indicator, which is designed to advise the driver either by sight or by touch as to the condition of the boiler. The arrangement consists of a chamber, very much like the ordinary water column, provided with try cocks and piped into the boiler in the ordinary manner. In this chamber is suspended a hollow brass float to which is attached a cable running over a sector carried by a light and accurately constructed pivot passing through the wall of the chamber and provided with a steam-tight packing. This pivot carries on its extreme end a wheel, upon which runs a cable suspending a lead counterweight, which is so proportioned as to balance the float when it is partially full of water. This pivot carries also a wire indicator in a position within easy reach of the driver's hand, so that by touching it he can determine its angular position, from which by experience he can accurately judge the position of the float.

(To be concluded.)

SOME USEFUL NOTES.

A THING done right is done for ever. Whenever a motorist has occasion to remedy a fault, however slight, let him have the work done positively right. Anything less is a makeshift that may serve temporarily, but eventually will turn up once more to be done over again. The rule is absolute and certain; you can prove it by seeking to evade its requirements.

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EVERY owner of a motor-car should endeavour to know his vehicle sufficiently thoroughly that he is at least capable of recognising when adjustments and repairs have been properly made, if he does not care to make them himself. It is an old truth, and will stand repeating a good many times, that a little attention before starting out will in many cases save a great deal of annoyance, if nothing more serious, on the road. Take lubrication, for example. It is not an onerous task to see that each part has its proper supply of oil, yet neglect of this precaution is responsible for a lot of unnecessary trouble. Once let a bearing or rubbing surface run dry, and it will in a very short time wear more than in a season's running under proper conditions.

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WORN gear-wheels are almost insatiable in the matter of lubrication, and should be well looked after, as they are subject to considerable friction, and any wear quickly shows itself in lost motion or back-lash. It is better to be a trifle over generous than too sparing; although no good can come of swamping in oil where it cannot lubricate anything.

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AN excess of oil must be avoided in the cylinder, where the oil feed should be adjusted with the greatest care. Where splash lubrication is used it is only necessary to see that the oil is at the proper level and that it is changed at the right intervals; but where a sight feed is used it must be carefully adjusted to the rate of feed recommended by the maker of the vehicle. Too much oil will cause a smoky exhaust and will cover the sparking plug with a sooty deposit, which will soon cause the engine to miss explosions, occasionally at first and with increasing frequency until it refuses to run. Remedy, clean the plug and cut down the oil supply. When you once find where the lubricator works best, always keep it feeding at the same rate, though adjustments must be made in case of great changes of temperature, cold oil feeding more slowly than warm.

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ANOTHER trouble that may arise from too much oil is a sticking exhaust valve, a gummy deposit on the stem interfering with its free action. When this happens, the exhaust valve will not become seated, or else will come down so slowly that the motor will not develop normal speed. This is sometimes a difficult trouble to locate, as the valve may have time to settle into its place before it can be examined. If the motor fails to develop its power after an excess of oil has been used, this is very likely to be the trouble, though it takes a good deal of oil to cause sticking, and it should not occur often. Use the oils and greases recommended by the makers, unless you are an expert and know of something better. A little graphite will improve grease, but will clog an ordinary oil cup by settling to the bottom.

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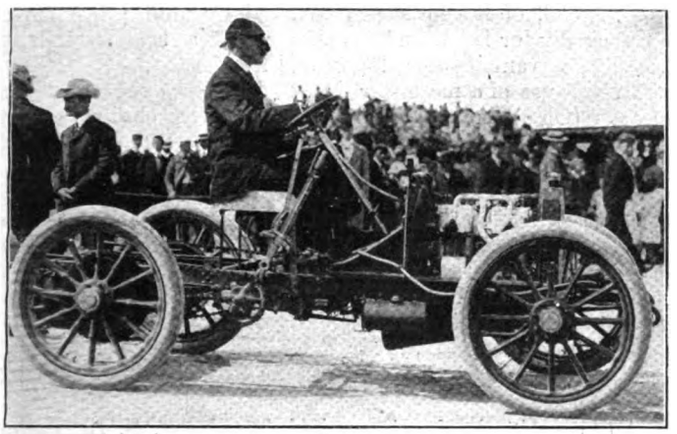
HOT bearings may be the result of lack of lubrication, too close adjustment, or both, and should be carefully watched for, especially when the vehicle is new. Feel the bearings frequently at first, and if any one is found hot, see if it is getting its proper supply of oil. If it is, but runs hot notwithstanding, ease it a little by slackening the adjustment nuts or screws until it turns freely without lost motion. A little time spent in the adjustment of bearings is a good investment, for lost motion quickly multiplies itself. A bearing that is frequently adjusted will last much longer than one that is only attended to when the wear becomes serious.

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HERE AND THERE.

MESSRS. THORNYCROFT AND CO. have just received a second repeat order from the City of London Corporation for two municipal steam wagons fitted with interchangeable tipping dust carts and watering bodies.

THE Newport, U.S.A., Amusement Association recently held a race meeting on the sand at Sachuest Beach. Several races for locally-owned machines attracted considerable interest.



Col. John Jacob Astor on his 20-h.p. Mercedes at the Newport Races.

Colonel John Jacob Astor on his 20-h.p. Mercedes made good running in the contest, which was over a course of one and one eighth of a mile. In the class for vehicles exceeding 10-h.p. and not exceeding 24-h.p. Mr. H. Hamlin won on a 24-h.p. Panhard in 1 min. 35¼ sec., Colonel Astor being only a second slower.

THERE is a toll of 1s. for motorists crossing the swing bridge at Sandwich. The tollkeeper keeps a keen eye to business, and recently hung on to a car when the driver attempted to back his vehicle from the bridge. The sequel was that the motorist was fined £20 for reckless driving—a conviction against which he intends to appeal.

THE Empress Gold Paint Company, Limited, have recently introduced an aluminium solution known as "Aluminamel," which can be used for painting any raw surface, whether of iron, wood, glass, or other material. The preparation always remains bright and has the advantage of rendering all metals to which it is applied proof against rust. It can therefore be advantageously used on many parts of motor-cars and cycles.

FROM Messrs. Alfred Russell and Company, of Walsall, comes a catalogue of their motor lamps and motor-car accessories. The special feature of the list is an illustrated specification of the new patent riveted "Bedford" petroleum side-light, the details of construction of which have evidently been carefully studied. Lamp brackets, motor beading, motor door handles of every description, hinges, and general car-building ironmongery are included in the catalogue.

MESSRS. FULLER, MACLEOD AND COMPANY, LIMITED, are introducing a new paraffin burner suitable for use on steam cars and launches. This burner uses common paraffin or kerosine oil, and in working gives an intensely hot, smokeless flame. There is only one jet, which is of such a size that it does not, it is claimed, stop up or require cleaning. The flame is regulated by a needle which projects through the jet, actuated by a hand lever, which allows the flame to be instantly regulated from "pilot light" to full flame or any intermediate degree, this being the only working part. The flame is spread out in a thin film over a dome-shaped deflector and takes up air proportionate to its requirements, at all degrees of adjustment. Working under a patent watertube boiler the burner is stated to give an evaporation of fifteen pounds of water for one pound of oil. The burner is made in any size from 6-h.p. upwards, and can be used with any type of boiler.

NOTICE boards are to be placed at the several entrances to the town of Holywell requesting motorists to reduce speed while passing through the town.

FROM the Speedwell Motor and Engineering Company, Limited, comes a copy of their new catalogue of Speedwell light cars. These are made in various styles and powers, ranging from 6-h.p. to 10-h.p., the last-named having a double-cylinder engine.

THE motor-car track at Bexhill will shortly be devoted, on certain days, to the purposes of auction sales by Messrs. Bell and Moore. Cars offered for sale will be tested on the track before going under the auctioneer's hammer, an innovation that will be appreciated by buyers.

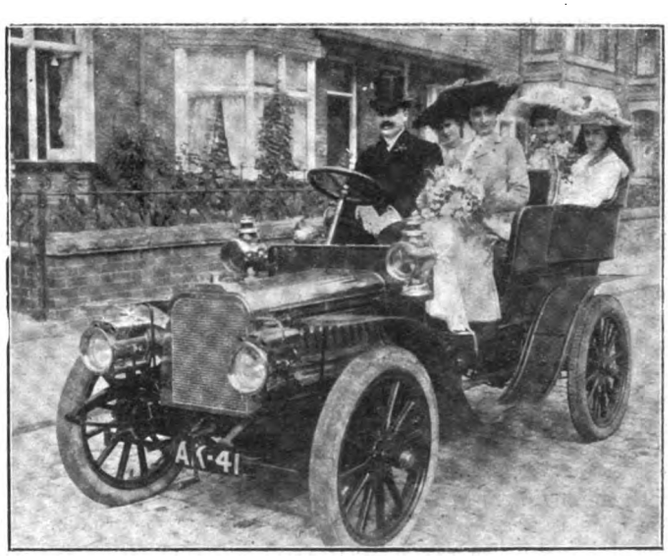
THE Headcorn, Sutton-Valence, and Maidstone Motor Omnibus Company, Limited, has been registered with a capital of £4,000, to carry on the business of motor-omnibus proprietors. The first directors are Sir R. Filmer, Bart., Messrs W. S. Forster, W. R. Ward, J. Wood, and J. Boorman

A MOTOR-CAR has been imported into British Central Africa by the African Lakes Corporation for the transport of passengers from Chiromo to Blantyre. During the past two or three years several motor-wagons have been introduced by the same Corporation, and it is probable that they will be employed in the transport of the next cotton crop.

THE WINDSOR MOTOR AND ENGINEERING COMPANY, LIMITED, has been registered with a capital of £5,000, to take over the business of dealers in motor-cars and other vehicles, etc., carried on at 5, 7, and 9, Sheet Street, Windsor, as the Windsor Motor and Engineering Company, and to adopt an agreement with Mr. A. V. Williams.

"SEASIDE WATERING PLACES" is the title of a volume published by Mr. L. Upcott Gill, which is now in its 28th year of publication. Here we have within the compass of 250 pages a description of the various holiday resorts on the coast of England and Wales, the Channel Islands, and the Isle of Man. In addition to the guide book, information of hotels and leading tradespeople in the various towns add to the completeness of the volume, reference to which is facilitated by an excellent index.

MR. A. W. DOUGILL, the hon. secretary of the Yorkshire Automobile Club, was married last week, and, with commendable consistency, both he and his bride rode to and from the church in motor-cars.



Mr. A. W. Dougill, the Hon. Sec. of the Yorkshire Automobile Club, and his Bride. *Photo by* [*O. Brooks.*

MOTORISTS passing through Bridgnorth will find a stock of petrol and accessories at the depot of Mr. Clement Jefferies, 70, Whitburn Street. Garage accommodation is not at present available, but, reaching the town late the other day, Mr. W. J. Rivers, the manager, went to much trouble in helping to locate ourselves and car for the night.

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CONVENIENCE for motor-cars is being provided at the Mount Pleasant Inn, between Dawlish and Starcross.

MR. J. H. PATTERSON, of Aberdeen, has been appointed vice-president of the Scottish Society of Manufacturers and Traders.

THE enjoyment of a long run is multiplied when you have the assurance that your car will be as strong and dependable coming home as it was going away.

TWENTY motor-cars belonging to the Motor Volunteer Corps were engaged in the recent military operations in the Thames Valley.

THE George Eliot Cycle and Motor Company, Limited, has been registered with a capital of £1,000 to acquire the business carried on by Mr. J. N. Birch, at Nuneaton.

THE Motor Castings Company, Limited, has been formed with a capital of £1,000 to acquire from Mr. C. H. Rush the business carried on by him at 101, Gray's Inn Road, W.C.

DURING the A.C.G.B.I. Reliability Trials, Messrs. Woollard, Limited, of 10, High Town, Hereford, will carry a stock of lubricating oil, "Castle" accumulators, and other accessories likely to be required by motorists participating in that event.

THE Anglo-American Motor-Car Company, Limited, have just received delivery of an improved type of Cadillac car designed to meet the requirements of those who require a somewhat more roomy vehicle, and one having more in the way of small refinements, than the popular model "A." The new vehicle, which is known as "Model B," is supplied either as a two-seater, as a tonneau, as illustrated herewith, or as a Surrey with a side entrance, beside which delivery vans intended for loads of from five to six cwt. are also constructed on the same *chassis*. The vehicle has a pressed steel main frame instead of one



built up of angle steel, the front-axle, too, being formed in the same way. The wheel base is 6ft. 4in., and the track 4ft. 6½in. The artillery wheels are fitted with 800 mm. by 85 mm. tyres. The general arrangement of the engine and the transmission gear remain almost exactly the same as on the earlier model, the bonnet merely serving to cover the water-tank and the tool box. Amongst the improvements that have been made the following may be specially referred to. It is now impossible to introduce the starting-handle without first automatically retarding the ignition, and, since the compression is reduced at the same time, there is no fear of back-firing. Then, too, the two-way switch connected with the ignition batteries is so linked up with the engine lubricator that the latter is turned on and off at the same time as the electrical circuit is made or broken. The new lubricator has four adjustable sight-feeds, and has a much larger capacity than on the older cars. All three types of body for the touring cars are of comfortable construction, and afford ample room for the passengers. Complete, and in running order, they vary in weight from 11½ cwt. for the runabout, to 12¾ cwt. for the tonneau, whilst the delivery van weighs but 13 cwt. The bodies are so fitted that they can be taken off without disconnecting any portion of the mechanism. Altogether the new model B may be expected to fully maintain the excellent reputation which the Cadillac cars have already earned for themselves in this country.

THE Admiralty have placed a large order for L.B.G. sparking plugs with Messrs. Lamb Bros. and Garnett.

AT Heathfield, Sussex, motorists will find Mr. Ryder of considerable assistance should they be in distress.

THE Hozier Engineering Company, Limited, have upwards of one hundred thousand pounds worth of orders on their books for next year.

THE exports of automobiles and motor parts from the United States during June last reached a value of £36,358, as against £33,654 in the corresponding month of 1903.

A GOOD catalogue of motor garments comes to hand from Messrs. Nicoll, of Regent Street, W., and Cornhill, E.C. These are principally for ladies and gentlemen, but a large section is devoted to servants' motor clothes and liveries.

BY the use of a motor-car, Mr. C. P. Cole, president of the Lancaster (Ohio) Bank, was able to prevent the closing of the bank's doors in the face of a run. He carried a sum of £11,000 in gold from Columbus to Lancaster in record time.

MESSRS. BENNETT AND CARLISLE, LIMITED, have opened a new motor garage at the Cheshire Line Railway Arches, Deansgate, Manchester, where they will have every facility for the storage and repair of motor vehicles.

THE Roots Oil Motor and Motor Car, Limited, have sub-let their automobile garage in Chicheley Street, York Road, Westminster Bridge Road, S.E., to Mr. F. Graham Notley, who will also act as their London agent, and, after the 15th prox., as secretary of the company.

THE two Herald *chassis* supplied by Messrs. S. R. Bailey and Lambert, Ltd., to the London Express Motor Service, Ltd., for their motor hansom cabs have now run without intermission for six months on the London streets without trouble, and a further order has been placed with the agents. The additional vehicles are expected to be on the London streets in about six weeks' time.

THOSE who attended the Gordon Bennett race in Ireland will have pleasurable memories of the day at Castlewellan, which so many motorists reached by way of Newcastle, co. Down. To the latter pleasant district Mr. Wm. Beatty has written a capital guide-book, which is published by Messrs. R. Carswell and Son, of Belfast. The region round about is a most delightful one, while the good roads should be a further inducement to owners of cars to visit that part of co. Down, which includes Dundrum, Rathfriland, Clough, Rostrevor, and other pleasant places.

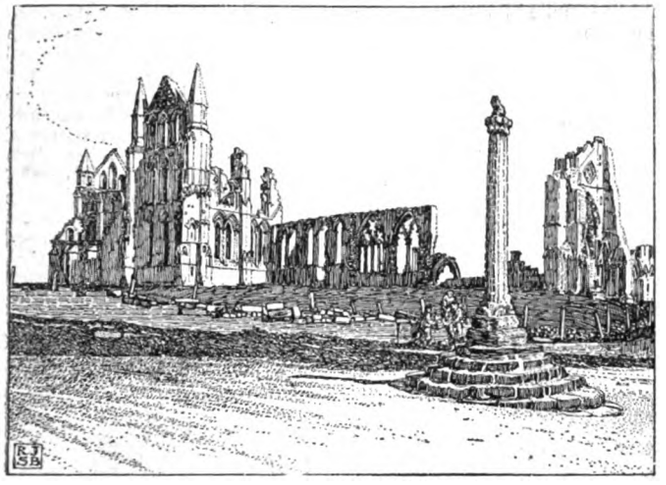
MOTORISTS have lately been freely seen on the east coast, and many of the public have been amusing themselves by tracing the towns from which have come the various cars they see. At Felixstowe more than a score of cars from northern districts have been garaged, and with the help of such a handbook as that published by Messrs. Jarrold and Sons, Ltd., their owners have been able to enjoy some capital drives in lanes and byeways made familiar by Constable and Gainsborough. Messrs. Jarrold's guides to various places in the eastern counties are uniformly excellent, which is giving high praise indeed.

LORD PEARSON in Court of Session has issued his judgment in the action by the Equitable Life Assurance Society, London, against the General Accident Assurance Corporation, Limited, Perth, for payment of £2,000. Pursuers insured the life of Loraine Barrow for £2,000, and the defenders guaranteed them to the full extent against any loss which might be incurred by them under the policy through the death of Mr. Barrow arising directly from an accident to a motor-car which he might be riding. Mr. Barrow was killed in the Paris-Bordeaux motor-car race in 1903. The premium paid by pursuers to the defenders was 2s. 6d. per cent. Defenders denied liability on the ground that their guarantee was procured by misrepresentation and concealment of the true nature of the risk. The insured was described as "Claude Loraine Barrow, of Valla la Romana, Biarritz, France, gentleman," and the description "gentleman" was that of a first-class risk. Nothing was said about driving motor-cars or driving cars in races, and such risks could only be covered (if at all) by a much larger premium. Lord Pearson has assoilzied the defenders, with expenses.

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THE NORTH RIDING.

THE latest of Messrs. Methuen and Co.'s "little guides" is concerned with the North Riding of Yorkshire, which is dealt with on the excellent plan that has proved so convenient with other counties. Mr. J. E. Morris, B.A., is responsible for the letterpress, and Mr. R. J. Bertram for the illustrations, two of which we reproduce by the courtesy of the publishers. The surfaces of the main roads in the North Riding are



Whitby Abbey.

excellent, but many of the bye-paths are loose and stony, and will require much attention ere accessible to motorists desirous of touring in comfort. In the dales winding roads are the rule, but Wensleydale, Teesdale and Swaledale may be traversed with ease and pleasure. Some fine river scenery is to be met with in this county, and Messrs. Methuen's guide will prove of material assistance in ascertaining the beauties of the district.

Roseberry Topping, which can be approached from the village of Great Ayton or the more considerable town of Guisborough, is only of modest elevation, but it is famous historically, and being of conical shape, located on the edge of a moorland plateau, is the most conspicuous hill in the Cleveland district of the North Riding. From its summit an extended view of pleasant pastures and cheerful corn fields can be obtained, while to the east is a limitless view of Yorkshire fells.

The second illustration is of Whitby Abbey, situated in the most picturesque town on the Yorkshire coast and having a long history from the days of Hilda of Hartlepool, who established a religious house there in the seventh century. The site of the Abbey is only rivalled by that of Tynemouth, in Northumberland. The ruins are on the crest of the cliff, 200 feet above the sea-level, and consist almost entirely of the chancel, north transept and part of the nave.

The "Little Guide" is rendered all the more useful to the reflective traveller by an admirable bibliography of the North Riding and an excellent map.

THE WEST END MOTOR COMPANY, LIMITED, has been registered with a capital of £3,000 to acquire the business carried on by Mr. A. S. Ross, at 61 and 62, High Street, Bloomsbury, and 83, Hatton Garden, E.C., as the West End Motor Company.

ON Friday, the 12th inst., the quarterly 100 miles non-stop trial of the A.C.G.B.I. was held, the entries being a 12-h.p. King car and one of 16-h.p., both entered by Messrs. King and Company, of Leicester. Both cars ran well throughout the trip, and made non-stop runs.

THE LIGHT CAR TRIALS.

IN our issue of the 6th inst. we gave a map showing the routes for the reliability trials for light cars organised by the Automobile Club. So far there are thirty-six entries.

Class A is for cars of a selling price of £125 or less, and three entries have been received, one from the Horley Motor Company, the others being a 6-h.p. Jackson dogcart and a 6-h.p. Speedwell car, both having single cylinders of 90 mm. by 110 bore and stroke respectively.

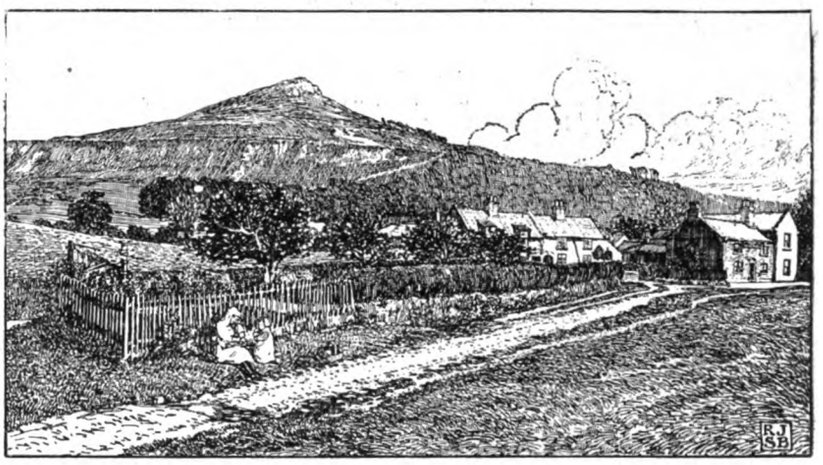
In Class B the entries are twice as numerous as in the first category, the range of price being £25 higher. All the vehicles entered are of the single cylinder type, and comprise a 6-h.p. Jackson dogcart, a 6-h.p. light Vauxhall, 7-h.p. Oldsmobile runabout, 6½-h.p. Service, 6-h.p. Pelham and a Horley car.

For cars selling from £150 to £175 Class C has been provided. Here the two 7-h.p. Stars and the vehicle entered by Messrs. Chambers and Co. have two cylinders, the others only one. The entries thus far are as follows:—

	Bore and stroke of cylinder.
6-h.p. Light Wolseley...	4½ in. by 5 in.
6-h.p. Mobile	
8-h.p. Brown	110 mm. by 120 mm.
9-h.p. Speedwell	100 mm. by 120 mm.
7-h.p. Swift	95 mm. by 110 mm.
7-h.p. Little Star	3½ in. by 4½ in.
7-h.p. Little Star	3½ in. by 4½ in.
6½-h.p. Royal Humberette	4 in. by 4½ in.
7-h.p. Alldays No. 1	4 in. by 4½ in.
6-h.p. Siddeley	4½ in. by 5 in.
7-h.p. Chambers	3⅛ in. by 4½ in.
6-h.p. Light Wolseley...	4½ in. by 5 in.

Class D is for cars of a selling price of more than £175 and not more than £200—the maximum price allowed for the trials. In this class the Chriton Automobile Company has entered a four-cylinder car; the Swift, Royal Enfield, Royal Humberette, and Messrs. Garner and Company's entry have two cylinders, all the others having single cylinders. The 8-h.p. Mobile is a four-seated vehicle, the 10-h.p. Oldsmobile, the 9-h.p. Anglian and the 7-h.p. Alldays have three seats, all the others having accommodation for two passengers, including the driver. The entries are as follows:—

6-h.p. De Dion	90 mm. by 110 mm.
6-h.p. De Dion	90 mm. by 110 mm.
8-h.p. Mobile	
10-h.p. Oldsmobile	5½ in. by 6 in.



Roseberry Topping.

7-h.p. Swift	80 mm. by 85 mm.
8-h.p. Royal Enfield	3½ in. by 4 in.
9½-h.p. Cadillac	5 in. by 5 in.
10-b.h.p. Chriton	3 in. by 3½ in.
9-h.p. Anglian light car	100 mm. by 120 mm.
7-h.p. Alldays No. 3	4 in. by 4½ in.
8-h.p. Rover	4½ in. by 5 in.
7½-h.p. Royal Humberette	3½ in. by 4 in.
6-h.p. Belsize Junior	115 mm. by 125 mm.
8-h.p. Simms	110 mm. by 110 mm.

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CORRESPONDENCE.

THE BEXHILL MEET.

To the Editor of *The Motor-Car Journal.*

Sir,—Noticing Mr. E. H. Arnott's letter *re* the Bexhill meet, may I say that I also was asked by the man he refers to for 10s., which I paid, being under the impression that everyone had to do the same. On noticing, however, that the occupants of other cars did not seem to comply with his demands, I followed him, and found that some paid, until one gentleman, on close enquiry, discovered that if the car was moved to the other side of the road no charge was made. This discovery "pricked the bubble," and most of the cars moved to the other side, and, as far as I could see, the man gave it up as a bad job. In my opinion the whole proceeding was done in an underhanded manner, as no information was given anywhere that a charge would be made for cars, or that they would be free on one side of the road. I am afraid the 10s. is lost, but am rather curious to know who takes the money for this "rush." Trusting you may find room for this letter, as it may be the means of saving 10s. to motorists next Bexhill meet.—Yours truly,

Fleeced.

A HINT TO REPAIRERS.

To the Editor of *The Motor-Car Journal.*

Sir,—We have recently had a small experience which may be useful to others in the trade. We had occasion to take to pieces a car engine of well-known and very excellent French make, and among other things to take down the two to one gear. It is usual in engineering practice to mark gear wheels that have to be kept in step with marks so that when the wheels are put together with the marks adjacent the wheels are right. We noticed that there were such marks on the wheels and therefore took no measures to mark them ourselves, but put them together according to the marks and found that the engine would not run satisfactorily. Before taking her to pieces we had had the curiosity to find out how the valves and ignition were set, and found that in order to set the same the wheels had not to be put together to the marks, which were therefore misleading. On being set as before the engine ran all right. The moral is, when taking an engine to pieces either put your own marks on the wheels or see that those that are there are right.—Yours truly,

Strickland and Co.

THE OLDSMOBILE.

To the Editor of *The Motor-Car Journal.*

Sir,—Would any readers of the *Journal* kindly tell me of their experiences with a 5-h.p. Oldsmobile? What I should like to know is whether the car is reliable and easy to keep in going order without continual repairs and renewals; also whether the back axle and springs are sufficiently strong to stand the strain of a third person on the back seat.—Yours truly,

A. H. K.

THE HOUSING OF MOTOR-CARS.

To the Editor of *The Motor-Car Journal.*

Sir,—A large majority of motorists are converts from what our Gallic neighbours call "hippisme," and consequently use their old stables for their new steeds; but, though a good stable is adaptable as a very satisfactory motor-house, the problem of motor-car accommodation is not best solved by the architect who proceeds on old-fashioned stable lines. In towns, the stable is generally perforce in close proximity to the house, but in country districts it is usually as remote from it as possible, an arrangement obviously preferable for hygienic reasons where horses are concerned, but quite unnecessary and inconvenient in the case of motors. A motor-house I saw recently was built abutting on the outer wall of the kitchen, from which hot-water pipes, forming part of the house system, were carried to warm it in cold weather; while in another case the car-shed, also warmed in a similar way, took the form of a well-appointed room, accessible from the hall, so that preparations for starting could be made comfortably in cold weather. Such luxurious appointments cost little where a new house is concerned, and deserve the attention of architects.

The warming of existing stable is a more difficult question. It is objectionable to leave lamps burning in the proximity of petrol containers, unless a safety stove somewhat on the Davy lamp principle could be supplied for the purpose; a flue under the concrete floor, with an outside grate like a greenhouse or a Roman bath, would be better, but is expensive. Well-closing doors, the exception rather than the rule in ordinary coachhouses, will do much to keep frost out of a brick building unless severe, but, of course, a corrugated iron one—often used for cars—is no protection against cold. With petrol cars, the use of glycerine in the cooling water, or the emptying of tanks, removes the risk attending frost, except that of injury to the tyres, which do not benefit by low and variable temperatures; but with steam cars, the trouble of running off the water is too great for some protection against frost not to be demanded.—Yours truly,

W. M. Lewis.

TROUBLES WITH SECOND-HAND CARS.

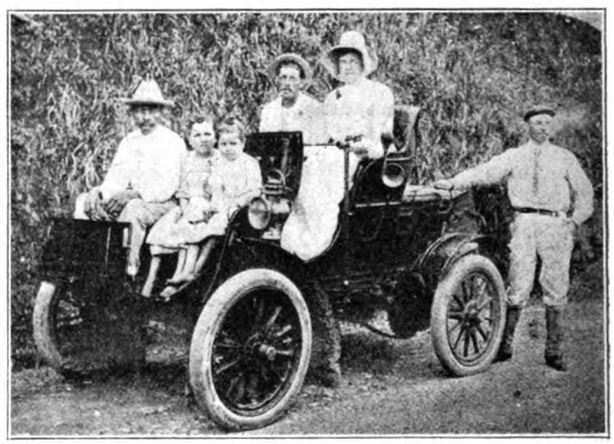
To the Editor of *The Motor-Car Journal.*

Sir,—I have recently acquired an old Daimler wagonette. On jacking it up I find that all the work, both backward and forward, is done by the near side back wheel. Is this right, or should the far side wheel have control of the reverse gear? If so, will you please tell me the probable cause of the trouble? A man used to motors told me that one wheel should work the backward speed and the other the forward speeds, as the machine is fitted with a differential gear. This is not the case, as one wheel seems to do all the work while the other remains nearly motionless or makes a sudden move occasionally of 1 or 2 feet, perhaps, to the other wheel's 5 or 6 revolutions.

The machine is fitted with four speeds, 3, 6, 9, 12 miles per hour, and reverse. On starting I have some difficulty in getting the machine to take the second and third speed, there being such a rattling, grating, and knocking of cogs in the gear-box that I am afraid I must be doing some damage. On Saturday last I went for a short run of six miles. I started all right except for the first mile or so. I could not get over three miles an hour out of the car. I tried several times to get on the second speed and every time the engine stopped. At last I stopped, and started on the second speed and continued the run, the car then going all right. On starting the return journey I had great difficulty in getting the engine to start, it seeming to always give a nasty kind of back stroke almost like wrenching your arm. At last I got the engine started, and this time had practically no difficulty in getting on to the second speed. When about two miles out I noticed that the engine was running steadier, so I lifted the accelerator, but to no purpose, as the car gradually slowed down and stopped. What was the reason I cannot say, because we were at the foot of a slight dip in the road we had just passed over, and there was no rise ahead of us. I did not put the clutch out so as to let the engine free. Should I have done so? Anyhow, I did not know what was the matter, so I tried to start the engine again. It refused for a few strokes, always striking back, but with a little perseverance I got it started again. Another two miles, conditions practically the same, bottom of slight hill, another stop, did not touch clutch, although



Interested Spectators at Ponce.



At the Summit of Arbonito Pass.

MOTORING IN PORTO RICO.

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lifted accelerator. A bit of persuasion and another start, and a run to the finish. If you can give me any information as to what was the matter, it will be very highly appreciated.—Yours truly,

C. W. P.

[By jacking up the rear wheels of the car it is very probable that one wheel would run in a forward direction and the other in a back, this because of the differential gear, but if one of the wheels is held stationary, the other will still rotate; it does not matter which wheel is held. When the wheels are on the ground, both take the drive equally, both forward and backward. The use of the differential gear is to compensate the difference of speed of the wheels whilst going round a corner, the outside wheel always travelling a larger radius, and therefore has to cover a greater distance. With regard to the driving of car and the grating of gears, we would strongly recommend a few lessons under a competent driver, as nothing but practice will give anything like satisfaction. The changing of gear should always be done with the clutch out, and should never be done with the clutch in, otherwise grating of the gears results.]

HOTEL CHARGES.

To the Editor of *The Motor-Car Journal*.

Sir,—Having had experience of the exorbitant charges made by hotel-keepers for accommodation for motorists, I recently determined on a method of escaping the same. It may seem somewhat out of place to the person of means, but for the ordinary man who does not want to be fleeced I would commend it. I arrived at a town, left my car with a local motor agent and secured hotel accommodation for myself and party. Consequently I was charged at about half the rate that would have been my lot to pay had I driven up in the car. Hotel-keepers have only themselves to blame in the matter. A little reasonableness on their part would be mutually agreeable.—Yours truly,

A Touring Motorist.

A WRINKLE IN TESTING PETROL.

To the Editor of *The Motor-Car Journal*.

Sir,—Having had a deal of trouble with cloggy valves, I have discovered a better method of testing spirit than by densimeter. You may find your spirit the proper density by densimeter, and still be troubled by sticky valves; on the other hand, you can get petrol at ·715 to ·720, and not have sticky valves. Get a small crucible cup (such as are used by photographers), they can stand any amount of heat. Put about a tablespoonful of spirit in cup, and light it and let it burn out. If it leaves a sticky substance in bottom of cup, one can be sure it is not good petrol.—Yours truly,

Scotia.

LOOK AFTER THE CHAINS.

To the Editor of *The Motor-Car Journal*.

Sir,—We again read of a fatal motor-car accident, this time in Newport, Mon. What I would like to suggest is, are the sprocket chains of most of our modern motor-cars made heavy enough? I have travelled over 6,000 miles on the car I am in charge of since January last, and I am using my fourth set of chains. My employer finds this expensive, and I may say he often does not know the risks that are incurred through having chains too light. I am driving an English-built car, and may say they are turning out worse hand brakes on their cars than they did three years ago. The brakes can be adjusted to practically hold the car up on any gradient, empty, but when there are two passengers in the car and a chain snaps, it has no effect.

Some might say this lies in faulty adjusting, but I wage that it is in the faulty principles of their newfangled brake ideas. When I am running on practically level roads I use my old chains, but when I am ordered for such hills as Whistlefield, Rest-and-be-thankful, Dalmally, or any Highland touring, I always make it a point to have a good set of chains on the car. It is very seldom a roller chain jumps the sprockets, in my experience they oftener snap. A word of warning may not be amiss to the novice. If you hear any of your chains clicking when you are running it is certain that the chain is badly stretched. Take it off and have any links it requires replaced. The chain is a thing that must not be overlooked by builders of motor-cars. It was only the other week, on Loch Lomond side, I saw a car that was overturned through a faulty chain, but happily no one was seriously hurt.—Yours truly,

Six and a Half Years' Experience.

REGISTRATION.

To the Editor of *The Motor-Car Journal*.

Sir,—"Late 186" is not the only one who has been imposed upon. I think my case deserves notice. I ordered a small two-seated car from a firm in Eccles a short time before the Act came into force, and, wishing to retain a small number, registered it, paying 20s. On the arrival of the car I found it to be very unsatisfactory and after some trouble returned it to the makers, who kept it for some time. In the meantime I purchased another car from a different firm, and, wishing still to retain a small number, and to quash the previous registration, again paid 20s. After trying this new car for a few weeks, I found it to be faulty, so exchanged it for a more expensive car. I was again mulcted for 20s. Now, to crown all, I have the first car returned from the makers, and I am worried by the Excise to take out an additional licence, which means £2 2s., and another 20s. for a new number, although I have not used the first car and do not intend doing so, as the one I have is very satisfactory and quite answers my purpose.—Yours truly,

Victimised.

[There is no need to pay excise duty unless the car is used. Then we are afraid our correspondent would have no remedy, should an Inland Revenue officer challenge him on the subject. We shall be glad to have the experience of other motorists on the subject, which is one of general importance as well as of particular interest.]

STEAM CARS.

To the Editor of *The Motor-Car Journal*.

Sir,—As a motor enthusiast, I should like to say a few words about the steam car. To my thinking there exists to-day an unwarrantable prejudice against the light steam car, though I must admit until recently I myself scoffed at them. A friend of mine who has a Stanley has lately taken me one or two runs on his car, and I can assure you the way it travels, whether up hill or on the level, has been an eye opener to me. For ease and comfortable riding it is delightful, and, though I drive a fairly powerful car myself, I cannot take the hills like this little car. Perhaps the water question is a little troublesome, but with the aid of an injector it is only a matter of a very short time to fill the tank again,—Yours truly,

Enthusiast.

BELT TRANSMISSION.

To the Editor of *The Motor-Car Journal*.

Sir,—"J. B." is not the only one who would hail a perfect gearless belt-driven car, but the problem is not so simple as it looks. The trouble has been in keeping several belts tight, adjustment on the road, and the number of pulleys. The belt race cones he mentions would reduce the number of pulleys to two and only require one belt, thus we arrive at the minimum sought after, but can this belt be controlled? If it can, as "J. B." hints, then we may see a belt resurrection.

The matter of take up is also a vital one to success; this must be automatic, say by spring frictionless jockey or sliding centres. Another cause of failure has been the small belt surface. There is plenty yet in the subject for pioneers to work at, and a market when the right thing comes.—Yours truly,

Onlooker.

SOLID TYRES.

To the Editor of *The Motor-Car Journal*.

Sir,—Could any of your correspondents advise me as to the best solid tyres to use on the back wheels of a 7-h.p. Panhard car which is running daily over flinty and slippery roads?—Yours truly,

(Hon. Mrs.) Julian Byng.

Charges for Petrol.—"Tourist" writes:—"A run from London to Blackpool and back brings out many variations in the price of petrol. The average charge at present appears to be 1s. 2d. per gallon. The lowest was 1s. at the Central Motor Garage, Blackpool, and the highest 1s. 4d., at Preston Motor Garage, Charnley Street, Preston. I strongly demurred at the latter charge, which surely is exorbitant in a town the size of Preston."

Petrol at Ullswater.—"A. E. G." writes:—"It might interest motorists to know that they will have to pay 2s. per gallon for Pratt's A Motor Spirit at the Ullswater Hotel, Ullswater; at least, this is what I had to pay last week, and was informed it was their usual charge."

A Jack Found.—When out motoring recently Mr. R. Southworth, of Fairfield, Clitheroe, picked up a jack, which he will be pleased to return to the owner on receipt of information giving the name of the maker, and stating, as near as possible, where it was lost.



A Rushin' Japanese Affair.

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CLUBS AND ASSOCIATIONS.

LINCOLNSHIRE.

THE question of amalgamating the two Lincolnshire Clubs—the County Club and the South Lincolnshire Club—which some of the members unsuccessfully tried to bring about a short time ago, is again under consideration, and at a meeting of the County Club held at the White Hart Hotel, Sleaford, on Thursday last week, under the presidency of Captain J. A. Cole, J.P., the proposals of the South Lincolnshire Committee were considered. These, however, were not as a whole acceptable to the meeting, and the following resolution was passed:—"That the members of the South Lincolnshire A.C. be accepted as members of the Lincolnshire A.C. and be affiliated with the Motor Union for the rest of the present year on payment of 12s. 6d, per member, subject to the consent of a general meeting. That the present vacancy on the committee be filled by the appointment of a member residing in the Holland Division. That for the future the committee of the Lincolnshire A.C. recognise that two members of the committee should be resident in the Holland Division, but that this question must be left to the general annual meeting of the Lincolnshire A.C., although the committee will do their best to ensure the election of two such members. That all members of the South Lincolnshire A.C., who are also members of the Lincolnshire A.C., be credited with the sum of 12s. 6d. towards their subscription for the year 1904." Other business transacted at the meeting included the appointment of a sub-committee, at the request of the Lindsey County Council, to advise regarding the erection of danger boards in the Lindsey Division. The meet and competition at Roxholme Hall (the residence of the Chairman of the Club), which was fixed for to-day, was postponed to the 27th inst., and an invitation by the Hon. Maurice Gifford for a club meet at Grantham was accepted. The following new members were elected:—Mr. B. H. Gainsford, Woodthorpe Hall, Sheffield; Mr. Charles Hardy, Bulwell Hall, Notts; Mr. G. L. Haslehurst, Lincoln; and Mr. Arthur Booth, Lincoln.

There was a somewhat novel meet at Lincoln Castle on Saturday, Lincoln members of the Lincolnshire Club combining to entertain the out-of-town members of the county club at a garden party. The castle grounds had been placed at the disposal of the members, and very pretty and animated they appeared when the whole of the fifty cars had arrived from various parts of the county and were placed about the grounds. The band of the Lincoln Volunteers played a selection of music, and a pretty marquee had been erected in an enclosure on the lawn, where refreshments were served. Before tea an appearance competition was held, sixteen of the visiting cars entering. The judges were Mr. C. H. Seely, M.P., and Mrs. Seely, the Mayor and Mayoress of Lincoln, and Mr. and Mrs. M. H. Footman, and they awarded the first prize, a piece of plate, to Mr. T. W. May, Bourne, 12-h.p. Wolseley, a noteworthy car. Mr. W. T. Gent, Misterton, was second with his 10-h.p. Rose, a Gainsborough car. After tea the visitors inspected the Norman keep and Norman gateway, and the several other interesting features of the castle.

Among those present were Captain J. A. Cole, J.P., Captain Lyall, Mr. W. R. Lilly, Dr. Godfrey Lowe, Mr. J. R. Richardson, Mr. R. W. Wright, Mr. C. Holland, Mr. J. T. Coleman (chief constable), Dr. W. H. Brooke, Mr. E. Cragg (hon. sec.), Dr. H. Steil, Canon Hutton, the Rev. M. C. Wilkins and others. Mr. C. W. Pennell was chairman of the committee formed to carry out the local arrangements, Mr. C. Nelson being the hon. sec.

KENT.

ON Saturday Mr. and Mrs. J. E. Austen entertained the members and friends of the Kent Automobile Club at West Court, Detling, near Maidstone. A most pleasant afternoon was enjoyed by those present.

A competition was held, restricted to amateur drivers only, there being two classes, the first being for cars of over £300 selling value, and the second under that sum, each car competing having to carry the full complement of passengers. Dr. Charles Firth, Mr. W. Willis and Mr. J. D. Siddeley acted as judges, and Mr. H. J. Swindley officiated as timekeeper. Mr. Granville Kenyon (the hon. secretary) started the cars from the foot of the hill. Detling Hill, which is on the main road from Maidstone to Sittingbourne, is a very good test hill for cars, being about a mile in length, and the steepest gradient being 1 in 11. In the first class Mr. T. H. Nash on his 10-h.p. Renault was the winner, his time being 2 min. 58 3-5 sec.; Mr. R. Lucas' 14-h.p. Lucas car, driven by Mr. Owen Firth, being second in 3 min. 12 2-5 sec. In the second class Dr. Firth's 14-h.p. Lucas car, driven by Mr. Owen Firth, was the winner, his time being 2 min. 56 2-5 sec., Mr. Reed, driving his 8-h.p. De Dion, being second in 4 min. 44 4-5 sec. The two Lucas cars were by error entered in the first class, but were of quite different design, Mr. Lucas' car having a balanced engine with two speeds, whereas Dr. Firth's car had an unbalanced engine with one speed, and was therefore a lower priced vehicle and came in the second class. Mr. H. O. Hall drove his 15-h.p. Darracq and was timed up the hill, but did not compete; his time was 2 min. 36 4-5 sec., being the best time done.

After the competition the members and their friends adjourned for tea and refreshments to the beautiful grounds adjoining Mr. Austen's residence, where the band of the Royal Engineers was much appreciated.



The Meet of Lincolnshire Motorists at Lincoln Castle.

The hon. secretary having announced the result of the competition, Mrs. Austen presented the prizes, Mr. Nash receiving a handsome electric inspection lamp and Dr. Charles Firth an automobile watch and case. The times of competing cars were as follows:—

CLASS 1.

Owner.	Car.	Time. m. s.	Driver.
1. T. H. Nash	10-h.p. Renault	2 53⅘	T. H. Nash.
2. R. Lucas	14-h.p. Lucas	3 12⅘	O. Firth.
3. F. S. Hallows ...	16-h.p. Clement	3 31⅕	F. S. Hallows.
4. E. Ellice Clark ...	12-h.p. Wolseley	4 47⅘	T. H. Nash.
5. E. F. Dowding ...	12-h.p. Gladiator	4 14⅘	E. F. Dowding.
6. A. Batchelar	12-h.p. Darracq	6 15⅕	A. Batchelar.
7. Mr. Shrubsole ...	9-11.h.p. Clement	Stopped on hill.	

CLASS 2.

Owner.	Car.	Time. m. s.	Driver.
1. Dr. Charles Firth ...	14-h.p. Lucas	2 56⅘	Owen Firth.
2. A. H. Reed	8-h.p. De Dion	4 44⅘	A. H. Reed.
3. J. C. Madeley ...	6½-h.p. Cadillac	5 4⅕	Madeley.
4. W. St. John Brice ...	7-h.p. Swift	5 6⅘	W. St. John Brice.
5. J. E. Austen	5-h.p. Locomobile	5 35	J. E. Austen.

LEICESTERSHIRE.

THE annual run of the Leicestershire Automobile Club to the Monastery, Charnwood Forest, took place on Thursday of last week. Among the members and friends who participated in the run were Mr. E. G. Mawbey, the president of the club, Mrs. Mawbey, Mr. Maurice Mawbey, Mr. and Mrs. Victor Oliver, Miss Bryant, Mr. Evans, the Rev.

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Lammas, Mr. E. H. Herbert, and Mr. Alan McAlpin (hon. secretary). Through the charming lanes that lead to Nanpantan and Loughborough the party sped, and soon after leaving Loughborough the lovely panorama in which the Monastery nestles lay before them. At High Tor Farm tea was taken, and after another ramble the cars were turned homewards, Leicester being reached *via* Markfield. To-day's (Saturday) run will be to Matlock Bath.

DORSET.

AT the Blandford meet of the Dorset Club, to which brief reference was made in last week's *Journal*, several interesting competitions were held. Mr. C. E. Mason won the coach house competition for cars under 10-h.p. on his Oldsmobile; the bending race fell to Captain Kitson, on his 15-h.p. De Dietrich; the Rev. H. C. Coote's 20-h.p. M.M.C. was successful in the ladies' passenger race for cars over 10-h.p.

NORFOLK.

AT the invitation of Major and Mrs. Guy Withington, the Norfolk Automobile Club have had a most successful meet at Thelveton Grange, Scole. Altogether twenty-one automobiles put in an appearance, as follows:—Major Guy Withington, 20-h.p. Brooke; Messrs. J. Hargreaves, 22-h.p. Daimler; E. Estcourt, 14-h.p. Brooke; H. R. Griffin, 14-h.p. Gladiator; Gilbert Morse, 12-h.p. Brooke; Dr. Ballance, 12-h.p. Darracq; H. W. Egerton, 12-h.p. Gladiator; S. A. Rayns, 8-h.p. De Dion; G. Sillem, 12-h.p. Gladiator; Walter Crawshay, 14-h.p. Brooke; W. Gibson, 12-h.p. Darracq; W. E. Long, 10-h.p. Panhard; A. Mayor, 10-h.p. Swift; J. N. C. Ray, 8-h.p. Wolseley; S. L. Cocks, jun., 7½-h.p. Wolseley; J. W. Brooke, 14-h.p. Brooke; H. W. Williams, 4½-h.p. De Dion; C. H. A. Lock, 6-h.p. De Dion; W. P. Cubitt, 6-h.p. De Dion; H. W. Garland, 4½-h.p. De Dion; G. C. Davies, 6-h.p. De Dion.

HERTFORDSHIRE.

ON September 10th the Hertfordshire Automobile Club, which, by the way, has cancelled its picnic at Burnham Beeches, will hold an open hill-climbing handicap. The competition will be a handicap based on the following formula:—

$$\frac{\text{(average speed)}}{\text{actual h.p.}} \times 1{\cdot}33 \times \sqrt{\frac{1}{\text{mean dia. of wheels.}}} \times \frac{\text{weight loaded}}{\text{weight empty.}}$$

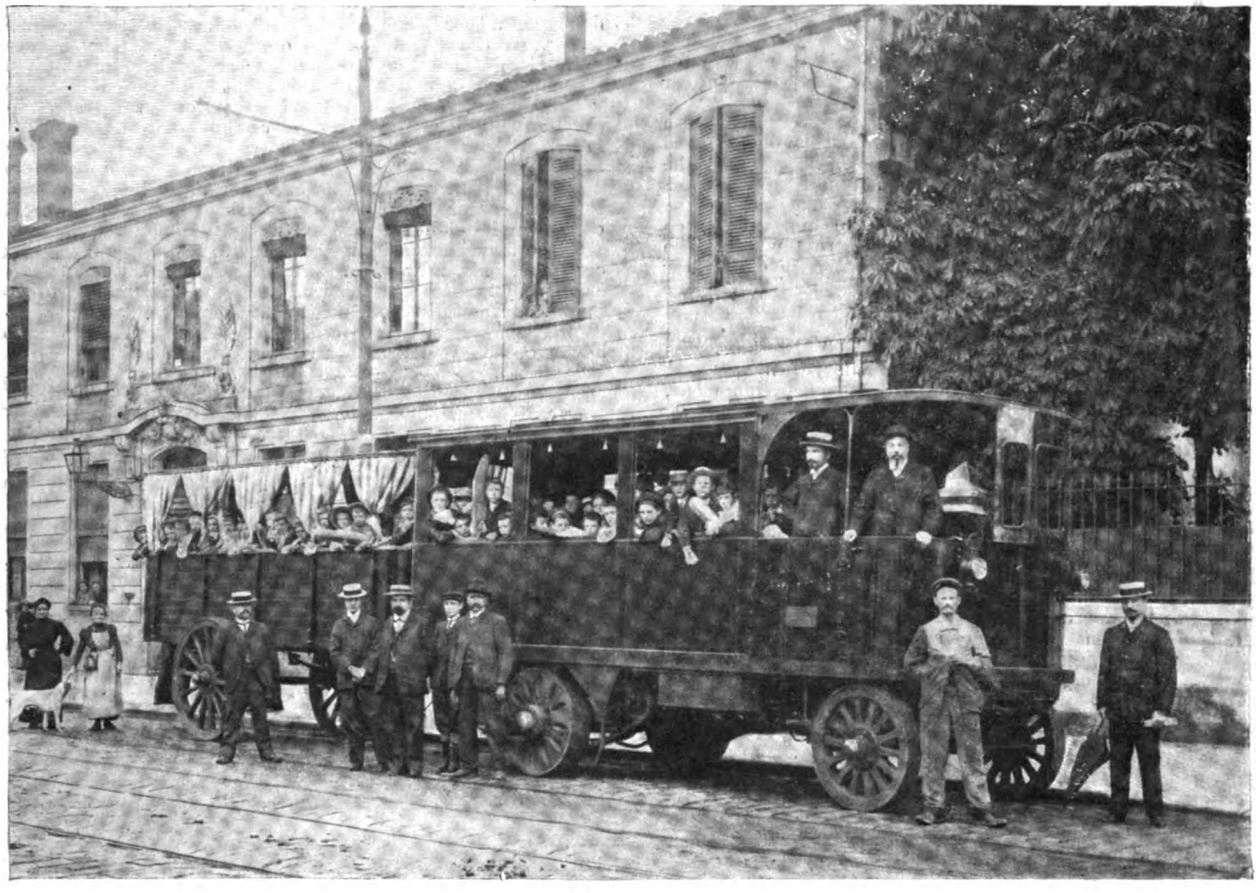
and will be carried out on Aston Hill, between Tring and Wendover, Bucks.

EASTERN COUNTIES'.

THE seventh summer meet of the Eastern Counties' Automobile Club took place on Saturday, at Dedham. Mr. A. O. Stopes, one of the most enthusiastic automobilists in the district, met the members and their friends at the Marlborough Hotel, Dedham, and acted as guide. Amongst those present were Captain W. T. Pretty, Mr. John Howells (from Kington, Radnor), Mr. J. G. Howells, Dr. E. L. Rowe, Mr. E. C. Sayer, Mr. J. C. Edwards, Mr. H. G. Kettle, Mr. Norman Adlard, Mr. John Spinks, and others.

THE MOTOR CAR ACT.

THERE were three summonses on Tuesday at Greenwich against Robert Box, a motor driver in the employment of Mr. F. Hoar, of High Street, Woolwich, for breaches of the Motor Car Act; and Mr. Hoar was summoned, as the owner, for causing the offences to be committed. The cases were heard separately, Mr. Baggallay remarking that the orders and clauses of the Act were very complicated. On the first summons, it was admitted that the weight of the motor was not painted on the side while it was used for drawing another vehicle, and exceeded 15 cwt. unladen. On this summons Box was fined 10s. and 2s. costs. On the second summons a fine of 40s. and costs was inflicted in respect of the vehicle drawn by the motor having a brake only acting on one wheel. The third summons was for failure to have two independent brakes to the motor itself. The defence was that the reversing gear was a brake, but Mr. Baggallay ruled otherwise, although an expert witness said the reversing gear would stop the car going down hill. His worship, however, reserved his decision in the third summons. He ordered Mr. Hoar to pay 2s. costs on the first and second summons, the third being withdrawn, having by some error been issued as a duplicate of the second.



A School Treat by Motor Wagon at Bordeaux. [*La France Automobile.*

POLICE TRAPS.

COLCHESTER now has its police trap—a measured quarter of a mile in Lexdon Road, from the drinking fountain to St. Mary's Lodge.

TWO or three traps are in active operation near Coventry—one at Allesley, on the Birmingham road, and another at Marton, on the way to Southam.

AT Coulsdon the police have a trap over a distance of 220 yards.

THE police are very active in the Washington district, on the Worthing road.

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CASES DISMISSED.

At Colchester Police Court, Mr. Hatherly Wood was summoned for driving a motor-car at over twenty miles an hour—to wit, thirty miles an hour—on the 31st ult. Mr. Elliot Barker (of the firm of Jones and Son) defended. P.-s. Ball said that, in company with Detective Hammond, he was on the watch for motor-cars on a measured quarter of a mile in Lexden Road. The defendant, who was alone in the car, drove over the quarter of a mile in 29 secs.—working out at 31 and 1-29th miles per hour. At the end of the quarter of a mile witness called on him to stop, and he pulled up within a hundred yards. Witness was thirty-two yards past the mark, so that it took him 132 yards to pull up. Witness offered to measure the distance for him, but he said he would take witness's word. Witness told him that he would be summoned, and he replied that he had not been driving to the public danger. After Mr. Wood had given evidence the Bench dismissed the case.

Mr. F. W. Shorland, of London, was charged at Alford (Nottingham), with recklessly driving a motor-car at South Reston on the 1st inst. Mr. Firth, of London, appeared for the defendant. The evidence for the prosecution was that on the night in question Mrs. Scargall was driving home from Mablethorpe, in company with another lady, her servant, and four children. When passing through the village of South Reston the defendant, who was driving a motor-car, ran into the rear of the trap, with the result that the occupants were thrown out. The defendant maintained that the responsibility for the accident rested upon Mrs. Scargall, who pulled her trap right across the road when the car was within six feet of it. The case was dismissed.

The Rev. A. J. Heelis, Brougham, was charged at Penrith with riding a motor-cycle at Penrith on the 16th ult., without having attached to the rear of the machine an identification plate. P.C. Taylor said he saw defendant ride down Castlegate, and following him saw him stop at Mr. Tinkler's, in King Street. He called defendant's attention to the omission, and the reply was that it was not needed. Defendant pointed to two identification plates, one on each side of the front wheel. The County Council regulations, however, said there must be one on the rear of the cycle. The Bench dismissed the case, believing that Mr. Heelis had been misled by a handbook to motor-cycle law by which he had been guided.

At Madras, Mr. Mir Hassan Ally, of Messrs. Ally Brothers, was charged, at the instance of the Hon. Henry Bradley, with rash and negligent driving of a motor-car. His Worship, in a lengthy judgment, acquitted the accused. The Court found it hard to discover why accused was supposed to have acted as alleged. In conclusion it was observed that the opinions of the experts examined proved how difficult it was to estimate the real pace at which a motor-car might be proceeding. Two of them said that even when they seemed to be going fast they might be going at but a moderate pace, and one said a comparison between the assumed pace of a horse and a car was unsafe. Such comparisons had been proved defective and untrustworthy. That this prosecution had been conscientiously launched there could be no doubt whatever, but the Court thought that it was based on a misconception of speed which induced a belief that betrayed conclusions and would tend to possible harm. It did not seem to the Court that such belief was well-founded having regard to such facts as had been put before the Court. The use of motor-cars in Madras was a comparative novelty, and this prosecution would not have been altogether without its advantages if it tended to caution on the part of car drivers by proving that their actions were keenly watched by an observant public.

Before Sheriff Smith, at Dundee, John Hayward, a motor-car driver, Brechin, was charged with having, on a public road in the parish of Auchterhouse, near Dundee, driven a motor-car at a speed of from fifteen to twenty miles, which was considered dangerous to several persons, and, in addition, with having refused to give his name and address when asked for. The evidence went to show that Hayward, while driving his car, encountered a man on horseback. The horse, on the approach of the car, reared in the air, and had the rider not dismounted and pacified the animal, a serious accident might have happened. In defence it was stated that Hayward sounded his horn immediately on seeing the man on horseback, and that the driver gave no signal for him to stop. The Sheriff found the case not proven.

At Basingstoke, Leonard Boyne, of The Limes, Epsom, appeared in answer to a summons charging him with driving his motor-car at an excessive speed through the town on Tuesday, June 21st, and knocking down a lad named Neville, who was leading a pony attached to a cart, but it appeared to the Bench that the boy contributed to the accident by drawing across the road in the way of the car, though the horn was sounded. The excessive speed alleged was not made out. The case was dismissed.

Mr. L. M. Robertson, of St. James' Street, London, was summoned at Maidstone for driving his motor-car in High Street, Maidenhead, at 23 miles 1,204 yards an hour on July 24. Mr. E. Grimwood Mears (instructed by Mr. Staplee Firth) cross-examined the timing of the police on the day in question. One of the policemen said that the alleged offence occurred at 11.35 a.m. and the other one who was called to corroborate him said that the time was 4 p.m. The Bench dismissed the case.

Mr. Leonard G. Elger, Wroxton House, Banbury, was summoned at Bedford on a charge of driving a motor-car in Bromham Road at a speed dangerous to the public. Mr. Baxter (the Town Clerk) prosecuted, and Mr. Clare defended. Defendant pleaded not guilty. P.C. Leutchford said he was in the Bromham Road about 12.55 noon, on June 29, when the motor-car was driven furiously past him. The defendant drove past several vehicles, and then knocked the Rev. Mr. Libbey, who was going in the same direction, off his bicycle. Mr. Libbey was on his proper side of the road, and close to the path. One man just avoided a collision by whipping his horse, and pulling on to the wrong side of the road. Defendant was on his correct side. Mr. Clare, in his speech for the defence, complained of the manner in which the case had been brought, and the long delay, in which the police were making distasteful inquiries in the defendant's village, when the constable could have obtained all the necessary information from him at the time of the accident. The fact that the car was pulled up in so short a space, and the constable was so quickly on the spot, disproved the contention as to pace the car was travelling. The defendant said he passed the constable at about ten miles an hour, and that was the maximum speed at which he continued to Union Street. At the corner he could see the cart coming round sharp on its wrong side, and in order to prevent running into it he pulled up sharp, and turned a little to the left, thereby touching Mr. Libbey. The car stopped within its own length. After a long retirement the Mayor said the Bench did not think the evidence sufficiently clear to convict.

At Guildford, on Saturday, Maurice de Brou was summoned for driving at a speed dangerous to the public. In the course of evidence it transpired that a collision had occurred at Thursley between the car driven by defendant and a butcher's cart. Mr. Moresby White, in his speech for the defence, pointed out that it had been held in the case of "The King v. Wells," that driving a motor-car at a speed in excess of the limit was one offence under this section, and that driving in a manner dangerous to the public was another altogether, and they were not entitled in considering the one to go into evidence affecting the other. Dr. Hall, of Milford, said he was a motorist, and knew the corner well. He was at the spot soon after the accident. The car was on its right side of the road. Had it been travelling over five miles an hour he would have expected to find it in a much more serious condition. Mr. Edward K. Purchase and Mr. R. W. Buttemer also gave evidence, and after a brief consultation the Chairman of the Bench said they had come to the conclusion that there was not sufficient evidence before them to justify convicting the defendant. The case was dismissed, having occupied three hours and three-quarters.

HIRING A MOTOR-CAR.

At the Leeds Assizes, Mr. A. Elsworth, Bradford, sued Mr. A. R. Garnett, London, for damages for injury to one of the plaintiff's cars and loss caused by the detention of the car. The plaintiff's case was that the defendant hired the car at the reduced rate of two guineas a day, and was allowed to drive it himself on signing a document agreeing to make good any damage. The car was taken to Harrogate and Morecambe, and was received by the plaintiff at the end of a fortnight in a damaged condition, the repairs being estimated at £30. Mr. Garnett said the car was in a very bad condition indeed when he took it out. The car ran with extreme noise. On the following day they went to Morecambe, and there the car broke down. His lordship gave judgment for the defendant on the claim, and awarded Mr. Garnett £2 on a counter-claim.

CONVICTIONS AGAINST MOTORISTS.

Place.	Summoned for	Fine.
Huntingdon	Furious driving	£2, etc.
Shipston-on-Stour	Beyond legal limit	£2, etc. *
Southampton	Excessive speed	£7 10s.
Belfast	Furious driving	10s., etc.
Sunderland	" "	20s., etc.
Bishop Stortford	Not producing licence when required	10s., etc.
Malton	Not stopping when requested	£2, etc.
Lewes	Reckless driving	50s., etc.
Settle	Using an obscured identification mark	2s. 6d., etc.
Epsom	No number	5s., etc.
Roborough	Furious driving	£7 10s., etc.
Knaresborough	" "	£5, etc.
Sunderland	" "	20s., etc.
Wimbledon	Driving at excessive speed	20s., etc.
Bromley	Not producing a licence when required	10s., etc.
Woking	Keeping motor-cycle without licence	25s., etc.
Battersea	Excessive speed	£1, etc.
Exeter	Driving on wrong side of road	2s. 6d., etc.
Altrincham	Furious driving	£1, etc.
Liverpool	Dangerous driving	40s., etc.
Enfield	Lending number plate to fellow motor-cyclist	10s., etc.

* Notice of Appeal given.

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THE

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COMMENTS.



ACCORDING to Lord Stanley, the Postmaster-General, some progress has been made during the past year with the use of motor-vans for the conveyance of mails. Mail services between the following towns are at present being performed by means of motor-vans:—London and Epping, London and Redhill, Manchester and Liverpool, Sunderland and Newcastle, and Birmingham and Warwick. Several motor-vans are also being used on mail services in London. The best results have been obtained on the service between London and Epping Speaking generally, the motor-vans that have been tried have not proved so reliable as horse vans; and it has been necessary to exercise caution in extending their use for the conveyance of mails in order that the public service should not suffer. The superiority of the motor-vans in point of speed is, however, an important advantage; and the Postmaster-General hopes that when they have reached a higher stage of development it will be possible to employ them extensively for the conveyance of mails.

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The Care of the Number.

THE old adage as to driving a coach and four through an Act of Parliament may now be modernised in connection with the Motor Car Act. The law says that in the event of a motor-car changing ownership notice of the alteration shall be given to the authorities by either the new or the old owner. No penalty is attached to either person in the event of neglect to do this, but the car sinks from its official state and becomes a mere unregistered car liable to be mentioned in the police-court. This is a point brought out at Manchester in a case reported on another page, and is one that those who buy or sell cars should not ignore. Care should be taken to see that the number is properly transferred.

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Alcohol for Manufacturing Purposes.

COLONEL SADLER, M.P., who is interesting himself in the movement for the relief of alcohol intended for manufacturing purposes from duty, says there are more than a hundred products in which alcohol is necessary. A great many of the processes were discovered here and worked in this country, but when Germany came into the field with cheap alcohol, it was found impossible, owing to the heavy duty obtaining here, to compete with the German manufacturers, and English factories had perforce to shut down, the Germans securing the trade. Good alcohol, says Colonel Sadler, could be produced here at from 8d. to 9d. a gallon, but under existing circumstances the cost is 12s. 6d. a gallon. The hon. member for Middlesbrough holds that if the duty on alcohol that had been rendered unpotable were removed, thousands of people would be afforded employment in manufactures on the one hand, while agriculture would be appreciably benefited on the other. In Germany many millions of potatoes are grown annually in order to obtain industrial alcohol, while 3,000,000 tons of beet were used last year in France for the same purposes. The purposes to which alcohol are applied in Germany are many and varied. Colonel Sadler, who has visited the alcohol-producing districts, says that it is largely used for lighting and cooking purposes, while as many as 30,000 spirit engines are at work in out of the way places. One firm in Berlin between October, 1903, and January, 1904, sold no fewer than 50,000 alcohol lamps.

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Motor-Car Imports and Exports.

IT is noteworthy that while the number of foreign motor-cars imported into this country in July was less than in the same month of last year, the value of the imports shows a marked increase. The number of cars imported last month is returned at 633, of a value of £251,472. Parts were responsible for £26,656, bringing up the total for July to £278,128, as against £295,312 in the preceding month and £235,947 in July, 1903. So far this year, that is to say, for the first seven months, the imports stand at £1,545,958, or approximately £245,000 more than in the same period of last year. Passing now to the exports of British automobile productions, the returns are somewhat disappointing, only forty-eight vehicles being shipped last month, these with the "parts" being valued at £21,535, while for the seven months ending with July the exports are returned at £161,465, or slightly below the total recorded for the corresponding seven months of last year.

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Motor Houses.

THE architectural profession is naturally interested in motoring, for its advent has brought a new factor in the design of houses for the middle classes as well as for country gentry. This is being recognised by the learned societies, and the Society of Architects has just had a students' competition for an automobile club-house, in which the design of Mr. James Stewardson was placed first. In this the club rooms and conveniences are on the ground floor, and the dining room, kitchens, caretaker's house, etc., on the first floor. The basement contains wine cellar, coal store, etc., and is connected to the bar by a spiral staircase. The rear of the building is occupied by a large garage and repairing shed with top lights. The repairing shed is provided with four pits for access to the underside of motor-cars. The dining room is a large well-lighted apartment, with vaulted ceiling. The kitchen, etc., are in close proximity to the dining room. The caretaker's house is arranged for ready access to all parts of the building, but is shut off from the same by a passage. The entrance to the caretaker's house is by a staircase from the large archway. The estimated cost of the building is £5,500.

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For Tourists in Ireland.

SO much has lately been written as to the inhospitality of Irish hotels, and the extraordinarily extravagant notions which some of the proprietors have of the depths of the pockets of motorists, that it is quite refreshing to come across an instance which seems to reveal the better character of the Irish people. The Automobile Agency, of Percy Place, Dublin, inform us that during the month of September they will give free

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garage to English and Scotch motorists when in the Irish capital. We trust that their enterprise will have its full reward and that a good number of British automobilists may be found in the Emerald Isle during the coming months, for, after all, the stories of high charges which have lately been in circulation are not entirely true of the whole of the country. Those of us who had experience of Irish hotel-keepers during the Gordon Bennett week of last year know that they did not err on the side of financial modesty during that busy season; but Gordon Bennett races do not occur every week, and it is quite possible that in normal times motorists may be able to live in Ireland at reasonable rates.

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Motor Schools.

ONE accompanying feature of the growth of the automobile industry has been the springing up of a large number of places where instruction in motor-driving is given. To attract pupils the offer of diplomas, certificates, situations, and other pleasant things, is publicly made, and the fees vary according to the age of the school or the sweet innocence of the prospective pupils. As a rule agents or makers selling cars are able to sufficiently instruct purchasers as to the handling of the cars, while conversation with other owners, a careful study of the automobile press and an ordinary supply of common sense will prove real factors in the education of the driver. Still, schools are useful, especially where the fees charged are not out of all proportion to the value of the information imparted. But intending patrons should have the promises of the instructors clearly set forth in writing, so that there is no loophole for escape from the specious bait which so many are inclined to dangle before owners of cars and guineas.

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A Meet of Motoring Medicos.

THERE are a great many doctors in Lincolnshire who use, and have used for years, motor-cars in their profession, and Dr. Sharp, of Brant Broughton, has had the happy idea of inviting a few of them, his personal friends, to an informal meet at his place. It proved quite a success when held a week ago. After tea and chat on motoring the party mounted their cars and were photographed, as shown in the accompanying illustration. Dr. Sharp is in the centre on his 12-h.p. Richardson, a well-known visitor at the Lincolnshire A.C. meet; on his right is Dr. Newcombe, Caythorpe, who was on a Minerva motor-cycle; on "F.E. 7" is Dr. Overay, with Dr. de Beauvais, of Ancaster, on his New Orleans. Standing on Dr. Sharp's left is Dr. H. Stannard, Humber motor-cycle; Dr. D. J. G. Watkins, Lincoln, is at the wheel of his Humberette (F.C. 122), and Dr. Godfrey Lowe, Lincoln, has, on his Rex forecar, Dr. Purvis. All these are ardent motorists, and find their automobiles very useful indeed.

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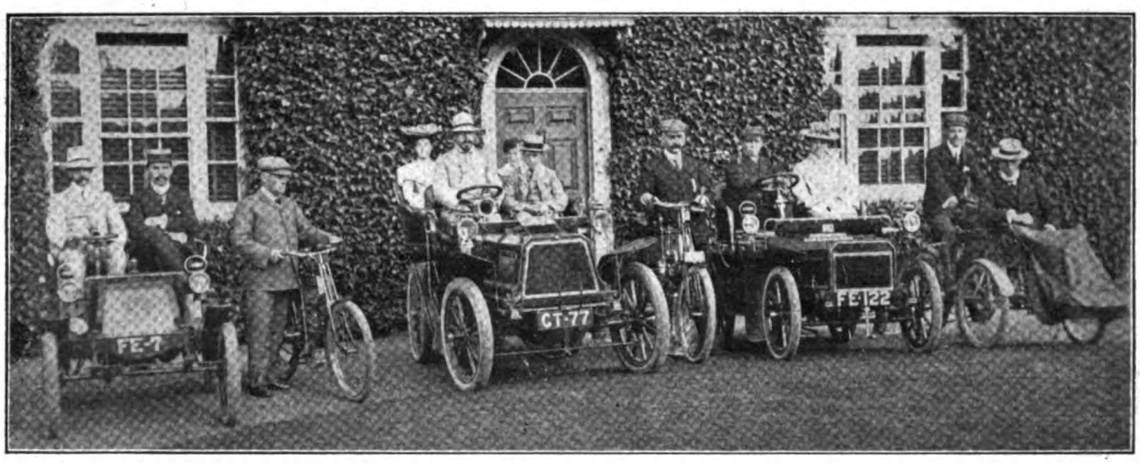
In the Midlands.

MOTORISTS in the Midlands were freely upon the roads last week-end. In the Redditch district some rough roads were met with and the Holland Road in Sutton Coldfield was being re-metalled. Around Tamworth and Stratford-upon-Avon the roads were in splendid condition. The main street of Bridgnorth is being repaved. We shall be glad to hear from readers as to main roads under repair with the view of warning motorists as to roadways to avoid.

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The Courtesy of the Road.

A STRIKING instance of consideration towards motorists is related by Dr. Hall, of Milford. He was recently stranded on the steep hill at Brook, near Witley, Surrey, by an empty petrol tank and a subsequent air-lock in the petrol pipe (a species of *en panne* which, though uncommon, it may be useful to draw attention to) when a carriage and pair, with an elderly lady therein, passed. Some ten minutes after he was surprised at seeing the lady walking down the hill towards him—she had returned to offer any assistance in her power, finding he had not overtaken her carriage, though quite a stranger to him. Such an experience is as gratifying as unusual, and he is glad to take an opportunity of expressing his thanks in print, though it is to be feared it may not meet her eye.



Motoring Medicos at Lincoln.

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The Small Car Trials.

ELSEWHERE we give a preliminary article on the Small Car Trials organised by the A.C.G.B.I.'s Technical Committee mainly within the county of Hereford. Considerable interest is naturally being taken in the event throughout the country, and considerable importance will doubtless be attached to the awards, which will consist of certificates to every vehicle completing the whole distance of the Trials, and gold, silver and bronze medals. This year a reasonable time will be allowed the competitors each day for adjustments, thus more nearly approximating the conditions to those of ordinary touring. Given cheerful weather the Trials should be a great success.

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Canals and Motor-Boats.

THE advent of the motor-boat should do something to revive interest in the neglected waterways of the country. Although very ancient so far as their history is concerned, the great development of canals did not take place until the quarter of a century, 1780–1810. It was thus contempor-

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aneous with the first efforts of British engineers in connection with automobilism. As is well known, the advent of the railways not only detracted public attention from the development of mechanical traction on roads, but also frustrated the efforts of those who looked on canals as likely to be the great carrying arteries of the country. It would be rather interesting if, just when railway companies are beginning to recognise that the motor-car will be a help and not a hindrance to their revenue, there should be an attempt made to again utilise the waterways.

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Some Hindrances.

SHOULD the progress of the motor-boat develop as rapidly as has the motor-car, there is no reason why it should not be a means of transport for the imperishable goods that now go by train. The motor-boat, too, opens up another extension of social intercourse, for the canal system is sufficiently well developed to admit of boats going long distances, the only drawback being the frequency of locks and the growth of weeds which might interfere with the pleasures of fast-going craft. Neither of these obstacles are insuperable, and the subject is one to which automobilists probably will give some attention in the near future. If the motor-boat restores the canals to the height of their early promise it will have justified itself.

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To Blow or not to Blow.

POLICE insolence is fairly familiar to motorists on southern roads, and the constable who told Colonel Bosworth, when driving through Guildford and blowing his horn to warn the public of the approach of a car, to "stop that noise," should certainly be informed as to the limits of his authority. The Colonel is still awaiting a reply from the Chief of the Police at Guildford to a question as to what motorists are to do when passing through the town. Some have been summoned for not giving audible warning of their approach; others have been insulted for doing so. What is to be done? The answer of the Guildford Watch Committee is anxiously awaited. Probably the new musical horn introduced by Mr. Moffat Ford will be useful in this difficulty.

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The Number and Car.

IT cannot be too widely known that the number assigned to a motor-car is only to be applied to that particular vehicle. A case has just been heard at Greenwich in which a motorist was fined £5 and costs for fraudulently using a mark for identifying a motor-car. The defence was that the act was done in ignorance of the law, and the word "fraudulently" was, of course, only the legal way of putting the matter. To say that the owner of a car is under the impression that he is entitled to use the same number on any car he drives may appear to place the defendant in a very innocent light, but it is no excuse. When securing numbers owners have to describe their cars, and such description should indicate that any mark which may be assigned is applicable only to that particular machine.

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Children and Cars.

THE other day, as the Earl of Leven and Melville was motoring in Fulham, and travelling at a moderate rate of speed, having regard to the traffic about, a little girl ran out from the pavement in front of the car, which passed over her ere the driver could stop. At the inquest, the jury returned a verdict of "Accidental death," and the driver, in giving evidence, said that at the top of the street where the accident occurred there were a number of children playing, and as he approached them they stood in the road and defied him, so that he had to pull the car up dead. Shortly after he had restarted the unfortunate child darted from the pavement right in front of the vehicle, and, although he applied his brake and pulled up instantaneously, the fatal accident occurred. Unfortunately, children have too great a habit of regarding the roadway not only as their playground but also as a vantage point from which to amuse themselves by annoying others; and the fact cannot be too emphatically urged that the rising generation must be taught to regard the pavement as a place intended for pedestrians, the roadway only to be used for crossing and re-crossing. Such accidents as that to which we have referred are unfortunate, but, until children adequately recognise the dangers of street driving, we are afraid they are almost inevitable.

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Antipathy in the Lake District.

AT the monthly meeting of the Ulverstone Rural District Council, Major Alcock Beck recommended that the Council write to the Lancashire County Chief Constable calling attention to the speed of motorists going through the Lake District villages of Hawkshead and Sawrey. Mr. W. R. Nash said the road from the Ferry (Windermere Lake) to Hawkshead was far too narrow for the summer traffic, and they suggested asking the Lancashire County Council to prohibit motorists using it. In some places it was only twelve feet wide. Councillor Garfitt suggested that the only way to pull up some motorists would be to have a wire rope across the road from one end of the village to the other. Such an irrational attitude on the part of local councillors, in districts which depend so much for their prosperity on the presence of visitors, is not likely to serve the best interests of the district.

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Mr. and Mrs. C. Jarrott on their De Dietrich Car.

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A Warning to Touring Motorists.

SO many cases of the removal of trunks and other necessary impedimenta from automobiles while their owners have lingered in hostelries or engaged in conversation have lately occurred that a warning appears really necessary. Many of the people who lounge about hotels have eyes on things which may be easily transferred, and their consciences are elastic enough to help them to reach to articles of ready conveyance which do not belong to them.

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Mr. Edge and Racing.

THE report given on the authority of a contemporary that Mr. S. F. Edge has decided to give up motor-car racing will be of universal interest. No one has had more experience than Mr. Edge in automobile contests, and his decision is therefore a matter of some moment. The reason assigned for the decision is the indifference of the A.C.G.B.I. towards its representatives in international events—an attitude in marked contrast to that of the French club towards its champions. The truth is that the British Club ought to recognise that, when once its team of representatives is chosen it should play its part in seeing that rules are adhered to and the passage to victory, or failure, made as comfortable as possible. Possibly in thus retiring Mr. Edge, by drawing attention to the official apathy, may be rendering an awakening service.

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The Small Car Trials.

IN a few days the gentle noise of the motor-car of small degree will be heard in the quiet streets of ancient Hereford, and in the delightful lanes roundabout 38 motor-cars, none costing more than £200, will be performing a series of daily trips to demonstrate their reliability for the medical man, the minister with a widely-scattered parish, the commercial traveller who



The Old House in High Town Hereford.

desires to be independent of trains, or anyone else anxious to economise time and extend his range of pleasure.

The forthcoming Trials will provide a dual innovation. Hitherto the A.C.G.B.I.'s annual test has included the mighty motor of great horse power. This year comparatively diminutive vehicles will be engaged, the following being a complete list of entries:—

CLASS A.—Cars declared at a Selling Price of £125 or less.

Official number.	General Description.	No. of Passengers, including Driver.	No. of Cylinders.	Cylinder Dimensions.	Brake Horse-power.	Weight Unladen.	Size of Tyres.	Price of Car.
						cwt.		£ s.
1	6-h.p. Jackson dogcart (A) ..	2	1	90 by 110 mm.	6	9	700 by 85	125 0
2	6-h.p. Speedwell	2	1	90 by 110 mm.	6	8	700 by 65	123 18
3	8-h.p. Horley (F)	2	1	4 in. by 5½ in.	8	10	700 by 85	125 0
CLASS B.—Cars declared at a Selling Price of more than £125, and not more than £150.								
4	6-h.p. Jackson dogcart (A) ..	2	1	90 by 110 mm.	6	9	28 in. by 2½in.	141 15
5	6-h.p. Light Vauxhall Car ..	2	1	4 in. by 5 in.	6	7	3 in.	150 0
6	7-h.p. Oldsmobile Runabout ..	2	1	5 in. by 6 in.	7	10	3 in. by 28 in.	150 0
7	6½-h.p. Service	2	1	88 by 110 mm.	6½	9	750 by 85	150 0
8	6-h.p. Pelham	2	1	90 by 110 mm.	6	7	700 by 80	150 0
9	8-h.p. Horley (F)	4	1	4 in. by 5½ in.	8	12	700 by 85	145 0
CLASS C.—Cars declared at a Selling Price of more than £150, and not more than £175.								
10	6-h.p. Light Wolseley (D) ..	2	1	4½ in. by 5 in.	6½	10	28in. by 3½in.	175 0
11	6-h.p. Mobile	2	1	90 by 110 mm.	6½	10	28in. by 3¼in.	175 0
12	8-h.p. Brown	2	1	110 by 120 mm.	9	12	30in. by 3½in.	175 0
13	9-h.p. Speedwell	2	1	100 by 120 mm.	9	10	700 by 85	175 0
14	Single-cylinder Swift	2	1	95 by 110 mm.	7	9	3in.	175 0
15	7-h.p. Little Star (B)	2	2	3½ in. by 4½ in.	7	—	28in. by 3½in.	175 0
16	6½-h.p. Royal Humberette ..	2	1	4 in. by 4½ in.	7½	9	28in. by 2½in.	157 10
17	Alldays light car No. 1 (C) ..	2	1	4 in. by 4½ in.	7	9	700 by 85	165 0
18	6-h.p. Siddeley	2	1	4½ in by 5 in.	6½	10	700 by 85	175 0
19	7-h.p. Downshire	2	2	3½ in. by 4½ in.	7	7	700 by 80	170 0
20	6-h.p. Light Wolseley (D) ..	2	1	4½ in. by 5 in.	6½	10	28in. by 3½in.	175 0
21	7-h.p. Clyde	2	1	85 by 110 mm.	7	8	28in. by 2½in.	175 0
CLASS D.—Cars declared at a Selling Price of more than £175, and not more than £200.								
22	6-h.p. De Dion (E)	2	1	90 by 110 mm.	6	8	28in. by 3½in.	200 0
23	6-h.p. De Dion (E)	2	1	90 by 110 mm.	6	8	28in. by 3½in.	200 0
24	8-h.p. Mobile	4	1	100 by 120 mm.	9	12	28in. by 3½in.	200 0
25	9-h.p. Oldsmobile	3	1	5½ in. by 6 in.	10	13	3½in. by 30in.	200 0
26	7-h.p. Swift	2	2	80 by 85 mm.	7	9	3in.	200 0
27	8-h.p. Royal Enfield	2	2	3½ in. by 4 in.	8	10	700 by 85	200 0
28	8-25-9-65-h.p. Cadillac	4	1	5 in by 5 in.	9·65	11	800 by 85	199 10
29	10-b.h.p. Chriton	2	4	3 in. by 3½ in.	10	—	750 by 85	195 0
30	8-10 Croxted	2	2	3½ in. by 4½ in.	10	13	760 by 90	200 0
31	9-h.p. Anglian light car ..	3	1	100 by 120 m.m.	9	11	750 by 85	200 0
32	Alldays light car No. 3 (C) ..	3	1	4 in. by 4½ in.	7	9	700 by 85	180 0
33	8-h.p. Rover	2	1	4½ in. by 5 in.	8	8	750 by 85	200 0
34	7½-h.p. Royal Humberette ..	2	2	3½ in. by 4 in.	7½	11	28in. by 3in.	200 0
35	6-h.p. Belsize Junior	2	1	115 by 125 mm.	8½	10	700 by 85	183 15
36	8-h.p. Simms	2	1	110 by 110 mm.	9	—	700 by 85	200 0
37	8-h.p. Prosper Lambert ..	2	1	110 by 120 mm.	8	11	700 by 85	185 0
38	7-h.p. Little Star (B)	2	2	3½ in. by 4½ in.	7	—	28in. by 3½in.	160 0

AA, BB, CC, DD, EE, FF respectively will be run as a team.

In previous years the Crystal Palace has been the venue of the Trials; now Hereford will be the centre from which the trials radiate, and instead of the modern seaside resorts being the objective of many of the runs, old-world towns like Ross, Ludlow, and Leominster will prove a pleasant variation of scenery to the drivers of cars that are well behaved. We have just spent some time in the district, making the Mitre Hotel, at Hereford, which is the headquarters of the Herefordshire Automobile Club, our resting place. This is a comfortable hostelry with garage accommodation for cars, a feature for which, like the Green Dragon Hotel across the way, it takes credit unto itself.

Starting from the Drill Hall at Hereford, the cars will make two journeys of fifty miles each day—both over the same route. During the week Ledbury will be visited six times, Worcester and Ludlow twice, Leominster four times, and some of the villages in the Kington district will see the cars four times on the 3rd prox., the last day of the runs, the full programme of which is given below. Originally the run to Leominster was to have taken place on Tuesday, but this arrangement was, as the result of telegraphic communications between the Herefordshire Club and the A.C.G.B.I., altered on Friday last. The discovery was made that on that day an agricultural show would be held at Leominster. Hence the change.

The starts will be made each day at 8 a.m. and again at 2 p.m., each trip lasting about three hours.

Monday, August 29.—Holmer, Dinmore Hill (climb), Leominster, Brimfield, Ludlow, to the railway bridge, two miles beyond, returning to Hereford by the same route—51 miles.

Tuesday, August 30.—Newtown, Frome's Hill (climb), Stiffords Bridge, Leigh Sinton, Bransford, Worcester, Knightsford Bridge, Bromyard, Stoke Lacy, Burley Gate to Hereford—52 miles.



Hereford Cathedral—from the Wye.

Wednesday, August 31.—Bartestree, Tarrington, Ledbury, Bishop's Frome, Munderfield Row, Bromyard, Bredenbury, Steen's Bridge, Leominster, Dinmore Hill (climb), to Hereford—50 miles.

Thursday, Sept. 1.—Bartestree, Tarrington, Ledbury, Playley Green, Staunton, Long Green, Eastnor, Ledbury, Tarrington, to Hereford—52 miles.

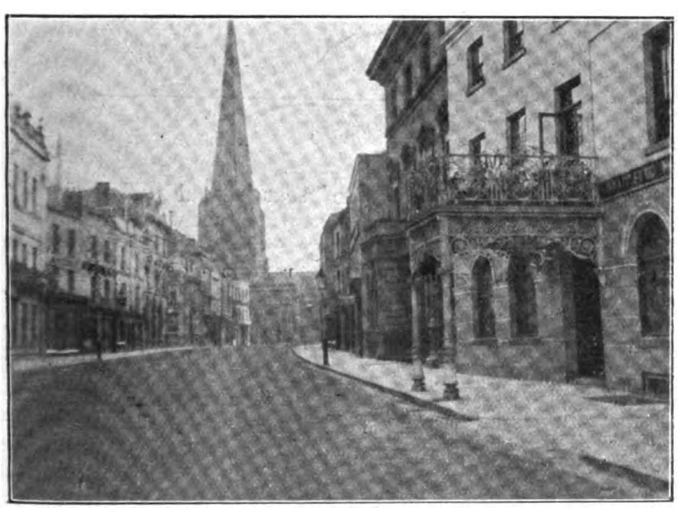
Friday, Sept. 2.—Callow, Llandinabo, Peterslow, Ross, Much Marcle, Ledbury, Bishop's Frome, Bromyard, Stoke Lacy, to Hereford—50½ miles.

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Saturday, September 3.—Stretton, Lugwas, Yazor, Woonton, Lyonshall, Kington, Walton Knill, Titley, Kington, Lyonshall, Woonton, Yazor, to Hereford—52 miles.

The Herefordshire Club is one of the most virile, although one of the most youthful, of automobile organisations, with a capital president in Mr. J. T. Hereford, of Sufton Court, and an enthusiastic hon. secretary in Mr. Wilfrid Groom, whose services in connection with the forthcoming trials have been of great value to Mr. Basil Joy, the technical secretary of the A.C.G.B.I., who arrived at Hereford on Tuesday to complete the organisation he has had in hand for many weeks. The membership of the local club has reached sight of the hundred, being actually eighty, with owners of cars slightly predominating. Doubtless it was a bold move when this club invited the parent body to travel from the south and hold its annual Trials in a place distant from London 140 miles but it must also be remembered that Hereford is only sixty-five miles from Coventry, fifty-five from Birmingham, 100 from Manchester, and is in a district which should provide the industry with many clients ere the season of 1905. These facts doubtless weighed with Mr. Joy and the Committee of the Automobile Club in accepting an invitation most cordially conveyed and sustained by the offer of free accommodation for the cars in a Drill Hall well adapted for the purpose. Local friends are rallying towards the subscription list, which Mr. Groom's popularity and persistence is lengthening daily, and everything possible will be done by the local people to make warm the welcome to the motorists about to visit the city.

In addition to the enthusiasm of county motorists, it is gratifying to be able to recognise the co-operation of the authorities. On enquiry at the office of the County Surveyor we learned that the local surveyors in all the districts which will be traversed during the trials have been notified of the event by special circular, the hope being expressed that no loose stones will be left on the roads—a piece of courtesy that contrasts very pleasantly with memories of roughly metalled and unrolled stretches that have worried drivers on previous tests. Although the dust nuisance will doubtless be experienced should the weather prove fine, it is not anticipated that it will be so pronounced as was the case during the runs through Kent last year, the surface material being of a materially different character. The roads are good and generally wide,



The Mitre Hotel, Hereford—The Headquarters of the local Automobile Club.

although on some of the routes narrow and curly portions will require careful negotiation. Dinmore Hill, where one of the hill climbs is to take place, is not to be very anxiously anticipated, and although it is about a mile long on each side, it need present no great difficulties. On the Hereford side the portion of the ascent where Messrs. T. H. Woollen and F. Straight will time the competitors is 5,340 ft. long, with a rise of 282 ft., the average gradient being one in 18·93. On the Leominster side from the Royal Oak Inn to the milestone, the distance is 4,800 ft., the rise being 283 ft., with an average gradient of one in 16·9. About half way up there is a stretch of twenty yards with a rise of one in 10·84, this being the stiffest portion. On the other hand, Frome's Hill, on the Worcester road, has some sharp rises and is universally acknowledged as a "terror." In its length of 2,812 ft. there is a rise of 230 ft., the average gradient being one in 12 2. After about a quarter of the distance has been negotiated, there is an ascent of one in eight, and the last hundred feet to the top is the stiffest of the journey, being one in 7·5.



High Town, Hereford—The Spire of St. Peter's Church is seen to the right.

The police have been equally as considerate as the administrative departments, and not only will the week be free from the wearisome and vexatious traps of last year, but officers may be expected to be willing guides at doubtful corners. This friendly attitude is also characteristic of ordinary times, the relations between the police and the motorists of Herefordshire having always been of the most happy character. The police are too manly to lay traps and hide behind hedges; the motorists too friendly to take unfair advantage of the facilities for pleasant touring they experience at their hands.

In the *Journal* of the 6th inst. we published a map of the routes to be followed, and some notes on the principal centres of interest to be visited may be of service to strangers. Herefordshire is a delightful county, with only half a dozen places of any size—the rest are large hamlets quietly nestling among orchards and (in one district) hop fields. From the Cathedral Tower the visitor will obtain a clearer notion than print can convey of what the country is like. Beautiful hills, luxurious valleys, the Wye entering at Clifford Castle, flowing past Ross, and bending round Symond's Yat till it forms the boundary between Herefordshire and Gloucestershire—these, with an alternating landscape of meadow and cornfield, orchard and woodland, offer a picture for the eye to linger on with delight. The most considerable towns, with their distances from the county town, are as follows:—Ross, fourteen; Kington, nineteen; Ledbury, fifteen; Leominster, thirteen; Ludlow, twenty-four; Bromyard, fourteen miles.

Beyond the Cathedral there are only a few points of interest in Hereford. The old house, now devoted to the purpose of banking, which stands in the High Town, is a remnant of the Butchers' Row that originally formed a central line in what is a great wide thoroughfare. Near by is St. Peter's Church, and at a little distance the new Municipal Buildings and old Shire Hall. Mr. Albert Marriott, the official repairer to the A.C.G.B.I., who is making complete arrangements for the supply of petrol to the competitors, has his headquarters in St. Owen Street, where he is contemplating extensive additions to an already well-fitted workshop. As an expert he has a wide reputation, and has every facility for rendering assistance to motorists in distress. Near the station Messrs. Connolly and Son, an enterprising firm of carriage builders, are watching the progress of the automobile industry and adapting themselves to the altered condition of things. They have excellent garage accommodation, and, like Messrs.

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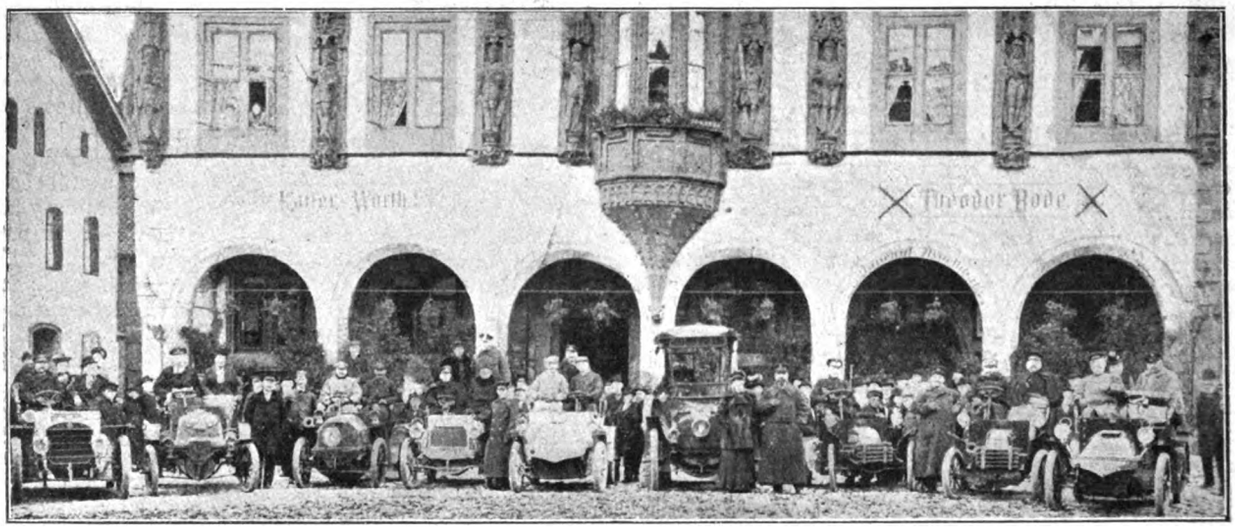
Howell Bros., whose premises are in the same street, have been very busy lately in letting cars on hire.

Although it is only within the last few years that Ross has come forward as a centre from which to tour the Wye Valley, the name must be familiar to many who have read Pope's eulogium of John Kyrle, the "Man of Ross." Whether approached by boat—for the town hangs immediately over the river—or by road, Ross, with its houses paying obeisance below the handsome church spire, and environed in the most sylvan of scenery, is a town much, and deservedly, appreciated by the tourist. Here it was that the immortal John Kyrle lived and died and was buried in the parish church. It was he who left the "Prospect" as a gift to the burghers as a pleasure ground, to day much used and prized. From here a fine river view is to be obtained. Situated in the centre of the irregular, informal clusters of houses, and no less informal than these, is the Town Hall, near to which is the house of John Kyrle. Ross was visited by the plague in 1637, a cross in the churchyard commemorating the visitation.

Stretching right from Hereford to the Malvern Hills is one long valley—the hop garden of the county. In the midst of this lovely valley lies the town of Ledbury, a place of no size, but of considerable beauty. Near to here it was that Elizabeth Barrett Browning spent her youth—at Hope End—living among the "Hills, vales, woods, netted in a silver mist."

Looking from Ludford Bridge at the almost faultless grouping of the houses on the opposite side of the river, with the graceful tower of St. Lawrence crowning the whole, Ludlow town is a sight to inspire a Railton or a Pennell in black and white, or in colour a Cotman or a Prout. So truly beautiful, too, are the surroundings that the antiquarian interest is submerged by the artistic; not, however, that the former ranks low in importance, for this border town, with its magnificent castle—for long the Court of the Marches—has seen many vicissitudes, and many a border fray was fought on the banks of the Teme and in the Whitcliff woods opposite. In more peaceable times the castle was the scene of revels, and it was here that Milton's masque of "Comus" was first played. The Court of the Marches was done away with in 1689, and from that date this stronghold began to fall into ruin; but so beautiful in its decay is it that Ludlow has nothing better to show.

Leominster is a typical country market town, such as one finds depicted so faithfully in the works of Thomas Hardy; a quaint old-world town ensconced amid the folds of the broad ploughed lands of North Herefordshire. And in the old days "Lempster Market" was no mean institution; indeed, it became so famous that in the fourteenth century Hereford and Worcester, in jealousy, remonstrated, so that Henry III. changed the market day from Saturday to Friday.



A Meet of the Brunswick Motor Club. *Automobil Welt.*

A piece of architecture in the middle of the town, which cannot fail to attract attention, is the market-house, a half timbered building upraised upon its sixteen stout pillars of sweet chestnut wood. The Church of St. Michael and All Angels affords much interest to the student learned in "styles," and has many interesting features for those not so informed—one a peculiar sundial formed in the glass of one of the aisle windows. Ledbury did not escape in the Civil Wars, and a fierce fight took place in the streets here between the forces of Prince Rupert and those of Col. Massie. Not far from Ledbury is Eastnor Castle, the seat of Lady Henry Somerset.

Situated on the old London road to Aberystwyth, on the very border of the county, is the little hill town of Kington, which, although there is not much in the way of relics or ruins to tell a tale, if we are to judge from the verses concerning Thomas ap Rosser, Lord of Hergost, has had a romantic history. It is a thumb-nail sketch of a town of about half a dozen streets. The surroundings, however, are undeniably romantic, and the soft beauty of the Herefordshire landscape is lost in the sternness of the rugged Radnor Hills—the gates of Wales. It is, therefore, to the artist and the sportsman that this neighbourhood will especially appeal, although those of poetic vein cannot remain unimpressed by the haunting and wild beauty of the borderland.

The "good buildings of timbre" that Leland spoke of remain to this day to tell us of its ancient wealth and to afford charming perspectives of overhanging and gabled houses to please the eye. "Grange House," a private house rebuilt from the materials of the old market-house, is one of the most beautiful specimens of old timbered house in the county. An interesting possession of the town's is a ducking stool in proper working order, but which was last used in 1809. Of one local peculiarity of pronunciation care must be taken. Leominster is not pronounced as it is spelt, but "Lempster" is the way in which the people of the county speak it.

During next week visitors from the surrounding districts will be numerous in Hereford, and the following Identification Numbers for cars will be familiar in the streets of the delightful old town:—

C. J.—Herefordshire.	F. K.—Worcester.
A. B.—Worcestershire.	F. O.—Radnorshire.
A. D.—Gloucestershire.	O.—Birmingham.
A. W.—Salop.	D. U.—Coventry.
A. X.—Monmouthshire.	A. E.—Bristol.

The Editor of the *Motor-Car Journal* invites photographers to send snapshots of incidents of interest to motorists. Where these are of the trials or current events the unmounted prints should be despatched on the same day or not later than the day following the occurrence.

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SOME NEW CARS IN THE TRIALS.

THE majority of the cars competing in the trials have already been described in the *Journal*. There are a few new comers of which the subjoined particulars will no doubt be of interest. The 6½-h.p. "Service" car entered in Class B by the Civil Service Motor and Cycle Agency, Limited,



Fig. 1.—Miss Dorothy Levitt on the 6-h.p. De Dion she will drive in the Trials.

is a two-seated vehicle following the general lines of live axle cars. The frame is of tubular construction, and the motive power is supplied by a 6½-h.p. governed Aster engine, with pump circulation. Three speeds forward and a reverse are controlled by one lever, the drive on the top speed being direct, with the intermediate gears at rest. The differential gear is of the spur-wheel type.

Among the new vehicles in Class C is the "Chambers," made by Messrs. Chambers and Company, of Belfast, the moving spirit of which firm is Mr. J. H. Chambers, late of the Vauxhall Ironworks Company. The car, which is designed to seat two



Fig. 2.—The 10-h.p. Chriton Car.

persons, with ample space at the rear for luggage, is propelled by means of a 7-h.p. double-cylinder engine, the cylinder dimensions being ⅞ in. bore by 4¼ in. stroke, and the normal speed 1,200 revs. per min. The ignition is electrical, a good enclosed wipe contact with trembler coil being fitted. The inlet and exhaust valves are very accessible, both being vertical. The carburettor is of the float-feed spray type of the firm's own design, and has an extra air inlet which is automatically operated, and with the spraying chambers is partially jacketed by the circulation water. A throttle valve controlled from the inclined steering wheel is also provided. The water circulation is on the thermo-syphon system. Three speeds forward and a reverse are provided by means of a crypto type of gear, working in oil. From the gear shaft a central chain transmits the power to the back axle. The tie rods and chain case are incorporated in such a way as to be a rigid but separate part, and yet flexibly connected, so as to give movement for springing, and a single point of adjustment for the chain. The firm has protected a special triangular design of frame, carrying the back axle, so that the strain due to the pull of the chain is taken on bearings on each side of the sprocket, both front and back, thus saving the heavy pull on the engine bearings and doing away with the usual radius rods. The car has, with the exception of the electric ignition, the gear wheels and the tyres, been entirely made in Belfast. The first specimen has been on the road for over 1,500 miles, and so far has done admirably.

Fig. 5 shows the "Brown" 8-h.p. two-seated car entered by Messrs. Brown Bros., Limited. The engine is of the single cylinder-governed, vertical type, 110 mm. bore by 120 mm. stroke, developing its power at 1,200 revolutions a minute. The frame is of wood, strengthened with flitch plates. Ignition is the usual high tension, by coil and accumulator with a wipe contact maker. The water circulation is maintained by a gear-driven

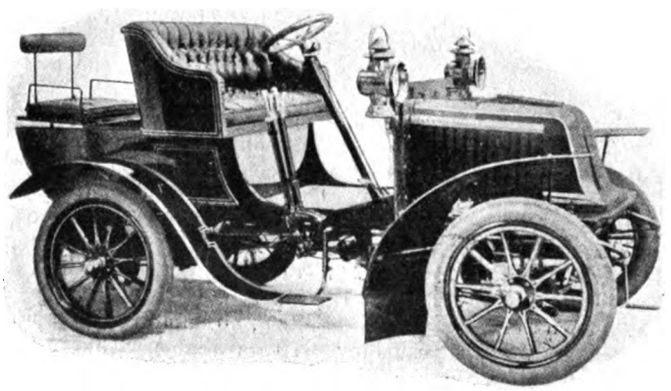


Fig. 3.—The 9-h.p. Anglian Car.

pump, fitted in a very accessible position in front of the engine, and a honeycomb radiator. The transmission from the gear-box to the rear live axle is by a cardan shaft with universal joints, the axle being carried on ball-bearings. Three speeds and a reverse are fitted, controlled by a single lever. The lubrication of the engine is effected from the dash by a combined force and drip lubricator, the plain bearing of the bevel driving pinion being also lubricated from the dashboard. The brakes are of the metal to metal type; the countershaft brake is applied by a pedal, and the two brakes on the rear wheels are actuated by a side lever. The artillery wood wheels are all of equal size, and are shod with 30 in. by 3½ in. tyres. The levers for throttle and advance spark are mounted on the steering pillar, the connection being by Bowden wires; the air regulator to the carburettor is on the dashboard.

In Class D there are several cars making their first appearance in the trials. The 10-h.p. Oldsmobile and the 9½-h.p. Cadillac have been illustrated in recent issues. Fig. 2 shows the Chriton two-seated car which enjoys the honour of being the only four-cylinder vehicle in the competition. The vehicle, which is made by the Chriton Automobile Company, of Saltburn, is provided with a 10-b.h.p. vertical engine, the diameter of the four cylinders being 3 in. by 3½ in. stroke. All the valves are mechanically operated, and the normal speed of the motor is 1,200 revolutions per minute. The engine is fitted with a "Universal" silencer and Van Raden coil with Carpentier tremblers. Spark intensifiers are mounted on the dashboard in a visible case,

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and each cylinder is provided with a separate cut-out switch. The radiator is of the tubular type, containing 1,060 tubes, and is provided with fan to induce a current of cold air through it. The drive is taken from the engine through a leather-faced friction-clutch to gear-box, which gives three speeds forward and one reverse, all worked off the same lever, and thence to live back axle by flexible shaft and universal joints. On the top speed the drive is direct. The petrol tank has a capacity of ten gallons, and the water tank, which forms the case of the radiator,

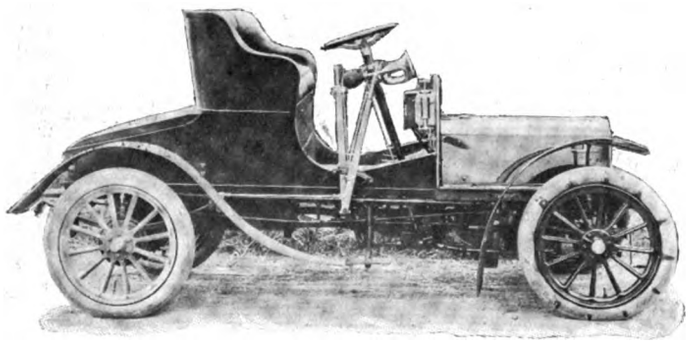


Fig. 4.—The 8-h.p. Royal Enfield Car.

holds eight gallons. Three brakes, all of the internal-expanding type, are provided, one operated by a push forward pedal, and the two hub brakes by a pull backward hand lever. Lubrication is by sight drip feed from the dashboard, from which the crank case and gear-box, etc., are fed. By means of the foot-controlled throttle valve the car can, it is claimed, be driven on top speed from a crawling pace up to forty miles per hour.

The "Croxted" two-seated car entered by Messrs. Garner and Company is a vehicle of French construction, designed on the basis of not greatly exceeding a speed of twenty-five miles an hour on top speed but of climbing hills at a good rate. The engine is a double-cylinder Aster engine of the latest type, developing 10-b.h.p. The cylinders are 4 in. diameter bore by 5 in. stroke and the normal speed 1,000 revs. per min. The water circulation is on the thermo-syphon system, no pump being employed. Three speeds and the usual reverse are available, with direct drive on top speed. From the gear-box the drive is by cardan shaft and live axle. The peculiarity of the latter lies in the fact that a solid axle bent from the hubs of the two hind wheels bears the whole weight of the back of the car, the bevel gearing being contained in a case resting upon the solid axle.

The "Royal Enfield" 8-h.p. two-seated car entered in Class D by the Enfield Cycle Company, Limited, is depicted in Fig. 4. The motive power is supplied by a double-cylinder vertical engine developing 8-h.p. at 1,200 revs. per min. The cylinders are 3½-in. bore by 4-in. stroke. The valves are all mechanically operated and interchangeable. A governor operating on a Longuemare carburettor is provided. Three speeds forward and reverse, with a direct drive on top speed, are controlled by one lever. From the gear box the power is transmitted by a universal shaft and bevel gear to a live axle. The water circulation is maintained by a friction-driven pump and an extra large ribbed-pipe radiator.

The Anglian Motor Company, Limited, have entered the "Anglian" three-seated car shown in Fig. 3. This is provided with a 9-h.p. De Dion single-cylinder engine, the bore and stroke being respectively 100 mm. and 120 mm. The gear box is adapted to give three speeds forward and a reverse, controlled by a single lever, the transmission being by a universal-jointed shaft and bevel gear on to a rear live axle running on ball bearings.

Owing to pressure on our space we have had to hold over a description of one or two of the other new cars entered in the Trials.

DOUBLE-ACTING BAND BRAKES.

THE term double acting as applied to brakes is somewhat ambiguous. If it is interpreted to mean that the brake effects a retarding action on the vehicle for each direction of motion, then all the brakes which have come to our notice, and probably all that have ever been made, are double acting. If, on the other hand, it is interpreted as meaning that the retarding effect is exactly equal, with equal operating pressures, for both directions of motion, then the class of so-called double-acting brakes most commonly used only deserve their name when certain conditions as to dimensions are fulfilled. The class of brakes we refer to, remarks the "Horseless Age," is the band brake in which both ends of the band are movable and are fastened to the opposite arms of a double-armed lever.

By varying the design of this brake, that is, by changing the distance between the centre of brake drum and centre of brake lever, the length of the lever arms and the length of the band, it may be made either a perfectly double-acting brake with equal effect for both directions of motion, a brake exactly similar in action to the so-called single-acting band brake with one end of the band fixed, or it may occupy any position between these two extremes. In practice the brakes of this class usually belong to the last category; that is to say, they are not quite as powerful for reverse motion as for forward motion. There is, of course, no reason why we should insist upon the theoretical condition of equal power for both directions being complied with, especially as, on account of the higher forward speeds of vehicles, the greatest braking effort is always required to arrest forward motion; but, at the same time, if judicious design permits us to increase the brake power for reverse motion without seriously affecting the power for forward motion, we might as well take advantage of it. It is, at any rate, well to know what are the theoretical conditions underlying the equality or inequality of brake action for the opposite directions of rotation of the brake drum. In the ordinary band brake, in which one end of the band is fixed, the tension in the band varies from end to end. For forward motion it is greatest at the fixed and least at the opposite end. Similarly in a band with both ends movable the tension varies from point to point, but the point of least tension is never at one end.

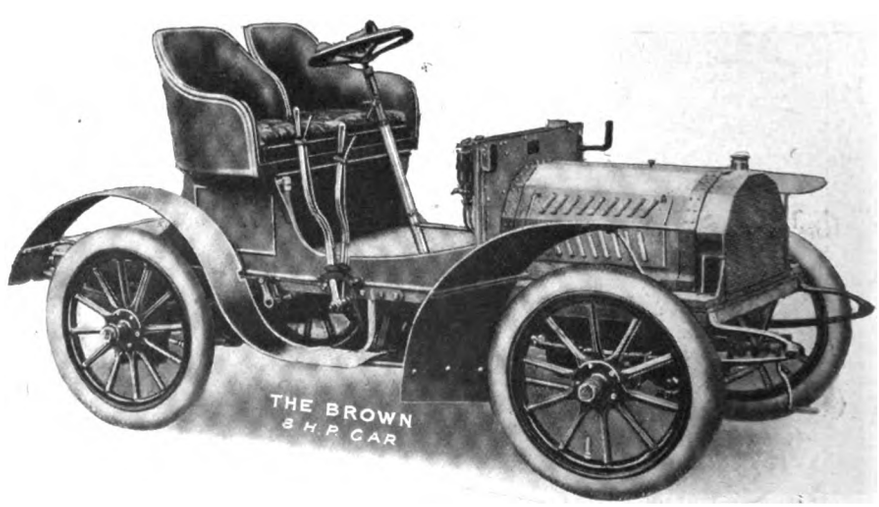


Fig. 5.—The 8-h.p. Brown Car.

In order that the braking effect may be the same for both directions the tension applied to each end of the band must be the same. To ensure this the length of the band must be so adjusted that when the band is drawn tight the effective lever arms, through which the operating power is applied to the ends of the band brake, are the same.

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THREE MEN IN A POND.

[TO SAY NOTHING OF THE CAR.]

IT was a darkling night when three of us set forth from Hereford to visit a wounded motorist away at Wellington, near unto the height of Dinmore. At least it dimmed later, for when we started there was light enough to see the glorious sunset after passing the pretty village of Holmer, with its name set forth clearly, according to regulations, above the post office.

And it was a sunset; such a scene as, limned on canvas, would be regarded as the mere figment of a Werts or an over-reaching of the reality. The reds stretched into the greys and the greys melted into the yellows, until the splashdash effect became a kaleidoscope far more wonderful in its varied combinations of colour than was ever sold in a toy bazaar.

And we motored along the tortuous lanes, with their green carpets on the one hand, and, on the other, high hedges vainly seeking to seclude the orchards beyond. For here was Apple Land—the country of cider and of fruit, as yet undusted by the automobile cavalcade that next week will splash the trees with a coating of sand and dull the verdure of the land thereabout.

Here and there a horse whose education had been neglected reared himself as far above the terrestrial sphere as his sense of equilibrium would allow; now a rabbit would cross our path, and then some nervous lady, undecided whether to flee to the right or the left until a mighty blast from the horn awakened her to the presence of the motor-car. And then she would run ahead, finally darting into the hedge with a hunted expression. Thus, too, performed the fowls.

The journey was void of incident. The car devoured space and swallowed miles with the ease that the conjuror at a country fair causes hot irons to disappear. With its comfortable New Orleans body and a Thornycroft engine of 20-h.p. it proved as reliable as any of more uniform constitution. But then the driver knew his car—and the personal equation is as great a factor in driving a motor-car as it is in timekeeping for automobile races.

We visited the victim of a motor-bicycle mishap, and, having spent a delightful hour in the twilight at Wellington, prepared for a night ride. A little crowd of natives assembled as an acetylene lamp that had done duty on a miniature motor vehicle was attached in front, the generator being placed on the footboard, and the connecting tube lying idly on the bonnet. Farewells had been said when—the light went out. The lamp was relit. The same phenomena occurred, and a similar match was applied. Result—the same. And not until fifteen precious minutes had gone into the waste paper basket of the Past, and many words of bucolic simplicity had been issued to the roaring crowd, was the reason of the thing discovered. In jumping up to take his seat by the side of the driver one of our party had trodden on the connecting tube, and darkness had come upon the scene with wearying reiteration.

And then we started, peering into the gloom to avoid direct encounter with stationary and moving objects. A mile had been traversed when the splash of water was heard, and felt. The brakes were jammed on sharply, and the car came to a stand up to its knees* in water, the cold dirty water of a horse pond. Then the driver jumped, an act which convinced the narrator that the nautical fashion of the captain sticking to a sinking ship did not apply to motor-cars. A glance at the lamp revealed to the remaining passengers that the car was sinking in the mud, and, nothing loth to follow the leader's example, we plunged into the element and reached dry land in safety.

There's not to reason why,
There's but to run or fly,
Into the village.

Thus we cogitated, and leaving the captain on the bridge—or rather the brink of the pond—the crew retraced their track towards the hamlet for assistance. Our wounded motor-cyclist was aroused, and with lighted lanterns we walked through the lanes calling on the labourers to come from their cottages. They responded with a genuine goodwill, and with all the heartiness of a lifeboat crew. For never before had a wreck occurred in that village. They knew the motor-car was displacing the horse in many ways, but they were ignorant of the cleanly habits of the mechanical animal, as evidenced by its presence in a pond.

And so we strode forth—a rescue party of determined men with a band of curious women in the rear. On the way we recounted the adventure; told of the splashing of the foam and the displacement of the mud, and prepared our friends for the worst.

Suddenly in the distance the glare of an acetylene lamp was seen. We approached, and there, with his nose homeward turned and his car on *terra firma*, was our driver and the car; a couple of natives with trousers turned up as though they had been cockle-hunting standing waiting by. The advancing crowd gave a lusty cheer, as though to indicate that help was at hand.

All was well. Standing in the water, a labouring man had started the engine, the driver had put in the clutch, and reversed on to dry land. And the horse—to say nothing of the two score donkeys or more we had caused to assemble—neighed a loud note of disapproval as we disappeared in the darkness, leaving them to wonder on the event.

As for the three passengers, they said nothing, but thought much as to the bravery of man under trying conditions and the value of a motor-boat in certain circumstances.

* Axle is here probably meant.—ED. *M.C.J.*



The Kent Automobile Club's Garden Party at West Court, Detling. (*See last issue.*) [*De'Ath and Dunk.*

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THE STANLEY STEAM CAR.

(*Concluded from page 524.*)

THE tendency is for the float to fall in the chamber until its weight becomes less, and finally balances with the lead counterpoise and sinking into the liquid with a corresponding movement of the indicator. It is possible after a little experience to judge by the "feel" of the indicator whether the float is touching the water or not, and quite an accurate estimate of the water height may be made.

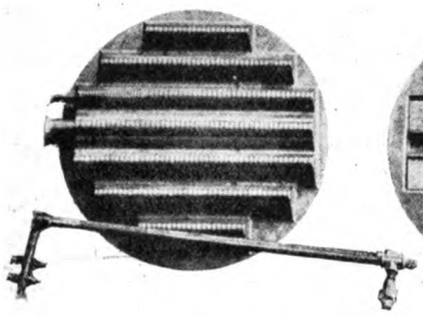


Fig. 3.—Top View of Burner.

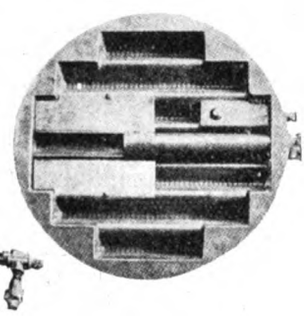


Fig. 4.—Bottom View of Burner Plate.

The Stanley burner is of peculiar construction. The round burner plate is a thin iron casting bearing raised parallel corrugations which cross the circular plate as equidistant chords. These raised portions have transverse slots about one-quarter of an inch apart, which are the gas outlets. The pilot light is formed by a small compartment in one of these rai-ed corrugations, which is separated from the rest of the burner and slotted with finer holes (Figs. 3 and 4). The burner plate is entirely closed at the sides and bottom by another plate, and the only opening into it is the air inlet into which is directed the gas nozzle. The mixing of the gas and air is very simply effected by a mixing plate. The pilot light compartment receives gas and air in the same manner. The petrol coming from the pressure tank passes through a coil of brass pipe above the boiler flues and then to the burner, passing twice through the fire before entering the mixing chamber.

The carrying of large quantities of petrol under a heavy air

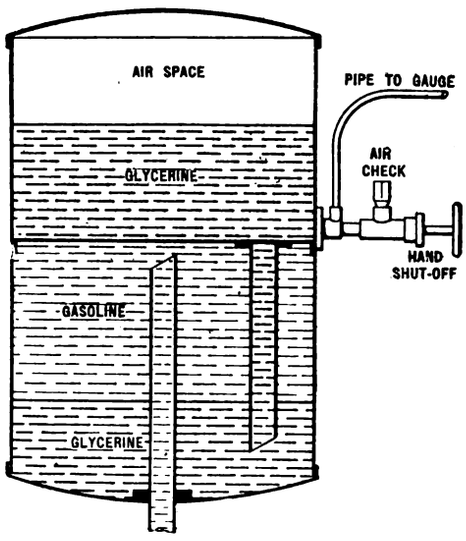


Fig. 5.—Section of Pressure Tank.

pressure is rightly regarded as a dangerous practice, and in the Stanley car this danger is minimised, as only about a pint of the fuel is under pressure. The petrol is taken by gravity from the supply tank, which is at atmospheric pressure, into the petrol pump, which is operated mechanically from the engine, and is thence forced to an automatic diaphragm which controls a bypass leading back to the tank. The petrol thence may pass to the pressure tank, a small metal vessel carried in the bonnet of the car. As there is no outlet from this tank except to the burner, the air in it is compressed as the fuel is forced into it, until a pressure of about 90 lbs. is attained, when the diaphragm opens the bypass and allows the pump to return the excess of petrol to the tank until such time as the pressure falls somewhat below 90 lbs., when the bypass is closed and pumping into the pressure tank (Fig. 5) is once more resumed. As it is desirable that the petrol shall not become saturated with air, the pressure tank is ingeniously arranged so that there will always be a layer of glycerine between the air and the petrol. The amount of fuel under pressure in this small receptacle is sufficient to maintain the pilot light burning for about three hours. If the car is left standing for any length of time it will be necessary to pump petrol into the tank by means of a hand-pump conveniently provided.

The Stanley engine (Fig. 6) is of the double-acting, twin-cylinder, horizontal type, with Stephenson link reversing gear. It carries a steel spur gear of thirty-six teeth on its crank shaft, which meshes with the gear on the differential, and the engine frame extension carries circular straps, which encircle the rear axle tube and constantly maintain the proper relation between the engine and the driven axle. The head end of the engine is strapped to the car frame. The cylinders are 3½-inch stroke by 2½-inch bore, and the cut-off is set at five-eighths of the stroke. The steam chest cover is easily removable, giving access to the two slide valves, which are correctly ground by special machinery.

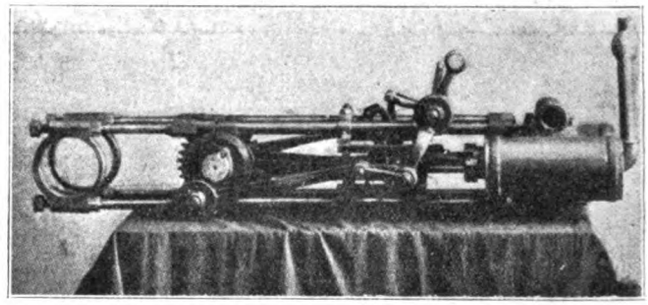


Fig. 6.—Side View of Engine with Casing removed.

The pistons each carry two broad packing rings, and the piston rods are riveted into the piston heads. All bearings in the engine, with the exception of the wrist pins, are of the ball type, including the crank shaft bearings, crank pins, eccentric rod straps and the guides. Two of the four eccentrics are integral with the crank shaft, and the other two are made fast with special care to prevent slipping. The engine crosshead actuates a linkage supported on ball bearings which operates the water, petrol and oil pumps, and this linkage is capable of adjustment to secure a variable throw on the water pump. A copper jacket encloses the engine cylinders, and a removable burnished copper case completely protects from dust the whole engine, the differential gear and brake. A pedal operates the reverse, and it is automatically restored to the forward position by a spring. Cylinder lubrication is effected by a positive mechanical force feed lubricator, which consists of a piston pump drawing oil from a tank of large capacity and forcing it directly into the main steam pipe, where it enters the cylinders. The pump has sufficient force to drive the oil against the maximum boiler pressure, and it is operated by means of a cylindrical cam, which is given a slow motion by a ratchet and pawl device moved by the pump linkage. Water is supplied to the boiler by a piston pump of large capacity and capable of a variable throw. A manually operated by pass serves to divert any water which is not needed by the boiler feed back to the supply tank. There is also a water hand pump of the usual folding variety.

Steam pressure is automatically maintained by a diaphragm, which acts to cut off the petrol supply absolutely from the main burner whenever the pressure exceeds 400 lbs. or thereabouts, and to open the supply when the pressure falls much below that

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figure. The engine exhaust is piped into the chimney and escapes with the products of combustion, at the same time aiding in the draught. Before reaching the chimney it has been passed through the usual form of muffler. A galvanised iron hood gathers the spent gases from the top of the boiler and conveys them to the rear of the water tank, where the chimney deflects downward and discharges its contents toward the ground. As the burner is entirely enclosed there is no likelihood of its being blown out by outside air currents, and all the air which is used in combustion is drawn in through the single aperture at the burner.

All piping in the car is of brass and all check valves are of an improved type, making use of steel balls instead of conical checks. All pumps and piping are protected from road dirt by the flooring of the car, which arrangement also conduces to safe operation in cold weather. Every one of the controlling devices is easily reached from the seat, including the water bypass, main burner shut-off, pilot light shut-off, main petrol shut-off, and the water level indicator. The equipment includes an ejector for filling the water tank, together with sufficient rubber suction hose, which is carried on hangers around the body frame. The pedal-operated brake is of the double-acting variety, and the usual leather strap is superseded by a specially prepared canvas band, which will not absorb oil. The centre tiller form of steering is retained.

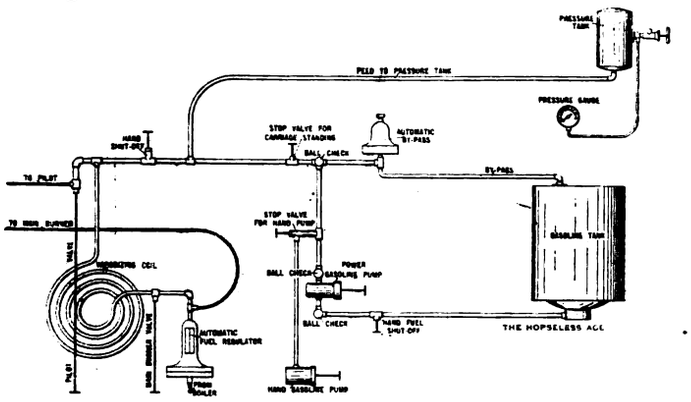


Fig. 7.—Diagram of Petrol Feed System.

The weight of the car is between eight and nine cwt., with all supplies, and it has a wheel base of 6 ft. 6 in., with a 4 ft. 6 in. gauge.

Mr. F. Wilkinson, of Manchester, one of the agents for the Stanley steam car in this country, writes us with regard to the fuel capacity of the vehicle. He states that the petrol tank has a capacity of 10 gallons, which is sufficient for a run of 160 miles. If paraffin be used instead of petrol the car will travel 200 miles on one filling of the tank.

POSTAL parcels are carried by motor-van between Warwick and Birmingham.

THE Automobile Club of America has just issued a notice stating that it is open to receive entries for the 1905 Gordon Bennett cup race. In order to prevent entries being sent in merely for purposes of advertisement, with no real intention of competing, a number of new conditions have been laid down, among which are the following:—Each entrant shall deposit with the Club the sum of £120. Each entrant shall file with the secretary, on or before April 15, 1905, an affidavit, signed by two responsible persons, containing the following statements, based on their own knowledge:—(1) That the car has been completed for a period of over four weeks. (2) That they have driven the car over one thousand miles on the road. (3) That they have driven the car over two hundred and fifty miles without stopping the engine. (4) That they have driven the car more than forty miles in less than sixty minutes on track or road. Entrants must submit to the racing committee the names of the intended drivers of each car, and they must be approved by the committee.

CONTINENTAL NOTES.

The Gordon Bennett Race.

The question as to the rules under which future Gordon Bennett Cup races shall be run is, it appears, under discussion at the French Automobile Club. Count De Dion is credited with the intention of proposing certain modifications in the rules, among which the following may be mentioned. In the first place he suggests that the race should be over a distance of 1,000 kilometres and spread over two days; the competing cars to be locked up in a garage for the intervening night and not allowed to be touched in any way. All repairs, even to pneumatic tyres, would have to be made on the road, and by the tools, etc., available on the car. He proposes that, as hitherto, the French team should be selected by an eliminating race, but that each firm competing should enter a team of three cars, and that the selected team should be that which makes the best total time. He further suggests that the cup race should be run on similar lines and under the same conditions, but that, on the other hand, it should be permitted to the competitors to change the drivers of the vehicles if they so desire at any time during the race.

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The Course for the 1905 Cup Race.

The question as to the course for next year's cup race continues to attract attention. M. Tampier, the official timekeeper of the A.C.F., has been commissioned by the Sporting Commission of the Club to examine several routes and make a detailed report on each. Among the districts he has inspected he has been particularly impressed with the roads and general conditions in the Central Plateau of France. On the other hand, the authorities of Aix-les-Bains are using every possible means to induce the A.C.F. to select that district for the contest. The town offers to subscribe several hundred thousand francs as a guarantee fund similar to that of Homburg. The authorities of the town of Vichy offer to do likewise, and are equally desirous of having the race in that region.

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The Dust Nuisance in Austria.

In a letter to a German contemporary Baron de Caters relates how he recently met with a new phase of the dust question. Arriving at Theresienfeld, Austria, his car and another were stopped by an imposing group, consisting of the mayor, the council of the village, and the whole body of the local police, and the motorists' names were demanded, in order that summonses might be issued against them for raising the dust!

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The International Motor-Bicycle Race.

The Moto-Cycle Club de France has received the necessary official permission to hold its international race on the Dourdan-Ablis-St. Arnoult. The course, which measures fifty-four kilometres and comprises four neutralisations, has to be covered five times. Challenges have already been received by the club from England and Italy.

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Motor-Boat Racing in Italy.

What is said to be the first motor-boat race meeting in Italy is to be held on Lake Maggiore next month, under the auspices of the Verbano Yacht Club. On September 18th there will be a thirty kilometre event for racers, and one of fifteen kilometres for cruisers. On the 19th a 100 kilometre competition for racers and a fifty kilometre for cruisers are to be run off. On the 20th there will be a handicap race and a series of mile speed trials for the racers.

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The Paris-Trouville Motor Boat Race.

The motor-boat race from Paris to the sea was in progress during the whole of the past week. It proved very successful, no fewer than fifty-five entries being received, of which thirty-three actually started. The distance was 221 miles, divided into six stages, the last being at Trouville. The locks was the chief trouble, and caused a deal of irritating delay. The boats were, however, timed in and out, and therefore suffered no actual loss through the accidents of their detention. No English boats

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competed, unless Trefle-a-Quatre is to be regarded as representing this country, the vessel being now the property of an Englishman. The feature of the week was the racing of Mercedes IV. and Hotchkiss. It was evident in the cross-channel race that the latter was very fast, and but for the blowing out of her plugs she would probably have made a better showing on that occasion. From Paris to the sea the two fliers fought out their battle. In the stage of fourteen and three-quarter miles from Elbeuf to Rouen, Mercedes IV. took 31 min. 8 sec., while the time of Hotchkiss was 32 min. 41 sec. La Rapee III., a boat of 26 ft., with a 60-h.p. motor, did 31 min. 59 sec. Over the knot at Rouen Mercedes IV. did 3 min. 0 3-5 sec., the Hotchkiss 3 min. 11 2-5 sec., and La Rapee III. 3 min. 16 2-5 sec. Of the thirty-three boats which started only fourteen were classified as arriving at Trouville. The best time was made by Mercedes IV., belonging to M. Vedrine (time 7 hrs. 34 min. 16 sec.), this boat being thus first in the general classification, and the winner of the 8-12 metre racer category, the Hotchkiss boat driven, by M. H. Fournier, being second in 8 hrs. 58 min. 56 sec.

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The Gaston Menier Cup Motor-Boat Race.

The motor boat race for the Gaston Menier Cup was run off at Trouville on Sunday last over a distance of three nautical miles. The event proved a victory for the Hotchkiss boat driven by M. H. Fournier, the time being 8 min. 27 2-5 sec., the Trefle-a-Quatre, with Richard-Brasier motor, being second in 9 min. 46 3-5 sec., and Mr. S. F. Edge's Napier II. third in 10 min. 11 2-5 sec. The average speed of the first three was respectively 39⅛ kilometres, 35 kilometres, and 32¾ kilometres per hour, as against 29 kilometres of the Napier boat which won the Cup in 1903. It will thus be seen that great improvement has taken place in the twelve months in the speed capabilities of motor-boats.

◆ ◆ ◆

Hill-Climbing in Italy.

The Florence section of the Italian Automobile Club will hold its annual hill-climbing competition from Pontassieve to Consuma on September 11th. The course is fifteen kilometres long, the gradients varying from 7 to 10 per cent.

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Public Services in Austria.

The authorities of the health resort of St. Radigund have established a public motor-car service between that place and Gratz. The vehicle, which was built by the Austrian Daimler Company, has accommodation for eight passengers, and makes three journeys a day in each direction. Arrangements are also in hand for a service between Kulm, Karbitz and Aussig.

Chateau-Thierry and Gaillon.

The "Auto" is arranging to hold the annual hill-climbing competitions at Chateau-Thierry and Gaillon, October 23rd being the date fixed for the former and October 30th for the latter. It is proposed to confine the Chateau-Thierry climb to touring vehicles, as there are two bends on the course which render it unsuitable for racers.

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A Scandinavian Automobile Week.

The Danish Automobile Club, in conjunction with the Stockholm, Gothenburg and Malmo Clubs, proposes next year to hold an automobile week. Among the events will be a 1,100 kilometre reliabilty trial for cars and cycles, and a motor-boat race between Copenhagen, Stockholm and Gothenburg.

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The Brescia Automobile Week.

An "automobile week" is to be held at Brescia, Italy, from the 28th inst. to the 4th prox. The first two days will be devoted to an exhibition of the cars, while on the 30th the vehicles will take part in the military manœuvres. On Thursday, September 1st, there will be a series of speed trials over a kilometre, one mile, and five kilometres. For Friday, September 2nd, a tour to the Lac de Garde and Solferino is being arranged, while a procession through the town forms the event for Saturday, September 3rd. The meeting will close with a 370-kilometre race for tourists and racing vehicles. The course, which is stated to be the best in the district, will comprise two neutralisations of two minutes duration each. Great interest is being shown in the race, so much so that it has been decided to erect grand stands at Brescia, Mantua, and Cremona. The entries already include the three Fiat Gordon Bennett racers, an 80-h.p. Opel-Darracq, a 70-h.p. Panhard, and several 60-h.p. Mercedes.

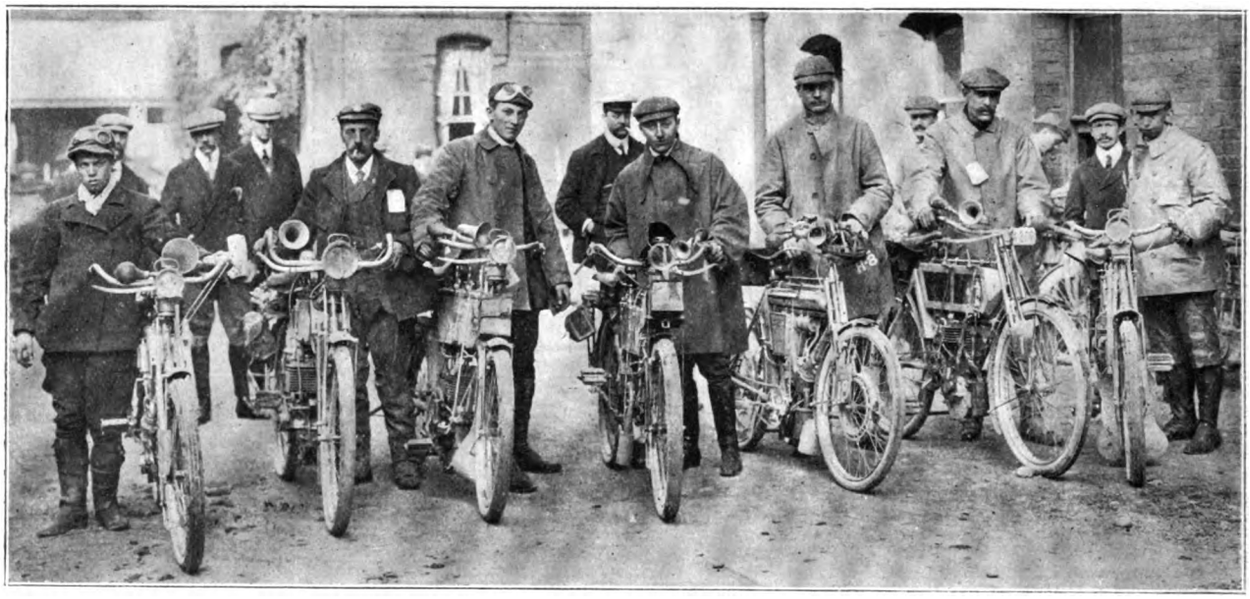


Photo by] The Auto-Cyc'e Club's Reliability Trial. The Start from Oxford for the last Day's Run. (*See page* 547.) *[Argent Archer.*

From Mr. Rowland Hill, of the Albion Foundry, Coventry, comes a catalogue of the motor castings in iron, brass, and aluminium he is bringing out. The list also deals with frames, radiators, tanks, and other motor components.

The "All's Well" is a new brand of lubricating oil for petrol motors which has been put on the market by the Bowring Petroleum Company, Limited. It is made in three qualities, respectively for air cooled, water cooled, and air and partly water cooled engines; the oil is of a dark red colour, and is stated to contain no acids or alkalies. We are at present giving the oil for water-cooled cylinders a practical trial, and hope to be able to report well of it in a later issue.

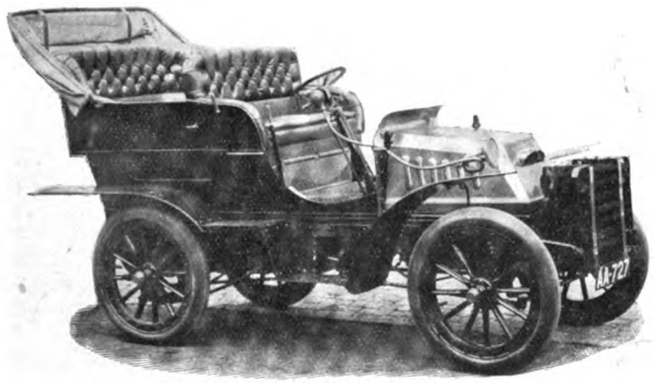
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HERE AND THERE.

A SPACIOUS motor garage is being erected in the Steine Road, on the Sutton Estate, at Seaford.

THE Sandgate Council have decided to erect boards in their district warning motorists to moderate their speed when passing through the streets of the town.

MR. E. R. OSBORNE has severed his connection with the Motor Mart, Limited. He intends shortly resuming business in a similar occupation with an old-established motor business.



A 10-h.p. Turner-Miesse Steam Car with side-entrance body.

A NEW dust screen has just been placed on the market by Mr. Hunt, of Montague Street, Kettering, which possesses the advantage of being quickly taken off when not required. A small plate is screwed on to the back of the tonneau, and a couple of studs on either side.

SIR KEITH FRASER, BART., arrived at Kintail, Inverness-shire, by motor-car the other day for the shooting season. His residence, Inverinate House, is charmingly situated on the north-east shore of Loch Duich, the wooded slope behind the lodge forming a rich background to the picture.

THE Berkshire Automobile Club, of Pittsfield, Mass., is to have the honour of the possession of the first specially-built track for motor-car racing in America. The track will be a mile in circuit. A great inaugural meet is being projected, for which the entry of some of the fastest cars in the country is already promised.

THE Sirdar Rubber Company, Limited, will, early next month, open their new show room in Down Street, Piccadilly, next door to the Automobile Club Garage, where they will not only exhibit wheels fitted with Royal Sirdar-Buffer tyres, but also pneumatic tyres and their patent pneumatic tyre tube, which is compressed and therefore toughened and strengthened against punctures, and when fitting it or inflating it, it is claimed that it cannot get nipped by the cover.

ON the way north the other day we looked in at the depot of Mr. Victor Ashby at Towcester. The premises are on the main road, and consist of an old chapel which has been converted to the purposes of a motor garage and repairing establishment. Facilities are available for carrying out all classes of repairs, charging accumulators, etc., while a stock of petrol and motor accessories is kept on hand. Mr. Ashby is an enthusiastic motorist, and at the time of our call had just returned from a tour in Wales. His motoring experience dates from 1896, at which time he enjoyed (?) himself on one of the old Bollées.

A NON-ENGINE stop run of 1,000 miles was completed on the Gross Pointe track, Detroit, U.S.A., on the morning of the 8th ult., by a 24-h.p. Packard four-cylinder car. The 1,000 miles were covered in 29 hours 53 minutes 37 3-5 seconds. The objects sought in the trial were to test the motor under the steady grind of a 1,000 mile non-stop run, and to secure data on the consumption of petrol, oil, water and electricity. The car was, of course, stopped at intervals to replenish the supply of petrol or put on new tyres, but the motor was not stopped for an instant. The quantity of petrol used was 70 gallons, and of lubricating oil 3 gallons.

MR. FRISWELL is at present touring in Switzerland on an 18-h.p. Peugeot car.

A MOTOR-OMNIBUS service is shortly to be established between Ripon Station and Studley Park Royal.

LORD HARLECH, of Malpas, Cheshire, has joined the ranks of motorists, he having lately acquired a 12-h.p. Wolseley.

EXPERIMENTS are being made at Leamington with dust-layers to overcome the dust nuisance, which is said to have been locally aggravated by motoring.

A READING jobmaster states that among the causes of his insolvency are the introduction of the corporation electric tramway and the popularity of motor-cars.

ON Saturday last 30 of the employees of the Bristol Motor Company, Limited, had their first annual outing, since the change of title, to Portsmouth and the Isle of Wight.

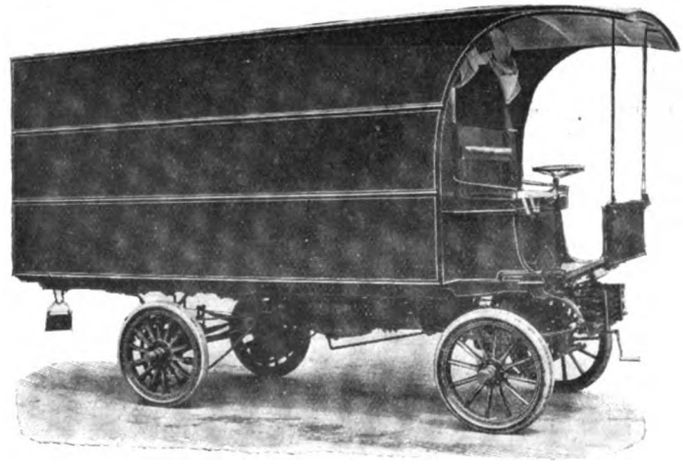
THE Great Western Railway Company's motor-cars from Slough Station to Windsor and Beaconsfield carry about 900 passengers a day. The car running to the Royal Borough has carried approximately 12,000 people in just over three weeks.

THE Prince of Wales arrived at Studley Royal from Bolton Hall on Thursday of last week on a visit to the Marquis of Ripon. The latter placed his motor-car at the disposal of the Prince, who, with his equerry, enjoyed a twenty-nine mile drive across the Nidderdale Moors.

ON the motion of Mr. W. Field, M.P., the Blackrock (Dublin) Urban District Council has requested the Local Government Board of Ireland to make an order reducing the speed at which automobiles are permitted to be driven through the district from a maximum one of twenty to ten miles an hour.

IN consequence of the development of business, the Palmer Tyre, Limited, have secured extensive premises at 119, 121 and 123, Shaftesbury Avenue, London, W. While the motor tyre department has been transferred to this address, the London and district cycle business will still be carried on at 78, St. John Street, Clerkenwell, E.C.

THE accompanying illustration shows a Gladiator two-ton delivery van lately completed by Messrs. S. F. Edge and Company, Limited. The vehicle, which is fitted with a large body weighing twelve cwt., was recently submitted to an exhaustive trial ere being taken over by the purchaser. The work it had to



do was as follows :—Travel from Regent Street to other side of Esher Hill unloaded, about 15 miles ; time occupied 1 hr. 40 min. Esher Hill to Kirby Street, E.C., loaded with 1½ tons of paper, 2 hrs. 3 min. The van with its load climbed Wimbledon Hill on second speed, and Kingston Hill on first speed.

AMONG the papers read before the engineering section of the British Association at Cambridge this week was one by Mr. E. Dugald Clerk on "Flame Temperatures in Internal Combustion Motors," and one by Prof. H. L. Callendar on "Indicator Diagrams of a Small Petrol Motor."

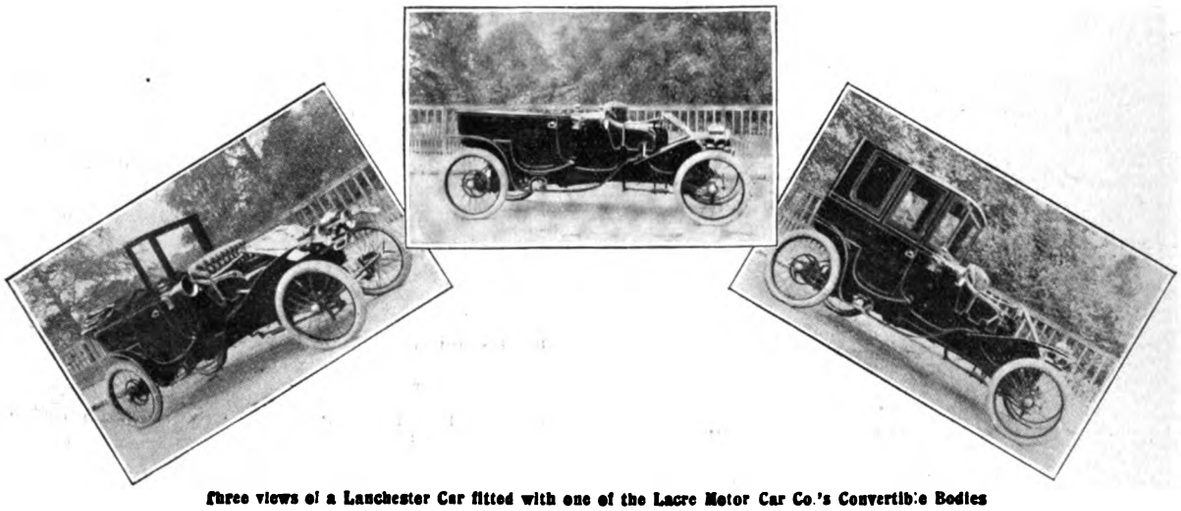
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THE Eclipse Motor Company, of Earlsfield, S.W., have just completed a 3-h.p. motor-bicycle for the chief electrician of H.M. Dockyards in Bermuda.

DR. A. R. WOOD, of Woolpit, recently ran a 7-h.p. Star car up to London by Chelmsford and back by Newmarket, a distance of nearly 180 miles, on 4½ gallons of petrol.

A MOTOR-CAR service has been established at Bray by the Bray and County Wicklow Car Company, of which Mr. J. O'Neill, of St. Anne's, Dalkey, is the moving spirit.

FROM the Scottish Motor Garage Company, Limited, comes a catalogue of their accessories for all kinds of motor-cars and motor-cycles. The company has every convenience for motorists passing through Glasgow, their garage for 100 cars including several private boxes, which are provided free to customers of the company. The establishment is open day and night, and the company's stock of motor parts includes everything that is likely to be wanted by motorists on tour.



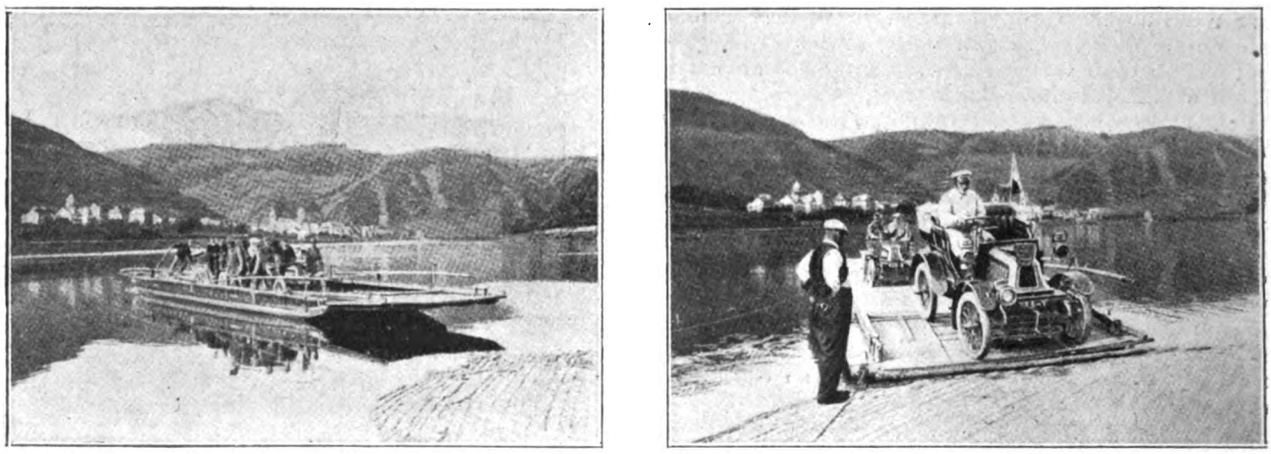
Three views of a Lanchester Car fitted with one of the Lacre Motor Car Co.'s Convertible Bodies

A 6½-h.p. Humberette with a large canopy was recently put to a severe test at Lincoln, being driven up Clay Lane, a very steep hill near Arboreteum. It was first driven up with three men (it has only seats for two) and then with four up. At one point the gradient is 1 in 4½, and is 1 in 6 the rest of the way.

IT is easy enough to be pleasant
When your automobile's in trim,
But the man worth while
Is the man who can smile
When he has to go home on the rim.

Chicago Record Herald.

THE team selected by the Committee of the Motor Cycling Club to compete for the "Motor Cycle" Challenge Trophy today (Saturday) is as follows:—Tricars, Messrs. J. Van Hooydonk and H. J. Densham. Reserve, Mr. F. J. Jenkins. 76 by 76 MM. Class, Messrs. F. Hulbert and J. H. Reeves. Reserve, Mr. W. H. Wells. Any power class, Messrs. J. W. Milligan and A. Candler. Reserve, the Rev. B. H. Davies. The event will be run off in the neighbourhood of Bicester, and motor-cylists and motorists generally will be heartily welcomed as spectators.



Touring on the Continent.—De Dion Cars on the Ferry over the Moselle at Tries, near Coblenz.

SINCE a recent accident at the dangerous Dye House Hill, near Thursley, a policeman has been stationed at the spot, a precaution which would be of great use if he took up his stand at the dangerous corner. He is, however, generally in concealment, it being apparently more important to observe accidents after their occurrence than to prevent them.

STRANGE were the references to the Hertfordshire Club in two of our contemporaries last week. One dealt with this club's forthcoming meeting as though it were connected with the Herefordshire Club, and another gave the formula for the former's hill climbing contest in connection with an imaginary gathering of the Herefordshire Club. Verily in the multitude of counsellors there is confusion.

THE Racing Board of the American Automobile Association announces that the time for closing the entries for the Vanderbilt Cup road race is fixed for September 8th. Every entry must be accompanied by a letter from the Secretary of the Club that the car represents and certifying to that fact. Four entries have already been received, two Whites and two Panhards, and correspondence indicates the probable entry of two British cars.

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MOTOR CYCLING NEWS.

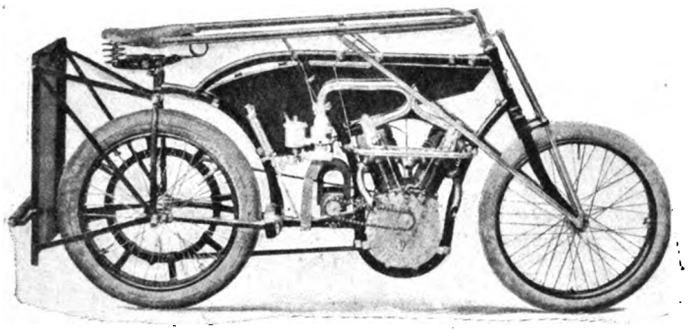
THE annual race meeting for the *Motor-Car Journal* and other Press challenge cups will be held at the Crystal Palace on the 24th prox.

◆ ◆ ◆

FORTHCOMING events organised by the Auto-Cycle Club include a members' reliability trial on September 15th and 16th and a consumption trial on October 1st.

◆ ◆ ◆

ON Wednesday the Kingston-on-Thames motor-cycling club had a run to Uxbridge. On Sunday, the 28th, the



An Austrian Racing Motor-Bicycle, said to be capable of a speed of 60 miles an hour.

run will be to Maidenhead *via* Slough, leaving headquarters at 2.30 p.m. Hill-climbing contests will be held in September.

◆ ◆ ◆

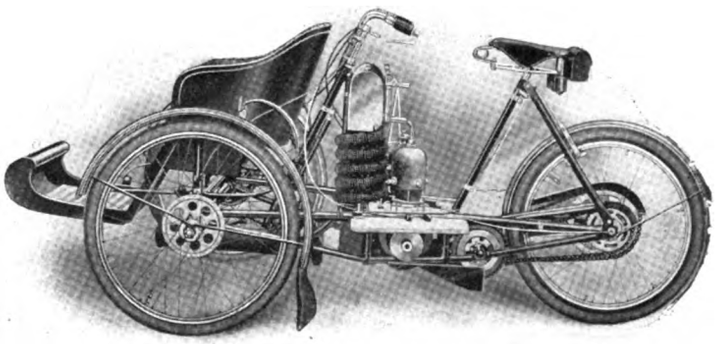
OF the forty-five motor-cycles that started from London on Monday week only twenty-four left Doncaster on the fifth stage of the Auto-Cycle Club's thousand miles reliability trials. The route lay through Nottingham, Leicester, Coventry, Warwick, and Cheltenham to Oxford, a distance of 185 miles, and at Oxford the first arrivals were H. Williamson (3¼-h.p. Rex), J. F. Crundall (2¾-h.p. Humber), T. Silver (3-h.p. Quadrant), F. W. Chase (2¾-h.p. Chase), A. G. Reynolds (2¾-h.p. Bat), A. E. Lowe (3-h.p. J.A.P.), W. J. Milligan (3-h.p. Peerless), J. Platt-Betts, (3-h.p. Rover), A. Hoffman (3½-h.p. Ariel), H. Harding (3½-h.p. Lagonda), A. Ryder (Alldays), and W. King (3½-h.p. King). The weather improved as the day progressed, and there were not many incidents. A. Wright (3½-h.p. Roc), broke a piston, and was towed into Worksop by the Mars earette, while the Bradbury forecar finally came to grief at Stratford-on-Avon through smashing a hub. The trial was brought to a conclusion on Saturday with a run to London, via Malmesbury, Chippenham, and Marlborough, a distance of 147 miles, making the exact distance covered during the trial 1,000¾ miles. A short way out of Marlborough the second hill-climbing test of the trial was held. The hill was 1,000 yards long, with an average gradient of one in twenty, and a steep portion of one in ten. Of the forty-five competitors who started on the tour twenty left Oxford on the last stage, and at a late hour on Saturday night nineteen had reached the Club's headquarters in Piccadilly. The first to arrive was A. Van Altena, on the 3-h.p. Altena; and then followed:—J. Crundall (2¾-h.p. Humber), H. Williamson (3¼-h.p. Rex), E. Clarke (2-h.p. Leader), J. Platt-Betts (3-h.p. Rover), A. E. Lowe (J.A.P.), F. W. Chase (2¾-h.p. Chase), R. M. Brice (3½-h.p. Brown), H. A. Palmer (3½-h.p. Allday), T. S. Lock (2½-h.p. Allday), J. C. C. Brodie (2¾-h.p. Noble), A. G. Reynolds (2¾-h.p. Bat), W. J. Milligan (3-h.p. Peerless), H. Harding (3½-h.p. Lagonda), T. Silver (3-h.p. Quadrant), J. Van Hooydonk (3½-h.p. Phœnix Trimo), W. King (3½-h.p. King), P. Lambert (2¾-h.p. Griffon). Altena finished at 5.55 p.m., and the others were within three-quarters of an hour of that time. W. Hayes, on the 3½-h.p. Rex tricycle, arrived at 7.35 p.m.

◆ ◆ ◆

AT Bangor, the police have summoned Hugh Pritchard, Llangefni, for driving a motor-cycle without a licence. According to the evidence the defendant was riding his cycle along High Street when Sergeant Jones stopped him and called his attention to the fact that he had not the registered number of his machine fixed on in proper form. The defendant then proceeded along High Street and entered a cycle dealer's premises, whither he was followed by the officer, who asked him to produce his licence. This the defendant was unable to do, as, according to his explanation, he had left it at home. Addressing the bench, the defendant submitted that there was no case. He went on to explain that a fortnight or three weeks prior to the alleged offence he left his motor-cycle at the Castle Hotel, Bangor. Calling for it on the day in question, he found that every drop of the petrol had evaporated, and he was in the act of taking the machine to get a supply of petrol when the police officer stopped him. The point which he made was that, there being no petrol, he was merely riding the cycle, and not driving it within the meaning of the Act, and on that ground he maintained that the summons should be dismissed. The police officer, recalled, could not remember whether the machine was being ridden or driven. After looking up the provisions of the Act, the bench decided to dismiss the case.

◆ ◆ ◆

ONE of the latest additions to the ranks of tri-cars is the machine which has been introduced by the Raleigh Cycle Company, Limited, and of which an illustration is given herewith. It is known as the "Raleighette," and is provided with a 3½-h.p. water-cooled engine, the cylinder being water jacketed throughout. The ignition is by accumulator and coil with wipe contact. Two accumulators are provided, either of which may be used by operating a two-way switch. The carburettor is of the latest Longuemare type with auxiliary air inlet valve. The water cooling is effected on the thermo-syphon system, both tank and radiators being ample to cool the motor for a distance of about 100 miles without replenishing. The arrangement, as will be seen by the illustration, is of the simplest character, both tank and radiator being set as much in the line of the air draught as possible. The engine is arranged to be started by a strap which winds over a pulley seen below the driver's footrest. The clutch is of the leather-faced coned variety, and is actuated by the usual foot lever. The power is transmitted to a counter-shaft by a Renold silent chain, and thence by a pair of chains to the rear wheel hub. The Raleigh two-speed gear is fitted to



the back hub, and is operated by Bowden wire. By twisting the right handle grip the high gear is brought into action, while by revolving the handle inwards the low gear is obtained, the relative speeds approximating to about thirty miles an hour on the high, and twelve to fourteen on the low. Ample brake power is provided, there being two brakes of large diameter on the hubs of the front wheels and a foot-applied rim brake on the rear wheel. The frame is rigid, yet resilient, and well braced, the two main members being reinforced by an under frame and tension rods. The road wheels are 28 inches diameter, and are shod with 2 in. tyres at the front and 2¼ in. at the rear.

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CORRESPONDENCE.

KNOCKING IN THE ENGINE.

To the Editor of *The Motor-Car Journal.*

Sir,—I saw a letter in the *Journal* some time ago from "Puzzled Novocastrian" asking for help to locate the cause of a "knock" in his engine. I have had the same trouble, but in my case it seemed to be from premature ignition. After a long time I found the cause to be owing to the sparking points in a certain type of plug getting red hot. I had used two kinds, one with a dome to receive the spark, and the other a thick crossbar. The knock quite ceased as soon as I put in a plug with fine wire sparking points. I daresay these plugs may answer very well where the exhaust does not pass by them.—Yours truly,

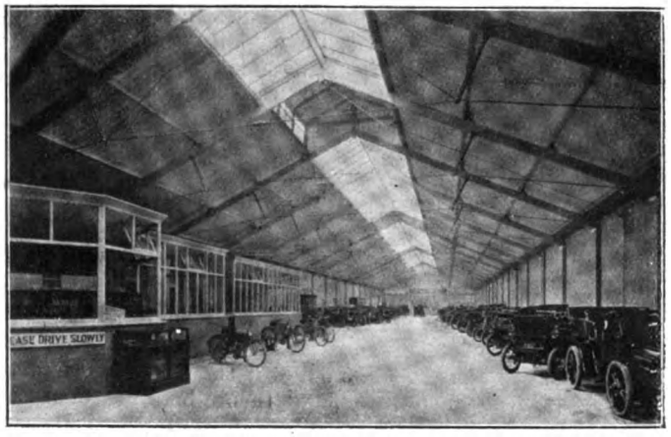
Charles Percy Dean.

BELT TRANSMISSION.

To the Editor of *The Motor-Car Journal.*

Sir,—When the wealthy have become in a measure satisfied with the pleasures of motoring, the business-car era will have been ushered in. Manufacturers should therefore be asking themselves questions as to what types will meet the want. To my mind, the car must have solid tyres, comprise no delicate machinery, few hidden parts, few wearing parts, if possible without any "boxed up cogs" that he cannot see, one that he can see most of the working parts of at a glance, load up and get off at fifteen to twenty miles an hour. The price, too, must not be forgotten. I have an impression that the belt will come in here. There is certainly plenty of room for inventors yet in this direction. The problem will yield to brains.—Yours truly,

Engineer.



The New Garage at Eastover, Bridgwater, lately opened by the Bridgwater Motor Co.

EXPERIENCES WANTED.

To the Editor of *The Motor-Car Journal.*

Sir,—Quite recently there has been a very interesting collection of experiences published in your columns from medical men and others who use a motor-car as a means of locomotion in their daily work. One is struck by the fact that, though various types and various makes of cars are favoured by different men, there is no exception to the universal chorus of praise as to their efficiency, practical immunity from failure, and the pleasure of using them; indeed, the account is such a pæan of approval that one is rather surprised that the antiquated doctor's gig is not being more rapidly swept from the roads than it is by its fascinating rival. The experiences recorded are indeed charming, and those happy enough to have been so favoured are most fortunate. To my mind, however, the whole series of letters puts the matter in a far too favourable light, and I do not imagine the "average success" is as high as these happy men would have us suppose.

I, too, am a motorist. A year ago I bought a steam car of foreign make, highly recommended as a first-class article by the London house that sold it to me, and I may add that the car had a good reputation on the market and was their latest and most powerful design, and not at all a cheap one. Although fond of mechanics myself, and having a first rate man to devote his time to the care of this car, it has been by no means a success either as regards reliability, cheapness on the road, or soundness in construction. From the very first there have been troubles, which the agents in London have duly considered, but which have been a source of continual expense and worry. In fact, my experience is very different to the general one related in your correspondence. And, although I would not give up motoring, it seems to me that a fair percentage of cases must arise where, as I have done, the medical motorist must put up with a great deal of worry and disappointment, and that to the novice the general idea conveyed in your columns is rather too much "couleur de rose.'

I have been unfortunate, I admit, but I went to a first-rate house for my car, which had a good name, and paid a very fair price for it. Can a beginner do otherwise? I am afraid I am not the only one who has found medical motoring fall short of his hopes, though it is possible the number of disappointed ones is a constantly decreasing one, especially as the genus "mo or expert and repairer" tends to become more of a thoroughly reliable engineer and less of a tinker.—Yours truly,

A General Practitioner.

HORSE V. MOTOR.

To the Editor of *The Motor-Car Journal.*

Sir,—In connection with the correspondence on this subject I may mention that I have kept very careful accounts for two years. All my man's time is charged to the horse account. The car is a 6-h.p. of well-known make. I keep one trap horse and one hunter.

	Stable Upkeep. £.	Motor Upkeep. £.
1st half year ...	80	64
2nd " " ...	33	36
3rd " " ...	33	37
4th " " ...	80	37
	226	174
Per year ...	113	87

My car cost £200, and is now worth, I suppose, £30; the depreciation is £170 in two years, or £85 a year. Therefore the cost of the motor-car per year, £87 plus £85, equals £172. My horses, so far, have gone up in value, so cost of two horses is, per year, £113. The horses were nearly always ready for use. The motor took six weeks' holiday constantly for repairs.—Yours truly,

H. K.

To the Editor of *The Motor-Car Journal.*

Sir,—I was amused to read the letter signed "Another Practitioner" in your *Journal* of the 13th inst., but he does not answer the question asked by "Practitioner." It would be interesting to hear his estimate of cost per mile. Certainly "Another Practitioner's" experience is somewhat exceptional; in fact, there is good matter on which to found a novel. Just fancy engine getting almost red hot; was the water almost red hot? It would be advisable to state the part of the country from which such a letter originates, so that we motorists can avoid a district in which there is not a second wise man. Then we read, £7 for punching surface of clutches, and £14 for unpunching. I think someone wanted punching. Then £80 for something not ordered, and car made unreliable. If this is as he states, he has his remedy in the law courts. I cannot believe that the motor mechanic is so far down in the scale of life as he would have us believe; but there are black sheep in the motor trade as well as in the medical profession. I have run a 9-h.p. car over two years with Clipper Michelin tyres, but have not had any of "Another Practitioner's" troubles. True, I have had tyre troubles, but carry a separate inner tube for replacement on the road. My advice is to go to a good man, of whom there are many. Tell him you want an estimate and specification for thoroughly fixing up the car in first-class order, and, if you think price reasonable, give him the job. Do not suggest that this or that should be done, because someone says it will be better. Trust to your man. When your car is finished, see that the specification is carried out; result, satisfaction to all. If you employ a driver, let him be a man is who acquainted with the difference between a screwdriver and hammer, not a garden labourer or person without experience. If you have an intelligent person in your employ that you wish to become your driver, then send him for a few weeks to some motor works for instruction, and don't expect the same man to feed the pigs and fowls, clean front of house, keep garden in order, and do other work, and keep a car in order, or you will be disappointed.—Yours truly,

E. R.

ENGLISH MOTOR INDUSTRY.

To the Editor of *The Motor-Car Journal.*

Sir,—Attention in the past has frequently been called to the enormous extent of the motor-car industry enjoyed by our Continental rivals, an industry in which this country at first took little share, because of the obstacles placed in the way of its progress by the antiquated law of the land as to mechanical progress on the highways. But was this the only reason for this country's backwardness? Those obstacles have now been swept away, and we enjoy a freedom equal if not superior to our neighbours. But the lack of enterprise, want of promptitude, and inattention to the reasonable demands of motor users on the part of British makers are subjects of constant complaint in motor circles, and the methods of French and German makers are compared with ours to our marked disadvantage.

I have just had a bitter experience. My car has now been laid up for over a month owing to the teeth of a small gear pinion having worn away. This was sent to the makers of the car, an eminent firm in the Midlands, to have a new one made. This was promised in eight or ten days, but week after week has passed without any sign of the part. Post cards only have come promising it shall be sent "next week certain," but still nothing turns up. I know that I am voicing the complaints of

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many, and if we are to get our cars and parts in this country makers must realise that promptness and faith in carrying out their promises, whether orders are large or small, are business attributes which must be studied.—Yours truly,

ERNEST B. HAYNES.

LOOK AFTER THE CHAINS.

TO THE EDITOR OF *The Motor-Car Journal.*

SIR,—The writer, "Six and a Half Years' Experience," makes a useful suggestion in the last issue of the *Journal*, and I should like to have the benefit of the experience of others as to the life of a chain, for example, a Brampton chain usually fitted to a four-cylinder motor-car. For how many miles may it be trusted to run?—Yours truly,

A. T.

PETROL CONSUMPTION.

TO THE EDITOR OF *The Motor-Car Journal.*

SIR,—I have a 9-11-h.p. Clement car, two cylinders. The roads in my district have an excellent surface, and are, on the whole, level—few long gradients and only two or three stiffer short ones. My trouble is petrol consumption. Can you tell me what a car such as mine (weight 12 cwt.) should make in miles per gallon? I always try to keep her going on the minimum of gas for sweet running, but can get only eighteen miles a gallon. A friend, with a similar car, assures me he does thirty-five to forty miles a gallon, according to the roads and his load. I fear my carburettor is at fault, so far as being economical goes. It is a Clement type. If, as another motorist tells me, twenty to twenty-two miles is a good average per gallon, then it is not worth the expense of a new carburettor to change, but if I ought to do thirty miles then I should do so. —Yours truly,

NOVICE.

[With careful handling of the throttle valve the car should run twenty-eight miles on a gallon of petrol.]

ENGINE TROUBLES.

TO THE EDITOR OF *The Motor-Car Journal.*

SIR,—As a constant reader of your *Journal*, I should like the opinion of others upon the engine in my car, viz., a 12-h.p. Aster. My trouble when the car was new was the inlet cotters continually breaking and being sucked into the cylinder. I overcame this difficulty by having some washers turned and screwed on the inlet stems with split pins through. My next difficulty was the flywheels which build up the crank becoming loose on the shafts. On taking the engine to pieces I was surprised to find these were screwed up on the shaft with no feathers. I may also mention that my type of engine has three flywheels and no centre bearing for crank shaft. Since then I have had a lot of minor troubles, including three exhaust heads breaking off.—Yours truly,

MUTEL.

PUBLIC SERVICE VEHICLES.

TO THE EDITOR OF *The Motor-Car Journal.*

SIR,—I would be very grateful if you or any reader of the *Journal* would advise me how to treat the tyres of the motor-'bus I drive. The 'bus is one of Milnes-Daimler 12-h.p. to 16-h.p. type, with solid rubber tyres. I find that after running about twelve miles with a load the tyres get very hot. I make special stops and pour water on to them; I also cool and place wet sacking over them before I leave at night. Although I do this the tyres seem to burn away and get slack. What I would like to know is, is there any special method of treating the tyres of heavy 'buses when they get hot, and if I am taking the right procedure in doing as I have done? Also, how do you account for grease cup, which was properly screwed up, leaving a driving wheel hu on the axle becoming hot? The cup was picked up and found to be quite good.—Yours truly,

PERPLEXED.

ADVICE WANTED.

TO THE EDITOR OF *The Motor-Car Journal.*

SIR,—I have lately bought a motor-car, and would like your advice, as it causes me trouble. Like "C. W. P.," mine is chain-driven, and I thought by the wheels going in opposite directions it would be a powerful brake. I would like to know where the handle is for working it; is it automatic? Where do I find the box of gears? Is it in the round pot at the bottom of the car? I hardly think mine is gear boxed, as I am told it is electric magneto.

I had a man come to start it, and after he had gone I touched one of the magnetos and it nearly paralyzed me. I have since touched it with no effect. Why was that? Will it always play these tricks? Last Monday I wound it up two or three thousand times and it suddenly threw the handle through my front window. Are these chain drives explosive? Would it be safer to take that engine out and put in a twenty ampere four volt battery and dynamo, or would it be safer steamed?—Yours truly,

J. S.

[Our correspondent is evidently not quite familiar with technical terms. Perhaps some of our readers will reply to him in equally untechnical terms.]

THE OLDSMOBILE.

TO THE EDITOR OF *The Motor-Car Journal.*

SIR,—In your last issue "A. H. K." writes for advice in regard to the 5-h.p. Oldsmobile. I may say that in February last I purchased one of these little cars and have been driving it without any trouble whatever. I have found it perfectly reliable in every way and have had no renewals. As far as I can see every part is as good as new. Last week I returned from a trip in Norfolk, and made the journey from Cromer to London (S.W.), about 140 miles, in nine hours, which included a stop of one hour for lunch and refilling water tank. Being a pleasure trip I did not run the car at full speed. The car carried two heavy people and 100 lbs. of luggage. I may add that I take good care of the car, as I look after it entirely myself and keep it well oiled and adjusted, therefore it gives perfect satisfaction.—Yours truly,

R. ROCKWELL STEELE.

STEAM CARS.

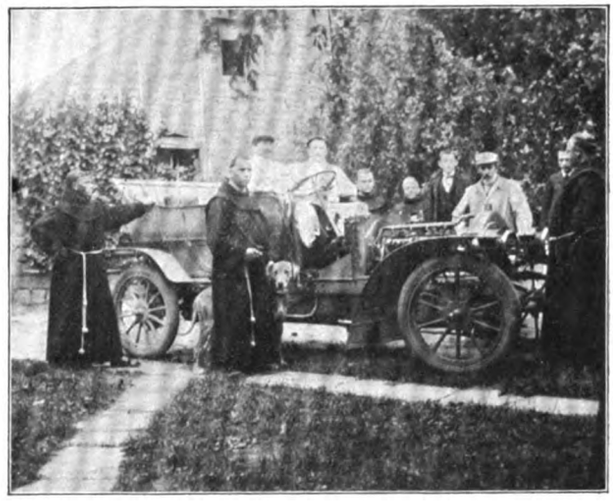
TO THE EDITOR OF *The Motor-Car Journal.*

SIR,—I should be glad if any of your numerous readers who are users of steam cars having boilers of the "Locomobile," viz., fire-tube type, could give me their experience of tubes bursting whilst running.

I am thinking of going in for one of this type of car for commercial work, but would like to know the method of procedure on getting a burst tube, whether the tube hole is plugged or not with a copper plug, and is there any danger of the boiler contents emptying upwards, to the discomfort of the occupants?

Any figures as to life of boiler tubes and cost of upkeep would be greatly appreciated by—Yours truly,

SUPERHEAT



A Benz-Parsifal Car at the Engelberg Monastery, near Miltenberg-am-Main, Germany.

BELTS.

TO THE EDITOR OF *The Motor-Car Journal.*

SIR,—"J. B.," in the *Journal* of the 13th inst., raises a question that many would like answered. Despite the fact that the gear is having its day, and no doubt will always claim its share of devotees, the belt has qualities that no other drive possesses; all that is wanted is that it may be perfected, *i.e.*, free from the defects of earlier constructors. I am inclined to think their blunders stifled a good thing in its infancy. Some of these were really stupid; look, for instance, at some of the short and narrow straps of the early Benz cars. I wonder they do as well as they do. What is the belt race cone system that is being spoken of? If this is single belt speed cones with belt races thereon, I should like to know how it is arranged. This seems to me to dispense with another difficulty, viz., having several belts to keep in order. Evidently the case for the belt is not so bad, after all.—Yours truly,

J. W.

A CLASS in automobile construction and management is being organised in connection with the Technikum, at Aschaffenburg, Bavaria.

WITH a photo of "Mercedes" as a frontispiece and some excellent illustrations scattered about its pages, "The Princess Passes" is a volume of pleasant reading by C. N. and A. M. Williamson. It is the romance of a motor, a subject of delight to the novelist in search of copy, and will doubtless be widely read among motorists, especially those who have enjoyed Continental touring.

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CLUBS AND ASSOCIATIONS.

SOMERSET.

On Tuesday last week the members of the Somerset Automobile Club were invited to lunch by Mr. John Hargreaves, of Templecombe. The day being exceedingly fine, many members availed themselves of the kind offer, and a grand show of nearly forty cars was arranged on the terrace in front of his house. The club members were augmented by the attendance of several motorists from London, who had come, not only as a compliment to Mr. Hargreaves (who, it will be remembered, has acquired more than Somerset fame with his car, being, in fact, one of the competitors in the eliminating contest for the British team for the Gordon Bennett Cup race), but also that they were invited to witness a polo match of the Blackmore Vale Polo Club to be played upon the Purse Caundle Ground, midway between Templecombe and Sherborne. Over fifty guests sat down to lunch, amongst whom we noticed Sir Wroth Lethbridge (president of the club), Sir H. Hoare, Mrs. Travers, Mr. A. Langman, Mr. A. Armitage (hon. sec. of the club), Mr. W. McCreery, Capt. E. Hardy, Mr. A. Tyrwhitt Drake, Mr. H. Boden, Mr. F. Hargreaves, Mr. J. Hargreaves, Mr. J. Wills, Mr. H. Tucker, Mr. Montague Cooper, Mr. H. Carver, Mr. W. Allen, Mr. A. Allen, and many others. After the repast, Sir Wroth Lethbridge thanked Mr. Hargreaves on behalf of the club for his kind and generous hospitality. Mr. Hargreaves in replying hoped that that would not be the last occasion members would visit his house.

The members having seated themselves in their cars were photographed by Mr. Montague Cooper, of Taunton. A start was then made for the polo field and Templecombe was alive with the hum of motors and the tooting of horns. A very fast match was played between the Frizhill and Tiverton teams, the former of which eventually won by four goals to one. One of the finest exponents on the field was Mr. Rawlinson, manager of the English Darracq Company, who performed very brilliantly throughout the game. Part of the polo ground was reserved for the automobilists, and the sight was probably a unique one, one side of the enclosure consisting of a line of cars, in a field associated hitherto solely with the horse. After the match, the members gradually dispersed to their various homes in the county, all having unanimously agreed that a most enjoyable day had been spent.

PETERBOROUGH AND DISTRICT M.C.

HILL-CLIMBING CONTEST IN GRIMSTHORPE PARK.

In exceedingly pleasant weather—after a postponement on account of rain—the members of the motor-cycle section of the Peterborough and District Motor Club brought off an interesting hill-climbing contest on Thursday, the 18th inst., in Grimsthorpe Park, by permission of the Earl of Ancaster, whose son, Lord Willoughby de Eresby, M.P., is a keen supporter of the pastime. The hill, which is well known locally, is about half a mile in length, with a gradient of 1 in 9. The competition took place under handicap conditions, and so well was this arranged that the first five men finished within 2½ seconds of each other. The competitors were allowed three ascents, and the best time was taken. Pedalling was allowed for the first 100 yards only, and there were no failures to mount the hill. In fixing the handicaps, the horse power of the motor and the weight of the rider were taken into consideration. Twelve members entered, but only nine of these competed. The prize was a gold medal offered by the club. B. C. Holmes made the fastest time—39½ seconds. He again rode his 3½-h.p. Vinco, fitted with a Minerva engine, and upon which he won the silver cup in the club's 100 miles non-stop run from Peterborough to Lincoln and back recently, after a keen struggle with T. Woodman, the winner of the present contest. Both these competitors accomplished the 200 miles run in 11 hours from Peterborough to Yarmouth and back a few weeks ago. In the competition under notice Holmes' time worked out at about 45½ miles an hour. The following were the times recorded, the figures in brackets being the time allowances :—

			Net time. secs.
1.	T. Woodman (5 secs.) ...	3-h.p. Clarendon ...	38
2.	H. P. Mays (5 secs.) ...	2¾-h.p. Vinco ...	39
	F. T. Heighton (8 secs.) ..	3½-h.p. Vinco ...	39
3.	B. C. Holmes (scratch) ...	3½-h.p. Vinco ...	39½
4.	T. A. Morris (6 secs.) ...	2¾-h.p. Vinco ...	40½
5.	W. Jeffcoat (7 secs.) ...	2¾-h.p. Enfield ...	43½
6.	H. Brown (8 secs.) ...	2½-h.p. Bradbury ...	46½
7.	B. Gibson (3 secs.) ...	3½-h.p. Vinco-tricar ...	51½
8.	T. S. Rickman (6 secs.)	2¾-h.p. Enfield ...	56

The following entered but did not compete—P. R. Heighton, 2¾-h.p. Vinco; W. E. Wadsley, 2½-h.p. Vinco, and T. Southwell, 3½-h.p. Bat. Mr. Ingamells and Mr. James officiated as handicapper and timekeeper respectively.

LEICESTER.

The members of the Leicester Automobile Club had one of the largest runs of the season on Saturday, a visit being paid to Matlock Bath. A start was made at 10.30 a.m. in beautiful weather, which kept its favourable character all through the day, and with the roads in capital condition the outing was a most enjoyable one. The president, Mr. E. G. Mawbey, had his new car out for the first time. The route was by Loughborough, Derby, and Belper. At Derby a little difficulty was experienced in getting through, owing partly to the new electric tram lines, and at Belper the cars had to crawl because of the large crowds assembled for the annual fete, but Matlock was reached in good time. Luncheon was provided at the New Baths Hotel, and afterwards the visitors dispersed for an inspection of the lovely scenery in the neighbourhood. They met together for tea at the hotel at 5.30, and two hours later the return journey was commenced, Leicester being reached about 10.30. Those taking part in the run, which was a very successful one, were Mr., Mrs. and Miss Mawbey, Mr. Maurice Mawbey, Mr. C. D. Lucas, Mr. T. C. King, Mr. and Mrs. Dorran, Mr. Whitby, Miss F. Whitby, Mr. and Mrs. G. H. Wait, Miss Wait, Mr. A. H. Leavesley, Mr. and Mrs. Faulkner, Mr. H. E. Barron, Mr. J. Haines, and Mr. A. McAlpine (hon. secretary). To-day (Saturday), the club will have an outing to Moseley Hall, by invitation of Sir Arthur Hazelrigg, Bart.

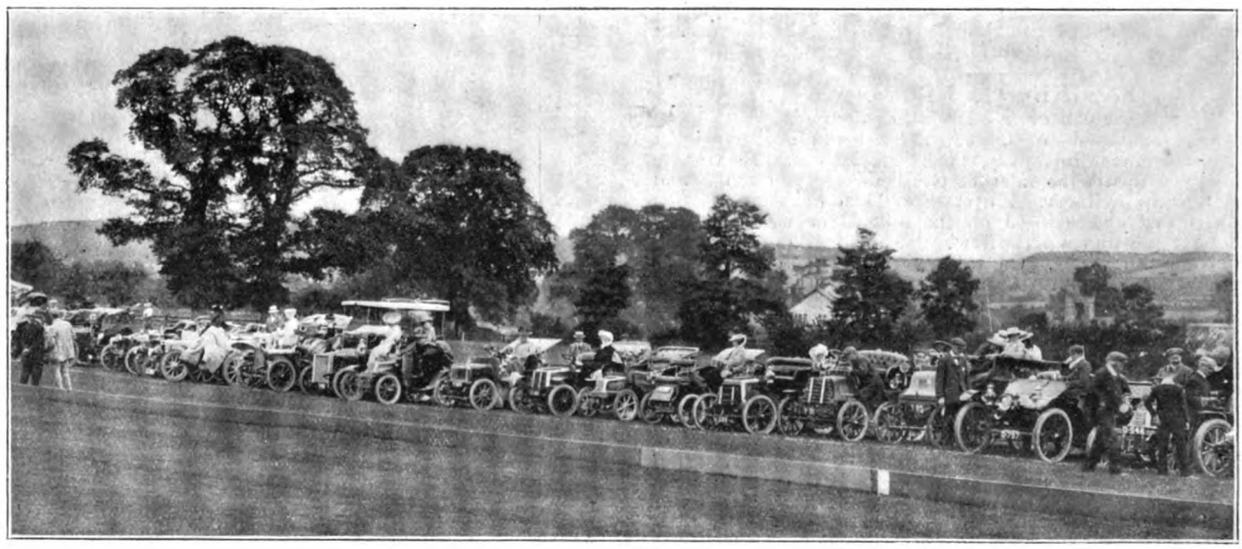


Photo by] **The Meet of the Somerset Automobile Club.** *[Montague Cooper.*

DERBY.

The members of the Derby and District Automobile Club held their second hill-climbing contest on Saturday. Mr. Frank Bolton, on a 22-h.p. Daimler, made the fastest ascent, and won the club medal. The second fastest time was made by Mr. Norman Sayer on a Serpollet steam car.

WEST SURREY.

At the invitation of Mr. and Mrs. Armitage, the West Surrey Automobile Club had a most successful gathering at Green Hills, Tilford, on Saturday, over fifty members and friends being present. Among them were Col. Fairtlough (Darracq), Mr. and Miss Ingram (C.G.V.), Mrs. Healy (16-h.p. Rex), Mrs. Clement (Wolseley), Mr. Ponsford (Clement), Mr. Praschkauer (Milnes-Daimler), Mr. and Mrs. Pullman and Mr. R. Crothers (Durkopp), Dr. Rideal (Benz), Mr. J. H. Knight (Benz), Mr. Warne (Dennis), Mr. and Mrs. Vogan (24-h.p. Simms-Welbeck), Mr. Bryan Hook (Locomobile), Dr. Tanner (Stirling), Mr. Horniman (James and Browne), Mr. Martineau (James and Browne), Mr. and Mrs. Buttemer and Mrs. Green (Decauville). After tea the cars were

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marshalled by the host—on his luxuriously appointed J. and B. car—on the spacious lawn for photographic purposes, and the company separated, not, however, until too late to carry out the run that had been contemplated, after one of the most successful and enjoyable meets of the season.

SHEFFIELD.

The competitions for the gold medals offered by Mr. James Barber, for the longest "non-stop" run made by a member of the motor-car section of the Sheffield Club, and Mr. J. T. Thompson for the longest "non-stop" run made by a member of the motor-cycle section of the same organisation, close on September 30th. Up to the present the following gentlemen have carried out non-stop runs of 100 miles and upwards:—Mr. Harvey Foster, 10-h.p. Wolseley, 100 miles in 4 hours 51 minutes; Mr. Benj. Hind, 9-h.p. Clement, 172 miles in 9 hours 55 minutes; Mr. J. T. Thompson, 6-h.p. Humber, 100 miles "over the club course," in 8 hours 10 minutes.

To-day (Saturday), the club will meet at Ruxford (six miles beyond Retford) Newcastle Arms, at 4.30 p.m. The motor-cycle division will meet at the corner of Effingham Road, near Victoria Station, at 2.15 p.m., for a run to Tuxford.

IN FAVOUR OF THE MOTORIST.

The Folkestone Motors, Limited, sued in the Faversham County court, on Monday, George Wyley, a baker, of Faversham, for £7 11s., in respect of damage done to one of their cars through the alleged negligent driving of defendant's son. The defendant's son stated that the horse took fright and this was the cause of its backing. Witnesses, however, stated that the horse showed no signs of fright after the collision. Judgment was given for plaintiffs.



What it may come to!

LIABILITY FOR AN UNREGISTERED CAR.

An unusual motor-car case has been before Mr. J. M. Yates, K.C., the Manchester county stipendiary. It was one in which Mr. Harold Slack, a Southport gentleman, was summoned for furiously driving a motor-car, to which was affixed no rear light, through Stretford on June 27th. Mr. Percy Jordan, who represented Mr. Slack, proved that the car in question—N 157—had in May last been sold by auction by the defendant to a person named Samuel Haines. In the records, however, the change of ownership had not been indicated, and the constable who identified the car by the number at the back naturally summoned Mr. Slack, who was supposed to still possess the car.

Mr. Yates thought that the regulations held that when disposing of the car Mr. Slack should have notified the authorities of the change, and, wishing to consider the question, he said he would give his decision on October 4th—a date selected to suit the convenience of Mr. Jordan, who was going away.

However, to the surprise of the court, Mr. Jordan put in an appearance last week, explaining this by saying that a new development of the case had arisen.

Mr. Haines, to whom the car was sold, he said, had read a report of the proceedings in the evening papers, and, behaving in a very straightforward manner, had called at his office that morning and had come down to the court with him. As a matter of fact, he (Mr. Haines) was driving the car through Stretford on the morning in question. He admitted that the omission to change his name was entirely his fault, and wanted to absolve Mr. Slack from all blame and accept service of the summons himself.

Mr. Yates said the point was: Was a person who was a registered owner of a motor-car responsible for what happened to it until he chose to get the registration changed? He had looked into the matter and read carefully through the rules—the Act did not help one. The penalty which was imposed, not so much upon the person but upon the car, for not changing the registration was that the registration of the motor-car was void. The rules provided that notice of the change should be given by either the new or the old owner, but it did not say anywhere that if that was not done any penalty was attached to any of them, except that the registration of the car was void. Then the person would be driving an unregistered car and liable to a penalty. He confessed he was astonished when the rule was made, directing that notice of the change should be given, that a penalty had not been directed upon the new or old owner. If the old number was kept on, a person might be killed and no one would be able to ascertain who was the driver of the car. He thought that in this case no penalty should be imposed upon Mr. Slack. Reading through the articles it seemed that this particular car was an unregistered car when it was being driven by its present owner.

Mr. Jordan said he assumed the summonses would be re-issued against Mr. Haines, and asked that they might be made returnable for October 4th.

Mr. Crofton, for the police, intimated that the summonses would be re-issued, and the Stipendiary directed that they should be heard on the desired date.

CASES DISMISSED.

Recenly at Staines, the magistrates were engaged in hearing a charge preferred against Lord Howard de Walden's chauffeur, who was summoned for driving at a speed dangerous to the public on Hounslow Heath. The police swore that the pace was 28 miles an hour, but were cross-examined by Mr. Moresby White, and admitted that they had never before timed motor-cars. It was shown that very few people were about, and no one was any the worse for the car being there. After a long hearing, the Bench ordered the summons to be dismissed.

Francis Beville de Foe Paynter was summoned, before Mr. d'Eyncourt, at the Clerkenwell Police-court, for driving a motor-car without being registered, and unlawfully and fraudulently using a mark for identifying a motor-car. Edward Penman, of High-street, New Barnet, was summoned for aiding and abetting Paynter to fraudulently use a mark for identifying a motor-car. On the 22nd July the car, driven by Paynter and containing also Mr. Penman, collided with another vehicle in Caledonian Road. When the police officer questioned the driver he said, "You had better speak to the owner." The officer spoke to Mr. Penman

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and it was alleged that that gentleman replied that he expected to be the owner in a few days. As a result of inquiries summonses were taken out against the owner and driver. Mr. Blundell protested strongly against a summons being taken out against his clients under section 5 of the Motor Act for fraudulently using a mark, which really meant that the number had been altered so as to cheat someone. As a fact Mr. Penman had not entirely completed the purchase of the car, but registration was applied for as early as July 8th. Mr. Penman drove to London on July 22nd for the purpose of getting his plate numbers, but they were not ready, and he allowed to remain on the car the numbers which had been affixed to it by Messrs. Swan, the vendors of the vehicle. It was quite clear that the car was registered at the time, and the summons, he contended, should be dismissed. As for the other charge, he denied that there had been an attempt to cheat anyone, and held that the summons should have been taken out under sub-section 4 of section 2. As a matter of fact the number plate was delivered at Mr. Penman's address on July 23rd. Mr. d'Eyncourt, while agreeing with counsel, said if Mr. Penman had given full information to the constable perhaps the summons would not have been taken out. The first summons would be dismissed, and on the other he ordered the defendant to pay the costs.

CHARLES PARKER, of Brudenell Grove, Leeds, was summoned at the Leeds police court for driving a motor-cycle at an excessive speed, and also for having failed to give due warning of the approach of his machine. Mr. Willey appeared for the defence. It was stated that on July 31st defendant drove a motor-cycle on Chapeltown Road, near King Lane, at a speed of thirty miles an hour. Defendant was not then stopped, but his car was identified a day or two later at Headingley. For the defence it was contended that it was a case of mistaken identity, someone using a motor bearing the same number as defendant's. At the time he was alleged to have been at King Lane he was at York spending the day with some friends. He had not been nearer King Lane



The Dieppe-Varengeville Public Service. Two of the Cars at Dieppe.

than Harewood Bank. A policeman who gave evidence said that he had seen two motors, one of which was driven by defendant, pass through Harewood within a few minutes of each other, both bearing the same number. The chairman said the Bench were satisfied that the officers had been mistaken, though they had done what they thought was their duty in the matter. Defendant was accordingly discharged.

ON Friday, the 19th inst., Mr. G. M. May, of Chesterfield, was summoned to appear before the Bakewell Bench, first, for not stopping when called upon to do so, and refusing to give his name and address; secondly, for driving to the common danger when on the road between Owler Bar and Fox House, near Hathersage, on Sunday, July 17th. When the case was called the plaintiff did not put in an appearance. The case was therefore dismissed with costs, which Mr. Middleton, of Chesterfield, who appeared or Mr. May, pressed should be for a substantial amount, owing to the trouble and inconvenience his client had been put to in subpœnaing and bringing witnesses from Hathersage, Chesterfield and Sheffield to the court. Costs to the amount of £6 15s. 6d. were allowed.

POLICE TRAPS.

THERE is a measured distance of 220 yards near Potters Bar.

THE police have had their trap in the Portsmouth road, Surbiton, in active operation lately.

ON the road between Colyford and Seaton (Devon) the police have lately been watchful for motorists.

MOTORISTS are advised to steer clear of Lifton, near Launceston, where police traps have lately been installed.

MOTORISTS should be particularly careful when reaching the tram lines at Norbury, and all the way through Croydon to the end of the tram-lines at Purley. Several police traps are in daily operation in the district.

CONVICTIONS AGAINST MOTORISTS.

Place.	Summoned for	Fine.
Mansfield	Driving to public danger	£3 3s.
Kingston	Driving at excessive speed	£5, etc.
Haywards Heath	Not producing licence	10s.
Exeter	Driving on the wrong side of road	2s. 6d. etc.
Brighouse	No rear light	5s., etc.
Crewe	Driving at dangerous speed	10s., etc.
St. Neots	Driving to common danger	£8, etc.
Kingston	,, ,, ,, ,,	£5, etc.
Highgate	Driving at excessive speed	40s., etc.
Barnet	Exceeding legal limit	£5, etc.
Folkestone	No rear light	10s., etc.
Axminster	Furious driving	£2, etc.
Jedburgh	Not stopping when requested	£5, etc.
Brampton	No licence	£1, etc.
London, E.	No headlight	5s., etc.
S.W. London	Refusing to produce licence	8s., etc.
Lifton	Driving beyond legal limit	£10, etc.
Barnet	,, ,, ,, ,,	£5, etc.
Highgate	Driving dangerously	40s., etc.
Exeter	Driving on the wrong side	2s. 6d., etc.

ASSAULT ON A MOTORIST.

A MAN named Cotter was fined £5 at Chester-le-Street for assaulting a motorist who sounded his horn several times for him to move out of the way. As the defendant did not move from the middle of the road, the prosecutor was trying to steer past him when Cotter struck him heavily on the head with his walking-stick.

MR. EDWARD WHITE, the hon. sec. of the Irish Automobile Club, has lately acquired a 16-h.p. Richard-Brasier car.

MOTORISTS temporarily residing in Hereford can obtain copies of the *Journal* from Messrs. Adams and Sons, 29, High Town, or from the railway bookstall.

THE Berkshire Automobile Club will hold a meet on the 24th September at Easthampstead Park, Wokingham, by invitation of the Marquis of Downshire.

FIGURES recently compiled by the authorities of Hartford, Conn., which was the first American city to abolish the horse and substitute automobiles for police department work, indicate that the cost of maintenance for an electric outfit in the department is about 60 per cent. of that when horses were used. The motor equipment installed three years ago comprises an electric petrol wagon and an electric ambulance, the two doing the work of four horsedrawn vehicles. In his report Mr. Cornelius J. Ryan, the chief of police, states that the patrol service covers the entire city, which has 90,000 inhabitants, spread over an area of 10 square miles.

TO CORRESPONDENTS.

All communications intended for insertion in this Journal or relating to Editorial matters should be addressed to THE EDITORIAL DEPARTMENT, MOTOR-CAR JOURNAL, *39 and 40, Shoe Lane, London, E.C., and must be written on one side of the paper only. Letters must in all cases be accompanied by the name and address of the writer, as no notice will be taken of anonymous communications.*

The Editors cannot undertake to return MSS. or drawings, although every effort will be made to do so in the case of rejected communications. Where such are regarded as of value, correspondents are requested to retain copies.

To insure insertion communications and contributions must be in the Editor's hands by Tuesday forenoon of the week in which the same are intended to appear. Disappointment may be caused by non-compliance with this rule, and to avoid this earlier receipt, if possible, is necessary.

The Editors do not hold themselves responsible for the opinions expressed by their correspondents, or for statements and facts which do not appear in the editorial columns.

The Editors and Publishers beg also to state that they will accept no responsibility for unsolicited contributions, even if used, unless payment for same is directly specified in forwarding, and the terms arranged before publication.

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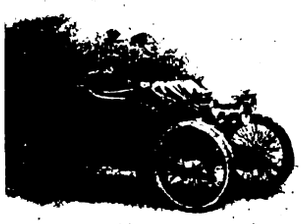
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COMMENTS.



MILITARY officers using their own motor vehicles on public journeys may now draw the allowances mentioned below from the War Office:—(a) In all cases where conveyance is admissible by the existing Allowance Regulations, provided that the allowance is not more in amount than the cost of ordinary means of conveyance. (b) In cases where the amount is more than the cost of ordinary means of conveyance, if approved by the G.O.C. on either of the following grounds: (1) That the employment of the motor vehicle enables duties to be carried out which could not have been satisfactorily performed by other means, *e.g.*, staff rides; (2) that the gain in time consequent on the employment of the motor vehicle justifies the extra expense involved. When a motor vehicle has been used under (1) or (2) for a duty commencing at a point at a distance from the officer's station mileage rates for the whole journey may be granted, or in the case of a motor-bicycle the cost of carriage of the bicycle by train may be refunded. The mileage rates shall be as follows: If four persons on duty are carried, 3d.; for every person carried on duty in addition to four, 1d.; for a motor-bicycle used on duty, 1½d. An allowance at the rate of 2s. 6d. per night for a motor-vehicle, and 1s. per night for a motor-bicycle, will be granted for every night that a privately-owned motor-vehicle is necessarily absent from its station on duty, and on which nightly rate of travelling allowance is admissible for the owner. The above regulations may be applied to warrant officers and soldiers so far as regards motor-bicycles, the claim being supported by a certificate signed on behalf of the G.O.C., that the use of the motor-bicycle was required in the interests of the public service. These conditions and rates will remain in force for a period of one year.

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Kentish Main Roads.

THE new County Surveyor of Kent has presented a report to the Bridges and Roads Committee on the proposed method of road management from April 1st next, and the expenditure thereon. The county is divided into four divisions, the mileage being: Northern 152, Southern 153, Eastern 151, and Western 140. It is essential to the system of direct control that appliances and tools should be purchased. Mr. Maybury therefore presented a detailed estimate of the cost of ten steam rollers and scarifiers, of ten motor-locomotives, and twenty trucks for haulage, water vans, and sleeping vans, engine houses, sites, etc. The estimate of the probable cost of machinery and plant he puts at £20,000. The management and prospective annual expenditure under direct management is also gone into by Mr. Maybury, each division being dealt with separately. He hopes the committee will agree to a considerable reduction in the use of local rag and flint, and to the purchase of more hard and durable material for the improvement of the roads. He does not suggest that the use of flints should be discontinued altogether, being useful in certain districts. His estimate of the details and annual cost of main road management is £75,280 10s., equal to £124 per mile.

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Notice of Prosecution.

WE recently reported a case in which a motorist won the day because his solicitor emphasized the fact that the constable, when stopping him for his name and address, did not tell the victim that he was to be prosecuted. Had the constable told him that he might be prosecuted the result would have been different. Such was the ruling of a Lancashire magisterial bench. But in the south a similar objection to prosecution was over-ruled by the magistrates. No wonder, then, that the official organ of the Automobile Club records with evident pleasure the fact that Mr. Moresby White, the counsel engaged in the case, has advised his client to appeal to the High Court for a writ of *certiorari* to quash the conviction, on the ground that no notice was given by the police of their intention to prosecute. The decision of the High Court upon the point, continues our official contemporary, will of course be authoritative and will bind all courts of summary jurisdiction throughout the country.

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The Curious Consistency of Officialdom.

SUCH being the case, it may come as a surprise to many that the Motor Union, formed, we understood, to maintain the rights of motorists, have declined to associate themselves with the test case. This is all the more remarkable in view of the opinion of their own legal advisers, and seems to indicate a waywardness that should be absent from such a body. In this instance it was proposed to fight a test case—acknowledged to be of universal importance—if the Motor Union would give it the moral support that should count for so much in any appeal from one court to another. But that body declined to be associated with the matter. Now, when the member who had given notice has withdrawn from the appeal, because of the refusal of the Motor Union, the Club comes forward and proclaims the importance of the issue. Verily consistency is a blessed word of which the meaning is not very clear in Piccadilly.

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Trials in India.

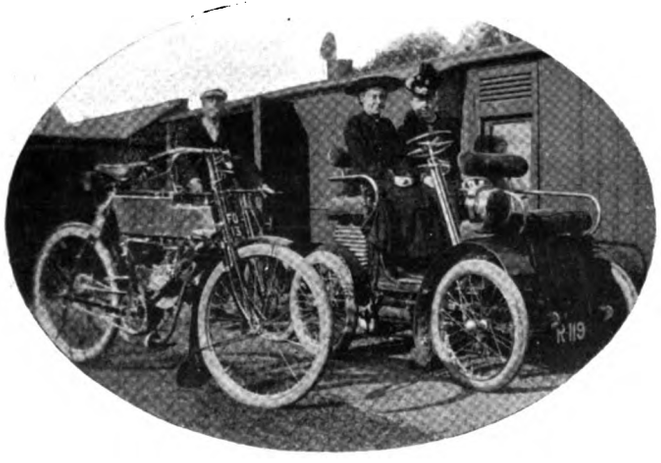
AUTOMOBILISM is making great headway in India, and at Christmas the first reliability trials, held under the auspices of the Motor Union of Western India, will take place. The trials will be run from Delhi to Bombay, a distance of about 880 miles, over stiff roads. The Gaikwar of Baroda has offered a handsome cup for the car which goes through the trials with the least number of involuntary stops, and other Maharajahs are offering cups for other tests. One of these cups will be reserved for a special race arranged for motor-bicycles, tricycles, and quadricycles. The native princes take a great interest in motoring generally, and the hope is being expressed in India that several English automobilists will take part in the trials.

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The Glidden Cup Touring Contest.

AN informal meeting of the American Automobile Association was held in St. Louis on the 13th ult. to consider the conditions under which the Glidden cup should be competed for, and the following suggestions were adopted. The cup shall be known as the Charles J. Glidden touring cup, and shall be competed for annually, beginning with the year 1905, by members of the American Automobile Association, or by any club in the world recognised by it. The distance driven shall not be less than 1,000 miles, nor less than 500 miles weekly, and shall be over regularly used highways. The car shall be driven by the owner or a driver approved by the committee, the owner being a passenger in the car. The contests for the year 1905, 1906 and 1907 shall be held in either the United States or Canada or both. The rules governing the contest shall be fixed by a committee of seven, consisting of the president of the American Automobile Association, who shall be chairman; the presidents of the automobile clubs of America, Great Britain and Ireland, France, Germany, and Canada, to be recognised by the American Automobile Association and the donor; or a representative selected by the above-named persons. A committee was appointed to formulate the rules and regulations governing the contest for next year and submit the same to the general committee. Four entries for the competition were received at the meeting.

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Mr. Ewart West, of Moreton-in-the-Marsh, Gloucestershire, and his De Dion Tricycle, Humber Bicycle, and Alldays Traveller, which he keeps in an old G.W.R. Van in his garden. He informs us that the van makes a weather-proof garage, and will outlive any motor.

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Agricultural Advance.

Is the motor-car to be regarded in the light of what Carlyle called a "Morrison's pill" to cure all diseases of the body politic? It would appear that it is in danger of being looked at in that light by many people. Mr. Balfour was one of the first to point out the effect that the automobile was likely to have in relieving some of the congested districts of large towns, and now, in such a reasoning and reasonable journal as the "Agricultural Students' Gazette," Mr. Dudley Cosby declares strongly in favour of the establishment of motor-car services in rural districts as being the most helpful adjuncts they can have to their work. This is an aspect of the case that farmers and market gardeners should be quick to appreciate, for so much of their success or failure depends on their ability to get their crops quickly to market.

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Motor-Wagons in Australia.

So far the subject of motor delivery wagons has not been seriously debated in Australia, although several of the larger firms have been convinced for some time past that sooner or later something will have to be done in that direction to keep abreast of the times, and to ascertain whether or no the motor is cheaper and more efficient than the horse. The steam lorry which has been in use for some months in the vicinity of the wharves in Melbourne is, according to the "Australian Cyclist," the first practical vehicle of its kind ever seen in those parts, and it has given great satisfaction. Some years ago a steam wagon was seen running about Melbourne, but it was considered before its time, and it is only within the past few weeks—since the advent of the steam lorry already mentioned—that the motor traction problem seems to have taken a definite shape. Messrs. Foy and Gibson have lately landed a motor-delivery wagon, very similar in appearance to one of their large covered-in, two-horse-vehicles, and the other day we had, states our contemporary, the pleasure of witnessing the turnout, with Mr. E. L. Holmes in charge, climb Rucker's Hill, Northcote, at ten miles an hour. The engine is of 12-h.p., and three speeds forward and reverse are available. The body of the wagon will accommodate about two tons of merchandise, but Mr. Holmes states that although half a ton is the limit which has been carried on the trial runs which have been held in the various suburbs, no changing of gear has so far been found necessary on any of the hills which have been encountered.

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Ten Miles in Leeds.

MOTORISTS have learned with some concern that the Watch Committee of the Leeds Town Council has decided to adhere to a previous decision to request the Local Government Board to restrict the speed of motor-cars within a radius of two miles from the centre of the city to ten miles per hour. It will thus be seen that the efforts of the Yorkshire Club have proved unavailing in this matter, and we shall now watch, with some interest, the influence of the A.C.G B.I., which should certainly be exerted upon the central authorities against such a proposal. Such restriction has been regarded as quite unnecessary in the City of London, where the traffic is as congested as anywhere in the Yorkshire town.

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Consideration on the part of Drivers.

AT an inquest held in a Kentish town the other day on the body of a lad who received fatal injuries from being knocked down by a motor-car, the coroner said that that was the first really serious accident which had occurred in his district, and seing that comprises an area of sixty parishes, it says something for the considerate way in which the Kentish motorists drive their cars. In fact, the coroner, in summing up the evidence given at the inquest, gave public utterance to this view, and asserted that the drivers of automobiles in the Garden of England fully recognised the rights of other users of the highway. This is a fact with which, of course, owners and drivers are perfectly familiar, but it is well to have it thus officially and publicly declared by an unprejudiced person, who is sufficiently familiar with the subject to make his opinion of real value.

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Political Campaigning.

MR. R. WINFREY, who is to be a Parliamentary candidate for South-West Norfolk at the next election, has just been enjoying a political motor-car tour through that agricultural constituency, and reports that the prejudice against the motor-car seems to have entirely died out among the rural population. He stayed twelve weeks at his house at Hunstanton, and only twice during the whole of that period saw the inside of a railway compartment, a fact of which the railway companies might make note as indicating a tendency of some importance to their exchequers in the near future. Three weeks of his time were spent by Mr. Winfrey in the political tour through a hundred parishes. Each night he returned to his home—although the boundaries of the constituency were twenty four miles from Hunstanton—on his 12-h.p. two cylinder car. 1,700 miles were covered without having a breakdown, and Mr. Winfrey was always able to keep his appointment with a punctuality that was regarded with some surprise in many of the out-of-the-way villages.

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The Automobile Protection Association.

A MEETING of the Council of the Automobile Mutual Protection Association was held at Cecil Chambers, Strand, W.C., on Tuesday afternoon, when, in the absence of Lord Shrewsbury, the chair was taken by Lt.-Col. Elton-Burroughs. The secretary, Mr. E. Shrapnell Smith, reported that since the last meeting the Marquis of Londonderry, K.C., had accepted office as a vice-president of the Society, and that Messrs. Cordingley and Co. had acquiesced in the recommendation of the council, and had agreed to reserve the entire floor space of the Minor Hall at Islington for the commercial vehicle section of the 1905 Royal Agricultural Hall Motor-Car Exhibition. The following, being numbers 161 to 166 on the register of members, were elected:—Messrs. Jesse Ellis, Limited, Maidstone; the Hercules Motor Wagon Company, Manchester; Savage Bros., Limited, King's Lynn; James Robertson and Son, Fleetwood; the Yorkshire Patent Steam Wagon Company, Leeds; W. H. M. Burgess, London. It was decided to defer the appointment of a Competitions, Races, and Trials Committee to the September meeting of the Council of the Association.

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General Booth's Tour.

GENERAL BOOTH continues his motor-car trip with unabated zeal and enthusiasm. On Monday night he completed the first thousand miles of his tour, during which he had made no less than 100 separate addresses, which those interested in figures will work out at one for every ten miles. As he went northward his troubles increased, and at Northallerton two or three cars in the procession proved somewhat stubborn, and the General's transfer to another automobile was necessitated. But still he continues his motor-car progress, and to-day (Saturday) should arrive at Perth. Doubtless inspired by the success of this motor tour, the Church Society for the Promotion of Kindness to Animals has arranged a motor campaign from London through the Midlands to Leeds and York, returning through East Anglia into Kent and Sussex. During the tour, literature is to be distributed, and addresses given on the virtue of kindness to animals, which will be done in a practical way by the motor-car itself, as it is rapidly proving itself capable of relieving horses of many of the burdens they hitherto have had to bear.

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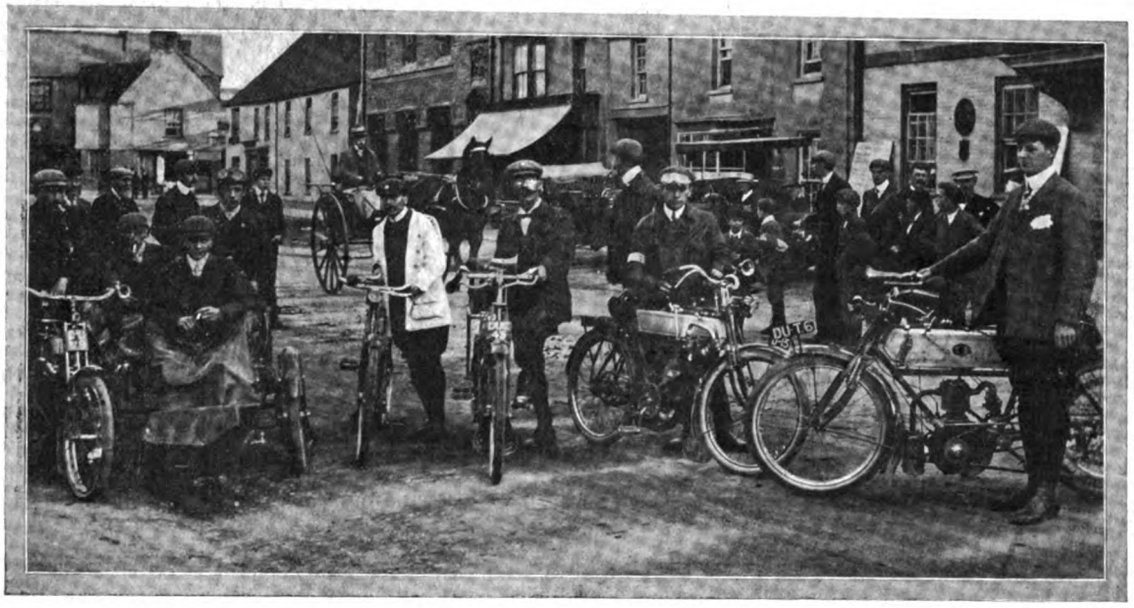


Photo by] The Winning Team in the Motor-Cycle Team Race at Bicester. (*See page 569.*) *[E. W. Ashworth.*

Hedges and Margins on the Roads.

AT the last meeting of the Hambledon District Council, a London solicitor wrote on behalf of his client complaining of the danger of overhanging trees in the village of Graywood and in the neighbouring hamlets. There is no doubt that overhanging trees constitute a great danger to those who travel on the road, especially at twilight or later, and the attention of councils throughout the country ought to be drawn to this important subject. The Hereford trips of the last few days have revealed not only this annoyance to those who travel on the road, but the road margins of that district would have been a source of danger in many cases had the motorists driven at night, and we would suggest that the Rural District Council of Ludlow will do well to fall in with the suggestion of a member of the body who at the last meeting asked that the County Council's attention be drawn to the state of the road margins in that district. He said that in some places the margins were a foot high, and that state of things had caused the death of one man—the margin was his murderer. Another matter which has been the cause of considerable complaint is the wide turf margins on the sides of the main roads. In some places these are from two to three feet wide, rendering the highway much narrower than is justifiable now that traffic of all kinds has so increased.

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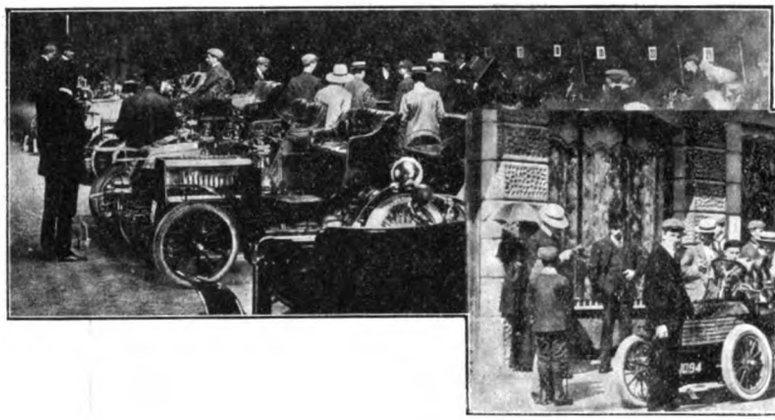
A Wise Decision.

AT a recent meeting of the Manchester Motor-Cycle Club, which, by the way, is now known as the Manchester Motor Club, a resolution was adopted which might be made of universal application among organisations holding trials and competitions of any kind. On the occasion of the first reliability trial held by this club, three members were summoned and fined for driving to the danger of the public, but their fellow members have rightly recognised that they were merely the representatives of the club, and that the prosecution, though naturally against the three individuals, was really aimed at the organisation itself. Consequently they considered it would be an act of courtesy on the part of the general body of members to reimburse those who were fined the amount of their expenses. This is a perfectly right attitude to take up, and one that we hope will be generally followed should members of clubs be fined when on trials or tours.

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The Small Car Trials.

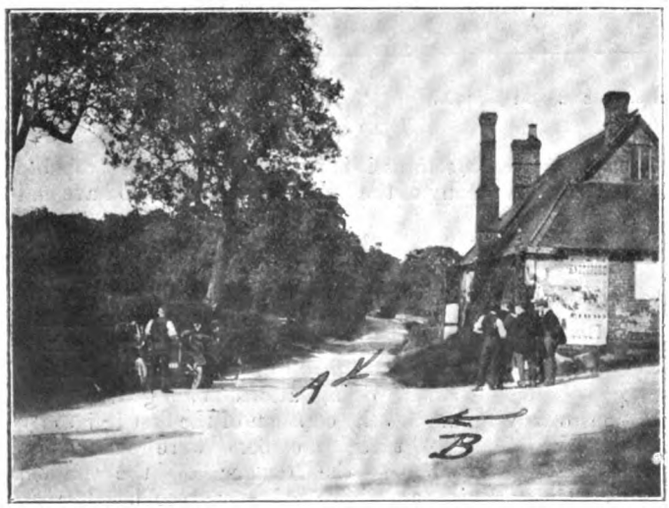
THE invasion of Hereford began early last week. It was an unaccustomed sight, this mixing of poesy and prose, this jostling of the old world and the new; the quaint, ancient carts, wagons, and wains rolling unconcernedly along, whilst in and out the cavalcade threaded countless cars. By Saturday all the hotels were thronged, and no such thing as a stable existed; a hastily-printed bill in glaring traitorous red proclaimed the latter as "the garage." Few of the entered cars turned up until Saturday morning, when a number of interested spectators gathered at the Drill Hall to witness their arrival. Most of the cars put in an appearance well before twelve o'clock, looking very trim; the professional photographer was busy. Three cars were missing when, close upon noon, and without their arrival, Mr. Joy had to announce the time limit up. Later in the afternoon, telegrams were received stating that Belsize Junior (No. 35) would not appear.



The Cars in the Drill Hall.



The Two Wolseley Cars outside the Mitre Hotel, Hereford.



The Scene of the Accident to the Belsize Junior Car.

On the way down to Hereford a motor-car coming round a corner at B in the above illustration, drove into the "Belsize Junior" (travelling in the direction A) entered for the competition, snapping the back axle in two, breaking most of the spokes in the two back wheels, and bending the frame. The only course open to the makers to prove its merits, is to enter it for the Automobile Club quarterly trials, and this is, we believe, contemplated by the Belsize Motor Car and Engineering Company, Limited. The Simms car (No. 36), was also delayed. But the big disappointment was the non-arrival of 29, the four-cylinder Chriton, whose performance was looked forward to with not a little curiosity.

Every arrangement for the storage and washing of the cars was ready by the preceding day, and the latter facilities were put to the test on Friday in the presence of Mr. Basil Joy and Mr. Wilfrid Groom, and pronounced satisfactory. Experiments were also made the same day with Westrumite and an admixture of a disinfectant which this week will be put to the proof.

With everything in good fettle it only remained for the weather to keep fine. Unsettled conditions was the experience of the first days of last week, but with the dust on the roads laid the rain passed away. Saturday and Sunday were two perfect

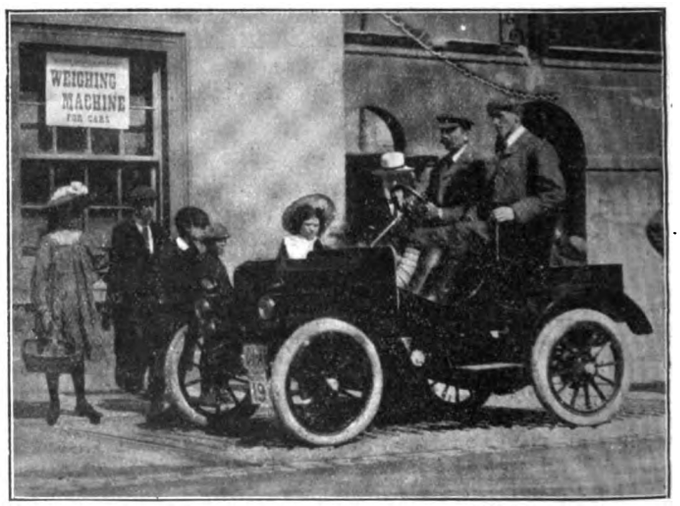


Photo by] The Downshire Car on the Weigh-bridge. *[Argent Archer.*

days of blue skies and prolonged sunshine. Automobilists and ought-to-be-mobilists were in high spirits.

MONDAY'S RUN TO LUDLOW.

Landladies generally remarked upon the unwonted punctuality with which their respective "young men" left for

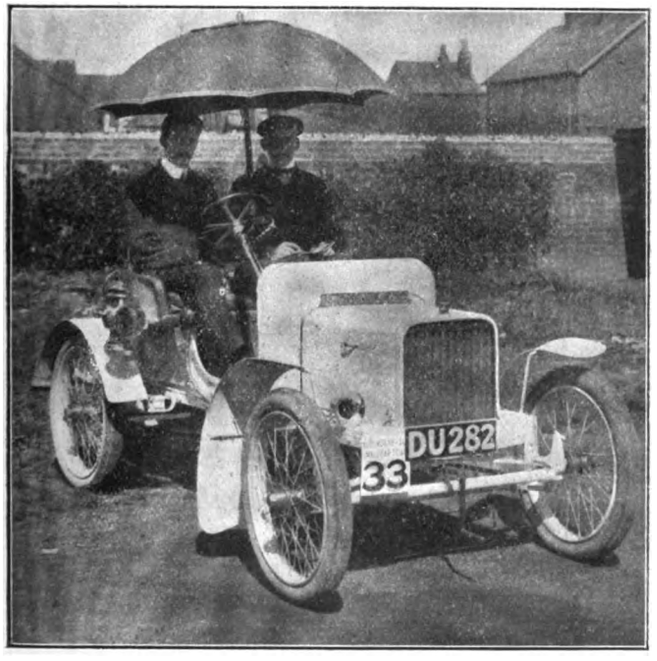
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business on Monday. But, somehow, business that morning had centralised in Broad Street, the starting place for the Trials. It was a novelty for Hereford, and Hereford, as represented by these young men, gave its undivided attention. Close upon eight o'clock recruits were forthcoming in shopgirls,



A Wolseley and an Alldays climbing Dinmore Hill.

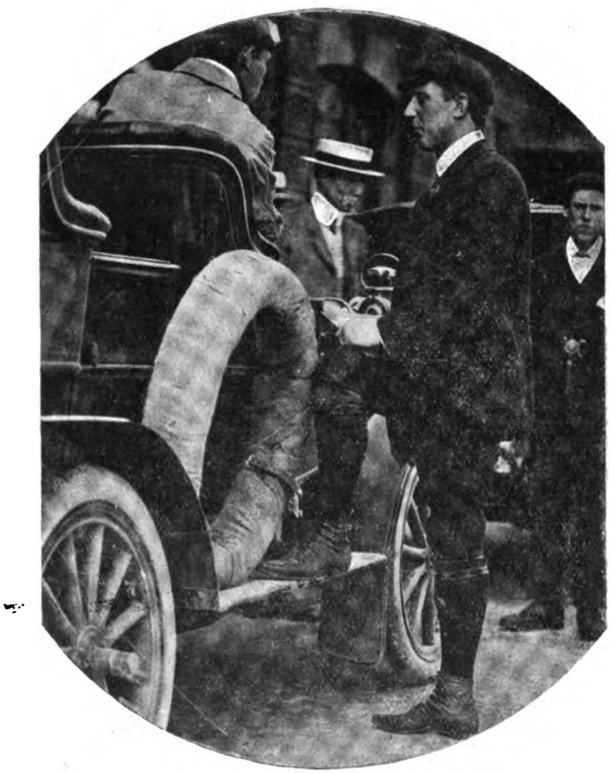
shopkeepers, dawdling apprentices, and errand boys who had left brass-cleaning in its various stages of incompleteness. The morning had just a touch of early autumn crispness which prompted activity, so that all the cars were ready in good time and we were all seated for the first run. Soon after eight o'clock boomed out from the cathedral tower the first car sped off towards Ludlow, followed by the rest at about half minute intervals. The exact times at which the first and last cars started out were 8·12 and 8·29 respectively.



The 8-h.p. Rover and its novel Canopy.

Photos by] [*Argent Archer.*

We were not long in reaching the open country, where the autumnal air was even more pronounced. Most of the fields were shorn of wheat and barley, and the eyes passed from the stubble to the satisfying sweeps of the swede fields and grass lands. Ere Dinmore was reached several pretty villages were passed. To the right of the road rose Sutton Walls, where King Ethelbert was murdered, and below, from among the trees, peeped the spire of Marden Church, where he was first buried. Soon Dinmore Hill—the first of the three specified hill-climbs—lay in front of us. Its one reputation is that it is a "tightener," but it has another claim, and that of being an intensely pretty hill, environed by woodland of the most sylvan character. We did the hill in a capital manner on the Mobile, No. 24. Having gained the top, a fine vista of the northern expanses of the county was obtained, with Leominster in the middle distance. Turner could not have wished more undulating country—waves of land crested with woods, and dips of green from which glimmered here and there a foam fleck of white cottages. A meet setting this for one of England's stately homes—Hampton Court—the residence of Mr. J. H. Arkwright, a descendant of the great inventor. The gardens of the house are very beautiful and the house itself holds a fine collection of drawings by Turner and Cox, besides works by Holbein, Vandyck, and Peter Lely.



Mr. Basil Joy directing Competitors.

Leominster town, which we soon had in view, is an antiquated old place, eloquent of past wealth and present comfort. In ancient days it "was a place." A monastery was built here by King Merewald in 658, which was further endowed by Henry I. The monks it was who made "Lempster market" so famous that the third Henry had to change the market day. In 1207 the town was reduced to ashes by the Welsh followers of William de Braose, Lord of Brecon, whose wife died of starvation a prisoner in Windsor Castle. Despite all the town thrived, and in the reign of Edward the First returned burgesses to Parliament. A distich on the almshouses runs:

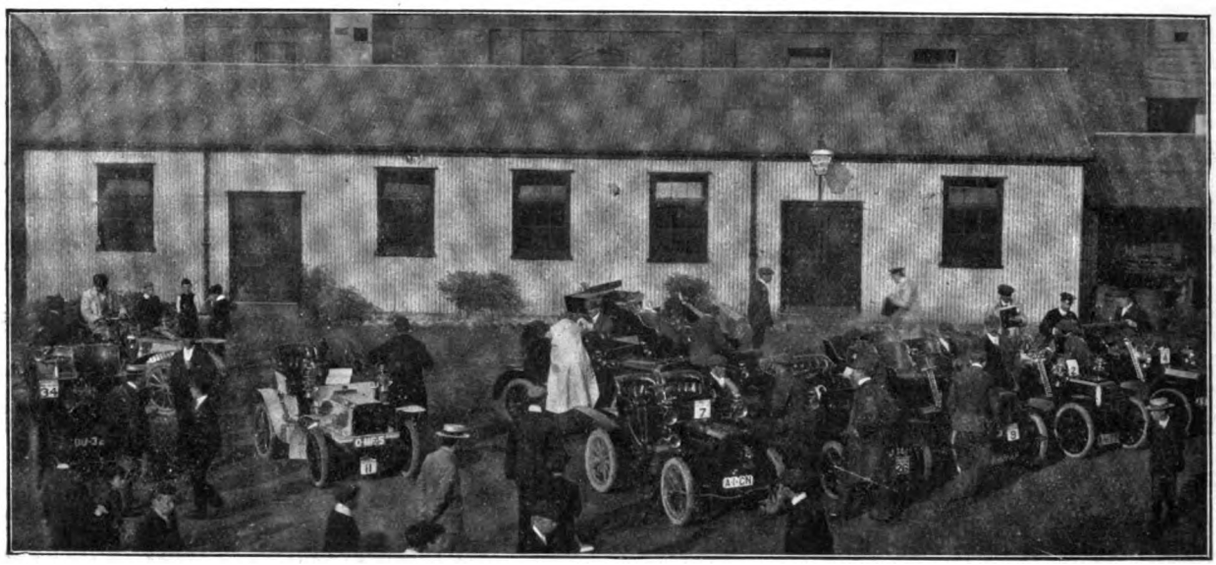
"He who gives away all before he's dead,
Let him take this hatchet, and knock him on ye Head."

Proceeding northward, we got a first glimpse of the Teme at Brimfield, a pleasant village near to Wooferton Junction. From here the scarred sides of the Clee Hills were easily seen on the right. Away to the left was Richards Castle, and beyond, Haye Park, the spot which Milton took as a background for the masque of "Comus."

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The roads here were beautiful and we soon swung into sight of Ludlow. Just before entering the town we crossed the Birmingham pipe track at Ludford.

High up on the hill, still seemingly enwreathed in the mists of mediævalism, Ludlow faced us. Deep below the Teme gurgled

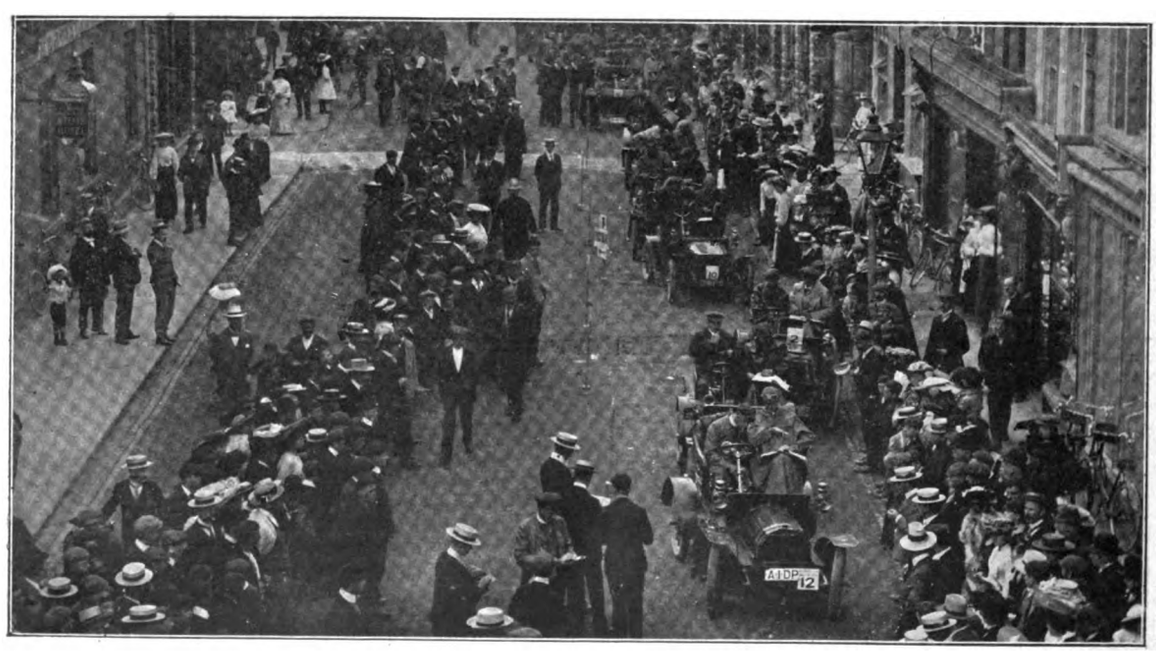


Preparing for the Day's Run in the Drill Hall Yard.

along under Ludford Bridge, which formed the approach to the gaping mouth of the Broad Street gate above. It was a steep climb up into the town, and one thought those ancestors of ours knew what they were about when they chose this spot for a border stronghold. History has bitten itself deep in the chronicles of Ludlow, and romance has clung to it like the moss on its Castle walls. The origin of the castle itself is shrouded in obscurity, but the general opinion is that it was built about the time of the Norman Conquest. Ultimately falling into the hands of the Crown, it was granted by Henry I. to Payan Fitz John. Many times did it change hands during the border feuds. Richard Plantagenet, Duke of York, chose it as chief place of abode and was greatly beloved of the people. Henry VII. was a frequent visitor to the castle, where his son, Arthur, Prince of Wales, kept a court until his death in 1502.

The whole of Ludlow turned out to watch the trials. Deftly proceeding through the town, we left the venerable old houses behind, and descending to and crossing the Corve, we soon reached the terminus of our morning journey along one of the finest avenues of oaks we would wish to see. The return journey we did in a splendid manner, reaching Hereford in just two minutes under the three hours.

A large number of people gathered on Dinmore Hill to witness the hill climb. The weather continued fine and the roads were very dusty. A much more punctual start was made in the afternoon for a second run to Ludlow.



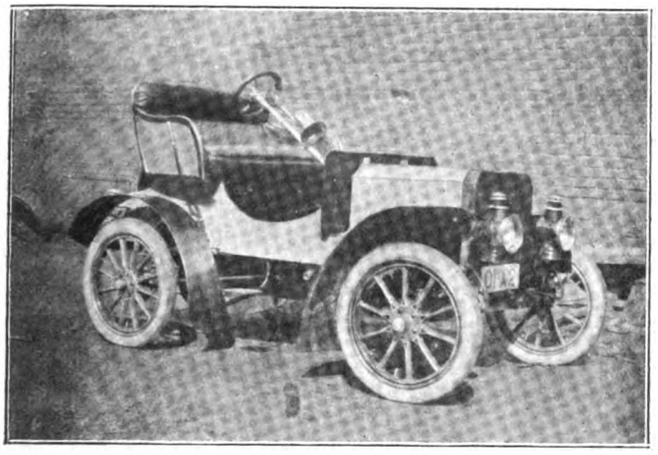
Photos by] The Procession of Cars leaving Broad Street, Hereford. [H. J. Unwin.

TUESDAY'S TRIP TO WORCESTER.

Thirty-three cars got away in good time. Our journey was through the hop-producing district of the county, and how greatly the appetising vine is cultivated was soon evident. Away in front, stretching across the eastern horizon, were the Malverns,

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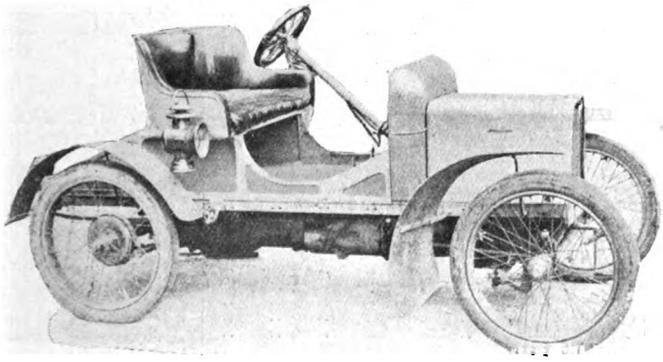
robed in a grey mist, and right up to these, it seemed, were fields on fields of hops. At every cottage gate stood little knots of people watching the cars pass. On the road were many gipsies, arrived for the hop-picking—a motley crowd. Frome's Hill formed the first punctuation mark in what, up to then, had been a very pleasant journey. To some of the cars the white formidable ribbon of road mounting skyward spelt trouble, and was the source of many stoppages and much humour. A number of labourers had been specially engaged, and were much in requisition to push the cars up the hill; only fourteen



The 7-h.p. Downshire Car, entered by Messrs. Chambers and Co. (*See page 589, last issue.*)

out of the thirty cars went over without assistance. The Mobile, No. 24, unfortunately had to stop to have a nail taken out of its tyre, otherwise it would have made the ascent without a stop. There was all the countryside out to see the sight, and plenty of good-humoured banter went on. After this the travelling was comparatively easy. To the right of us lay Bosbury, where Edna Lyall was buried, and just before we got to Stiffords Bridge we passed Hope End, the spot where another literary figure, Mrs. Barrett Browning, spent her early days. We skirted the Malverns to the left, gaining a fine view of these famous hills. Hardly had one ceased admiring these than the city of Worcester sprang into view. It began to rain here.

As gusts of wind blow smoke out of breathless corners, so the busy advance of mercantile prosperity has swept away much of that atmosphere of old-time from the city of Worcester.

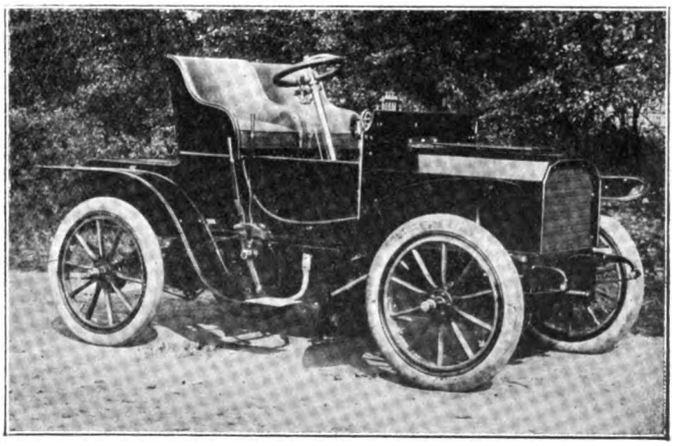


The 4-h.p. Rover Car.

This is a new car constructed by the Rover Cycle Co., Ltd., to the designs of Mr. E. W. Lewis. The single-cylinder engine is 4½ in. bore by 5 in. stroke; normal speed 900 revolutions per minute. The vehicle has no frame, in the usual sense of the term. The engine, clutch, gear box, propeller-shaft casing, and exhaust box, together with the back axle casing, run continuously through from the front of the car to the rear, as it were, in a deep box girder section. To the front part of the engine crank case is bolted a strong aluminium channel bracket, to which, at its front end, is fixed a strong swivel bolt placed in the horizontal plane, so that this bolt engages in a bracket connected to a front cross spring, and can thus oscillate about it when any inequality in the road is met with. The gear box gives three forward speeds and a reverse. Ball bearings are fitted to all the shafts of the gear box, to the road wheels, and to the engine crank shafts. Another novel feature is a new and specially designed metal to metal clutch.

Many of the landmarks are lost, yet its ancient dignity remains. In the Civil War Worcester was loyal, hence its motto, "Civitas in bello et in pace fidelis." Strangely enough, the anniversary of the battle of Worcester is September 3rd. Names which occur to one as associated with the Faithful City are those of Brock and Leader, both of whom hail from here. On the return journey we sped through the townlet of Bromyard, an irregularly designed old place, with streets running hither and thither, and steep and narrow. Invitingly beautiful stretched the Bromyard Downs as we left them behind. The road now ran amidst the most pastoral country and well dotted with hamlets and rural homes, around which grow the humble flowers which, as Maeterlinck has most beautifully expressed it, have sought refuge there. Hop yards again! All along the road from Stoke Lacy to Burley Gate and on to Withington were to be seen the hop gardens for which, with its orchards, Herefordshire is so noted.

In the afternoon there was the hill climb at Frome's Hill, a long, winding, difficult ascent as bad as could be found anywhere. The roadside was thronged with people, and cars, motor-cycles, bicycles, and even perambulators. Miss Levitt's car was second to reach the top, and here she was presented with a beautiful bouquet of flowers from one of the villagers. A big percentage of the cars had to drop their passengers to do the hill, and many of them had to be pushed up.



The 7½-h.p. Humber Car.

The car has a two-cylinder vertical engine, 8¾in. bore by 4in. stroke, normal speed 1,200 revolutions per minute, accumulator and coil ignition, pump circulation, three speeds forward and reverse, transmission by flexible shaft from gear box to live axle, direct drive on top speed, worm and segment steering, a double-acting foot brake fitted to the driving shaft, and internal metal-to-metal band brakes on road wheels actuated by hand lever, tubular steel frame, approximate weight 11 cwts.

WEDNESDAY'S RUN TO LEOMINSTER.

Wednesday morning opened gloomy with prospects of rain. Thirty cars filed into line in Broad Street by the time the morning milkman had arrived. The townsfolk were there as on Monday and Tuesday mornings. The road to Ledbury is a beautiful one in fine weather, but this morning the horizon was limited by a haze which transformed the trees to giants of grey monochrome. It was market day, so that herds of cattle kept down the pace for a while, but when free of these we, on a free lance Oldsmobile, made way, passing *en route* Stoke Edith House, amid the hopfields. The first breakdowns we overhauled were on the other side of Ledbury. Between here and Bromyard we discovered charming hamlets ensconced in most out of the way nooks. We also discovered belated cars in these. Bromyard we left to the right on our way to Leominster, but we failed to catch anything like a view of the scenery, which was enveloped by heavy mist, which ultimately turned into a cold rain. By the time we reached Hereford a persistent downpour evidenced itself, giving no signs of abating; the route had only a scenic interest which unfortunately was not to be seen.

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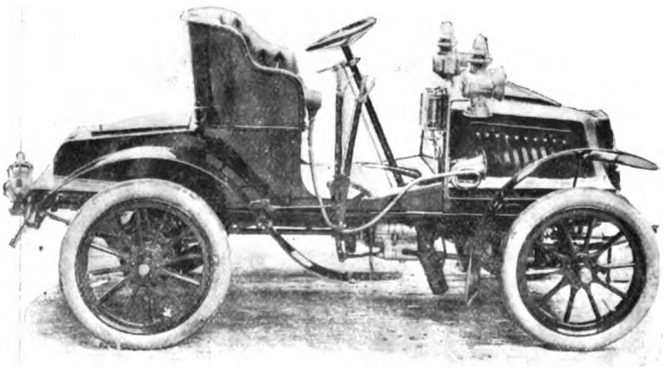
THE PERFORMANCES OF THE CARS.

CLASS A.—CARS COSTING £125 OR LESS.

On the first day the 8-h.p. Horley had two non-stop runs, but, being teamed with a fellow car in class B, shares its loss on the afternoon run. A nut on the induction pipe of the 6-h.p. Speedwell coming loose on its second trip caused a stop; otherwise it would have had a clean record. Unfortunately the 6-h.p. Jackson lost its chance of a non-stop award by being too long in preparation for the second trip. As we anticipated last week, Frome's Hill proved a terror, and all the entries in Class A were stopped on that stiff ascent, the Jackson having trouble with its water connections, the Speedwell suffering from a leaky inlet valve, and the driver of the Horley had to adjust the clutch.

CLASS B.—CARS COSTING BETWEEN £125 AND £150.

The cars in this class suffered on Frome's Hill, but some very good runs were made. The 6-h.p. Jackson had a couple of non-stop runs on the first day, but suffered from being teamed with No. 1. The 6-h.p. Vauxhall car (the lightest car in the trials) had three non-stop runs to its credit on the first two days, including a steady run without delay up the hill. An air lock in the water pipe of the 7-h.p. Oldsmobile led to its early retirement on the first day. The 6½-h.p. Service had a non-stop run on Monday, but has had several stops on the hills. The stiff gradient on Frome's Hill led to the discomfiture of the 6-h.p. Pelham, which had a further stop



The 9-h.p. Speedwell Car.

This two-seated vehicle is fitted with a single-cylinder engine 100 mm. bore by 120 mm. stroke. The transmission is by cardan shaft and bevel gear on to a live axle. Three speeds forward and a reverse, with direct drive on top speed, are provided.

on the first day owing to a broken water pipe. The time taken in repairing a faulty coil led to its losing its chance of a non-stop award. The 8-h.p. Horley was put out of the running for special distinction owing to the breaking of the petrol pipe. On Tuesday afternoon it had a side-slip and suffered the fate that had befallen others of its class on the test hill.

CLASS C, CARS COSTING BETWEEN £150 and £175.

Some very creditable performances have to be reported by vehicles in this class. The twelve cars entered made eighteen non-stop runs on the first day; on the second day eleven were left in the competition and ten non-stop runs were made despite the terrible hill. The 7-h.p. Swift, the 6-h.p. Siddeley and the 6-h.p. Wolseley made absolutely perfect running, no observations of any kind being recorded against them. The 6½-h.p. Mobile had slight trouble with the induction pipe on one run and the 7-h.p. Little Star had one stop on Monday morning owing to a broken plug; on the Tuesday it had two non-stop runs to its credit. The 7-h.p. Alldays had equal success on Monday but had to share the troubles of No. 32 in the official reckoning. Curiously enough, on Tuesday the latter—a three-seater—climbed the hill without trouble, while the 7-h.p. had to shed a passenger on that gradient. It is to regretted that the 7-h.p. Downshire fell out of the contest at Ludlow on Monday, owing to the clutch fork being broken. The 7-h.p. Clyde had a stop for tyres on Monday morning, and would have had a non-stop run in the afternoon, but the inlet valve sticking caused a minute's delay. Frome's Hill, too, reduced its record on the second day, as it also did that of the 9-h.p. Brown and the 9-h.p. Speedwell, both of which made non-stop runs on the first day. The 7-h.p. Humberette had a non-stop run up Frome's Hill in the morning, and went forward without stopping in the afternoon, having, however, to jettison its Observer on the upper part of the hill.

CLASS D.—CARS COSTING BETWEEN £175 AND £200.

In Class D the two De Dions, the 7-h.p. Little Star, the 7-h.p. Swift, and the 8–10-h.p. Croxted had non-stop runs on the first two days. But for want of petrol and carburettor troubles, which caused eight minutes' delay on Monday afternoon, similar good fortune would have attended the 7½-h.p. Humberette. The 8-h.p. Rover did well, but unfortunately broke down at Bromyard late on Tuesday afternoon. The 8-h.p. Mobile having made two non-stop runs on Monday, went up Frome's Hill without a halt, although it had to drop passengers on both occasions. A stop, however, had to be made on one part of the journey to pull a nail out of a tyre. The 9-h.p. Oldsmobile lost its chance of a non-stop by breaking a chain and causing a delay of fifty-four minutes on Tuesday morning, but it carried its three passengers up Frome's Hill in good style. The 8-h.p. Royal Enfield was unlucky enough to get out of the running for a non-stop record on the first day, seven stops owing to broken water connections causing a loss of seventy-one minutes. On the second attempt at Frome's Hill it made a good ascent. The 9-h.p Cadillac made good going on the Ludlow run, having two non-stops to its credit, but on Tuesday morning the gear seized and the car retired at Bromyard. The 9-h.p. Anglian car had a stop on Frome's Hill, as did also the 8-h.p. Prosper Lambert, which otherwise had made non-stop runs. The Alldays light car in this class carried its three passengers up Frome's Hill without stopping.

THE HILL CLIMBS.

Official number.	Car.	Miles per hour on the hills.	
		Dinmore.	Frome's.
1	6-h.p. Jackson dogcart	11·2	—
2	6-h.p. Speedwell	11·4	—
3	8-h.p. Horley	12	—
4	6-h.p. Jackson dogcart	9·5	—
5	6-h.p. Light Vauxhall Car	9 1	8·3
6	7-h.p. Oldsmobile Runabout	—	—
7	6½-h.p. Service	9·3	—
8	6-h.p. Pelham	8·2	7·3
9	8-h.p. Horley	11·1*	—
10	6-h.p. Light Wolseley	16·1	11·8
11	6-h p. Mobile	8·7	8·2
12	8-h.p. Brown	9·4	5·4
13	9-h.p. Speedwell	11·4	8·1
14	Single-cylinder Swift	15·5	10·8
15	7-h.p. Little Star	14·9	10·3
16	6½-h.p. Royal Humberette	12·6	8·4
17	Alldays light car No. 1	11·3	8·5
18	6-h.p. Siddeley	14·9	10·2
19	7-h.p. Downshire	—	—
20	6-h.p. Light Wolseley	14·2	10·6
21	7-h.p. Clyde	8·5	—
22	6-h.p. De Dion	16·5	10·5
23	6-h.p. De Dion	13·9	9·3
24	8-h.p. Mobile	14·1*	10·7*
25	9-h.p. Oldsmobile	12·6†	9·8†
26	7-h.p. Swift	15·2	9·3
27	8-h.p. Royal Enfield	13·5	8·6
28	8·25-9·65-h.p. Cadillac	13·3*	—
29	10-h.p. Chriton	—	—
30	8·10-h.p. Croxted	13·9	9·8
31	9-h.p. Anglian light car	9·2†	—
32	Alldays light car No. 3	16·2†	8·7†
33	8-h.p. Rover	15·1	—
34	7½-h.p. Royal Humberette	12·8	7·7
35	6 h.p. Belsize Junior	—	—
36	8-h.p. Simms	—	—
37	8-h.p. Prosper Lambert	11·3	7·3
38	7-h.p. Little Star	16†	10·2†

* An allowance of 25 per cent. on the actual mileage has been allowed, as the car carried two additional passengers.

† An allowance of 12½ per cent. on the actual mileage has been allowed, as the car carried an additional passenger.

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MOTORING IN THE TROPICS.

IN a recent issue of our German contemporary, "Automobil Welt," there appears an article on motoring in tropical countries, with special reference to the conditions in Java, by Herr Max Wenkel, who claims to have spent two and a half years on that island as an automobile expert.

The conditions of automobile use in the tropics are entirely different from those in temperate climes, and a car built for European conditions can hardly be used in the tropics without radical modifications. The first thing that has to be reckoned with is the hot and moist climate; other factors are the peculiar taste of the Indian public, the road conditions and the fuel obtainable. As concerns the latter, it should be mentioned that petrol is produced in Java, but the product is very impure and of varying density; it is entirely unsuitable for spray carburettors, and only surface carburettors can therefore be used in the Dutch East Indies. No particular pains need be taken to secure high fuel economy, as the petrol is very cheap.

The pneumatic tyres must be of especially good quality to withstand the climate of the tropics. No European wood must be used in the body construction, as it would soon be destroyed by various sorts of insects, among which the white ants may be mentioned. The lacquering usual on European motor-cars is destroyed in a short time by the climate. It is self-apparent that a motor-car for the tropics should be provided with protection against the sun's rays. If the vehicle is intended for long trips into the country several other conditions must be observed. In the first place, the tread must not be wider than fifty inches, for in some places very narrow roads and suspension bridges must be passed which do not admit of a wider vehicle. This applies particularly to Sumatra. The weight of the vehicle, too, should not exceed five cwt. Many small brooks are only bridged with bamboo mats, and many larger rivers must be crossed on bamboo floats, which would sink if the car were heavier than the weight above specified.

The vehicle must have plenty of storage room for touring necessities, such as a supply of imperishable food (preserves and mineral waters), mosquito netting, much clean linen, spare tyres, etc. It is, of course, understood that the total supply of petrol necessary for the whole trip must be carried along, or else petrol supply stations established in advance. During the rainy season the roads, with the exception of a few main military roads, are hardly passable. But during the dry season all the roads, especially in Java, are in very good condition for motor traffic. The streets in the larger cities, such as Batavia, Surabaya, Solo and Bandaeng, are excellent, as they are very wide and have a firm surface of cement or asphalt.

The reader may be interested to learn what an amount of red tape is connected with the obtaining of a driving permit. First of all, application must be made to the proper authorities representing the capital of the province in question, such as the Provinces of Batavia, Preanger, or Solo. These provinces are mostly of such size that one may drive through them in a car in a few hours. At the frontier of the new province a new permit is required.

In the application must be stated the length, width and height of the car, as well as the number of seats, the weight of the vehicle and the horse power of the motor. After some four or five months, but probably even later, one receives notice to have the car in readiness at a certain hour for an expert examination.

In Batavia, for instance, the official appointed by the Government is the engineer of a steam crane company, who has no experience of motor-cars or of the explosion motor. The expert, after having walked round the car a few times and posed some very cautious questions, declares the machine to be admissible to public road traffic. But the happy owner is still far from being allowed to drive. The examining official first reports to the authorities that the machine is in good condition. After several months have passed another official appears on the scene to determine the driving skill of the owner. If this examination turns out to the satisfaction of the exalted authorities, another several weeks pass, when finally the driving permit is delivered. However, the owner is still unable to drive, as the authorities have first to make an identification sign of the size of an oven door, which contains in large black letters the name of the province—Meesterkornelis, for instance—and below that the registration number. After having paid £1 for the examination and an additional £1 for stamps and clerical expenses, the right has been acquired to drive on the left hand side of the road at a speed of 7·2 miles per hour.



A Motor-Car Ga age in Java.



Among the Natives.

MOTORING IN THE TROPICS.

It is worthy of note that the automobile must be provided with a bell, as a warning signal, while horse carriages, two wheeled carts, private carriages, trucks and delivery vans carry horns. In the larger cities, as nobody walks but everybody rides, there is an enormous vehicle traffic, and, consequently, an uninterrupted ear-rending concert of noises. In other cities of the same province the regulations are different. In one city, for instance, an automobile owner, upon making application for a driving permit, was asked to present one front wheel and one rear wheel for examination. After a few days the wheels were returned to him with the remark that everything was in order. In Sumatra the authorities simply appointed a road inspector to the post of automobile examiner. Recently, however, the regulations in Java have become much more lenient, a motorist having been given a driving permit free of charge, after a short examination as to his skill in driving and without examination of the vehicle.

Finally, Herr Max Wenkel mentions that the inland population is notable for its very willing and polite manners toward automobile tourists.

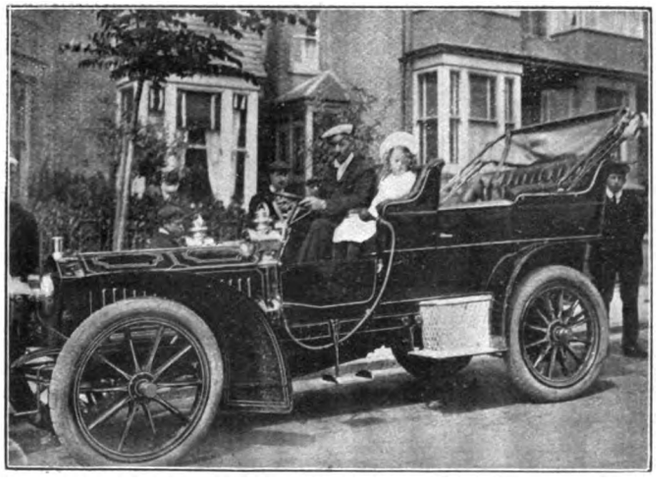
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GYMKHANA AT HASTINGS.

ALTHOUGH most motorists are out of town, touring perhaps far away from anywhere, and Hastings folks gave but little notice of the intention to hold a motor meet, yet, thanks to the efforts of the Du Cros Brothers and Mr. R. Fuller, one of the most enjoyable events of the season was brought off successfully on Saturday last. On the Friday night a stiff gale was blowing, and there was every sign of a "black day" for the morrow, but the weather, fortunately, cleared and the sun shone with great brilliancy. The sky was blue, without a speck in it; the heat was intense, but the sea was still rough, with great waves rolling in, sending the spray well over the promenade.

The initial feature of the programme was a meet of cars at Warrior Square, and, while waiting for a start to be made, interest was centred on the "Napier Minor," which was sailing on the waves like some sea-bird, and Englishmen's hearts were gladdened by knowing that such a petrol boat should have been built in this country, and that our supremacy of the waves is not likely to suffer any diminution of credit from the introduction of this new motive power on the seas.

About thirty cars took part in the procession, and an object of frequent ovation was Mr. Harvey du Cros, who is standing as Parliamentary candidate for Hastings. The object of the pro-



Mr. Roger Fuller's Six-Cylinder Napier, the Winner of the Appearance Competition.

cession was for the purpose of awarding a number of prizes for appearance, and the first car contained the judges and local committee. This was followed by, we suppose, the smallest car in the world, driven by Master G. Du Cros, and manufactured, no doubt as a labour of love, by the youngster's father. The little car had a radiator similar to a Panhard, was gear driven, with a 2½-h.p. bicycle engine, wheel steering and central chain drive. The body was most exquisitely finished, had a hood, mudguards, two side and centre lights, horn, etc. Mrs. G. Du Cros in a laudaulet followed, and other cars with identification marks in the procession were :— I.L. 14; A. 386; A. 6640; A. 1198; D.Y. 58; A. 1734; D. 333; D.Y. 37; A. 1407; D.Y. 82; A. 4492; A. 2 B.Y.; A. 4562; A. 6937; A. 1197; A. 6494; A. 2371; B.A.B.Y.; I.L. 43; D.Y. 15; A. 92; D. 587; D.Y. 37; A. 1947; D.Y. 10; A. 6771; B.Y. 339; A.P. 299; B.Y. 58; A. 3887; E.L. 43; and D.Y. 23.

The procession lasted a long time, and those taking part doubtless saw more of Hastings and St. Leonards than they had ever done before. There were two classes in the competition (1) for cars over £300, and (2) for cars under £300, and three prizes in each class. The awards were as follows :—

Class 1. Mr. Roger Fuller, on a 6-cylinder Napier (1)
Mrs. G. Du Cros, on a Panhard laudaulet (2)
Mr. C. Jarrott, on a Crossley (3)

Class 2. Mr. H. G. J. Allford, on an Argyll (1)
Master G. Du Cros, B.A.B.Y. (home made) (2)
Dr. Dick, on a Vulcan (3)

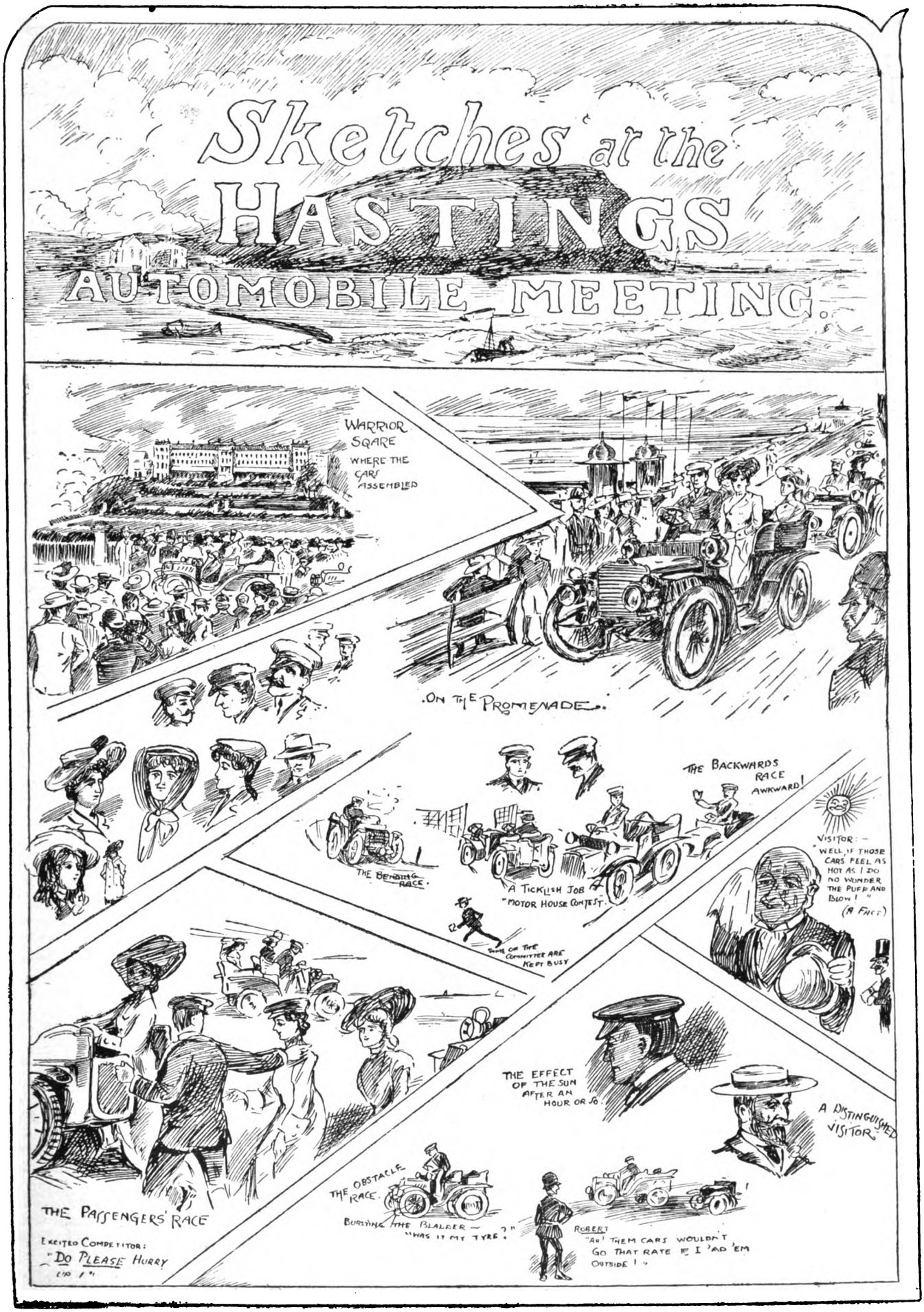
In the afternoon the gymkhana was held at Bohemia, a suburb of Hastings, high up out of the town, in fact, right on the Downs, with the sea on one side and all around the rolling hills of Sussex, with beautiful landscapes, and numerous windmills, and golden corn still uncut. The sun was powerful, but the heat was tempered with soft breezes from the Channel. There was not many cars, but a numerous attendance of the public. The events were five in number, including a bending race, which meant a ride through an S-shaped nest of poles, competitors losing 20 sec. for each pole touched; a passengers' race—cars having to pass once round the course and then pick up two ladies; a backward race up-hill, the lines being touched meant a 20 sec. penalty; a starting and stopping competition, and, most amusing of all, an obstacle race consisting of the maze, the snare or trap, bursting the bladder, ringing the bell, crossing the water, evading the policeman (here the competitor had to stop at the marked line and dash by the policeman without being touched, proceed to hurdle drive backward through the reverse S, and enter the motor house.) A penalty of 20 sec. was imposed for every obstacle touched, or irregularity. In this event many competitors lost from nine to thirteen minutes and the only cars that had any chance were very small ones, the winner driving a little "Swift." In several instances the competitors got excited and simply went wholesale at the obstacles and rode right through them. The motor-house was extremely difficult, and in nearly every instance, to extricate themselves, the drivers had to drive through the hurdles. Three prizes were awarded for each event and fourteen was the greatest number of entrants, but what was lacking in numbers was made up by the skill of the competitors, and never were heats more keenly contested than when one or other of the four Du Cros were competing against each other. The policeman was suspended from a cross bar, under which the riders had to pass, and, as the pulleys were energetically worked, very few managed to get through without being struck. After numerous heats, the results were declared as follows :—Bending Race.—Mr. George du Cros's 15-h.p. Panhard, 1; Mr. H. du Cros's 7-h.p. Swift, 2; Mr. H. J. Allford's 10-h.p. Argyll, 3. Passenger Race.—Mr. George du Cros's 15-h.p. Panhard, 1; Mr. C. Edge's 15-h.p. Napier, 2; Mr. W. du Cros's 10-h.p. Panhard, 3. Backward Race.—Mr. J. D. Hill's 7-h.p. Panhard, 1; Mr. J. W. Stocks' 12-h.p. De Dion, 2; Mr. C. Edge's 15-h.p. Napier, 3. Starting and Stopping Race.—Mr. C. Edge's 15-h.p. Napier, 1; Mr. G. du Cros's 15-h.p. Panhard, 2; Mr. R. Fuller's 18-h.p. Napier, 3. Obstacle Race.—Mr. H. du Cros, jun., 1; Mr. C. Jarrott, 2; Mr. J. D. Hill, 3. The success of the meeting was so great, and the interest of the spectators so keen, that it is understood a similar meeting will be held next year—not, however, at Bohemia, but along the beautifully paved "front," where speed trials can be indulged in, the Hastings Corporation having the right to close the whole of the promenade for three days each year.

WE understand that Mr. Lewis Stroud has purchased the "Baby Brooke" boat which has lately been prominent in marine motoring circles.

A LEAGUE for the security of the roads and the protection of foot passengers has just been formed in Brussels. At a first meeting, held on Saturday last, it was proposed to petition the Government for a law restricting the speed allowed to motor-cars. Some bitter anti-motorist suggested that the streets should be strewn with nails and broken glass, but wiser counsels prevailed.

SOME carburettors have a fine gauze covering over the extra air inlet, and it will often be found that this device is apt to cause the engine to work indifferently, owing to the fact that the gauze sometimes becomes completely choked by dust and dirt. The best way to remedy this on the road is to pierce fair-sized holes in the gauze with some pointed instrument.

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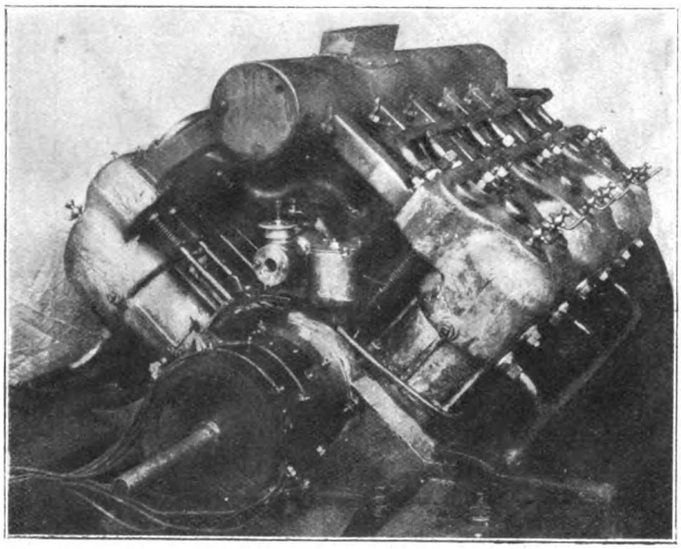


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A TWELVE-CYLINDER MOTOR.

THE Putney Motor Company, Limited, have lately completed a very interesting motor intended for a racing launch. It comprises no less that twelve cylinders, and it is rated to give 150-h.p. The twelve cylinders are placed diagonally on the crank chamber at an angle of 90 degrees to one another, making three pairs in each row. The motor is 4ft. 3in. long, 2ft. high, and 2 ft. 8 in. wide. Each pair of cylinders is cast in one piece with no joints, and large water spaces are provided round each valve. The crank chamber is of aluminium with three large inspection covers on the top and one at the end.

The main feature of all Craig-Dörwald motors is retained in this engine, *i.e.*, the crank shaft is so set that it is slightly in advance of the axis of each cylinder. This arrangement, it is claimed, reduces shock and lessens vibration by giving a practically direct thrust on the driving stroke and therefore more power, besides a mechanical advantage at the end of the compression stroke. Three carburettors are employed to furnish the mixtures. They are of the Putney Motor Company's special type, and comprise a controlled inlet valve through which the petrol sprays mix with the air entering through the fixed air inlets. As the engine sucks harder automatic extra air inlets open, while an ingenious system of baffle plates secures each cylinder



getting its proper quantity and quality of mixture. The engine is self-starting, a device for pumping a charge into each cylinder being fitted, so that it is only necessary to switch on the current. The cams can be so arranged that by moving a lever the engine can be stopped quickly and reversed at will. The weight of the engine complete with flywheel is only 950 lbs.

THE War Office have accepted an offer made by Mr. S. F. Edge to place the Napier motor-boat at their service in the forthcoming land and sea manœuvres.

A LARGE new motor depot has just been opened at 20 and 22, Brompton Road, London, S.W., by Dixi Motors, Limited. In addition to dealing in Mercedes cars, the company is introducing into this country a new range of cars known as the "Dixi." The vehicles, which are made in sizes varying from a 6–8-h.p. double-cylinder up to 24-30-h.p. four-cylinder, are, we understand, built by a large gun-making firm in Germany. On Thursday of last week we had a short trial spin on one of the Dixi 12–15-h.p. four-cylinder vehicles with live axle transmission, and we are able to report that the car not only ran very quietly, but is extremely easy riding, there being no objectionable vibration. One of the features of the construction is an automatic carburettor which renders the engine so flexible that the car can be driven at as slow a speed as five miles an hour on the top gear.

CONTINENTAL NOTES.

Another Projected Motor Racing Track.

The latest proposal with regard to a motor racing track is due to M. L. Buirette, Mayor of Suippes and an ardent motorist, who has just submitted a scheme to the Conseil General of the Department of Marne. The suggested track would be located on military land in the Chalons camp and would be thirty-three kilometres long and six metres wide. It is stated that no roads whatever cross the camp, which has, in addition, the advantage of being closed to the public.

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More Public Services in France.

A meeting has lately been held to discuss the question of establishing a public service of motor-cars between Rambouillet and Saint-Remy-les-Chevreuse. Messrs. Prosper Lambert and Company have lately organised a service between Aix-les-Bains, Leschaux and Annecy.

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1905 Models.

Already the 1905 models of the leading French motor-car builders are being talked of. The Darracq Company, for example, is credited with having two new types of popular cars on the stocks—a 8-h.p. single-cylinder and a 12-h.p. double-cylinder, which, if rumour be correct, will be of an exceedingly simple character.

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Public Services in Germany.

A company has lately been formed to establish a service of motor-omnibuses between Partenkirchen and Garmisch. A service is also about to be started between Rorschach, Thal and Rheineck by a small syndicate that has lately been formed by representatives of the various local authorities. Arrangements are in hand, too, for inaugurating a service between Ostrowo and Raschkow, a distance of about seven miles.

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Dust-Laying Experiments in Vienna.

The municipal authorities of Vienna are making some experiments with a new dust-laying preparation, known as "Simplicit," which has recently been introduced by Messrs. Cooper and Company, of the Vienna Asphalte Works. The preparation is diluted in the proportion of one gallon to ten gallons of water, and is sprinkled by means of the ordinary street watering carts. It is stated to be free from smell, and, so far as the experiments have gone, they have given excellent results.

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The Efficiency of Transmission Gears.

An interesting series of tests is to be inaugurated in October next at the Laboratoire des Essais Mecaniques of the Conservatoire National des Arts et Metiers, in Paris, viz., a comparative trial of the mechanical efficiency of the transmission mechanism in different types of motor-cars. The object of the tests is to ascertain the system of transmission which shows the least loss of power between that developed by the motor and that given off at the road wheels of the car. Entries for the trial can be made up to the 15th inst. at a fee of £6, and after that date at £12 per vehicle.

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The Automobile Congress at Breslau.

The congress of German motorists just held at Breslau was a brilliant success. One of the principal items of the programme was a paper by Count Sierstorpff on "Lessons from the 1904 Gordon Bennett Race." The author considered that with complete arrangements for the protection of the public the number of neutralisations can safely be reduced. He also suggested that the German Club should provide a weighing machine in an open field, with the view of preventing a recurrence of the scene at the weighing in at Homburg this year, when a fire occurred in a narrow thoroughfare, and that an official German timekeeper, with the necessary training, should be appointed. He further recommended that the race should be started not later than 6 a.m., in order that the vehicles could, after the race, be weighed in daylight.

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Numbering in Paris.

The increasing number of motor-cars in Paris, where there are already about 15,000 in use, has caused some anxiety to the Ministry of Public Works and the Prefecture of Police as to how future cars shall be numbered. At first all cars capable of attaining a speed of over thirty kilometres (nineteen miles) per hour were allotted one of the following letters: E, G, I, U, X, and a number up to 999, the series thus providing identification numbers for 4,995 cars. These were soon exhausted, and a second series of 4,995 cars was provided for by doubling the number of letters thus: EE, GG, II, UU, XX. Once again the supply of available numbers is nearly exhausted, and in order to be prepared for further additions provision is being made for numbers for no less than 40,000 cars. This is being done by adopting a small figure after the index letter thus: 999 E^2. When this number is reached the index letter will be changed to E^3, and so on for each 999 cars to E^9, the sequence being afterwards repeated with the other letters.

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Darracqs, and Gobron-Brillies. The Wolseley Company, too, had entered one of their cars, which was on this occasion in charge of a French driver—Maurice Fournier. In the heavy car class Rougier, on a Turcat-Mery, headed the list, his time, 21 min. 12 sec., being the best of the day. Curiously enough Rougier was the holder of the record for the climb, but lowered this by 3 min. 38 sec., his speed being equal to over forty miles an hour. Duray was second on a Darracq in 21 min. 41 sec., followed by Le Blon (Hotchkiss), Baras (Darracq), Lancia (Fiat). The Wolseley made the climb in 28 min. 46 sec., securing the seventh place in its section and ninth in the general classification. In the light car class the best time was made by Hemery on a Darracq (22 min. 26 sec.). A Darracq, driven by Albert, was also the winner of the voiturette section in 29 min. 59 sec. The honours in the motor-bicycle section fell to Inghilbert on a Griffon, his time being 32 min. 20 secs. After the climb a banquet was held at the summit of the hill, and in the evening the A.C.V. held a reception at its club house in the Place de l'Horloge, Avignon.

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A 16-h.p. De Dietrich Car on the Summit of the Lautaret, in the French Alps, 6,500 ft. above the Sea.

[*Allgemeine Automobil Zeitung.*

The Ventoux Hill Climb.

The Ventoux hill-climbing competition organised by the Automobile Club Vauclusien was held on Saturday and Sunday last. The hill, which is situated near Carpentras, is 21·6 kilometres (13½ miles) long; the starting point is 974 feet and the summit 6,215 feet above sea level, the average gradient being about 8 per cent. Saturday was devoted to the weighing in and to the climb by the competitors in the touring section. The honours of the day fell to Ollion, on a Rochet-Schneider, he making the climb in 31 min. 41 sec., his car being in the £640-£1,000 class. Lamberjack, on a Griffon, was first in the motor-bicycle section (time 51 min. 17 sec.). Aubert, on a Cottereau, made the best time (1 hour 15 min. 44 sec.) in the £120-£360 class, and Vimont, on an Aries, headed the £360-£480 category in 54 min.

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The Racers' Day.

The second day of the Ventoux hill-climb was a "battle of the giants," the entries including all this year's big racing cars, among which may be mentioned the Clement-Bayards, Hotchkiss,

Another Motor-Boat Competition.

A competition for motor-boats using heavy oil for fuel is to be organised by the "Auto" in November next. The test will probably occupy two days, and will be run on the Seine from Paris to Rouen and back.

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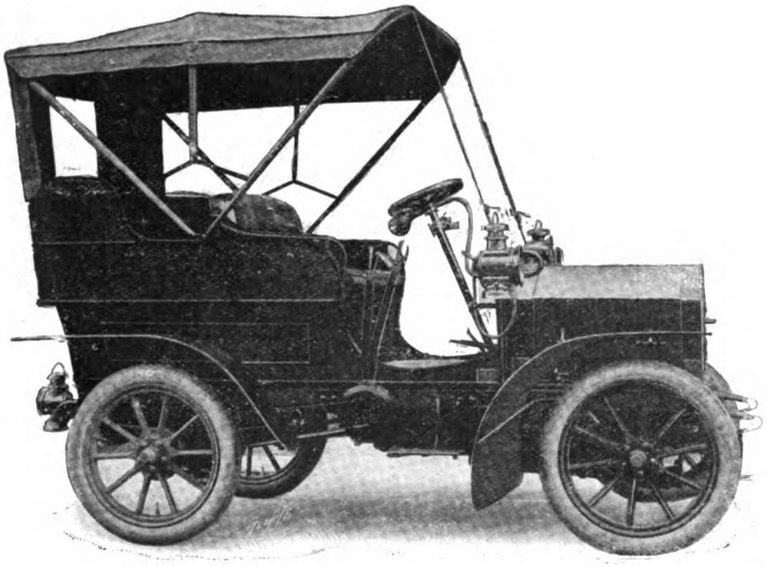
The Gordon Bennett Race.

A report was current in Berlin at the beginning of the week that the French Automobile Club had asked permission of the Prussian Minister of the Interior for the Gordon Bennett race of 1905 to be run over the Homburg course. Enquiries in Paris, however, show that there is no truth whatever in the report. The first rule of the contest, of course, is that it must take place in the defender's country. As a matter of fact, three districts of France have already applied for the honour of providing a course for the race—Provence, Vichy, and Aix-les-Bains. Moreover, there remains the French Ardennes circuit, over which Thery won the eliminating trial in May last.

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THE "HERON" CAR.

ONE of the latest additions to the motor trade in the Midlands is the Heron Motor Company, of Birmingham, which is introducing a range of "Heron" cars varying in power from 10-h.p. to 16-h.p. The accompanying illustration depicts the 12-h.p. double-cylinder vehicle. The frame is constructed of ash, with steel flitch plates. The motive power is furnished by an Aster motor having mechanically-operated inlet valves. The usual type of high-tension electric ignition is adopted, while a Longuemare carburettor is employed to provide the mixture. The governor is adapted to act on the admission. The water circulation is maintained by a friction-driven centrifugal pump and a honeycomb radiator. Passing now to the transmission, this is by means of a cardan shaft and bevel gear on to a rear live axle. From the motor the power is conveyed through a special form of cone clutch to the gear box, which is adapted to give three speeds forward and a reverse, all controlled by a single lever. On the top speed the drive is direct from the engine to the bevel gear on the rear axle, none of the intermediate gears being in operation. The steering is of the irreversible worm and segment



type, while, as to the brakes, these are all metal to metal, the hand-controlled brakes on the hubs of the rear road wheels being of the internally-expanding variety. The car appears to be soundly constructed, and is equipped with a well-appointed tonneau body, having accommodation for five persons.

MESSRS. CARLESS, CAPEL AND LEONARD ask us to mention that they have reduced the price of their standard petrol one penny per gallon.

THE committee of the Yorkshire Automobile Club is organising a presentation to Mr. A. W. Dougill, their hon. sec., which is being well supported by the members of that active organisation.

THE Elsworth Automobile Company, Limited, has been registered with a capital of £10,000 to acquire the business carried on by Mr. A. Elsworth at Dudley Hill, and 28, Manningham Lane, Bradford; to adopt an agreement between Messrs. A. Elsworth and G. E. Levie, and to carry on the business of manufacturers of and dealers in motor-cars, etc. The first directors are Messrs. A Elsworth, C. S. Dixon, and S. S. Dixon.

MESSRS. ALFRED DUNHILL, Limited, have issued a new price list of their "motorities" which extends to over 150 pages. More than half is devoted to motor clothing, while accessories of every kind are illustrated on the other pages. Several specialities recently illustrated in our columns find a place in this comprehensive catalogue, which doubtless will be given a corner on many a motorist's bookshelf.

SOME USEFUL NOTES.

INLET and exhaust valves require occasional grinding, the necessity being first evident by loss of compression. The exhaust valve will require more frequent attention than the inlet, for two reasons; first, its seat is subject to much higher temperatures, because the valve is held open while the flaming exhaust gases are passing to the silencer, and, second, because the valve is closed by a very powerful spring.

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IT is advisable to grind a valve when the first evidence of "pitting" presents itself. If the operation is delayed more grinding will be eventually necessary, and more of the valve seat will be worn away in consequence. The head of the exhaust valve is usually slotted like the head of an ordinary screw, and a screwdriver may be used to turn the valve during the process of grinding, after the inlet valve has been removed.

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VERY fine flour of emery mixed with oil, to prevent the emery from cutting, should be used. Care should be taken to prevent the slightest trace of this mixture finding its way into the cylinder. A good plan is to tie a bunch of waste on the end of a string and push the waste down into the passage between the valve chamber and the cylinder. When the operation of grinding is finished, the waste may be drawn out by means of the string.

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THE valve should be smeared with the emery and oil mixture, put into place and turned first one way and then the other with a screwdriver. Do not make more than a quarter turn at a time, but do it evenly, exerting very slight pressure. Then lift the valve away from its seat, give it a quarter turn and reseat it, continuing the process of grinding as before. The object of lifting the valve occasionally is to free any foreign matter that might be in the emery powder, and also to make sure that the grinding is done evenly throughout.

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AFTER having lifted the valve free from its seat four times, and giving it a quarter turn after each, the surface of the valve and valve seat should be carefully cleaned and examined. If the surfaces are perfectly even, with no depression or discoloured spots, the task may be considered finished. If not, continue the operation until this result is attained, applying more emery and oil if necessary. Eight or ten minutes of grinding should be sufficient to remedy a bad case of "pitting."

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IN cleaning the valve and valve seat, use a soft cloth or piece of waste soaked in paraffin to cut the oil and do the work very thoroughly, removing the last trace of oil and emery before carefully removing the waste from the exhaust passage which was inserted to prevent any emery from entering the cylinders.

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THE operation of grinding the inlet valve is similar to that described, excepting that the valve and valve seat may be removed from the motor, and the use of a screw-driver will not be necessary, because the valve can be turned with the fingers.

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WHEN a motorist has become somewhat expert in the running of his car it will be found advantageous to gradually cut down the petrol feed until the point at which the motor runs well, but will not stand a further reduction, is found. The smaller the proportion of petrol the more economically the motor will run and the cleaner it will keep. This can, of course, be carried to extremes and the efficiency of the engine interfered with; but the proper feed can be determined without great difficulty. The same process should be applied also to the cylinder lubrication. When the petrol and lubricating oil are feeding into the cylinder in the smallest quantities that will produce good results, the motor should run for a long time without fouling the sparking plug and on the minimum amount of fuel.

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A RUBBER connecting pipe may be repaired, if leaking or burst, with a tyre patch well bound with tape.

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HERE AND THERE.

A WESTRUMITE COMPANY has just been formed in Paris with a capital of £6,000.

MESSRS. E. BRISTOWE AND COMPANY are opening a new motor garage at 47, St. Peter's, Bedford.

THE Gillett Motor Company, Limited, of Inverness Road, Hounslow, inform us that they are in a position to effect repairs to all types of cars.

THE North British Rubber Company, Limited, send us particulars of a 20 cwt. steam van which has run a distance of no less than 30,000 miles on a set of their ordinary 3½ inch Clincher solid rubber tyres.

THE accompanying illustration shows two Lancashire steam wagons being loaded up with coal at the colliery of Messrs. A. Knowles and Sons, Limited, Pendlebury, near Manchester. The wagon B 1021 is the identical vehicle which gained the only award at the Royal Lancashire Show at Southport for the patent tipping gear, which has, we understand, proved most successful in practice.

THE Nord Auto, of Faubourg St. Denis, Paris, send us one of their latest lists, giving the prices of accessories and spare parts for De Dion, Panhard, Darracq, and other cars. The list is printed in both English and French.

MR. L. L. WHITMAN, who made the trans-continental trip last summer in seventy-three days in an Oldsmobile, started on August 1st in a Franklin 10-h.p. four-cylinder air-cooled car in an attempt to break the San Francisco-New York record of sixty-one days now held by a Packard car. Mr. Whitman is the first driver to make a second attempt at the ocean-to-ocean tour, and has the advantage of his former experience. He carries with him one extra tyre, three inner tubes, six spare batteries, ropes to wind round the tyres and an axe. So far only three vehicles have made the run from San Francisco to New York.

THE American Motor League has issued a booklet on the construction of macadam roads.

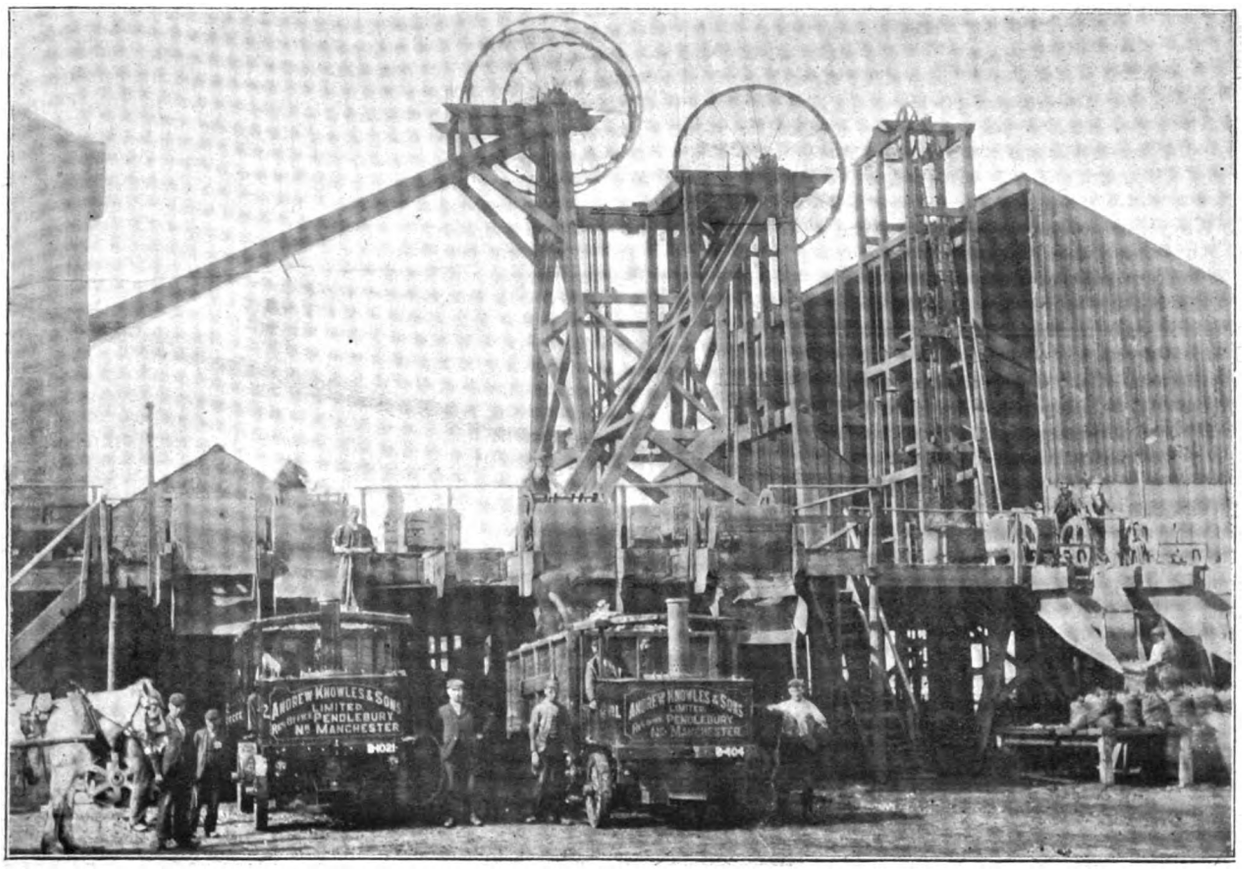
THE King of Greece is the latest head of a Royal House to enter the ranks of automobilists, he having ordered an Opel-Darracq car.

AFTER nearly a year's test of a Merryweather motor steam fire-engine, the Liverpool Corporation has just ordered a second engine of the same type.

ENDEAVOURS are being made in France to invent a good word for the motor-boat. The "autocanot" and the "canomobile" are among the latest suggestions.

THE United Service Automobile Club, which has recently been formed at Portsmouth, is arranging to hold a motor gymkhana in aid of local Service charities on the 17th inst.

A NEW type of American car has lately made its appearance in London—a 10-h.p. Franklin. The feature of the vehicle is found in the employment of a 10-h.p. four-cylinder air-cooled engine.



Steam Wagons in Colliery Work.

MR. ROWLAND HILL, of the Albion Foundry, Coventry, has been appointed Midland agent for the Stanley silencer.

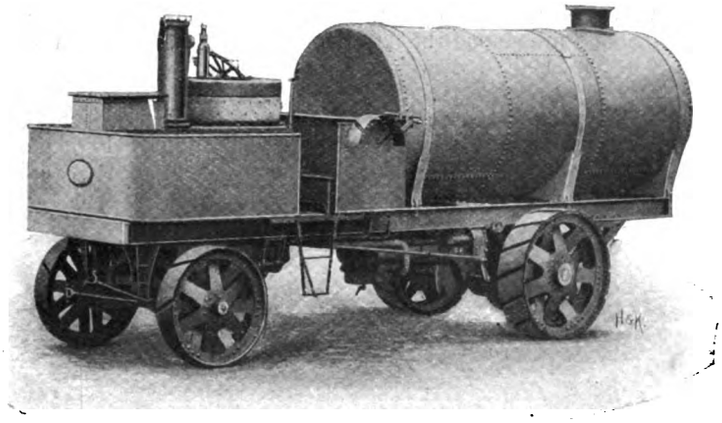
COLONEL PARKER W. WEST, aide-de-camp to General Arthur McArthur, commanding the Department of California, and a number of officers started from the military camp at Atascadero, Cal., on the 10th ult., in the special car built by the Winton Motor Carriage Company especially for manœuvres of the United States troops at Atascadero, for a three days' run through San Jose and Paso Robles. The car is the first of the kind specially built for military use in the United States. It will be subjected to searching tests to determine its value in military operations, being employed by the Signal Corps for rapid transportation, to make repairs and as a travelling telegraph office. The vehicle is a 20-h.p. touring car, and is capable of carrying eight persons. In the tonneau is a folding table for the telegraph apparatus and in each side of the car are racks for flags, rockets and various appliances used by the Signal Corps.

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MOTOR-CARS, carrying both mails and passengers, are to be run between Colombo and Puttalam, in Ceylon.

CALLING at the works of the Anglian Motor Company, Limited, at Beccles, the other day, we noticed a handsome 20-h p. "Aries" car with canopy they have just completed for Lady Portarlington.

MESSRS. J. THORNYCROFT AND COMPANY, LIMITED, have lately completed the special steam motor tank wagon shown in



the accompanying illustration. So far as the *chassis* is concerned it is of the standard type, designed to carry a load of seven tons. The tank, which is constructed of steel, is so attached to the frame that it can readily be detached when necessary; it is 12ft. 6in. long by 5 ft. diameter, and has a capacity of 1,550 gallons.

THE new German automobile regulations are to be placed before Parliament early next year, although it is not yet known whether the rules will be issued as Imperial law or submitted to all the separate States for publication from the various headquarters.

THE United Motor Industries, Ltd., have sent us a copy of the 1905 list of their Castle induction coils. A number of improvements have been incorporated into these coils, whilst the workmanship, both interior and exterior, is better than ever, which is saying a good deal. A new platinum screw and check is a little idea that will appeal to practical automobilists.

THE Victoria Rubber Company, Limited, Victoria Indiarubber Mills, Edinburgh, have sent us a sample of the "Grippa" tyre amalgam for repairing cuts and gashes in motor tyres, they have lately introduced. The value of the amalgam consists, it is claimed, in the fact that it combines the properties of being firmly resilient at normal temperatures, and perfectly soft when heated, which enables it to be employed, in a simple manner, as an elastic and permanent stopping for gashes of any shape or form in rubber tyres.

THE New York Automobile Trade Association has adopted a resolution to the effect "That this association is heartily in sympathy with the earnest efforts being made by various persons and associations to mitigate the evil of reckless speeding in dangerous localities, and to foster a strict observance of the rules of the road. While we favour the fullest development of the automobile, and feel an interest in trials of speed where due precautions are observed, at the same time we condemn the wanton and unlawful indulgence in excessive speed, which endangers the car, the driver and the public."

FOR taking water from the public hydrants at Oldham the owner of a Manchester motor-lorry has been summoned. The case is adjourned.

AT Norwich a motor-car has recently been of assistance to a local policeman in arresting a couple of thieves who drove off in a horse and cart.

MESSRS. BURBERRY, of the Haymarket, S.W., have issued a novel price-list of their motor garments, which will give pleasure as well as information to a good many motorists of both sexes. Some excellent skits, as well as illustrations, enliven the catalogue, in which utility and novelty are well combined.

IN the automobile run from New York to the St. Louis Exhibition, Mr. W. B. Herbert, of Detroit, driving a Cadillac, was officially the first motorist to arrive at St. Louis. The last day's run was through Southern Illinois, where the roads from Springfield to St. Louis were in a frightful condition. Rain had converted them into almost bottomless pits of mud, necessitating the use of chains on the driving wheels to permit of any headway.

WHEN in Blackpool recently we had occasion to take advantage of the facilities offered by the Central Motor Garage, which now occupies an extensive area in Abingdon Street, in the centre of the popular seaside resort. In addition to accommodation for a large number of cars, plant has been put down to enable repairs of all kinds to be carried out. Several inspection pits are available, and we also noticed an ingenious platform on which cars requiring repairs can be mounted, so enabling two or more men to work on the vehicle at one time. A good stock of accessories is kept on hand, while petrol is supplied at a reasonable price. That the garage has already earned an excellent reputation was evidenced by the busy state of affairs prevailing at the time of our visit.

HEREWITH we illustrate a steam express motor-van recently supplied by the English Steam Wagon Company, of Hebden Bridge, to Messrs. Pickford's, Limited, for their town parcel



express service. One of these vans took part in the May-day Parade on the Thames Embankment a few months ago, but had not seen sufficient service to warrant a first prize, though we understand a second prize was given to the same. The engines are of enclosed compound type with cylinders 3½ in. and 6 in. diameter by 5 in. stroke; the boiler is of a special fire-tube type, designed for quick steam-raising; the transmission arrangement has already been described in the *Journal*. We understand that several of these vans are regularly making runs of thirty-six miles per day to schedule time.

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MOTOR CYCLING NEWS.

DESPITE the exceedingly short notice, the Auto-Cycle Club intends to send a team to represent England in the forthcoming international race for motor-cycles which is to be held in France on the 25th inst. The Motocycle Club of France has agreed that no country can be represented by more than three riders sent by the one recognised club. To enable the club to secure a team, it has invited the makers of the machines which success-



The Auto-Cycle Club's Reliability Trial.—The Rex Motor Bicycle and Tricycle ridden by Messrs. H. Williamson and E Hayes respectively.

fully underwent the recent ordeal of the reliability trials to supply machines and riders. The competing machines have to be British built throughout, and must weigh not more than 50 kilos. (110 lb.) without petrol, oil, accumulators, or spare parts, but an allowance of three kilos. will be made for machines with magneto ignition. The selected machines must be presented to the Auto-Cycle Club for weighing and inspection by Monday, the 19th inst.

◆ ◆ ◆

AFTER checking the returns of the various timekeepers throughout the whole of the route, the judges in the Auto-Cycle Club's 1,000 miles trials have made the following awards :—

MOTOR BICYCLE CLASS.

3-h.p.	Bradbury ...	1st Class Certificate and Gold Medal.
2¾ „	Humber ...	„ „
3 „	Quadrant ...	„ „
3 „	Rover ...	„ „
3½ „	Brown ...	„ Silver Medal.
3½ „	King ...	„ „
3¼ „	Rex ...	„ „
2¾ „	Chase ...	2nd Class Certificate and Silver Medal.
3 „	J. A. P. ...	„ „
2½ „	Alldays	2nd Class Certificate.
3½ „	Lagonda ...	„
2 „	Leader ...	„
2¾ „	Noble ...	„
3½ „	Alldays	3rd Class Certificate.
3 „	Altena ...	„
2¾ „	Bat ...	„
2½ „	Griffon ...	„

PASSENGER CLASS.

3½-h.p. Phœnix Trimo 1st Class Certificate and Gold Medal.

TRICYCLE CLASS.

3¼-h.p. Rex Tricycle 2nd Class Certificate.

Hill climbing tests in the foregoing competition were held on Stepney Hill, Scarborough. The length measured out was 1,600 yards, with an average gradient of 1 in 19, and the worst gradient 1 in 9. The total rise is 266 feet. This hill was in a very wet and greasy condition, and ten machines succeeded in climbing it at a speed exceeding fourteen miles per hour. The other test hill was Marlborough Hill, on the Bath road, the length being 1,000 yards, average gradient 1 in 20, worst gradient 1 in 12, total rise 152 feet. Six machines succeeded in climbing this hill up to the legal limit.

◆ ◆ ◆

INTENDING entrants for the competition for the twenty-five guineas trophy presented to the Motor Cycling Club by Mr. Albert Brown are reminded that no further entries can be received after the first post on Monday next. The event takes place on the 10th inst.

◆ ◆ ◆

MR. G. BROWN, who was a successful competitor in the Manchester Motor Club's 100 Miles Non-stop Reliability Trial, used a pair of Palmer tyres which have done service for two seasons, covering 10,000 miles. He has only been troubled with one puncture, side slip being totally absent.

◆ ◆ ◆

THE Motor Cycle Union of Ireland held their concluding hill-climbing competition of the season on Saturday. The hill selected for the test was that leading from the Waterfall gate at Powerscourt demesne, and, by special permission of Lord Powerscourt, the start took place inside his gate. The competing manufacturers were divided into three classes according to the cylinder capacity of the engines fitted. In the light class the engines were limited to 70 by 70 mm., in the intermediate class to 76 by 76, and in the heavy class to engines under 84 by 84 mm. The results of the competitions were as follows :—

CLASS A.

			min. secs.
1.	T. W. Murphy ...	2-h.p. Triumph ...	1 25 4-5
2.	L. Summers ...	2-h.p. Triumph ...	1 28 3-5
3.	F. A. Wallen ...	2-h.p. Triumph ...	1 29 3-5

CLASS B.

1	C. B. Franklin ...	2¾-h.p. F.N.	1 11 2-5
2.	L. Summers ...	2-h.p. Triumph ...	1 23
3.	T. W. Murphy ...	2-h.p. Triumph ...	1 29

CLASS C.

1.	C. B. Franklin ...	2¾-h.p. F.N.	1 9 1-5
2.	A. Summers ...	3-h.p. Triumph ..	1 15 1-5
3.	J. G. Drury ..	2½-h.p. Triumph ...	1 17 4-5

◆ ◆ ◆



Motor Cycling in Ceylon.—A Trio of Riders at the Hanwilla Tea Estate.
Photo by [*Mr. E. Gordon Brooke.*

◆ ◆ ◆

FIVE clubs competed in the inter-team contest for the Motor Cycle Challenge Cup on Saturday. These were the Guildford Motor Club, the Motor Cycling Club, the Peterborough Motor Club, the Coventry Motor Cycle Club, and the Southern Motor Club. The start and finish were at Bicester, the length of the course being 100 miles. The result was that the Coventry Motor Cycle Club's team was first and that of the Motor Cycling Club second.

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CORRESPONDENCE.

ENGINE TROUBLES.

To the Editor of *The Motor-Car Journal.*

Sir,—Replying to "Mutel's" letter in the last issue of the *Journal*, your correspondent may rest assured that he is by no means alone in his trouble with his crank, as all engines with two cylinders that have the built-up cranks give trouble, these continually coming out of truth even when fitted with centre bearings, as is the Buchet. It is impossible to fit feathers in the crank pin, as these are required to be movable for the purpose of truing the crank before being finally tightened up, but the main shafts are usually provided with feathers.—Yours truly,

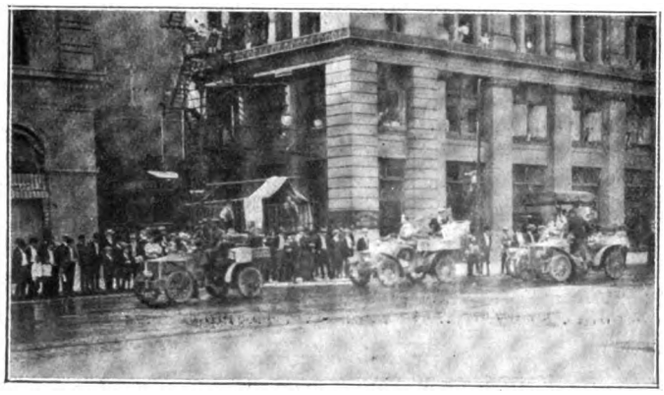
F. J. T.

ADVICE WANTED.

To the Editor of *The Motor-Car Journal.*

Sir,—As a constant reader of your valuable *Journal*, it distressed me very much to read the awful experience of your correspondent "J. S." Might I seriously and humbly suggest that you advise him in your next issue that he had better, as he suggests, take out that engine and *boil* it (steaming is no use). I would further suggest that after boiling he should well dry it and salt to taste, adding a little sand if required, then put in an airtight glass case (very important to be airtight) and send to Port Arthur. Having done this, let him proceed to obtain a pair (or more) of four-legged animals called donkeys or asses, and, having arnessed them, attach to the car. He will after that have no difficulty in finding the box of "jeers."—Yours truly,

Verdant Green.



The Three White Steam Cars which successfully made the Run from New York to St. Louis.

THE HORSE POWER OF PETROL MOTORS.

To the Editor of *The Motor-Car Journal.*

Sir,—I have noticed in the *Journal* at various times a number of comments from correspondents on the horse power ratings of petrol motors. There seems to be considerable confusion in the minds of the ordinary laymen as to what a horse power means. It is rather hard to understand why one builder rates his engine at 8-h.p., another, with cylinders of same size, at 10-h.p., and another at 6-h.p.

While visiting the various shows at the early part of the present year I obtained the size of cylinders and the ratings given by eight prominent builders of cars, and found the number of square inches of piston to horse power varied from 2·16 to 2·80. Now suppose these motors to be running at the same piston speed regardless of stroke, how can the motor with only 2·16 square inches of piston develop the same power as the one with 2·80 square inches of piston per horse power?

It is well known that in steam engines horse power is calculated from area of piston in square inches, speed of piston in feet and the mean effective pressure of steam. Stroke of piston does not enter into the calculation, as a six inch stroke will develop the same power as a twelve inch stroke at the same piston speed and same steam pressure. I cannot see why the same rule will not apply to gas engines. It is taken for granted that all the prominent motor builders have determined by experiment and otherwise the proper proportions of inlet and exhaust valves, the proper ratio of compression space to piston area, etc., and if the motor is fairly well constructed and fitted the variation in horse power for a given area of piston should be nil. I think I can understand how the different builders can develop different horse powers with the same size cylinders. All the tests for power are no doubt made under the most favourable conditions. One builder will run his motor under test at an immoderate speed for a short time, and then give out the statement that his motor develops 20 brake horse power. Another builder, being more conservative, runs his motor under test at a more moderate speed, and gives out the statement that under brake test his motor develops 18-h.p. In order that we may arrive at some degree of uniformity, I venture to suggest a different plan of rating. First determine about what area of piston should represent 1-h.p. (say, about 2·75 square inches); then, by taking the combined area of one, two, three or four cylinders, whichever is used in the car, it would be easy to determine the horse power. Another matter that I think would bear investigation and discussion is the proportion of piston area to weight of car and load. I should be glad to see this question discussed in your valuable journal.—Yours truly,

W. M. Wilson.

THE CAUSE OF ACCIDENTS.

To the Editor of *The Motor-Car Journal.*

Sir,—During the past few weeks the daily papers have been full of reports of motor accidents, and one remarkable feature of these reports has been that in the vast majority of them the cause of trouble is stated to have been connected with the steering gear. It is explained that "something went wrong with the steering gear," that "some part of the steering gear broke," and that in consequence "the car became unmanageable." Now, while a mishap to the steering gear is very likely to cause a serious accident, it is hard to believe that the steering gears of so many cars are so carelessly constructed that they break or drop to pieces on the road, and I am rather inclined to think that the greater portion of these accidents are simply the result of reckless driving, mostly by comparative novices, who, to free themselves from blame, put it on the steering gear. In some of the accounts it is evident that the explanations of how it happened have been fabricated. Thus, one report states that "in rounding a sharp curve a short distance from the entrance to ———, a pin in the steering gear fell out and the machine ran wild. Unable to control the car, Mr. —— , his guest, and the mechanician held on to the sides of the machine. After tearing down hill for a quarter of a mile, the car failed to make a sharp curve and brought up head on against a telegraph pole."

It is plain from the above that it was simply a case of "going all out." If the steering goes wrong, this does not cause the car to "tear," but rather retards it, and if it had been going at a moderate pace, it could have been brought to a stop much inside of a quarter of a mile. At twenty miles an hour, the legal speed limit, the average car can be stopped by the brakes in a distance of sixty feet. The most probable explanation is that the curve was taken at too great a speed, the car began to skid on the down grade, and the driver lost control of the car and ran into the telegraph pole.

It was suggested in France some time ago that in case of a serious accident, the Automobile Club should send an expert to the scene to investigate the cause and make a report to the club. Since it is a great injustice to the industry that accidents should, in the public Press, be ascribed to failure of some parts of the machine, when in reality they are the direct cause of reckless driving, would it not be advisable for the A.C.G.B.I. to have an inquiry made into the causes of all serious accidents, at least those which occur in or near large centres?—Yours truly,

Manufacturer.

ESPRIT DE CORPS.

To the Editor of *The Motor-Car Journal.*

Sir,—As a reader of your valuable *Journal* I wish to draw the attention of fellow motorists to the following interesting incident that befel me the other Sunday. When within one and a half miles from Cobham, my accumulator suddenly gave out; unfortunately Messrs. Peto & Radford had my spare one under repairs, so there I was with a heavy car and no power to move it. My friend proposed to go ahead. Within half an hour a man on a bicycle with a spare accumulator was alongside, and we were soon under way again. I made a point of stopping at the works of my benefactors, Messrs. B. Johnston and Company, Cygnet Works, Portsmouth Road, Cobham, and was surprised to find such fully-equipped works. As I was only charged 1s. for the loan of the accumulator, and think it a useful place for motorists generally, I trust you will insert this letter.—Yours truly,

A. Johanning.

HORSE V. MOTOR.

To the Editor of *The Motor-Car Journal.*

Sir,—It seems to me that "Another Practitioner" has been very badly advised and is now putting all the blame on to the motor. *Re* his tyre troubles, where can his commonsense be to run through a dozen or more tyres in about eighteen months? He might well say motoring is expensive. Had he had a reliable tyre fitted in the first place that difficulty would have been overcome. He has a bill for £80 for "meddling." I am inclined to think that any firm with a reputation to keep up would have something more than "meddling" to show for a bill of this amount. Another firm has sent him a bill for £13 or £14 for filing the clutches and a few "minor" jobs. Why does he not say what constitutes a "minor" job? He does not say what pattern clutches he has, but I imagine they are the friction clutches similar to those fitted to the Progress cars. I have had experience with this type and found that by slightly roughing the two surfaces all trouble was overcome, and the car is running now. *Re* the accumulator, I sympathise with him, but he does not say that it was in good order when he sent it to be recharged, although he would have us believe so. I should like to know the district he resides in. I

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have travelled all England and have not yet come across the place thirty miles from a repairer. To my mind "Another Practitioner" is one of the only too frequently met class who has bought a motor and does not understand that it requires a man who knows what he is about to look after it, and these must be paid for.—Yours truly,

NO PATIENCE.

LOOK AFTER THE CHAINS.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—The writer of the letter on this subject in the *Journal* of the 20th ult. asks whether chains as a whole are made heavy enough for the work involved. I am not an expert on questions relating to the many niceties of this type of transmission, but after three years' steady running of a car so fitted and having used Brampton's, Coventry, and Renold's makes, have come to the conclusion that the lighter the chain the better the wear, *i.e.*, presuming, of course, that the quality of steel is of the best. If it were merely a question of thickening side plates of links, and increasing diameter of rollers to ensure a longer life and a freedom from breakage, the slight increase in weight, so far as the car is concerned, would be a mere trifle, but curiously enough, an increase of mere metal makes for more rapid wear both in links and sprockets. The Renold chain, though much lighter than the finest quality turned out by most firms, lasts far better, and is quite as strong. When links can be easily lifted with thumb and finger on rear wheel sprockets, *i.e.*, on back of sprocket, one need not wait for clicking on road. Again, good alignment means much for the chain.—Yours truly

WOLSELEY.

STEAM CARS.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—I was glad to see "Enthusiast's" letter in a recent issue of the *Journal*. Steam as a motive power for motor-cars is by no means out of the running. True enough, cars propelled by internal combustion engines have become the popular type in most localities. This popularity of the petrol car does not, however, read the death warrant of the steamer. The latter has some points of advantage that will be apparent so long as petrol cars are built upon the general principles of their present construction. The hydro-carbon, internal combustion motor must be changed considerably to diminish the importance of these advantages of steam. That these advantages are in fact as well as in theory was recently fully demonstrated when Mr. F. E. Stanley, on a light 6-h.p. steam car, galloped up Mount Washington, in America, faster than all but one other car, a 60-h.p. "Mercedes," making the trip.

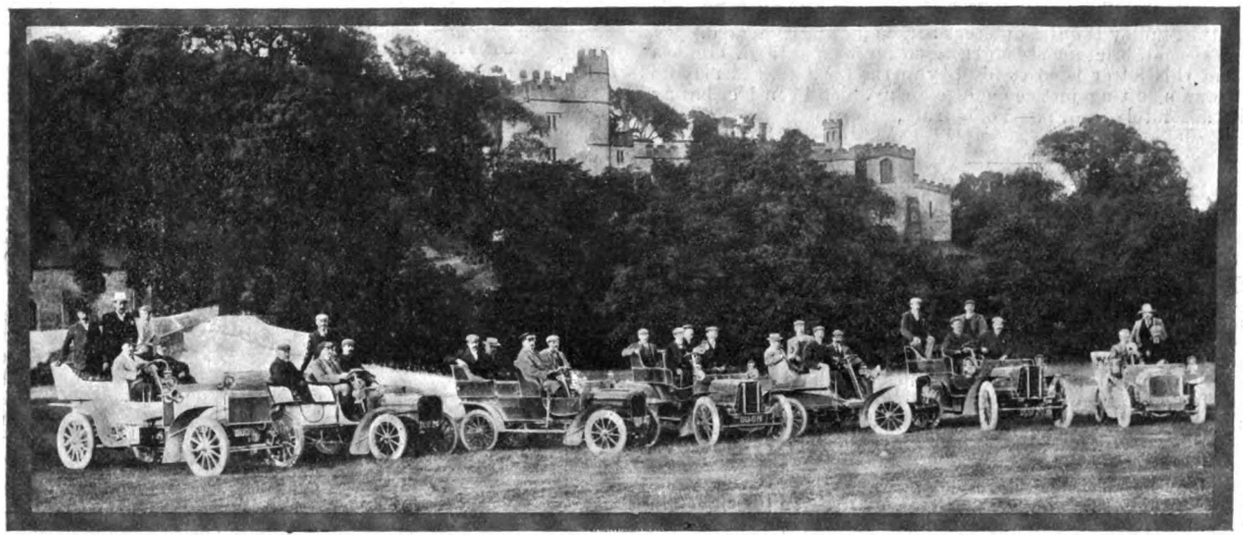
The triumph of Mr. Stanley on Mount Washington does not mean the unalloyed superiority of the steam car over the petrol vehicle. It means that at hill climbing and some other performances the steam car has advantages that must not be overlooked. It does not mean that the disadvantages which have wrought against the popularity of the steam car have been overcome. These disadvantages exist as they have always existed. In the application of power the steam car is superb. In economy of and convenience in the generation of power it is not so advantageous. This situation is unalterable so long as present systems of operation of motor vehicles maintain. If the steam cars by a bold stroke were altered in principle so that the generation of power were placed on a basis equivalent in economy and convenience to the economy and convenience in the application of the generated power, it would become the ideal vehicle.

On the other hand, were the petrol car so reconstructed that the application of generated power were rendered as economical and convenient as the generation of that power, it would also become the ideal vehicle. Then would the steam and the petrol vehicle become one and the same thing in efficiency.

Under present practice each system has advantages and disadvantages which must be weighed by the probable use of either. The public has properly accorded the petrol machine the greater general average of advantages counted against disadvantages. But the public in so doing has not entirely condemned the steamer.

There may be more in the steam vehicle in years to come than the advocate of the petrol motor cares to admit.—Yours truly,

J. K. FITZPATRICK.



A Group of Humber Cars at Hadden Hall, Derbyshire.

THE OLDSMOBILE.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—In answer to the letter in the *Journal* of the 20th ult., I have pleasure in informing your correspondent "A.H.K." that I have owned and used for the past twelve months one of the 5-h.p. Oldsmobiles, which I have found a capital little car, it being both reliable and easy to keep in running order. Of course, with this car, the same as with any other, I have had little troubles, but nothing has occurred that I have not been able to satisfactorily adjust myself. Regarding the question of the back seat, the springs and axle of this car are quite strong enough to stand the strain of a third person being carried, although the car is really a two-seated vehicle. I have driven three and even four people on my car. In conclusion I may say that I am simply delighted with my little Oldsmobile, and would not exchange it for any other light car on the market. As an enthusiastic motorist, if there is any other information that I can give your correspondent I shall be only too pleased to do so upon hearing from you.—Yours truly,

J. MACGREGOR.

TYRE BURSTS.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—For the last few weeks the motor press has teemed with letters on the subject of the effect which the bursting of tyres has on the steering of a car. The discussion was started by the experiments conducted by Mr. S. F. Edge, and has been followed with great interest by a large number of your readers, including myself. I was therefore particularly interested to read the following, which is an extract from a letter just received from a friend of mine, a most experienced driver, who, while speaking of a burst which occurred in his front wheel tyres, says "when the tyre blew off I was travelling down hill at about twenty-five to thirty miles per hour, and I never felt the slightest movement of the car either to one side or to the other, and it kept under perfect control until I stopped it, in about twelve yards. I think it may therefore be freely accepted that tyres bursting will not cause accidents, unless the driver loses his head on hearing the bang."—Yours truly,

H. W. BARTLEET.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—In reply to "Superheat," I have been using a Locomobile for more than three years and I have not had a fire tube burst yet. Being made of copper, the deterioration is very slight; nevertheless such a burst is possible, so I have had a couple of iron taper plugs made with a fine thread; these would cut their way into the ends of the tube and stop the leak. It is impossible for either end of the boiler to blow out, as the

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fire tubes hold both ends together. As to upkeep. This depends on how the car is used. If the engine is kept well lubricated and used in a common-sense sort of way, the upkeep would be very small indeed, and 1d. per mile would go a long way towards covering it.

The tyres on most of these little cars are single tubes. These should be covered with stout bands. Mine cost 25s. each, but I have never had a puncture yet, and of course the tyres themselves are as good as new. If these bands are well made they will last about 5,000 miles.

For reliability, quietness, and perfect control, these little cars will beat any petrol car at present on the market.—Yours truly,

A.H. 59.

To the Editor of *The Motor-Car Journal*.

Sir, — I have read the letter from "Enthusiast" in the *Journal* of the 20th ult. with much interest. There is, as he says, a prejudice against steam cars, and I certainly agree with him that it is unwarrantable. No one attempts to run down the large type of steam car as embodied in the White or Miesse, and I can assure your readers that, though a light car, the Stanley is just as efficient. During the last two years this car has proved so satisfactory that there has been found no improvement needed in the principle of the car, although in the latest models the minor details and methods of placing various parts are altered. Some friends who have recently visited me from the States were astonished to find how little the car was met with in this country, and could not understand the reason, as it is so very popular in the States. The real reason is, because people will not even take the trouble to look at or examine it, the fact of it being a steam car being, in their opinion, a sufficient reason for this attitude, and yet they know absolutely nothing about it. If they are comparing it with the old Locomobiles, I can only say the Stanley is quite different and cannot be compared.

I hold no special brief for steam cars, so far as making a profit is concerned, and this letter is written solely in the hope that it may do something towards getting justice done to a car which I consider has an individuality absolutely its own.—Yours truly,

W. E. G.

TYRES!

To the Editor of *The Motor-Car Journal*.

Sir,—I shall be glad to have your readers' experiences with tyres running under similar conditions to my own. I am running a 20-h.p. car. I never exceed more than about thirty miles per hour. It weighs 25 cwt. unladen, and the wheel base is 8 ft. 10 in. in length. The body is an ordinary tonneau, with seating accommodation for two in front and three behind, and the extreme width of the back part of the tonneau is 5 ft. about. The wheels are 30 in. diameter, and are fitted with 4 in. tyres. I have only run the car 1,500 miles, and have already had three bursts of the outer cover, all beyond repair. The makers tell me my wheels are altogether too small for the size and length of the car, and that I shall have nothing but trouble till I put larger wheels on. They say my existing sized tyres have burst, not because they were faulty in design or workmanship, but simply because they won't stand the wear and tear put on them. Personally, I am inclined to doubt that being the case, but shall be glad to have your readers' opinion on the subject.—Yours truly,

Perplexed.

BELT TRANSMISSION.

To the Editor of *The Motor-Car Journal*.

Sir,—I am glad to see that a correspondence on the subject of belt transmission has been started in your columns.

There is no doubt that this system, if properly applied, has many advantages over mechanism employing sliding gears, and chains, or bevel pinions, which require constant and efficient lubrication. Its chief claims would be cheapness, freedom from complicated working parts, with their liability to get out of order, greater silence and smoothness in running, and also a considerable saving in weight.

What has hitherto militated against the success of the leather belts has been the habit of makers of using them far too short and narrow, considering the strains to which they were put.

I am so perfectly convinced that a car driven by one long belt, four to six inches wide, would answer perfectly, that I have designed a transmission gear, which I hope to have fitted to a car, in which one belt only is used to drive a car at two or more speeds. It would never require tightening, and yet employ no sliding gear, jockey pulley, or friction clutch.—Yours truly,

C. A. Byrom.

TAIL LAMP TROUBLES.

To the Editor of *The Motor-Car Journal*.

Sir,—I venture to invoke the aid of fellow motorists in helping me to overcome the trouble with my tail lamp, which is continually jolting out. The lamp is a good one, burning paraffin, but, notwithstanding that I have made the bracket holding it as rigid as possible, the light jolts out to such an extent that night riding is anything but a pleasure. Returning from a spin to Guildford the other day, we lit up the lamps at Ewell, and between that point and Merton no less than half a dozen stops had to be made to re-light the tail lamp. I feel sure that I am not alone in this trouble, as I have passed many motorists on the road engaged in a similar operation. Any suggestion on the point would be greatly appreciated by—Yours truly,

Rosthern.

GEAR FOR DECAUVILLE CAR.

To the Editor of *The Motor-Car Journal*.

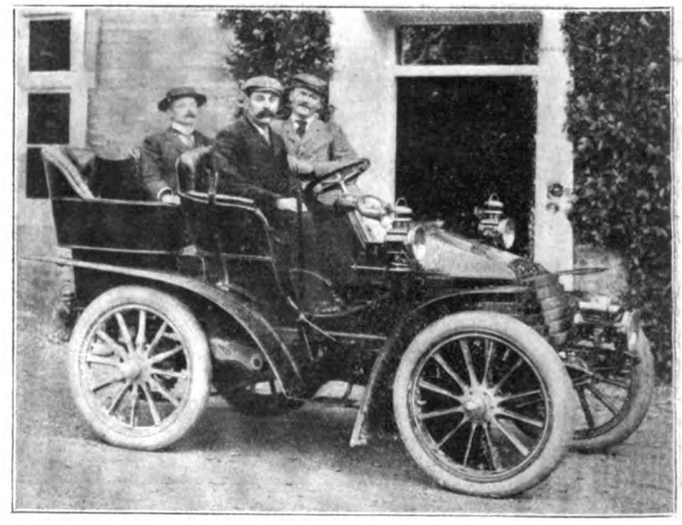
Sir,—I am the owner of a 10-h.p. Decauville, and find the gears anything but satisfactory, inasmuch as they last for very few miles in a hilly district. Furthermore, they are extremely noisy, and I am informed by the engineer who looks after the car that this is because of the length of shaft in the gear box. Can any reader recommend me a complete gear outfit suitable for a 10-h.p. Decauville, which will at once be silent and effective?—Yours truly,

H. D.

Tyre Repairs.—"Player" writes: "I shall be glad if any of your readers who have used the See fluid for vulcanising patches on inner tubes would say if this is effective, and if so, how they make it so."

The Napier Motor.—Messrs. D. Napier and Son write with reference to Mr. S. F. Edge's 20-h.p. Napier car, 5 in. by 5 in. engine:—"We wish to place it on record that this size of engine has been regularly manufactured by us since 1902, and has been fitted in cars supplied to Messrs. S. F. Edge, Limited, as 20-h.p. cars, with a guarantee to give 30-h.p. on the brake.

Nail Catchers.—"Troubled One" writes:—"Some weeks ago you published an interesting article descriptive of a number of nail catchers for pneumatic tyres that have lately been introduced. If those motorists who have given any of these devices a practical trial would favour you with particulars of their experience of the same, they would, I think, be of much interest to many readers of the *Journal*."



Mr. F. Richardson, Hon. Sec. of the South Lincolnshire Automobile Club, at the wheel of his 10-h.p. Wolseley Car; Dr. Miller, Captain of the Club, is seated by his side, and Dr. E. H. Cragg, Hon. Sec. of the Lincolnshire Club, is sitting behind.

The Home Office has just issued a census of automobiles registered between January 1st and April 1st. Probably if the officials of the department read the papers they would know that on July 30th we gave the complete returns up to date. Hence the omission of these belated official figures from this issue.

We are reminded that the question of protection in case of fire in garages is one which is of undoubted interest to all motor-car users by the receipt of a photograph from the Locomobile Company of Great Britain, Limited, showing the extensive battery of apparatus in their garage for extinguishing fire. The photograph shows four large chemical fire extinguishing apparatus throwing a jet a great distance, and a large number of buckets. The latter are all painted red, with the word "Fire" in large letters upon them. They are, of course, filled with sand and are hung in prominent positions upon the walls of the garage and works, and under no circumstances are they allowed to be used for any other purpose.

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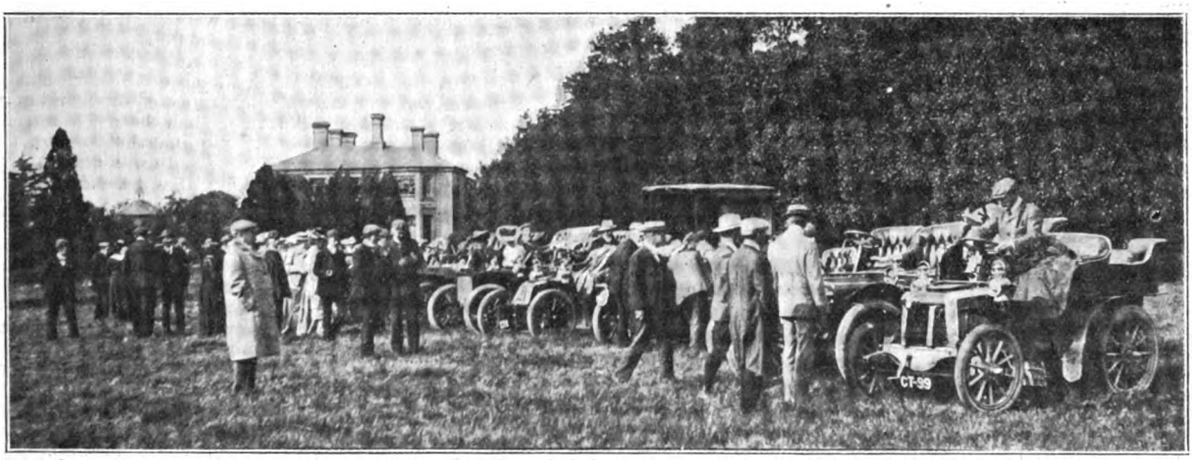
CLUBS AND ASSOCIATIONS.

LEICESTER.

By the invitation of Sir Arthur Hazlerigg, Bart., the members of the Leicester Automobile Club visited Noseley Hall on Saturday afternoon. Twelve cars and a motor-cycle made the journey, some of them going *via* Billesdon and others *via* Kibworth. Tea was served in the Hall, from the windows of which a fine view was commanded, and afterwards a telegram was despatched to Sir Arthur, who is in Scotland, thanking him for his hospitality, regretting his absence, and conveying the good wishes of the automobilists to Lady Hazlerigg and himself. An unofficial item of the programme was the training of one of Sir Arthur's hunters to stand the unaccustomed rush and noise of the motors. At the request of the head groom, the cars were sent past the horse several times, and after showing great fright at first it gradually gained confidence, and showed no timidity at the finish.

LINCOLNSHIRE.

Another of those interesting gatherings for which the Lincolnshire Automobile Club has become noted took place on Saturday afternoon, when Captain J. A. and Mrs. Cole entertained the members in their grounds at Roxholme Hall. Between thirty and forty cars assembled from all parts of the county, in addition to two from Nottinghamshire. The Lincolnshire cars included two Georges Richards, a 16-h.p. driven by Mr. J. Coombes, of Lincoln, and a 12-h.p. belonging to Lieut. Nevile, R.N. Mr. and Mrs. George Linnell and Mr. E. Richardson came on Wolseleys, Capt. Newsum and Dr. Sharp on Richardsons, Mr. C. W. Pennell was on his 16-h.p. Martini, and his brother, Mr. W. R. Pennell, on a 10-h.p. Locomobile; Dr. Brooks, Mr. R. M. Wright, and Mr. H. Marshall were on Clement cars, Mr. George Godson on a M.M.C., Mr. Haddon Owen on a Daimler, Mr. Cyril Nelson on a De Dion, Dr. Gilpin



A Lincolnshire Motor Meet at Roxholme Hall.

on a 8-h.p. Peugeot, Capt. Lyall on a Panhard, Mr. W. A. Tomlinson on a Bardon, while Mr. F. P. Curtis, Mr. A. W. Holloway, Dr. Miller and Dr. Mason drove over on Baby Peugeots. Some of the cars brought as many as six passengers. Capt. Cole thoughtfully arranged a novel driving competition for the delectation of his guests. Ladies took a prominent part in the competition, the idea of which was to start a car from a given point, each gentleman driver having a lady passenger, who was obliged to alight at another point of the route, fill a glass with water, return with it to the car, and carry it in one hand while riding into the Park—the winner being decided by the quickest time and the quantity of water remaining in the glass at the stopping-place. Mr. R. M. Wright, who drove Mrs. Brook in her husband's 9-h.p. Clement, made the quickest time, and was declared the winner. The distance was about half a mile, and included two stops. The following times were recorded:—

		m. s.
Mr. R. M. Wright ...	9-h.p. Clement	1 26
Dr. Gilpin... ...	8-h.p. Peugeot	1 32
Mr. W. R. Pennell ...	10-h.p. Locomobile... ...	1 33
Dr. Sharp	12-h.p. Richardson... ...	1 39
Capt. Lyall...	7-h.p. Panhard	1 42
Mr. W. A. Holloway ...	Baby Peugeot	1 45
Capt. Newsum	18-h.p. Richardson... ...	1 50
Mr. C. W. Pennell ...	16-h.p. Martini	Disq.

Capt. Cole personally superintended the starting. Mr. Rees Jeffery took the times; Major Barrow was judge, and Dr. Lowe assisted at the water table.

SCOTTISH.

The western section of the Scottish Club will hold a hill-climbing competition at Kirkfield Hill, near Lanark, on Saturday, 10th inst. The competition will take place from a standing start over about 821⅔ yards of road. Cars, which may be entered by members of the Scottish Automobile Club (western and eastern sections) only, must be registered as and be the *bona-fide* property of the member making the entry, and each vehicle must be driven by a member of the club.

CASES DISMISSED.

Mr. H. Belcher, of Beeston (Notts), was charged at the Snaith (Yorks.) Police Court, on the 25th ult., with furiously driving a motor-car so as to endanger the lives and limbs of passengers on the highway in the parish of Whitley Bridge (Yorks.) on August 2nd. The evidence showed that the defendant drove through the parish of Whitley Bridge at the rate of twenty-five to thirty miles an hour. Mr. Wells Lucas, of Nottingham, who defended, contended that it was necessary for the prosecution to prove that some particular person had been endangered or injured, and quoted cases in favour of his contention. The magistrates held that, as it had not been shown that someone had been endangered, the summons must be dismissed.

Harry Bibby, of Ansdell, was summoned at Lytham on Thursday for driving a motor-car in a manner dangerous to the public. Mr. Nicholson said that on Thursday, the 12th ult., defendant was driving the car at St. Annes. When he was in the square, where four roads meet, the car collided with a butcher's cart. The speed was about 14 miles an hour. P. S. Blackburn said there was considerable traffic about at the time. When defendant came to St. Annes Road he gave only one toot of the horn. Immediately before the car struck the cart, in his opinion, he was driving to the danger of the public. According to Robert Rogers the car was going at twenty miles an hour; Roy Higgins estimated it at 15; John Pye at 17 or 18; Robert Boothman at 30. Mr. E. R. Lightwood (chairman) said the Bench considered the case a proper one for the police to have brought, and they would like to point out that there were continual complaints of the way in which motor-cars were being driven along Clifton Drive. At the same time they did not think that in the present case defendant was driving at a pace dangerous to the public. The case was dismissed.

CONVICTIONS AGAINST MOTORISTS.

Place.	Summoned for	Fine.
Tredegar	Furious driving	40s., etc.
Penge	Reckless driving, failing to sound horn, and not producing licence	£4 11s. 6d.
Liverpool.....	Excessive speed	10s., etc.
Warwick	Driving to common danger	£5, etc.
Penzance	Excessive speed	5s., etc.
Sale	No rear light	10s., etc.
Chelmsford	No identification mark on motor vehicle	10s., etc.
Llandudno	Driving to public danger	£5, etc.
Wakefield	Not stopping when requested	£10, etc.
Sutton Coldfield ...	Driving at dangerous speed	£5, etc.
,, ,, ...	Keeping motor-cycle without licence	5s., etc.
North London	Keeping motor-car without licence	£4, etc.
Brighton	Furious driving	£5, etc.
Bamber Bridge	Excessive speed	20s.
Kingston	No rear light	10s. etc.
Belfast.....	Reckless driving	40s., etc.
Southport	Driving at dangerous speed	£2, etc.

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IMPORTS OF AUTOMOBILES.

BELOW we publish our monthly official list of the imports of motor-cars, motor-cycles, and the parts thereof, into the United Kingdom during the month of May, 1904 :—

BELGIUM.

Shipped from	To	Description.	No.	Value. £
Antwerp	Harwich	Motor-cycles	4	145
"	"	" car parts	—	479
"	"	" cycle "	—	1,095
"	London	" car	1	334
"	"	" cycles	15	462
"	"	" car parts	—	5
Brussels	"	" cars	4	1,050
"	"	" car parts	—	502
"	"	" cycles	26	755
Ostend	Dover	" "	2	100
"	London	" cars	36	14,417
"	"	" car parts	—	616
"	"	" cycles	22	741
"	"	" cycle parts	—	649

Total value of imports from Belgium in May, 1904 ... £21,350
Total value of imports from Belgium, January–May, 1904 £111 663

FRANCE.

				£
Bordeaux	London	Motor-cars	3	930
"	Southampton	" "	1	56
Boulogne	Cardiff	" "	1	500
"	Folkestone	" "	53	23,940
"	"	" car parts	—	3,754
"	"	" cycles	8	318
"	Goole	" cars	21	10,950
"	"	" car parts	—	349
"	London	" cars	145	64,425
"	"	" car parts	—	3,199
"	"	" cycle parts	—	70
Calais	Dover	" car "	—	382
"	"	" cycles	1	26
"	Leith	" car	1	550
Dieppe	Grimsby	" cars	19	4,970
"	Newhaven	" "	120	59,660
"	"	" car parts	—	10,635
"	"	" cycles	32	1,122
"	"	" cycle parts	—	8
Dunkirk	Hull	" cars	1	270
"	Leith	" cars	5	2,500
"	"	" car parts	—	605
Havre	Southampton	" cars	2	605
Honfleur	"	" cars	1	800
"	"	" car parts	—	20
Marseilles	Liverpool	" cycles	1	30
"	London	" cars	2	1,065
Paris	"	" "	1	430
Rouen	Glasgow	" car parts	—	94
Treport	Leith	" cars	2	1,250
"	"	" car parts	—	3,243
"	London	" cars	38	10,353

Total value of imports from France in May, 1904 ... £197,129
Total value of imports from France, Jan.–May, 1904 £758,654

GERMANY.

				£
Bremen	London	Motor-cars	14	7,750
"	"	" car parts	—	144
Hamburg	Hull	" cycles	1	35
"	London	" cars	8	995

Total value of imports from Germany in May, 1904 ... £8,924
Total value of imports from Germany, Jan.–May, 1904 ... £28,762

HOLLAND.

				£
Amsterdam	Goole	Motor-car parts	—	330
"	London	" car	1	400
Flushing	Queenboro'	" car parts	—	25
Rotterdam	Goole	" cycle "	—	20
"	Harwich	" car "	—	50
"	"	" cycle "	—	50
"	London	" cars	6	1,400
"	"	" car parts	—	312
"	"	" cycles	1	40
"	"	" cycle parts	—	30

Total value of imports from Holland, in May, 1904 ... ... £2,657
Total value of imports from Holland, Jan.–May, 1904 ... £18,733

UNITED STATES.

				£
Boston	Liverpool	Motor-cars	1	1,500
"	London	" "	1	700
New York	"	" "	31	8,246
"	"	" car parts	—	770
"	Glasgow	" cars	1	120
"	Liverpool	" "	3	1,667
Philadelphia	Manchester	" car parts	—	1,520

Total value of imports from the United States in May, 1904 £14,523
Total value of imports from the United States, Jan.-May, 1904 £65,136

SIDE-SLIP IN MOTOR-CARS.

THIS was the title of a paper read last week by Messrs. H. Darwin and V.C. Burton before the Engineering Section of the British Association at Cambridge. The authors stated that one of the chief causes of side-slip was that the hind wheels, being driven and locked, lose their directive control. When that was the case the motion of the car was unstable, and it swung round so as to face in the opposite direction to which it was moving. By using a model on an inclined plane which had been made slighly wetted Mr. Darwin showed that if the locked wheels were in front the car travelled in the right way, but when the rear pair were locked it swung round in the manner indicated. He said that if they locked the back wheels they were sure to come to grief, and this would happen however great or however small was the friction between the wheels and the road. He thought they would get a cure for this in steering by the hind wheels and driving by the front wheels. In hind-wheel steering the short car had an advantage, and if this method were adopted cars should be short and not long as at present. The general conclusion at which he and Dr. V. C. Burton had arrived was that hind-wheel driving was objectionable, because driving-wheels were very likely to slip. With front-wheel driving the motion would be more stable.

In the discussion which followed Professor Fitzgerald considered that the braking being on the back wheels of the car was the principal cause of the car swinging round when retarded or when braked running downhill. Mr. A. R. Sennett said he had been impressed with the value of rigidity between the front axle and the body of the car. It was to the use of the perch pin that side-slip was almost entirely due. Motor-cars were not the only vehicles that had side-slips. Strange antics were sometimes performed by London omnibuses. The reason was that the friction round the perch pin was so very slight that there was nothing to keep the body of the vehicle straight. Braking the front wheels he considered a dangerous thing, as it accentuated the risk of side-slip. It was the same with a bicycle. Braking the front wheel of a bicycle was a most unscientific thing, as it threw all the weight on to the crutch and was a fruitful cause of accident. As to motor vehicles, he thought the most scientific thing was to have all the wheels drivers. The next best thing was to have the front wheels drivers and the back wheels merely trailers.

Professor Boys, who also took part in the discussion, did not feel at all satisfied with the idea of steering with the back wheels, and he was afraid they had not yet arrived at the cure for side-slip.

POLICE TRAP.

THE police have a measured quarter mile from the foot of Kingston Bridge along the road to Hampton Court.

ANOTHER attempt to reduce the John o' Groat's—Land's End motor-cycle record is, we understand, being made this week.

TO CORRESPONDENTS.

All communications intended for insertion in this Journal or relating to Editorial matters should be addressed to THE EDITORIAL DEPARTMENT, MOTOR-CAR JOURNAL, *39 and 40, Shoe Lane, London, E.C., and must be written on one side of the paper only. Letters must in all cases be accompanied by the name and address of the writer, as no notice will be taken of anonymous communications.*

The Editors cannot undertake to return MSS. or drawings, although every effort will be made to do so in the case of rejected communications. Where such are regarded as of value, correspondents are requested to retain copies.

To insure insertion communications and contributions must be in the Editor's hands by Tuesday forenoon of the week in which the same are intended to appear. Disappointment may be caused by non-compliance with this rule, and to avoid this earlier receipt, if possible, is necessary.

The Editors do not hold themselves responsible for the opinions expressed by their correspondents, or for statements and facts which do not appear in the editorial columns.

The Editors and Publishers beg also to state that they will accept no responsibility for unsolicited contributions, even if used, unless payment for same is directly specified in forwarding, and the terms arranged before publication.

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THE

Motor-Car Journal.

VOL. VI.] LONDON, SATURDAY, SEPTEMBER 10, 1904. [No: 288.

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COMMENTS.



DOGS are an ever-present source of danger to the motorist—unless, like the Pomeranian carried by Miss Levitt in the Small Car Trials, they are well trained and perfectly accustomed to regard the motor-car with a friendly ease. Quietly passing through a village at a very moderate speed, the motorist is never free from the worry associated with the sudden advent of some snappy canine specimen from an unobserved position right under the automobile. It is all very well to suggest remedies; but the incident is so spontaneous that accidents may happen practically without warning. If the motorist escapes from danger and turns to denounce the dog, he is, in turn, made the object of ridicule and abuse from the owner of the barking creature.

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Dog Causes an Accident.

THE other day a somewhat serious motor-car smash occurred near Spalding, mainly through the driver trying to avoid a dog. A large one came barking at the car, and Mr. Bles, of Manchester, who was the owner of the car, in trying to avoid the animal, swerved the machine, and the front axle broke close to the wheel. The car was precipitated with great force into the ditch on the side of the road, and the mechanic steering was thrown several yards into a cross hedge in the adjoining field. Mr. Bles escaped with very little injury, the driving wheel of the car preventing him from being thrown out, but he received a severe blow in the stomach. Had he driven straight ahead the dog would probably have been killed. Then the owner would have come forward to claim compensation. But the motorist has no remedy against the person to whom the troublesome animal belongs.

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Dr. Barton's Airship.

FROM the deck of the Barton airship we have recently been able to survey the members of the Aeronautical Institute assembled at the Alexandra Palace to inspect the device that is now awaiting favourable climatic conditions to allow its inventor to ascend into the clouds. The airship is over 120 feet in length, and is constructed of bamboo, steel, and aluminium. Above this will be a balloon of projectile shape, the over-all measurements being 175 feet long, 60 feet high, and 40 feet wide. Towards each end is a 50-h.p. Buchet motor driving two propellers with six blades. Between these are three sets of aeroplanes which act in a horizontal direction for the purpose of raising or lowering the ship. On these Dr. Barton bases great hopes for the success of his idea.

◆ ◆ ◆

Waiting his Opportunity.

To test the mechanism the motors were set going while we were aboard, and an enormous draught was set up in the confined space of the airship shed. The rudder, 204 square feet in area, answered splendidly, the aeroplanes were shown to be effective, as was the device for counteracting the effect of members of the crew passing from one part of the deck to another by means of pumping water to and from tanks at the bow and stern respectively. A question of interest with regard to the silencer has been discovered, and the failure of a gauze silencer, which was blown off by the explosion, has led to the adoption of a tube twenty feet long, which will be suspended from the airship to keep the flame well away from the balloon. The airship is finished; all that is now wanted is the inflation of the balloon and a favourable day for Dr. Barton to make his trial trip into the clouds.

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Cricketers and the Car.

CRICKETERS, as true sportsmen, are well inclined towards the motor-car—a means of locomotion with which to make "runs" into the country. Mr. C. B. Fry can drive a car as well as a ball, and Mr. Lionel Palairet, of Somersetshire, is becoming as familiar with the garage at Bridgwater as with the county ground at Taunton. Two other cricketers, Trott, of Middlesex, and Braund, of Somerset, have also been a-motoring, but on Saturday the car whereon they rode collided with a cart, and the former was thrown out, receiving a shock as he struck the ground. Braund jumped, and alighted with an expression similar to that worn by the batsman when the appeal "How's that?" to the umpire results in another chance. It was with considerable relief that he found himself unhurt. There is luck in motoring as in cricket.

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Motor Fire Engine for Leicester.

THE Wolseley Tool and Motor Car Company, Limited, have just completed an automobile chemical fire engine for the Leicester Corporation Fire Brigade Committee. The vehicle has been constructed to comply with the requirements of Superintendent Ely, the chief officer of the fire brigade at Leicester. The vehicle has a specially-built chassis with a 9 ft. 6 in. wheel base and 4 ft. 9 in. track. The employment of the standard Wolseley horizontal type of engine renders a very large proportion of the chassis available for the fixture of the various fire brigade appliances. The wheels are of artillery pattern, the rear ones being 40 in. diameter and shod with Sirdar solid tyres, and the front 36 in. diameter and fitted with 5 in. Colliers. The rear wheels are specially reinforced with wire spokes to withstand very severe side strains. The chassis is fitted with a 24-h.p. horizontal petrol motor running at 750 revs. per minute. The cooling is on the usual "Wolseley" lines with the addition of a fan fixed inside the radiator. The engine is geared to speeds up to twenty-five miles per hour, and the transmission mechanism is in accordance with standard "Wolseley" practice.

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A Credit to British Industry.

THE rear part of the vehicle is fitted with a fifty gallon chemical cylinder, and hose reel mounted above it. Besides other first aid appliances the vehicle carries two 9-foot ladders and two hand extincteurs. There is accommodation for six firemen, including the driver. The engine has a very handsome appearance, being finished in accordance with fire brigade practice, and with its bright metal work and double-beat fire gong, big brass lamps, etc., presents a very workmanlike appear-

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ance. There is no doubt that the adoption of the automobile in connection with fire-brigade work will be of great advantage to the communities in which they are located, and we look forward to a considerable extension of their use in this country during the next few years.

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Duty Free Alcohol.

FOLLOWING his recent announcement in the House of Commons as to the probable appointment of a committee to inquire into the use of duty free alcohol for industrial purposes, the Chancellor of the Exchequer has just selected those to make an inquiry, the object of which is clearly stated in the terms of reference as follows:—"To inquire into the existing facilities for the use without payment of duty of spirits in arts and manufactures, and in particular into the operation of Section 8 of the Finance Act, 1902, and report whether the powers conferred on the Commissioners of Inland Revenue by this section permit of adequate facilities being given for the use of spirits in manufactures and in the production of motive power, or whether further facilities are required, and, if it should appear to the Committee that the present facilities are inadequate, to advise what further measures could be adopted without prejudice to the safety of the revenue derived from spirits, and with due regard to the interests of the producers of spirits in the United Kingdom."

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Lamp Posts in Surrey.

So many of our authorities do the right things in the wrong way that it would have been an excellent innovation could a different method have been reported from Surrey with regard to the warning posts now sprouting up throughout the town of Guildford. A local motorist writes to express the fear that the supply of masonic-headed lamp-posts is being overdone in the district. Of course they are recommended by the Local Government Board, but it is really difficult to distinguish them from ordinary lamp-posts. The posts should be painted a distinguishing colour as well as the triangles. The want of system that prevails in the county will probably be fatal to their usefulness.

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Motorists should help.

SIR HENRY PRIMROSE will be chairman of the alcohol committee, upon which Mr. Scott Montagu, Sir William Crookes and others will sit. Mr. Thomas Tyrer, who has made the matter a subject of special study, will give the committee the advantage of excellent technical knowledge, and, altogether, we are hopeful that this appointment will result in something practical which will be to the advantage of British industry in general, and to the development of automobilism in particular. Readers who have given the matter any thought, and have any special ideas upon the subject, are invited to communicate with Sir Henry Primrose, K.C.B., at Somerset House, so that arrangements may be made for the committee having the benefit of their knowledge. Should the committee report in favour of alcohol for motive power and industrial purposes being free of duty, there is no doubt an impetus would be given to an important aspect of automobilism.

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The Protection of Pedestrians.

OF the making of leagues and the formation of associations there is no end, and the latest novelty of this kind is the Highways Protection League, which seems to be based on similar lines to the other organisation at Brussels, to which reference was made in our Continental Notes last week. One object is to prevent annoyance to the public using the highways and investigate cases of danger or injury—whether to life, health, or property—or of annoyance or discomfort, caused by the highways being used in a manner inconsistent with the rights of the public. The society intends to take up vigorously all cases of oppression against pedestrians, and to generally enforce a good standard of conduct on the highways.

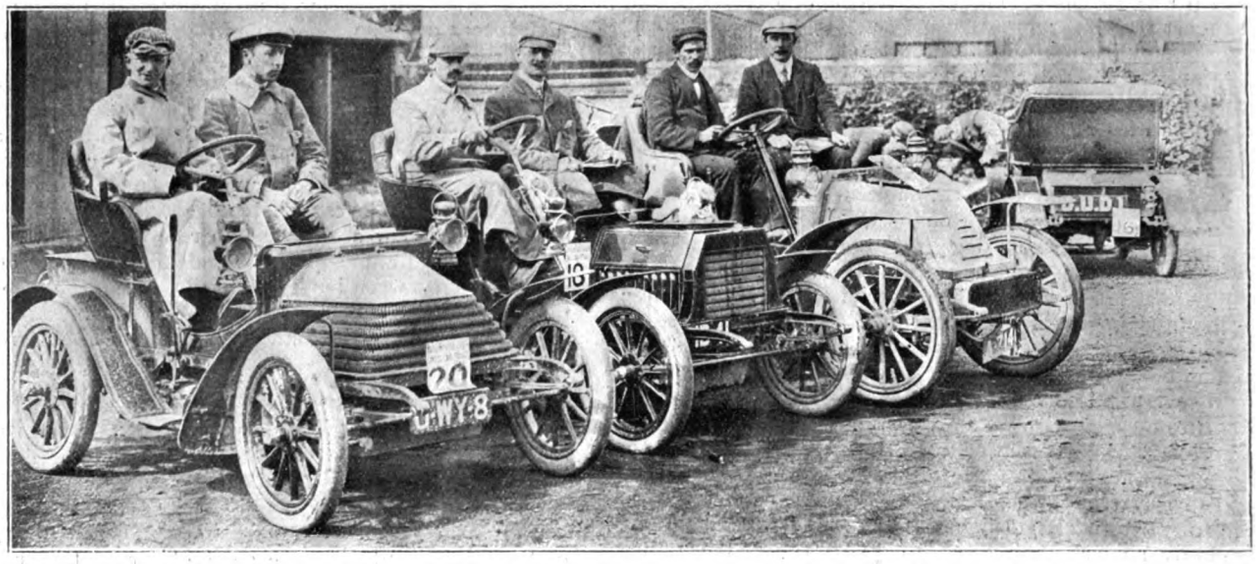


Photo by] The Small Car Trials. Three of the Successful Cars—The 6-h.p. Wolseley, the 6-h.p. Siddeley, and the 8-10-h.p. Crossley. *[Argent Archer.*

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Roads in Ireland.

A DISCUSSION has again broken out in Ireland with reference to the state of the main roads, as well as a good many of the subsidiary arteries of traffic. The Donegal County Council, we note with interest, has ordered two steam rollers, and the chairman has expressed his view that more will shortly be arranged for, and that the time is not very far distant when every rural community in that county will have its own steam roller. As the result of a deputation which recently waited upon the County Council of Donegal, headed by the Earl of Leitrim, it has been decided to ask the Local Government Board to allow an increase of ten per cent. for the margin of the allowance by the Local Government Act on the road expenditure in rural districts. There is no doubt that in some of the sparsely populated counties, where the registrations of motor-cars have been few indeed, something will have to be done to arouse local authorities to bring their roads into a proper state for automobile traffic. It is gratifying to notice, however, that the authorities in such a touring county as Donegal are becoming fully alive to the situation.

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A Sermon on Motoring.

On the occasion of the annual cyclists' church parade at Folkestone, where the first of these gatherings was held, the vicar preached against motoring as well as in favour of cycling. True he recognised the automobile as the friend of the heavily-laden horse, and rejoiced that its coming had lessened the cruelty often practised on God's creatures. But then, what of the poor pedestrian, he who ambles aimlessly along the roadway instead of keeping to the footpath, and who never knows which way to turn until the motor is on his track? Surely the whizzing car is an annoyance to him, and it can hardly be said—according to the reverend gentleman—to be a pleasure to those who ride. On that point there is more than one opinion.

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Slowly near Schools.

Within a hundred yards of schools in Forfarshire notice boards are to be erected by the County Council warning motorists to proceed cautiously till about the same distance the other side of the school. This is a provision with which no user of the road will have cause for quarrel. Children going to or coming from school often congregate about the gates, a habit which no amount of parental warning is likely to eradicate in one or two generations. Hence motorists should proceed slowly when within measurable distance of schools—especially when the youngsters are about. The wise regulation of the Forfarshire Council should be followed by other authorities this side of the Tweed.

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A New Accumulator for Electrical Cars.

We understand that a new accumulator known as the Ekstromer is shortly to be put on the market by a London syndicate, which is also contemplating taking up the construction of electrical motor-cars. No particulars of the cell are at present available, but among the claims made for it are its low first cost, the large output in proportion to weight, and the capability to withstand sudden rapid charges and discharges at very high rates. The battery is stated to be especially adapted for motor vehicle propulsion, and in this connection it may be mentioned that an electrical victoriette fitted with a battery of 48 Ekstromer accumulators has been twice driven from London to Reading and back, each time on one charge, the mileage covered being respectively 84½ and 89 miles. Recently a more ambitious test was essayed, that of driving to Bath on one charge. The route followed was *via* Maidenhead, Reading and Marlborough, the run being successfully accomplished. The net running time for the 107 7-8 miles was 8 hours 10 min., giving an average speed of 13½ miles per hour. At the start of the trip the voltmeter showed an E.M.F. of 108 volts, and at the end 92 volts. As it is stated to be safe to run them down to 82 volts, the distance run on one charge could easily have been increased. A partial recharge was obtained at Bath, on which a return run of 101 miles was made.

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1 in 200.

Dr. Sophia Jex-Blake has made the interesting computation, based on the number of automobiles registered in the United Kingdom, that the proportion of motorists to the general public may be taken as something less than one in 200. Probably the proportion is less than this liberal estimate; but, even if that is so, the figures are very satisfactory in view of the fact that until 1896 motor-cars were mere illegalities—so far as practical utility was concerned—in this country. She asks if the safety of 199 persons is to be sacrificed for the pleasure of one, and then makes the astounding statement that "no one can drive an average horse without a groom who can jump to his head at a moment's notice," because of the excessive speed at which motor-cars are driven. This is an exaggeration which will be apparent to Dr. Jex-Blake should she make a little careful observation in her own county of Sussex, where the police show far more prejudice towards motor-cars than do the horses.



Photo by] The Small Car Trials.—The Mayor of Hereford Proceeding on a 12-h.p. Wolseley to Witness a Hill Climb. *[Argent Archer.*

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Successful Motor-'buses.

At the last meeting of the Eastbourne Town Council, Councillor Simmons, as chairman of the electric light committee, moved the adoption of the electric light committee's report, and in doing so he referred to the motor-'bus balance-sheet in a spirit of congratulation. The committee, he explained, were endeavouring to mend their ways as rapidly as they could, but they had not yet, perhaps, quite succeeded. It was gratifying to see that there had been no loss on the working of the 'buses; in fact, he would go a little further, and say they

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had made a profit. They had already allocated £350 to the sinking fund, and £137 had been paid as interest on the capital, the profit since March, deducting £25 loss, being £50. If it had been a commercial undertaking the 'buses would have paid a dividend of 5 per cent., and allowed £254 to be set apart for depreciation. He also eulogised the services of the new traffic manager, and hoped that before another season the council would have given the committee permission to order another two double-deck 'buses.

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In Ireland.

THE local authorities in Ireland responsible for the maintenance of the roads seem disinclined to give more than their sympathy to those associated with the movement for the development of motor traffic in the country. In the county of Antrim the Midland Railway Company are prepared to adopt the Pirrie-Iveagh scheme if the County Council will give some definite assurance that the roads shall be properly maintained after the motor-vehicles have commenced running. Unfortunately, so many members of that body are bowed down with the burden of economy that they cannot look beyond a narrow radius and see the convenience and prosperity likely to be brought into the district by the automobile movement. Perhaps, after all, they are not wholly to blame. They want to see the evidence of facts, and it is about time something tangible arose out of the Pirrie-Iveagh proposals.

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An Indian Motor Union.

AT a meeting held at the offices of the Bombay Motor-Car Company at Bombay it has been decided to form a Motor Union for Western India. Lieutenant-Colonel M. Collie, I.M.S., Dr. A. H. Deane, Messrs. B. H. Hewett, E. R. Smetham, F. R. Hill, and Arthur Hoare were appointed members of a provisional committee to draw up rules for the Union, the objects of which are to encourage and develop the motor and other allied industries; to supply a centre of information and advice on matters pertaining to motor vehicles; to afford to its members support in the protection and defence of their rights whenever menaced; to allow members opportunities of reading periodicals and other literature pertaining to the industry; to afford information and advice connected with the automobile movement; to watch the progress of automobilism and generally to protect and encourage the same; to cultivate reciprocal relations with kindred institutions in other places; and to organise exhibitions, competitions, and excursions—a very comprehensive programme indeed.

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A New Sport.

MOTOR-BOATING provides a novelty for the lover of the water who has hitherto progressed with only moderate rapidity through his favourite element. As Mr. Parker Newton remarks in a recent "Munsey's Magazine," the new thing of the sporting season of the present year is the motor-boat—the natural sequel of the automobile. The races which have lately been held prove that it is something more than a fad. Almost every yachtsman who has the money to spare wants one of the craft, and the fact that their possession need not be limited to the millionaire class has already led to their presence on many of our rivers as well as along the coast. As a Naval Power this country is naturally interested in anything likely to be serviceable on the water, and not only naval authorities, but shipping authorities as well, are watching the progress of the motor-boat. It should also prove adaptable to the purposes of the lifeboat and the coastguard services.

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The Visit of the Institute of Journalists to the Hozier Engineering Company's Works on a Fleet of Argyll Cars. (*See page* 586.)

ON the 24th inst. an ascent of two balloons is being arranged by the Aero Club from the grounds of Pitmaston Moor Green, Birmingham, the residence of Mr. J. A. Holder.

A SCORE of motor-vans and many more motor-cars are playing a useful part in the army manœuvres in Essex, while "Napier Minor" travelled from Southampton to Brightlingsea, a distance of about 200 miles, in 12 hours 45 minutes at the call of the War Office.

SINCE the exhibit of the Hercules steam motor waggon at the Agricultural Hall, in March last, the makers have received so many enquiries from the London district that they have opened a showroom at 117, Long Acre, W.C., where a 5-ton wagon of the latest type, fitted with patent compensating axle, also with Rowcliffes and Perkins' "Samsonia" wheels, is exhibited, and an expert is in attendance to explain the advantages of the system. Amongst the claims made for the Hercules wagons, special attention is called to the adaptation of the road wheels to travel over uneven ground. The front compensating axle is arranged in a manner to permit of a considerable amount of oscillation being given to the front axle when travelling over rough ground, without affecting the level of the platform body; at the same time the wheels maintain the same vertical position in relation to the road, so that the wheel always offers a flat face to the road.

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The Small Car Trials.

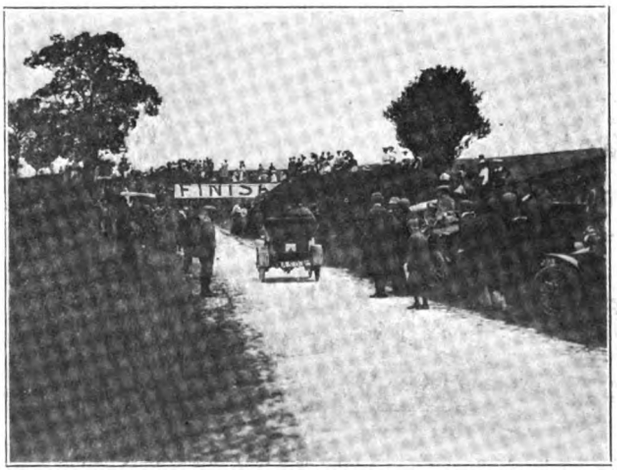
LAST week's *Journal* chronicled the runs which had taken place from Hereford in the first part of the week, and we were also able to include therein our Special Correspondent's report of the first run on the Wednesday. The trip in the afternoon was even more miserable than in the morning the threatened rain falling for two hours, with the result that very few people watched the hill-climb on the north side of Dinmore. Considerable excitement was infused into the climb by a herd of cattle getting mixed up with the competitors. The farmers also took the opportunity to break their horses into getting used to the cars. Later in the evening the weather cleared up.

On the Wednesday two non-stop runs were made by the Vauxhall, the two Wolseleys, the two Humberettes, the two Alldays, the Siddeley, the two De Dions, the Mobile, and the Croxted. Ignition troubles worried the Jackson and the Horley, while the Speedwell, having made a non-stop run in the morning, stopped on the hill near the Chase Inn in the afternoon. The Service car stopped on some of the hills, and the Pelham dropped a passenger on the hill near the Chase Inn on the second trip. The 8-h.p. Brown found a stiffish hill near Bromyard, and the 7-h.p. Clyde also discovered it to be difficult to negotiate. The Royal Enfield had to retire in the afternoon owing to a broken oil pipe for the cylinder lubrication, while tyre troubles overtook the Anglian later in the day. The Prosper Lambert had a broken inlet valve, and, in the afternoon, the Little Star ran short of petrol.

THURSDAY'S RUN TO LEDBURY.

Thirty cars remained on this day to proceed on the trials, the route of which was from Hereford *via* Tarrington to Ledbury, thence to Long Green, and back to Ledbury and Hereford by way of Eastnor. The rain of the day before rendered the air pure, the sky clear, and the roads free from dust—it was a day of long enchanting views. There were no formidable gradients on the roads, but a few nasty corners had to be negotiated, and in one place—between Eastnor and Long Green—it was not exactly macadam. A pretty scene presented itself at Stoke Edith, near Tarrington, where a cricket match was being played in front of Stoke Edith House, the mansion of Mr. Paul Foley. Along the roads the cottagers were lined; some, with every generous intention, threw apples and plums into the cars, a most dangerous practice, in which there were some narrow escapes from a nasty hit. To be struck with their generosity was not a metaphor for once. The Malverns, chased across by light and shadow, were in sight all day. From Ledbury the road wound in and out through a land of orchards laden with apples rosy red as the cheeks of the excited children

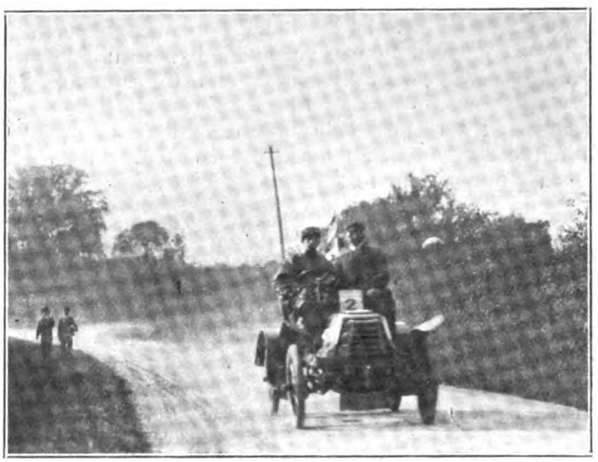




The Climbing Test on Frome's Hill.



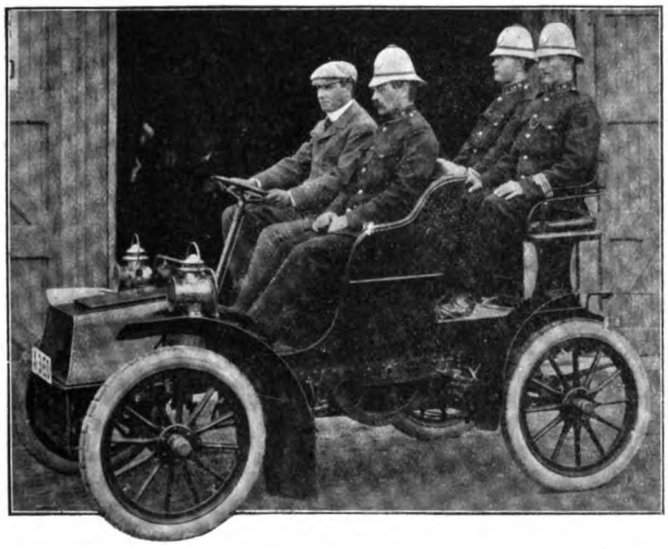
Testing the Hand Brakes at Bishop's Frome.



The 6-h.p. Speedwell, Winner of the Award in Class A on its last Run.

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who lined the village streets. At all the schools the children were let out to see the cars pass by. Even the partridges were forsaken for a day. From Long Green we swung towards Eastnor by a winding rising road from which we looked back over the vast Severn Valley, away into the heart of the Midlands Here lay all that was typically English. Leaving this behind, we ran beneath the Malverns into Ledbury, passing on our way the truly grand residence of Lady



Members of the Hereford Constabulary enjoying a Spin on a Cadillac Car.

Henry Somerset—Eastnor Castle—a many-towered and turreted pile amidst arcadian scenery. The second journey was very dusty. We were seated in a three-seated Alldays car, which ran beautifully without a stop throughout the whole day.

Thursday saw the following among the non-stoppers:—One Jackson, 6-h.p. Speedwell, two Wolseleys, two Mobiles, Brown, Star, two Humberettes, two Alldays, Siddeley, two De Dions, Croxted and Prosper Lambert. On the first outward journey to Ledbury the Horley retired owing to the breakage of its exhaust valve flange, while the Vauxhall car had the misfortune to break its connecting rod. The Service was delayed by punctures. A broken petrol pipe delayed the Pelham seven minutes. The air rod fouling caused the 8-h.p. Horley a delay of forty-five seconds in the morning, while dirt in the carburettor was a source of annoyance to the driver of the 9-h.p. Speedwell. In the afternoon the 7-h.p. Clyde had a stop of nine minutes to replace the key in the inlet valve. The 9-h.p. Oldsmobile had trouble with the exhaust valve on the second journey, and the sticking of the inlet valves spoilt the record of the Swift for the day. A screw tap being lost on the Little Star caused a loss of 3½ minutes, while the list of misfortunes was completed by the Anglian's stoppage of one hour forty minutes in consequence of tyre troubles.

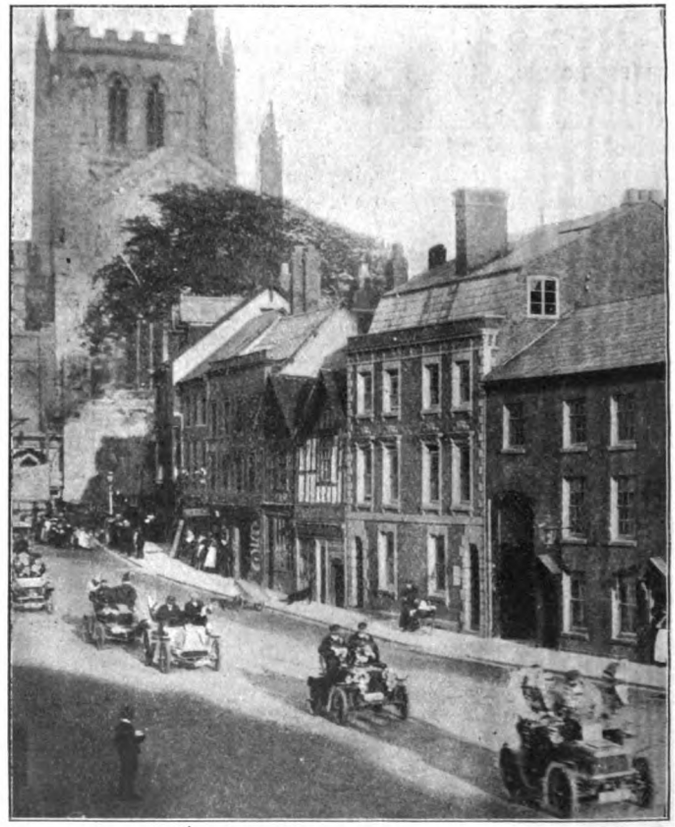
In the evening a smoking concert was held at the Green Dragon Hotel, when the Canine Society was appropriately inaugurated. Miss Levitt's black Pomeranian dog had become so popular that several of the drivers bought toy dogs and decorated their cars therewith. At the concert several had china dogs on their coat lapels. The joke was crowned when Miss Levitt sent a parcel of dog biscuits as a sweet morsel for the delight of her friends attending the concert.

In South Hereford.

The venue for the Friday's run was partly in South Herefordshire, an entirely new district of the county for the visitors and one which they regretted they had not seen before. We obtained a seat in the well-knit "Mobile" which took us to Ludlow so well on Monday. There were indications of rain, grey squadrons of storm cloud skirting the horizon, but none fell during the day; instead, the roads were exceptionally dusty. After four miles along the flat we ascended the Callow pitch, a steady incline of one mile, which upon being covered revealed a valley of enormous size and of charming loveliness. The eye traversed down undulating slopes into the softly swelling middle distance and onward to the abrupt barriers of the Black Mountains. Immediately in front was seen the smoke of Bryngwyn, the handsome mansion of Sir James Rankin, M.P. The town of Ross and the neighbourhood called for enthusiastic comment, the winding roads, the clustered elms, the occasional glimpses of vales, and the woods all created an ineffaceable impression. The country between Ross and Ledbury was pregnant with beauty, and, although the roads were circuitous in the extreme, their loveliness more than rewarded us. Much Marcle Hill, which we passed on the right, was the scene (chronicled by Leland) of a landslip which lasted for many days, carrying away both houses and trees in its course. Only recently there was a similar slip here, but of no great magnitude. From Ledbury the route was the same as on the previous day.

On Bishop's Frome an unexpected brake test was held, the gradient of the stretch of road whereon it was held being 1 in 7·8. The vehicles were first called to a standstill, and then ordered to run backwards, the brakes being applied separately. The intention was to test the capacity of each for holding the vehicle, and the way in which the cars stood the test revealed the good brakes with which they had been provided by the makers. Later in the day, on Ayleston Hill, on the outskirts of the city, another trial took place, the brakes having to be applied as the vehicles were moving forward.

The "smoker" of Thursday night, which was so immensely enjoyed, was followed by another on Friday evening at the



Photos by] The Final Procession into Hereford. [*Argent Archer.*

Mitre Hotel, when the Mayor of Hereford presided, supported by a large number of prominent citizens. Again there was the same interchange of expressions of pleasure both from the visitors and the visited. Mr. Joy, in response to the toast of his health, alluded to the great assistance which had been

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rendered him on all hands, and especially from the police. Motorists' opinions of the Herefordshire police are that they are paragons of politeness.

The Trip to Kington.

It was a morning of *lapis lazuli* sky, arched over on huge precipices of cumulous cloud more like than not the marble heights of Carrara. The climax of beauty was reached in the route we took. Put prosily, we went to Kington *via* Yazor and Lyonshall on to Walton and returning *via* Knill and Titley to Kington and Hereford, but one felt it was an excursion into Arcady. Up and down, and in and out, through tunnels of green along tessellated roads of gold and purple—shadow and sun—past gardens of hollyhocks, anemones and stocks, by rectory gardens aflame, and over hilltops from which, in contrast, could be seen the blue hills of the songland of Wales—borderland and fairyland. At Credehill we passed some ancient camps named after Creda, first king of the Mercians. A little further on a view of the Brinsop Hills was obtained, which we might almost claim as Wordsworth country, for here he used frequently to come. At Brinsop Court can be seen a cedar of Lebanon said to have been planted by Wordsworth and Southey. In the Sarnesfield churchyard, which we left behind, lie the remains of John Abel, the architect of most of the ancient town halls and stately manor houses in the county. Away over the Wye, on the left, we could see the Moccas Woods, where lies Owen Glendower, the rebel chief and raider. The name strikes no terror now. Near Sarnesfield we met with a free lance Humber car in trouble. In passing another car, the left front wheel struck a huge stone in the grass, breaking both front wheels. Mr. Letts, of Messrs. Jarrott and Letts, kindly took up a couple of stranded pressmen, and with this load we continued the journey. The over-weighted car behaved splendidly. Lyonshall and Kington are two large villages, ancient and forgotten. Kington, however, can boast a railway station, which came in very handy for some unfortunate pressmen who were on a stranded Rex. About four hundred years ago Kington was not a part of Herefordshire, but was in the Welsh kingdom of Powys. In the afternoon we made the same journey. We had the offer of a seat in the Mobile, a car which was a favourite with all the pressmen.



Three of the Competing Cars—The 8-h.p. Rover, the 7-h.p. Clyde, and the 8-h.p. Prosper Lambert.



A Familiar Scene in High Town, Hereford, during the Week of the Trials.

On the return journey a surprise was sprung on many of us. At the last moment it had been decided to have a procession through Hereford, and for this purpose the cars were stopped a mile out of town. A band in a brake came up and headed the line of beflagged cars.

Miss Dorothy Levitt did not arrive in town to take part in the procession, and the long time which elapsed before she came in caused some consternation. Everyone was genuinely sorry, that, after such a record, her car should break down and cause her to lose the non-stop award. The needle valve of the carburettor of the De Dion she was driving got loose and cut

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off the supply of petrol. Miss Levitt, who had had to prepare her car herself for each daily run, at once commenced to look for the cause of the trouble, but unfortunately it took thrice the allotted official time to locate, and disqualified the vehicle for the non-stop run. When she did arrive she was hailed with cheers and her car was stopped outside the City Arms Hotel, where



The 6½-h.p. Service Car. (*See page* 539, August 27th issue.)

she was made the recipient of a handsome bouquet of roses and lilies from a number of chauffeurs who "admired her sportswomanlike qualities."

Some of the free lance cars were elaborately adorned with flowers, a noticeable one being the Oldsmobile. With the band in full swing, the procession, which was quite half a mile long, went round Hereford. The streets were crowded. As we passed up King Street to the Drill Hall, the sunlight broke over the housetops and fell in a golden mist upon the bright cars, lending a glory to the whole cavalcade. It was the glory of a glorious week, which the visitors and the people in the old cathedral city will ever remember as one of the happiest ever spent.

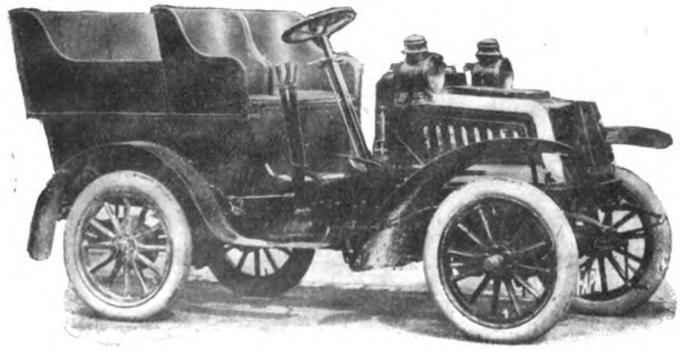
The judges have recommended the following non-stop awards:—

CLASS A.

First award: The 6-h.p. Speedwell, No. 2 (7 non-stop runs).
No second award.

CLASS B.

No car eligible for the non-stop award.



The 8-h.p. Horley Four-seated Car.

CLASS C.

First award: the 6-h.p. Siddeley, No. 18 (12 non-stop runs).
Second award: the Wolseley team, Nos. 20 and 10 (12 and 11 non-stop runs respectively).
Third award: the 6½-h.p. Humberette, No. 16 (11 non-stop runs).
Fourth award: the Alldays light car, No. 17, 1 of team (9½ non-stop runs).
Fifth award: the 7-h.p. Little Star, No. 15, 1 of team (9 non-stop runs).
Sixth award: the 6-h.p. Mobile, No. 11 (8 non-stop runs.)
Seventh award: the 9-h.p. Speedwell, No. 13 (6 non-stop runs).
Eighth award: the 8 h.p. Brown, No. 12 (5 non-stop runs).

CLASS D.

First award: The 8-10-h.p. Croxted, No. 30 (12 non-stop runs).
Second award: The 7½-h.p. Humberette, No. 34 (11 non-stop runs).
Third award: The Alldays Light Car, No. 32, 1 of team (9½ non-stop runs).
Fourth award: 7-h.p. Little Star, No. 38, 1 of team (9 non stop runs).
Fifth award: The 8-h.p. Mobile, No. 24 (7 non-stop runs).
Sixth award: The 9-h.p. Anglian Light Car, No. 31 (5 non-stop runs).

The following cars which completed the whole of the distance, though ineligible for the non-stop awards, are reported by the judges as worthy of special mention:—

Very highly commended.—The team of 6-h.p. De Dion cars, Class D., No. 22 (12 non-stop runs), and No. 23 (11 non-stop runs).
Highly commended.—The single-cylinder Swift, Class C., No. 14 (10 non-stop runs), and the 7-h.p. Swift, Class D, No. 26 (10 non-stop runs).

Announcements with regard to the Gold, Silver, and Bronze medals will not, we learn from an official source, be made till next week.

THE HILL CLIMBS.

Official number.	Car.	Miles per hour on the hills. Dinmore (First Day).	Frome's.	Dinmore (Third Day).
1	6-h.p. Jackson dogcart	11·2	—	10·2
2	6-h.p. Speedwell	11·4	—	10·5
3	8-h.p. Horley	12	—	11·5
4	6-h.p. Jackson dogcart	9·5	—	8·2
5	6-h.p. Light Vauxhall Car	9·1	8·3	7·1
6	7-h.p. Oldsmobile Runabout	—	—	—
7	6½-h.p. Service	9·3	—	9·1
8	6-h.p. Pelham	8·9	7·3	8·4
9	8-h.p. Horley	11·1*	—	7·1*
10	6-h.p. Light Wolseley	16·1	11·8	15·1
11	6-h.p. Mobile	8·7	8·2	7·4
12	8-h.p. Brown	9·4	5·4	9·1
13	9-h.p. Speedwell	11·4	8·1	9·5
14	Single-cylinder Swift	15·5	10·8	13·2
15	7-h.p. Little Star	14·9	10·8	12·9
16	6½-h.p. Royal Humberette	12·6	8·4	8·5
17	Alldays light car No. 1	11·3	8·5	10·6
18	6-h.p. Siddeley	14·9	10·2	13·2
19	7-h.p. Downshire	—	—	—
20	6-h.p. Light Wolseley	14·2	10·6	12·3
21	7-h.p. Clyde	8·5	—	10·8
22	6-h.p. De Dion	16·5	10·5	13·6
23	6-h.p. De Dion	13·9	9·3	11·5
24	8-h.p. Mobile	14·1*	10·7*	15·1*
25	9-h.p. Oldsmobile	12·6†	9·8†	11.2†
26	7-h.p. Swift	15·2	9·3	13·2
27	8-h.p. Royal Enfield	13·5	8·6	—
28	8·25-9·65-h.p. Cadillac	13·3*	—	—
29	10-b.h.p. Chriton	—	—	—
30	8·10-h.p. Croxted	13·9	9·8	13·4
31	9-h.p. Anglian light car	9·2†	—	12·2†
32	Alldays light car No. 3	16·2†	8·7†	13·8†
33	8-h.p. Rover	15·1	—	—
34	7½-h.p. Royal Humbarette	12·8	7·7	11·1
35	6 h.p. Belsize Junior	—	—	—
36	8-h.p. Simms	—	—	—
37	8-h.p. Prosper Lambert	11·3	7·3	9·5
38	7-h.p. Little Star	16†	10·2†	12·8

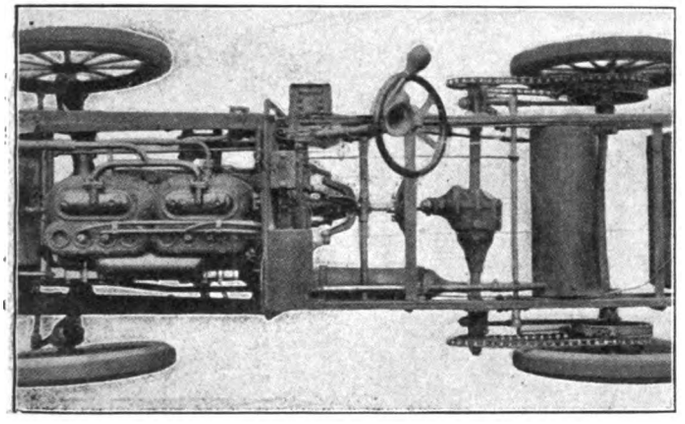
* An allowance of 25 per cent. on the actual mileage has been allowed, as the car carried two additional passengers.
† An allowance of 12½ per cent. on the actual mileage has been allowed, as the car carried an additional passenger.

GENERAL BOOTH concluded his 1,500 miles motor missionary tour at Aberdeen on Tuesday.

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A PETROL CAR WITHOUT A CHANGE-SPEED GEAR.

MANY minds are at work with the view of producing a petrol car in which the use of a change-speed gear will be rendered unnecessary. With the adoption of the multi-cylinder engine and the increased range of motor speeds obtainable by the use of automatic carburettors, there are now many cars on the market in which the bulk of the driving is done on the top, direct, gear, a low gear being only required for starting and for use on very steep hills. To do away altogether with the gear-box is, however, the great object of petrol car designers, and the news that a car with no gear-box already exists will no doubt be received with surprise and interest. It is in Brussels that the novel vehicle has seen the light, but so far M. R. Goldschmidt, its designer, has allowed few if any details to leak out. We are able to state, however, that the car he has built is fitted with a four-cylinder engine of from 40-h.p. to 50-h.p., which is stated to be so flexible that it is possible to run the car at any speed from zero to maximum, without using a change speed gear of any kind. From the information available, the idea seems to be a development of the Chenard-Walcker system of varying, not the lift, which is always the maximum, but the time the inlet valves are kept open. One of the most interesting features of the vehicle is that by a special arrangement of cams it is possible to reverse the direction of rotation of the engine when it is necessary to



Plan of Petrol Car with no Gear Case.
[*La Vie Automobile.*

drive the car backwards, so that the vehicle has neither a change speed nor reverse gear of the type usually found on petrol cars. We hope to give further details of this interesting departure as soon as the work of taking out the various patents has been completed.

PRINCE JOACHIM ALBRECHT of Prussia will follow the forthcoming autumn manœuvres in Germany in a motor-car.

FROM two roads in Scotland motor-cars have been prohibited by order of the Secretary of State, viz., the road from Monachylemore to Inverlochlaig, and that from Gartchonzie Road-end to Trossachs Pier, Loch Katrine.

FROM Patcho, Ltd., Bradford, comes a sample of the Patcho vulcanising fluid they have lately introduced for fixing patches on the inner tubes of motor tyres. It is claimed for the preparation, which is easily applied, that there is no possibility of a patch fixed by it coming off.

IT appears that the recent "hold up" of motorists at Boston, U.S.A., to see if they were complying with all the provisions of the Massachusetts Act relating to motor-cars, is to be repeated periodically. It is proposed, in addition to inspecting the automobiles not yet examined by the police, to see to what extent those already recorded have remedied the defects the police discovered.

CONTINENTAL NOTES.

Public Services in Germany.

A small company is in course of formation at Northeim to start a public service of motor vehicles between that town and Echte. Arrangements have also been completed for a service of motor-'buses between Grosszschocher, Eythra, Zwenkau, and Gautzsch, near Leipzig.

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An Austrian Automobile Testing Laboratory.

As mentioned in this column recently, the Austrian Automobile Club intends to establish a somewhat similar institution to the "Laboratoire d'Essais" of the Automobile Club de France, only on a broader basis, in order to more thoroughly further automobilism throughout the Austrian Empire. It is proposed that the institute shall not only be fitted out with all the plant necessary for testing motors, etc., but also for brake, tyres, chain and gear trials. Experiments and demonstrations of different types and constructions of cars are also to be a feature.

◆ ◆ ◆

Motor-Boats.

As with motor-cars, the horse-power of motor-boats is advancing rapidly. Last year vessels with 40 to 60-h.p. were considered monsters. In this year's races boats with motors of a capacity of as high as 100-h.p. have taken part, while now it is reported that several of the French makers are preparing boats of 200-h.p. for the 1905 racing season.

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Hill-Climbing in Belgium.

Under the auspices of the Automobile Club of Namur and Luxembourg, a hill-climbing competition was held last week over a 2·8 kilometre course on the Citadelle hill at Namur. The average gradient is given as six per cent. The best time of the day was made by M. Miesse on a Baudouin car, time 3 min. 15 3-5 sec., he being first in the general classification and the winner of the under £600 category. The motor-bicycle class was won by M. Marnette on a Sarolea in 3 min. 44 4-5 sec.; the under £240 section by M. Fischer on a Vivinus in 4 min. 3 1-5 sec.; the under £400 class by M. Oppermann on a Malevez-Michotte in 4 min. 22 4-5 sec., and the under £800 class by M. de Lamine on a Rochet-Schneider in 3 min. 26 2-5 sec.

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The Speed of Motor-Boats.

Evidence of the growing popularity of motor-boating is seen in the fact that a member of the Conseil General of the Nord Department of France considers it time that legislation was enacted restricting the speed of motor-boats, and is bringing forward a resolution to that effect.

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Motor Vehicles in the German Military Manœuvres.

An extensive test of motor vehicles is to be made in the German autumn military manœuvres, which are to take place in the Homburg district. It is stated that no less than twenty-two fast cars and thirty-four motor-cycles will participate in the operations.

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Motor-Boat Racing in Switzerland.

Considerable interest is being shown in the motor-boat races which are to be held on Lake Lucerne on the 10th and 12th inst. The first day is to be devoted to cruisers and the second to racers. For the latter a number of well-known boats have been entered, including the Georges Richard "Trefle-a-Quatre," "Mercedes IV.," "Hotchkiss," "La Rapée III.," and "Berliet IV."

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Motor-Cars for Military Purposes.

Some successful experiments in the mobilisation of automobiles in case of war have just been made at Brescia by the Italian military authorities in conjunction with the Italian Automobile Club. Thirty private motorists took part in the event, they being given the task of conveying messages from one imaginary military camp to another, and discharged it

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with the utmost dispatch. The distance to be covered was between 400 and 500 kilometres. There was only one accident, a car being damaged by a collision with a telegraph post. Several cars conveyed provisions, and two carried guns. As a result of the experiments it is conjectured that the Italian Minister of War will henceforth attach the same importance to motor-cars as to railways in the matter of transport.

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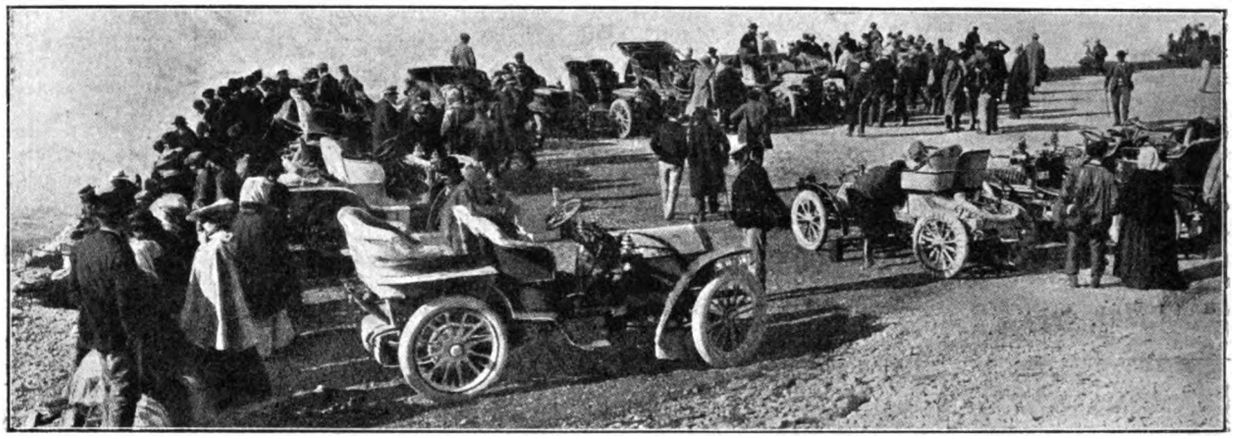
The Brescia Circuit.

In connection with a cycle and motor exhibition at Brescia, Italy, a 370 kilometre race was held on Sunday last, on an 185 kilometre circuit between Brescia, Verona, and Peschiera, and back again to Brescia, the course having to be covered twice. the second position, Lancia being declared the winner in 3 h. 12 min. 56 sec. Florio was third and Duray fourth. The light car section was won by Hemery in 3 h. 34 min. 27 sec., Raggio's time being 50 min. longer.

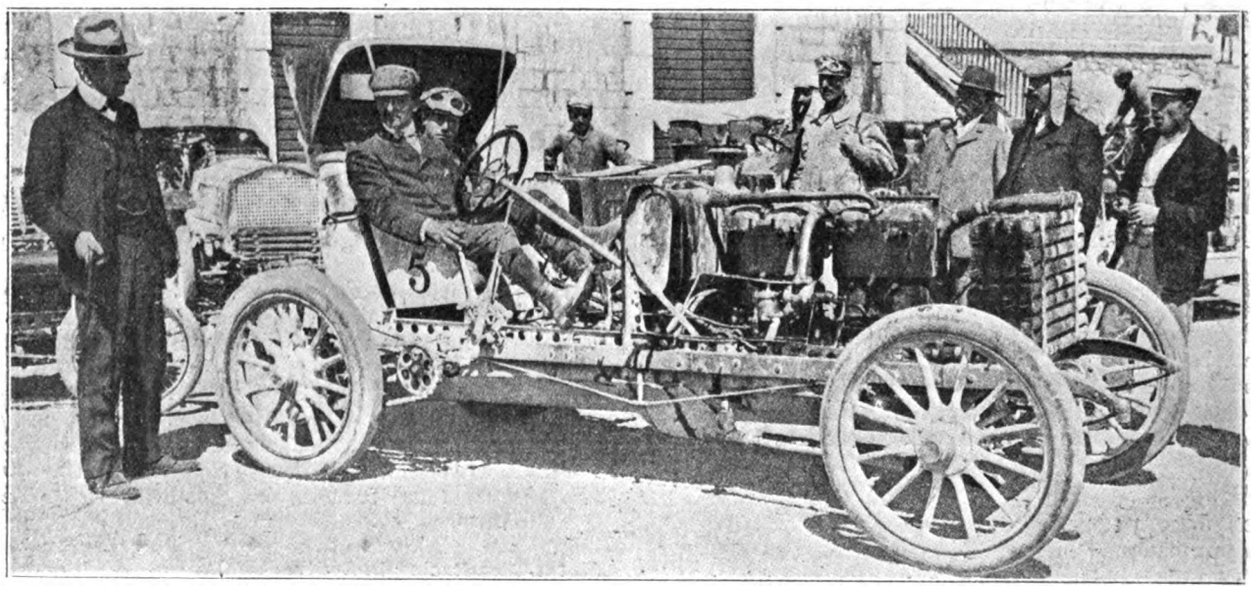
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Motor-Boat Racing at Monaco.

The Monaco motor-boat race meeting, which proved so successful in April last, is to be repeated next year on a much larger scale. The meeting will extend from the 2nd to the 16th April. For the first four days the boats will be placed on exhibition, after which three days will be devoted to preliminary trials. The racing proper will commence on the 9th April and will continue daily for a week.



The Scene at the Summit.



Rougier on his Turcat-Mery, which made the Fastest Time.

THE VENTOUX HILL CLIMB.

The start was made at 5.30 a.m., the competitors in the heavy car section being Lancia (75-h.p. Fiat), Duray (80 h.p. Darracq), Teste (100-h.p. Panhard), Florio (60-h.p. Mercedes), Nazari (70-h.p. Panhard), and Cagno (75-h.p. Fiat). In the light car section only three started—Hemery on a 50-h.p. Darracq, and Raggio and Parodi, each on 24-h.p. Cieranos. In the first round Cagno fell into a canal at one of the turns, and, although unhurt, had to retire. Nazari and Parodi also gave up. The best time was made by Teste on the 100-h.p. Panhard, but a protest was lodged that he had broken the rules by filling up his petrol tank in one of the neutralisations. For this the judges decided to add 3 min. to his time, placing him in

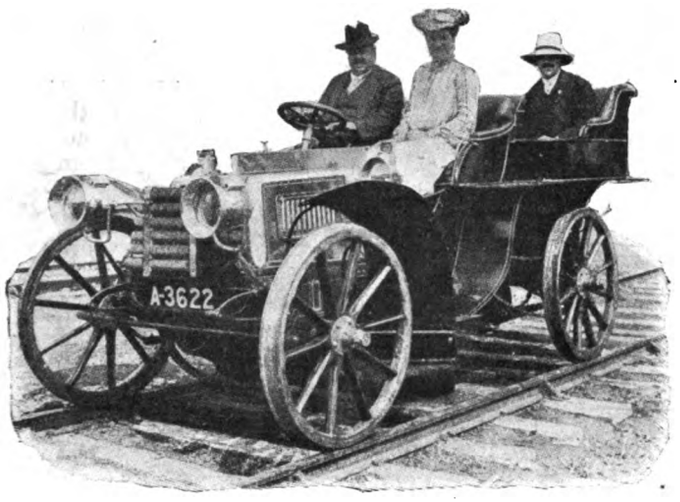
The International Motor-Bicycle Race.

Challenges for the international motor-bicycle race, to be held by the Moto-Cycle Club de France on the 25th inst., have been received from Germany, England, Austria, and Denmark. There will thus be, with the French team, fifteen competitors on the road. Fifteen entries have been received for the eliminating contest for the French team, which is to be held on the 13th inst., these including three Buchets, three Peugeots, three Griffons, three Lamaudières, an Arglon, a Rigal and a Mayeski. The race is to be held over a 54 kilometre circuit in the Dourdan district, the course having to be covered five times, making a total distance of 270 kilometres (about 170 miles).

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HERE AND THERE.

It seems strange to British motorists to learn that Mr. C. J. Glidden, of Boston, U.S.A., who is engaged in a tour of the world by motor-car, is to be allowed to use the railway tracks instead of the ordinary roads in America. In fact, three transcontinental railroads offered him the use of their rails for his ride to the Pacific on condition that he followed train orders and carried a conductor and an engine driver, so as to comply with the rules. He originally selected a route *via* Texas to California, but later changed it to the northern route *via* the Canadian line. West of Winnipeg he will cross the great Canadian prairies and



will enter the Rocky Mountains *via* Kicking Horse Pass. The total distance of the rail route will be upwards of two thousand miles. The car—a Napier—will be driven only during the day, and will be run on to sidings at nightfall to enable the passengers to rest in hotels. According to the proposed schedule, an average speed of about thirty miles an hour will be maintained on the route. Before the start is made, special forgings will be fitted to the steering gear to keep the wheels pointing rigidly ahead, and only the control of the car will occupy the driver's attention, no steering being necessary. The accompanying illustration shows the vehicle fitted with a set of wood wheels with steel flanged tyres. The felloes are made in halves and the steel tyres are fastened to them with countersunk screws from the outside.

Sir F. R. Wingate, the Sirdar of the Soudan, intends to take a motor-car with him on returning to Egypt.

Count Khevenhuller, Austrian-Hungarian Ambassador in Paris, has lately acquired a 16-h.p. De Dietrich car.

The records in the automobile licence department of the New Jersey Secretary of State's office show that 6,997 vehicles have been licensed under the automobile law of the State.

A new "Guide to London" has been issued by Messrs. Keliher and Co., which, with its route maps, will have some value to provincial motorists visiting the metropolis for the first time.

Mr. A. F. King, for some time manager of the fitting and repairs department of Messrs. De Dion-Bouton, Limited, has taken over the management of the Lancaster Motor Garage at Lancaster Gate, W.

One of the latest accessories to be put on the market by Messrs. Alfred Dunhill is a novel petrol gauge which shows at a glance the exact quantity of petrol contained in the tank. The device is being made for both motor-cars and cycles.

Mr. Thomas Shaw, of Dundee, who recently secured the Glasgow to London, Edinburgh and Inverness non-stop records, used a 15-h.p. car fitted with Palmer Cord touring tyres. Throughout 3,000 miles he only suffered one puncture, this being caused by a horseshoe nail.

In reference to the paragraph in a recent issue of the *Journal* regarding the "All's Well" lubricating oil for petrol motors, the Bowring Petroleum Company, Limited, ask us to mention that they also manufacture various grades of oils for the lubrication of steam and electric motors.

United Motor Industries, Limited, have been appointed sole selling agents for Werner motor-cycle parts, fittings, and accessories generally. They have also taken over the repair department of Werner Motors, Limited, and have a well-fitted workshop with a staff of men thoroughly familiar with all the different types of Werner machines.

Long Beach, one of California's seaside resorts, is very careful of its asphalt pavements. To further protect them it has decreed that "no horse, vehicle, automobile, or motor-cycle shall remain standing for more than fifteen minutes" on any street so paved. It is explained that the provision was made necessary by "the rotting of the pavements, due to oil drippings from the machines."

Messrs. Jarrold and Sons have issued a series of road maps of East Anglia which should be most useful to motorists on tour in that district. Norfolk, Suffolk, Essex, and Cambridge are the counties included in the series; while the Lowestoft and Cromer localities have separate maps devoted to their main roads. The same firm have also issued street maps of Norwich, Lowestoft, Cambridge, and Yarmouth.

The Auto-Lubrine Company, of Fairfield, Manchester, whose motor lubricating oils are already well known, have just brought out a new preparation known as "Blanchine" for removing grease, etc. While it is stated to be invaluable to motorists by reason of the fact that it instantly cleans the most soiled hands, it is also useful for cleaning metals and machinery, removing tarnish, rust, dirt and stains in short order.

Mr. C. Friswell has just returned from a motor-car tour through France and Switzerland, over the Alps and passing through Neuchatel, Interlaken, Lucerne, Zug, Zurich, Berne and Belfort, including the Brunic Pass and Les Verrieres de Joux, which are two of the steepest mountains in Switzerland where there is a road at all. He spent two or three days at the Peugeot works in Audincourt, Valentigny and Beaulieu, from there to Lille, where he spent another two days, and then on to London. The tour was done on the new 18-24-h.p. Peugeot, and during the time the machine was in use Mr. Friswell never put a spanner on it, nor was he stopped on the way for any cause whatever.

Messrs. Moss and Woodd have sent us the accompanying illustration, showing one of their Orion motor vehicles which has been running for Messrs. Maple and Company for the past four weeks. They also send us a statement of the work done by the



car, which shows that it has been used daily, with the exception of Sundays, the runs extending to Cambridge, Southampton, over the Hog's Back, Clacton, and many other places. On the 22nd ult. the vehicle was subjected to a test on Netherhall Gardens, N.W., up which it successfully carried a load of two tons.

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Mr. E. M. Goldburgh, of Forest Gate, E., has sent us particulars of a novel form of sparking plug he has lately devised. As will be seen from the illustrations, the central insulating core of the plug is formed with suitable passages to contain two conducting wires, which protrude at the lower end of the plug and form sparking points for the explosions. The return wire passes through the side of the core near the upper end thereof, and there forms an external

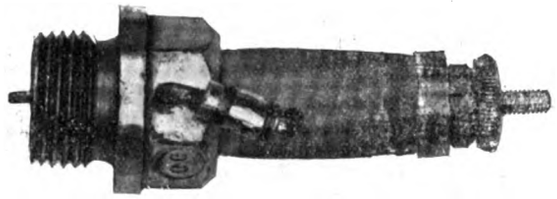


Fig. 1.—General View of Plug.



Fig. 2.—View showing Position of Wires in Self-Testing Plug.

sparking gap in conjunction with a short pointed wire secured to the metal shell of the plug. The external sparking gap is protected by a transparent casing. The special advantage of this device is that it allows the working of the plug to be ascertained without detachment. A further useful improvement introduced by Mr. Goldburgh is a sparking plug and terminal protector with a view to obviating short circuiting at the connection or binding rod owing to the presence of a conducting liquid, such as water or oil. The metal cap or shoulder is replaced by, or covered with, an insulating material in such a manner as to allow only the short binding screw to project to receive the eye or loop of the conducting wire. This nut consists of insulating material, and may advantageously be closed at its outer end.



The "Albert Brown" Motor-Cycle Trophy to be competed for to-day (Saturday).

We understand that the Dunlop-master patent expires on Friday next.

The members of the Institute of Journalists, who met last week in congress at Glasgow, had a trip from their headquarters at the Grand Hotel to the works of the Hozier Engineering Company, Limited, at Bridgeton. The cars shown in the photograph reproduced on page 578 are all "Argylls" lent for the occasion by owners in Glasgow and the West of Scotland.

MOTOR CYCLING NEWS.

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Those motor-cyclists who linger by the roadside on the occasion of the Auto-Cycle Club's run from London to Exeter on the 15th and 16th inst. will find a heavy bill awaiting their arrival in the Devonshire city. Among the new rules to be enforced is one providing that any competitor reported as having been seen stationary by the roadside will be fined 1s. for each stoppage, and the last three arrivals will be fined 5s. each. These fines, in addition to the amount already voted for the prize fund, will enable the club to present suitable mementoes of the trial to those who succeed in making a non-stop run.

♦ ♦ ♦

In the motor-cycle trials reported last week, the only M.M.C. motor in the trials was fitted to the 3½-h.p. King, which gained a first-class certificate and silver medal.

♦ ♦ ♦

The final run for the 200 miles non-stop trial of the Motor-Cycle Union of Ireland has been held, the course, as on the first occasion, being from Dublin to Waterford and back. Five members started, namely, T. W. Murphy, F. A. Wallen, H. T. Harman, of Birmingham, G. Mayne, and W. J. Thompson, of Mallow. A variety of misfortunes occurred to all the competitors with the



Mr T. W. Murphy and his 3-h.p. Singer Motor-Bicycle.
Photo by [*Lafayette.*

exception of T. W. Murphy, who, on a 3-h.p. Singer motor-bicycle, succeeded in making a non-stop run well within the limits of time laid down by the conditions of the competition, and consequently he holds the cup for one year, and also wins the gold medal.

♦ ♦ ♦

The committee of the Auto-Cycle Club has entered the following machines and riders to represent England in the international cup race for motor-cycles which takes place in the department of the Seine-et-Oise, on the 25th inst.:—J.A.P., W. Hodgkinson; Lagonda, H. P. Harding; Quadrant, T. Silver.

♦ ♦ ♦

The motor-bicycle relay ride from Stuttgart to Kiel which is being organised by the German Motor Cyclists' Union is to take place on the 19th and 20th inst. The total distance is about 480 miles, and this is to be divided into eight sections of, roundly, sixty miles each. Only machines up to 3-h.p. are to be allowed to take part in the event.

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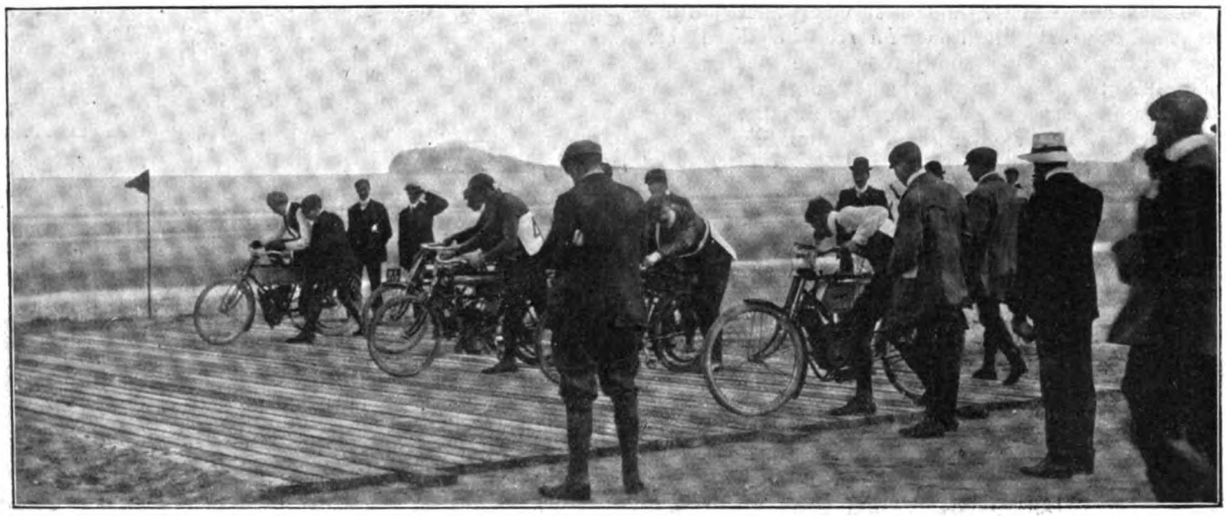
On the 29th ult. Mr. R. Blakoe, of Penrith, made a good performance on a 2½-h.p. motor-bicycle. Starting at 5.58 a.m. to ride to Edinburgh and back within twelve hours, he reached the capital at 10.56 a.m., left at 11.15 a.m., and arrived in Penrith at 4.37 p.m., having completed the 240 miles in 10 hours 39 minutes.

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THE MOTOR RACES AT PORTMARNOCK.

BY a happy inspiration which prompted the committee of the Irish Automobile Club they selected the Velvet Strand at Portmarnock for the inauguration of the two days' motor festival. It was felt at the close of the Gordon Bennett event last year that a more sustained interest in automobilism would be the better ensured by the promotion of a series of diversified speed contests, in which a number of cars of varying power and characteristic features would be the competitors. To this end the Phœnix Park, and later on the Castlewellan (co. Down) and the Cork trials were arranged. The success of these events has proved the forerunner of several others since arranged in other parts of the United Kingdom. It came then to be considered what steps were to be taken to preserve Dublin's interest and reputation for sport promotion. The Motor-Cycle Union of Ireland had ventured to select the Portmarnock Strand for a speed trial, and the result proved satisfactory and encouraging. The committee of the Irish Automobile Club noted the result, and though at the time negotiations were in progress for a repetition of the Phœnix Park success of last year, it was felt that Portmarnock would be the trump card if these failed. Unfortunately in some respects this proved to be the case, for difficulties which proved insurmountable were propounded, and the proposed events fell through. The choice of Portmarnock has proved an excellent one, but it should not be overlooked that much has been due to the kindness of the owner of the foreshore, Mr. J. Jameson, who in a sportsmanlike manner facilitated the arrangements to the utmost.

Favoured by good weather and cheered by a crowd computed at about 10,000 persons, the events were followed with interest throughout Tuesday. A shower which fell during the afternoon did not militate against the running, and it was interesting to note that the strand seemed none the worse for the wetting. In an interval between the racing-car events and the running in Class H the Hon. C. Rolls, whose 100-h.p. Mors car did not show to advantage in its heat, made an independent time test, and succeeded in covering the mile in 59 4-5th sec. This excellent time will serve to show that the course was not a markedly slow one, though it must be added that sand racing must be essentially slower than the going on a harder track would be. Towards the close of the day it began to show signs of increasing moisture, but this may be attributed to the effect of the incoming tide.



The Start of one of the Motor-Bicycle Heats.

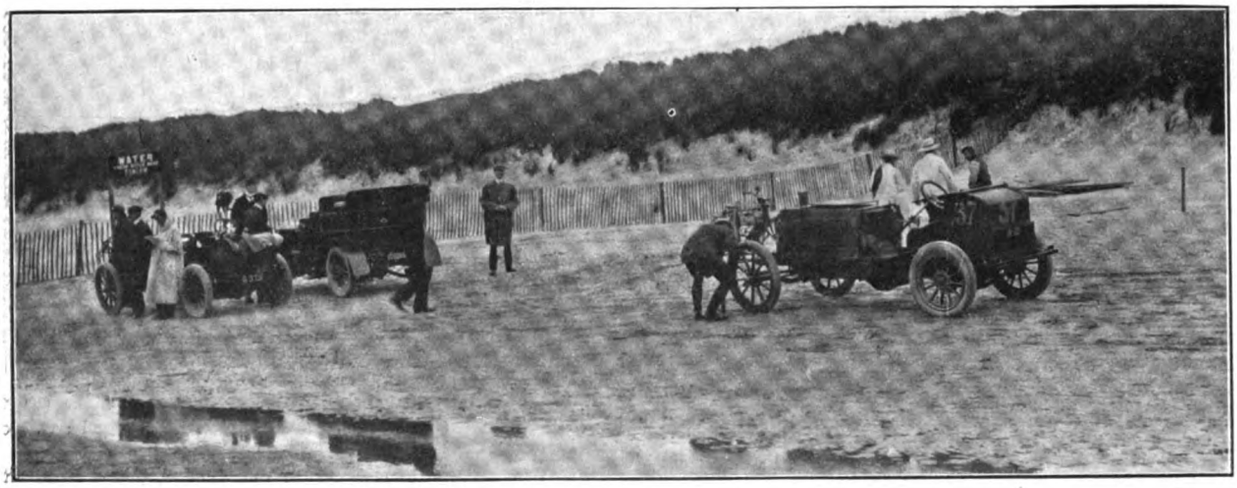


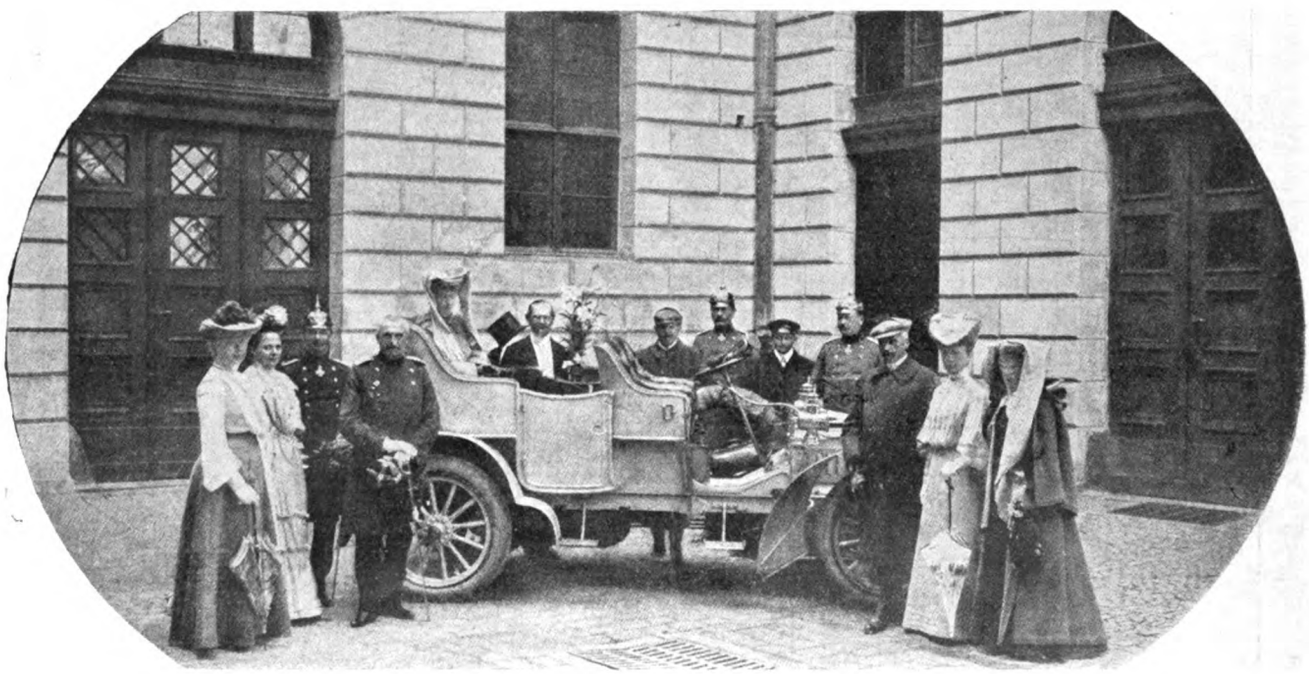
Photo by] The Racing Cars Getting Ready.—Mr. J. W. Stocks Pumping-up the Tyres of his Napier. *[Lafayette.*

Much disappointment was expressed when it became known that neither Messrs. S. F. Edge, Chas. Jarrott, nor Mayhew were to take part in the event. Another whose absence was regretted was Miss Daisy Hampson, of Southport. Her performance on the giant 60-h.p. Mercedes was among the looked-for items in the programme, but at the last moment she too was unavoidably prevented from being present. In the racing section the Hon. C. S. Rolls' 100-h.p. Mors, which was run in competition with Mr. Rawlinson's Gordon Bennett Darracq racer, did not acquit itself well, and appeared to be running on two cylinders.

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The 60-h.p. Mercedes of Mr. Lee Guinness seemed to be the favourite, as it covered the course almost as silently as a touring car of only half the power. Sir A. Macdonald's 28-h.p. Daimler also ran well. He has been an indefatigable worker for the event, and must share the credit for its success. Mr. Alex. Govan brought over the new four-cylinder 16-h.p. Argyll, and Captain H. P. Deasy sent a 16-20-h.p. Martini car, which was handled by Mr. Williams. Mr. H. Sturmey had two of the Duryea cars in competition in two classes, and the running of the 10-h.p. three-wheeler was remarkable. Mr. A. Rawlinson, of Darracq renown, had quite a contingent of those cars, and his race with Mr. Rolls was among the events of the day.

The events, which were over a distance of one mile, with a standing start, passed off in perfect harmony, and, so far as we could learn, without any mishap, though on our return journey we found one small car being lifted out of a roadside ditch, but the occupants and the car seemed uninjured. The arrangements made by the Irish Automobile Club worked satisfactorily, and the press representatives were provided with every assistance under the special care of Mr. B. Barrett. The same excellent police arrangements which obtained for the Gordon Bennett race were again in evidence, and, taken all round, the Portmarnock events must be voted a success and a precedent for the future.



Princess Royal of Sachsen-Meiningen and Suite on the 20-h.p. N.A.G. Car on which she has recently accomplished a 1,000-miles tour.

CLASS A.—The Wheatley Challenge Bowl. For Motor-Cycles up to and including 170 lbs. (Holder, H. Martin.)

First Heat.—C. B. Franklin, Dublin, 2¾-h.p. F.N., 1; G. Drury, Dublin, 2½-h.p. Triumph, 2; L. R. Oswald-Sealey, Dublin, 2¾-h.p. Excelsior, 3; Won by a quarter of a mile. Time, 1 min. 31 4-5 sec.

Second Heat.—W. R. Ireton, Belfast, 3-h.p. Riley, 1; F. A. Wallen, Dublin, 3-h.p. Triumph, 2; C. J. H. Lewis, Dublin, 2¾-h.p. F.N., 3. Time, 1 min. 28 sec.

Final.—C. B. Franklin, 2¾-h.p. F.N., 1; W. R. Ireton, 3-h.p. Riley, 2; J. G. Drury, 2½-h.p. Triumph, 3. Time, 1 min. 32 3-5 sec.

CLASS E, for Two Seated Touring Cars, costing £200 or under.

First Heat.—H. Sturmey, 10-h.p. Duryea. 1; Major Thornhill, 6-h.p. Wolseley, 2; A. Gayun, 6-h.p. Mobile, 3. Time, 1 min. 41 4-5 sec.

Second Heat.—J. Edwards, 6-h.p. De Dion, 1; H. B. Hill, 6-h.p. De Dion, 2. Time, 2 min. 32 1-5 sec.

CLASS B (amateurs only) for Motor Cycles up to and including 150 lb. weight.

First Heat.—F. A. Wallen, Dublin, 3-h.p. Triumph, 1; C. J. Lewis, Dublin, 2¾-h.p. F.N., 2; Bertie Barrett, Kingstown, 2¾-h.p. F.N., 3. Time, 1 min. 38 4-5 sec.

Second Heat.—C. B. Franklin, 2¾-h.p. F.N., 1; J. G. Drury, 2½-h.p. Triumph, 2. Time, 1 min. 47 1-5 sec.

Final Heat.—C. B. Franklin, 2¾-h.p. F.N., 1; J. G. Drury, 2½-h.p. Triumph, 2; C. J. Lewis, 2¾-h.p. F.N., 3; F. A. Wallen, 3-h.p. Triumph, 4. Time, 1 min. 35 1-5 sec.

CLASS F.—For Touring Cars costing over £200, but not over £400, to carry four passengers.

First Heat.—H. Kennedy, 12-h.p. Darracq, 1; S. F. Robinson, 9-11-h.p. Clement-Talbot, 2.

Second Heat.—H. Sturmey, 12-h.p. Duryea, 1; Malcolm Gray, 10-h.p. Wolseley, 2; W. R. M'Taggart, 10-h.p. Argyll, 3. Time, 2 min. 8 sec.

Third Heat.—F. Churchill, 14-h.p. Hallamshire. Walk over. Time, 2 min.

CLASS G.—For Touring Cars costing over £400 but not more than £600, to carry four persons.

First Heat.—A. Huntley Walker, 15-h.p. Darracq, 1; H. Sturmey, 15-h.p. Duryea, 2. Time, 2 min.

Second Heat.—Alec Govan, 16-h.p. Argyll, 1; A. Rawlinson, 15-h.p. Darracq, 2. Time, 1 min. 49 4-5 sec.

TEN GUINEA CUP. Open to all residents in Ireland.

First Heat.—T. L. Plunkett, 28-h.p. Daimler, 1; Major Thornhill, 6-h.p. Wolsely, 2; R. Lane-Joynt, 20-h.p. M.M.C., 3. Time, 2 min. 7 4-5 sec.

Second Heat.—W. R. McTaggart, 16-h.p. Argyll, 1; J. "Edwards," 6-h.p. De Dion, 2; S. T. Robinson, 9-11-h.p. Clement-Talbot, 3. Time, 1 min. 45 3-5 sec.

Third Heat.—A. Lane-Joynt, 20-h.p. M.M.C., 1; Malcolm Gray, 10-h.p. Wolseley, 2; Dermot Mooney, 10-h-p. Argyll, 3. Time, 2 min. 10 2-5 sec.

Final.—T. L. Plunkett, 28-h.p. Daimler, 1; W. R. McTaggart, 16-h.p. Argyll, 2. Time, 1 min. 36 1-5 sec.

RACING SECTION.—200-Guinea Perpetual Challenge Cup. For racing cars weighing not more than 19 cwt. 3 qr. 20 lb. (1,000 kilos.)

First Heat.—A. Rawlinson, 40-h.p. Darracq, 1; C. Rolls, 100-h.p. Mors, 2. Time not taken.

Second Heat.—A. Lee Guinness, Gordon Bennett Darracq, 1; Mark Mayhew, 75-h.p. Napier racer, 2. Time, 59 4-5 sec.

Third Heat.—S. F. Edge, 6-cylinder Napier 1; Maurice Egerton, 60-h.p. Panhard, 2. Time, 58 sec.

CLASS H.—For Touring Cars costing over £600, but not more than £1,000.

First Heat.—T. L. Plunkett, 28-h.p. Daimler, 1; Sir A. Macdonald, 28-h.p. Daimler, 2; Capt. Deasy, 16-h.p. Martini, 3. Time, 1 min. 47 4-5 sec.

Second Heat.—Percy Martin, 28-h.p. Daimler, 1; R. Lane-Joynt, 20-h.p. M.M.C., 2; A. Lane Joynt, 20-h.p. M.M.C., 3. Time, 1 min. 26 4-5 sec.

Third Heat.—A. Huntley Walker, 30-h.p. Darracq, 1; A. Rawlinson, 30-h.p. Darracq, 2. Time, 1 min. 40 4-5 sec.

CLASS J.—For Touring Cars, irrespective of price, to carry five passengers.

First Heat.—A. Lee Guinness, 60-h.p. Mercedes, 1; Percy Martin 28-h.p. Daimler, 2. Time, 1 min. 24 3-5 sec.

Second Heat.—A. Rawlinson, 15-h.p. Darracq. Walk over. Time, 1 min. 19 1-5 sec.

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CORRESPONDENCE.

REPAIRS IN THE NEW FOREST.

To the Editor of *The Motor-Car Journal.*

Sir,—I have recently been motoring in the New Forest, and my experiences in the matter of repairs may be useful to others. Before giving instructions for any repairs there, always ascertain the cost. On my journey down I broke the small bottom leaf of one of my hind-wheel springs. For replacing this and sticking on a loose patch on a cover (which latter I could have done in two minutes) I was charged a sovereign! The cost of making the large top leaf, which carries the shackles, is only 14s. 6d., so the charge for the bottom one appears excessive. I am informed that the Imperial Motor Works, whose depot is in the chief street at Lyndhurst, are good for repairs, but have not had an opportunity of trying them. Petrol at Swanage cost 1s. 4d., which must be very profitable to the seller.—Yours truly,

W.

THE HORSE POWER OF PETROL MOTORS.

To the Editor of *The Motor-Car Journal.*

Sir,—I have just read Mr. Wilson's letter in the last issue of the *Journal.* As everybody knows, horse-power, as applied to motor-cars, is a remarkably elastic term. The rating given to an engine may at times be tolerably accurate, but the chances are that it is either too low or too high. To rate a car moderately, and then demonstrate that it possesses a considerable excess of power and is able to accomplish more than the indicated power leads the user to expect, is to score a big point in its favour. Conversely, to rate high, and then to fall short of the promise held out, or even to just equal expectations, has an opposite effect. At a time when the trend was altogether toward big cars there was a manifest advantage in putting out a vehicle which, in spite of its moderate power, was quite able to equal the performances of others rated much higher.

On the other hand, light cars are for obvious reasons rated at their full power. An 8-h.p. car offered at the same price as one of 6-h.p. seems better value; and the fact that there are no means of verifying the claims, of determining whether the asserted power is really available, is lost sight of. With touring cars it is different. More than one maker is rating his car at a certain "indicated" or "nominal" figure, with the parenthetical remark that it will actually develop considerably in excess of this. Should the innovation meet with a favourable reception it is certain that the practice will become general. As to its success there seems to be no room for doubt. At the outset it is probably a little more difficult to sell a big car—or any kind of car rated under its actual horse-power. Buyers are apt to think that they are not getting their money's worth if they pay the same price for the 16-h.p. car as for one of 20 or 24-h.p. But if this initial difficulty can be overcome the rest is smooth sailing. For a car of a certain power to do better work than one of different make but the same rating is manifestly a triumph; but when a low-powered car does as well or better than a high-powered one, the triumph is infinitely greater, and is certain to be keenly appreciated. Whatever the outcome may be, however, it is likely that a more rational and conservative manner of estimating horse-power will result. At present the term has little meaning. Trade and public juggle with it in an irresponsible fashion that is far from edifying. The difficulty of calculating the horse-power actually developed at the road wheels is great enough in itself without having an additional element of uncertainty thrown in.—Yours truly,

W. F. Tomlinson.

NAIL CATCHERS.

To the Editor of *The Motor-Car Journal.*

Sir,—In answer to "Troubled One's" inquiry in the last issue of the *Journal,* I may say my experience of a nail pulling device has been extremely satisfactory. I have driven a car fitted with light chains fixed to the mudguards by means of small screwed eyes, the same as used on pictures, directly above the wheel centres, for some months, and have been remarkably free from tyre troubles.

The single chains hang quite loosely on the tyres and do not cause any perceptible wear whatever, but they keep the tread of the tyre perfectly clean. I have only known one nail to escape them, and this was so rusty that when the chain tried to pull it out it broke off, leaving a piece embedded in the outer cover.

The chains themselves will be found to wear through in the course of time, but are so easily replaced that this objection need not be considered.—Yours truly,

A. 5443.

STEAM CARS.

To the Editor of *The Motor-Car Journal.*

Sir,—In the *Journal* of the 27th ult. "Superheat" states his intention of running a Locomobile for commercial purposes. My advice to him is, "Don't attempt the impossible." I purchased a Locomobile a few months ago, attracted by its apparent ease of control and the absence of vibration. It was supposed to have cost £275 when new, and as it looked smart and in good condition, I thought I had a bargain for £85. It was a 6-h.p. four-seated car and had the usual string of well-known qualifications and improvements. It possessed a paraffin burner, and it soon convinced me of its ability to burn paraffin; it appeared to have drinking diabetes, and I quickly learned it was unsafe to venture far from an oil supply. The oil pumps could not cope with its voracious appetite, so it drained the paraffin from the air pressure tank every few miles, which meant going through the whole tedious process of lighting up afresh with copious draughts of methylated spirits. On one occasion when we did get it running it steamed twenty-one miles in four hours, and as a result the woodwork of the car caught fire.

It was also fitted with what I notice is specially emphasized by advertisers of steam cars, viz., an auxiliary hand pump." This afforded me all the muscular exercise I required—I would watch the water gradually sink lower and lower in my Klinger gauge, and then, with a sigh, would dismount for ten to fifteen minutes' gymnastic exercise with the hand pump. Sometimes a friend would assist at the opposite side, and while we sawed away like the two toy figures at the crank, an interested crowd of spectators would entertain the company with jokes at our expense. I had the pump re-bored and a new plunger fitted, but our energies still became exhausted in our efforts to keep the boiler supplied. The climax came when I left the car for a few minutes outside my house, and on returning to it found the boiler leaking like a sieve; it had scorched owing to the car being on an incline and the gauge not indicating the contents of the boiler correctly.

I had it towed away, and when the boiler was re-tubed, I exchanged my £85 steamer for a motor-bicycle. The present owner has just spent £18 in having the boiler again re-tubed, it having scorched the second time he used it, and as I now spin along on my trusty bike, with trailer attached, I sometimes see a steamer by the roadside, with the front seat removed and a tangled mass of taps and tubes exposed to view; and as I look I shudder and pass on.—Yours truly,

A Wiser Man.

ADVICE WANTED.

To the Editor of *The Motor-Car Journal.*

Sir,—I have just seen "J. S.'s" letter in the *Journal* of the 27th ult. He has my deep sympathy. As long as his car was chain driven no doubt all was well; the trouble seems to be that it has got off the chain, and is getting obstreperous. Quite right to look after it if the wheels go in opposite directions; it will be a powerful "break" indeed and quite automatic. Any handle will do in this case; grip the nearest one. Should "J. S." be rendered speechless he will have his revenge on those wheels, no doubt they will be rendered spokeless. To find the box of gears "J. S." could hunt among the bits scattered around after the break. No, "J. S.," "the pot at the bottom of the car" is not the gear-box; it is for keeping the luncheon warm, and the amazing noise you sometimes hear therein is caused by the Rocquefort cheese patronised by so many motorists trying to get out on the top speed. I agree with "J. S." that his car is electric magneto after hearing of its shocking behaviour. As to touching the magneto, let me earnestly entreat "J. S." not to do so. People have been blown to atoms ere this by such injudicious conduct. However, he need not be alarmed by the handle being flung through the window. A friend of mine only wound up his once and it flung him through the window. Nor need he infer from this that chain drives are explosive. Chains do sometimes "go off" suddenly if anything "snaps" them, but a safety bolt should remedy this. I would advise "J. S." to take out the engine as he suggests. Do not, however, put in a 20 ampère battery. Rather put in a battery of cheap Swiss clocks; he can then wind them up twenty thousand times and get full value for his money. I do not think steaming advisable, but a hot cloth on the carburettor might allay the irritation which seems to have extended to the magneto. In conclusion, might I ask if the mechanic who taught "J. S." was "J. S." also? If so, there was a pair of them, and the trouble is accounted for.—Yours truly,

R. A. Illery.

LOOK AFTER THE CHAINS.

To the Editor of *The Motor-Car Journal.*

Sir,—In answer to "A. T.'s" query in the *Journal* of the 27th ult., *re* chains, I have never heard of such experiences as "Six-and-a-half Years' Experience" relates. I know several motorists who have chain-driven cars, and I have not even heard them complain of trouble, and I have this season driven a 15-h.p. car 3,000 miles fitted with Brampton chains, and they are nearly as good as when put on new.—Yours truly,

Chain Driven Car.

THE COURTESY OF THE ROAD.

To the Editor of *The Motor-Car Journal.*

Sir,—Seeing the note in your *Journal* recording the courtesy experienced by Dr. Hall, of Milford, it may interest you and your readers if I recount an incident which happened to me a few weeks back. I was held up at the foot of the hill just beyond the George Inn, Morden, at half-past ten at night, and was faced by the prospect of getting home very early in the morning. I had with me my wife and a young fellow from the garage. A car passed and I was asked if I was in trouble. My affirmation of the fact brought the car to a standstill. There were six people on the car,

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which was a magnificent vehicle of about 16-h.p. The owner requested is friends to get down, his chauffeur fished out his spare chain, my car was hitched up to the stranger and hauled up the hill to the George Inn, where I left it for the night. (Let me, in parentheses, say a good word for mine host of this well-known house, who, and his obliging yardman, gave me every attention. Twenty-four hours' safe and excellent garage cost me 1s.) "Now," said the owner of the other car, "if you will tell me where you want to go, I will take you." Squeezing the three of us in with his three friends in the tonneau, whilst he sat on the floor in front of his friend and chauffeur in the fore part of the car, making nine up, we were whisked through dark lanes at a rattling pace, and in half an hour were set down at Balham. The kindness of the owner, Mr. Henry Smith, of Battersea Park Road, to us, who were absolute strangers, cannot, I think, be over praised. It was that high and exceeding consideration which, as Sir Philip Sydney has said, is "seated in the heart of courtesy."—Yours truly,

G. L. POLSUE.

MOTOR QUERIES.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—Will you kindly inform me, through the medium of your valued journal, what should be the relative distance from the bottom of the stroke that the exhaust valve should begin to open? In my motor (Clement) it begins to open when the piston has descended seven-eighths of its stroke and finishes closing exactly as the piston reaches the extreme end of its upward stroke. Should it close also at seven-eighths of the upward stroke?—Yours truly,

EXHAUST.

["Exhaust" may rest assured that his valve is set quite correct, so long as it is not held open over the top of the stroke. In the case of an inlet valve it should commence to open immediately following the closing of the exhaust, and close at the bottom of the stroke.]



The Procession of Cars at Hastings. *(See last issue.)*

Photo by, [*Mr. W. P. H. Couchman.*

THE MOTOR CAR ACT.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—I was the owner of two motor-cars numbered W. 6 and W. 7. These were completely destroyed by fire. W. 7 was replaced by a car exactly similar, and the number was retained. I am replacing W. 6 by a larger car of a different type, and, wishing to retain the number, applied to our Town Clerk here for a form of particulars, expecting the transfer would cost 5s. He says the registration fee is £1, and suggests that, to strictly comply with the Act, a similar fee should also be paid for W. 7. I think this is straining the Act somewhat. What do you think?—Yours truly,

C. D. L.

[We sympathise with our correspondent, and feel that this is one of the feeble points of the Act; but the Town Clerk is quite within his legal rights. There is no straining of the Act in the matter, although the Act probably strains the reasonable man's view of common sense.]

HILL CLIMBING BY MOTOR-CAR.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—Referring to the extraordinary time accomplished by Rougier on the 45-h.p. Turcat-Mery car in the hill climb up Mount Ventoux on Sunday, the 28th ult., I have been making some interesting calculations which may be of some interest. Most of the leading makers were competing, and the car driven by Rougier was the same car which he drove in the Gordon Bennett race in Germany.

The Mount Ventoux race is a hill-climbing competition, the hill being roundly 22 kilometres in length and rising 1,600 metres. When the time taken in climbing the hill, viz., 21 min. 12 sec., is looked into, it will be found that the car rose at an average speed of well over 5 ft. per second, faster than the fastest lift in the world. Remembering also that the road up the mountain has some very sharp bends, which mean practically stopping the car in order to get round, and the four first kilometres are on the flat, it is fairly correct to say that Rougier's vertical speed was over 6 ft. a second—really an extraordinary performance, which requires looking into to be properly appreciated.—Yours truly,

CHAS. JARROTT.

MISFIRING TROUBLES.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—I have a twin-cylinder 12-h.p. De Dion car which has lately given me much trouble through one cylinder missing fire. After cleaning and adjusting contact screw it will go all right for a time—from a few minutes to a day, but usually not longer. The contact blade seems to rest longer on the screw of cylinder that is working right than on the other. I am using a six-volt accumulator, having tried four volts with no difference.—Yours truly,

F. R.

[We would advise our correspondent to see to his coil, as his misfiring troubles are no doubt due to this. A short in the primary winding or condenser would cause a constant burning of the contacts, as would too high a voltage. The latter will often cause a short in the coil, this generally only being sufficiently insulated to take a low voltage.]

QUERIES *RE* DE DION CLUTCHES.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—I should be greatly indebted to any reader of the *Journal* for advice on the following matter. I have an 8-h.p. De Dion car, two speeds and reverse, with expanding fibre-covered clutches. When the car is running, a jarring sound, like that of tight bearing, is heard. The slower the car goes the worse it is. When the driving wheels are jacked up and the change speed handle is in the free position, the engine, when started, drives the driving wheels strongly at high speed, as if the clutch had been put in. Any contraction of the clutches by the regulating screw renders them ineffective for practical use on the road. In order to prevent them driving when in "free" position as described, they have to be contracted to their utmost. The low speed clutch is quite effective for hill climbing, but the high speed one slips badly. All the axles run true, any worn bushes being made good. I have had four new screw spindles for expanding segments, and new clutch fibres, turned true in lathe after being fitted. Everything seems in perfect order and works freely: but excessive wear of the gear is taking place through both clutches driving at same time. The gear box after a ten miles run is quite hot.

I have had one of the lever arms in connection with change speed handle made shorter, so that the same amount of movement of the handle causes about three times the amount of the former movement in the clutches. Sometimes the noise is absent, but during the last two runs it has been very bad indeed. Is there any special kind of fibre for these clutches? I have hard vulcanized fibre on them now, but it seems to heat and swell with use. I have had at various times a good deal of trouble with these clutches slipping—in fact, that is the only trouble I have had with the car.—Yours truly,

A. H. R.

TAIL LAMP TROUBLES.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—In answer to "Rosthern's" letter of the 3rd inst., I can well sympathise with him, as I have had the same trouble myself. After trying three different kinds of lamps, I finally adopted a four-volt lamp. I found this was the only satisfactory lamp, as it does not jolt or blow out. It seems hard to have paid so much for lamps, and then have to despise them, but I am sure your correspondent will find this the most satisfactory way out of his trouble. The lamp I fitted I run off my spare accumulator. The light given is as good as any average lamp on the market, with the advantage of being a steady light.

This lamp could, I am sure, soon be altered at a cost well under three shillings. Should he wish to know how I altered mine, I would fully explain with pleasure.—Yours truly,

F. W. S. H.

[There are many readers who would be glad to have the method fully explained, and we shall welcome a further letter from our correspondent on the subject. He might also state if the lamp uses much current; that is, is the accumulator quickly run down.]

RECKLESS DRIVING.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—Being in my ninth year as a motorist (in Sussex and Roxburghshire), never having been fined since the use of motor-cars was legalised in this country, and never having caused an injury to any person, may I be allowed to make a suggestion for the suppression of all "scorchers" who live in the rural districts? At present the country police take no action to enforce the present excellent law other than to establish "traps," generally on a perfectly straight stretch of road where even the cautious motorist may often safely exceed the legal maximum, and he and the habitually dangerous driver are caught in the same trap. My idea is

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that the local police should mark down the local "scorchers" (for every man's motor character is easily ascertainable, and is generally the talk of the village), who can be caught easily nearer his own door, and whose habits and hours are often known. After he has been fined once or twice locally he will become cautious in all districts, as his licence will have been endorsed, and he will then become liable to imprisonment (the only real cure, in my opinion). I trust this letter will be read by our Chief Constables, and that they will act as suggested; my proposals could be carried out much more cheaply than the usual "trap," as often the police spend hours watching for the motor which never comes, whereas in my system no more "traps" would be set except for that dangerous and nasty criminal, the "road hog," whose habits would have been easily ascertained. I must admit that my system could not easily be adopted in towns, but surely the "catch" of dangerous rural motorists would do much to lessen risks to everyone concerned.—Yours truly,

THOMAS R. B. ELLIOT.

THE RATING OF CARS.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—At a time when the motoring public are expressing disapproval in no measured terms of the growing inclination of manufacturers to understate the horse-power of their engines, on the ground that it is grossly misleading, and are asking for such Club legislation as will give to hill-climbing and other competitions that real comparative value which should be the essence of their being, it is somewhat interesting to note the condition governing the Hertfordshire Automobile Club's open hill-climbing contest on the 10th inst., as it seems to me to set a premium on misrepresentation. "The cars must be essentially fully equipped touring cars fitted with mudguards and silencers, the maker's horse-power of which must not exceed 25," so reads this condition, and its effect obviously is to admit certain makers, the horse-power of whose engines is considerably understated, and debar other types, the makers of which frankly describe their motors by the actual power developed at normal speed of the engine. Is this likely to induce constructors to rate their engines honestly? The public ask for less mystification and more straightforward rating of cars, and they look to the clubs to bring this about; yet here we have a rule which offers inducement to manufacturers of large engines to write down the horse-power in future lists and specifications in order to become eligible for competition.

My 28-h.p. car, which has this year achieved such striking successes in various contests, is debarred from competing, but higher powered cars than it are welcome simply because they are "listed" at less than 25-h.p.—Yours truly,

E. M. C. INSTONE.

PARAFFIN BURNER.—Replying to W. Hill, full particulars of the paraffin burner referred to in the *Journal* of the 20th ult. can be obtained from Messrs. Fuller, Macleod and Company, Limited, 3, Red Lion Court, Cannon Street, London, E.C.

THE STORAGE OF PETROL.

AT Coventry Police Court, Edward Clarke, of the Salutation Inn, has been summoned for storing petrol without having a licence. The Chief Constable explained that the penalty was £20 a day for each day the petrol was kept. Defendant was found by Police-constable Daniels storing six gallons of petrol in an outhouse which would not be licensed under any circumstances. The magistrate's clerk explained to defendant that human life was involved. Defendant explained that he had erred in ignorance. The Bench imposed a fine of 20s. and costs, and expressed a warning to future offenders.

CASE DISMISSED.

ON the 1st inst., at the County Sessions Court, Birkenhead, William Wooller, Liverpool, was prosecuted for having driven a car along Column Road, Grange, West Kirby, at a speed dangerous to the public, on August 14th. P.C. Yale swore that the car was going over twenty miles per hour, and that the defendant when stopped said he was "showing a client how fast the car would go." On cross-examination by Mr. Harold Martin, solicitor, Liverpool, he admitted he had only guessed the distance and time, but posed as an expert at judging speed from having habitually timed cars over measured distances of 220 and 440 yards. Two other witnesses for the police guessed the speed at twenty-five to thirty miles per hour, but did not agree as to the distance travelled. On cross-examination all three admitted that neither they nor anyone else was in any danger and that there was no one coming up either of the cross-roads that debouch on to Column Road at the time. Mr. Martin thereupon submitted that, no person having been endangered, there had been no offence under the Motor Car Act committed, quoting the cases reported in the *Motor-Car Journal* of July 9th last. The magistrates ruled to the contrary. However, after hearing the defendant and his witness, who was in the car at the time, who deposed that the speed was fifteen to sixteen miles per hour only and the car was stopped in ten yards after the constable's signal was seen, and conferring with their clerk, the magistrates, without hearing a speech for the defence, announced that "they paid no attention to any Quarter Sessions decisions, but as there was some doubt on the question of danger they would give the defendant the benefit of it and dismiss the case."

CLUBS AND ASSOCIATIONS.

WOLVERHAMPTON.

ON Saturday last the petrol consumption test organised by the Wolverhampton and District Club took place, but, in consequence of absence from town of many of the members, only seven cars were entered. Wolverhampton to Market Drayton, a distance of twenty-nine and a half miles, was covered with the following results:—

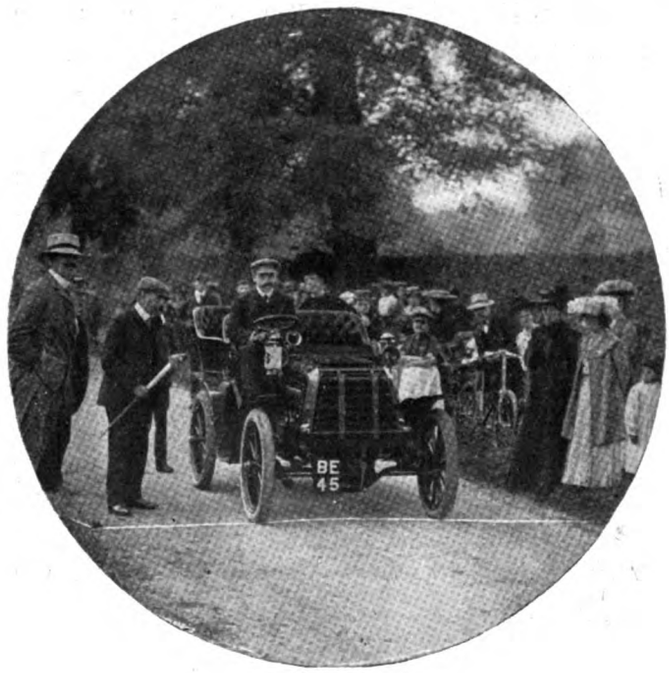
Mr. A. Mills ...	12-h.p. Sunbeam ...	3 passengers ...	14 pints.
Mr. T. G. Gatis...	10-h.p. Enfield ...	2 passengers ...	13½ pints.
Mr. T. Cureton ...	12-h.p. Sunbeam ..	4 passengers ...	13½ pints.
Mr. W. Owen ...	10-h.p. Wolseley ...	2 passengers ...	13½ pints.
Mr. P. S. Bayliss	8-h.p. Panhard ...	2 passengers ...	10½ pints.
Mr. G. Evans ...	10-h.p. Wolseley ...	2 passengers ...	10½ pints.
Mr. J. Davis ...	7½-h.p. Wolseley ...	2 passengers ...	9½ pints.

A very strong headwind was encountered by all the cars.

In consequence of the annual police inspection of the Shropshire police taking place on the 17th inst., the hill-climbing competition at Gatacre Hill, provisionally fixed for that date, will be postponed until the 24th inst. The events will be (1) restricted to club members, (2) open to motorists generally, particulars of which and entry forms can be obtained on application to the secretary.

THE GAINSBOROUGH HILL-CLIMB.

THE hill-climb held on Thonock Hill, Gainsborough, on Thursday of last week, on the initiation of Mr. J. D. Sandars, a vice-president of the Lincolnshire Automobile Club, proved a success in every way.



The Gainsborough Hill Climb.—Mr. Jeffrey's 12-h.p. Darracq at the start.

Nineteen cars faced the starter; only one failed to get up, and that was owing to the driver missing his gear. A course of 1,009 yards had been marked off, and after a gentle rise a gradient of 1 in 8 had to be tackled, followed by another easier rise, then a short steep bit again and an easy run to the finishing line. Men with flags were placed all along the hill guiding the competitors. Mr. Sandars had with him, as a committee, Sir Hickman Bacon, Mr. C. W. Pennell, Dr. Passmore, Major T. Kelsey and Mr. A. A. Padley.

The official timekeepers were Mr. E. V. Ebblewhite and Mr. Dutton, who were stationed at start and finish respectively. Mr. Ebblewhite started the cars, giving the caution "5—4—3—2—1, Go!" and he has to decide the results from the particulars given on the handicap sheet, the handicap being on the formula of the A.C.G.B.I.

Mr. C. W. Pennell made the best time with his 16-22-h.p. Martini. The performance of the second fastest car, a 15-17-h.p. Rose, a Gainsborough built vehicle, was very good. Mr Jeffrey's 12-h.p. Darracq, with two up, did well, while Mr. Herman Marshall's 12-16-h.p. Clement, with four up, beat Mr. J. D. Sandars' 12-16 h.p. Peugeot (one up), the 9-11-h.p. Clement of Mr. Harry Brook, Lincoln, running them close. Mr. G. E. Sandars' little 4½-h.p. De Dion beat his 12-16-h.p. car by 3 1-5 sec. The new 10-h.p. De Dion and the Humberette made very fair times. Mr. T. Spencer, Misterton, whose little 2¾-h.p. home-made car was so much noticed at Lincoln in the famous Thousand Miles Trial, had another home-made car with a Rose 9-h.p. three-cylinder engine, and romped up in 1 min. 59 1-5 sec., but not in competition.

After the contest Mr. J. D. Sandars entertained the whole of the

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competitors and their friends to a very welcome tea in the grounds of his place at the foot of the hill.

The power, weight, and the time of the various cars are as follows, with the speed in round figures:—

Competitor.	Car.	Weight in cwts.	Cylinder.	Passengers.	Time. m. s.	Miles per Hour (ab't).
C. W. Pennell, Lincoln	16-22-h.p. Martini	22¾	4	4	1 36⅝	23½
W. Rose, Gainsborough	15-17-h.p. Rose	19½	3	4	1 44½	22
G. W. Jeffrey, Gainsborough	12-h.p. Darracq	14½	2	2	1 59	19
H. Marshall, Gainsborough	12-16-h.p. Clement	18	4	4	2 10⅜	18
J. D. Sandars, Gainsborough	12-16-h.p. Peugeot	18	4	1	2 12½	17
Dr. W. H. B. Brook, Lincoln	9-11-h.p. Clement	13½	2	3	2 14¼	16½
Capt. J. A. Cole, Roxholm	12-h.p. Durkopp	18½	4	3	2 23⅜	15½
G. E. Sandars, Scampton	4½-h.p. De Dion	8½	1	1	2 33¼	14¾
G. E. Sandars, Scampton	12-16-h.p. Peugeot	19	4	3	2 37	14¼
A. A. Padley, Market Rasen	10-h.p. De Dion	15¾	2	2	2 37⅝	14¼
R. M. Wright, Lincoln	6½-h.p. Humberette	9¾	1	2	2 47	13¼
Major Fowler, Louth ...	12-h.p. Richardson	17	2	3	2 51¼	13
G. Garnett, Gainsborough	8-h.p. M.M.C.	10¾	1	2	2 59¾	12¾
B. H. Gainsford, Sheffield	6-h.p. Progress	12¼	1	1	3 2½	12¼
D. P. Sharp, Brant Broughton	12-h.p. Richardson	17½	2	4	3 2⅝	12¼
F. Jecock, Gainsborough	8-h.p. Dennis	12½	1	1	3 17	11⅓
E. A. Baine, Gainsborough	9-h.p. Gainsborough	14	3	2	4 22	8½
*T. Spencer, Misterton	9-h.p. (home made) Rose engine	9½	3	2	1 59½	19

* Not competing.

LINCOLNSHIRE.

ON the 22nd inst. the Lincolnshire Automobile Club will meet at West Skirbeck House, Boston, by invitation of Mr. W. Garfit, M.P. The concluding run of the reason will take place at Revesby on the 1st prox.

WEST SURREY.

A RUN was held by this club on the 27th ult. to Virginia Water. Among the members present were Mr. and Mrs. Pullman and Miss Matson, 15-h.p. Durkopp; Mr. and Mrs. Fletcher, 20-h.p. Durkopp; Mr. and Mrs. Praschkauer, Milnes Daimler; and Mr. and Mrs. Buttemer, 10-h.p. Decauville.

On Saturday a picnic was held at Cutt Mill, Elstead, at which about eighteen members and friends attended, including Col. Fairtlough and party, 12-h.p. Darracq; Major Matson and party, 6-h.p. Benz; Dr. and Mrs. Rideal, Benz; Miss Houghton, Mr. Buttemer and party, Mr. and Mrs. Crothers and Miss Crothers, 9-h.p. Argyll.

POLICE TRAPS.

THE police have a measured quarter of a mile in the vicinity of Hampton Court.

AT Southwark, near Brighton, increased police activity is likely to be noticed during the coming week, owing to complaints made at the meeting of the local District Council on Tuesday.

AT Water Newton, on the Great North Road, a police trap has been established.

A CORRESPONDENT informs us that there is a trap on the main road from Farningham Hill to Wrotham, Kent, about 1½ miles from the hill, starting from the road that branches to Eynsford.

ABOUT five miles on the London side of Dunstable the police have established a trap for motorists.

A MOTOR-CYCLE ACCIDENT.

ON Tuesday Dr. T. Jackson, coroner for Croydon, held an inquiry with reference to the death of Henry Hudson. He died in Croydon Infirmary on Friday night as the result of injuries received, it is alleged, by being run over by a motor-cycle at Mitcham on August 14th. The widow of the deceased man said on August 14th her husband left home for the purpose of visiting their daughter at Mitcham, and later in the day she learnt from the police what had occurred. A week before his death he consented to one of his legs being amputated, and she believed the fees of the surgeon were paid by Mr. Driver-Holloway, the driver of the motor-cycle which ran over Hudson. The witness said that the driver's family had done everything possible for her since the accident, and that morning they had obtained work for her son. After a long hearing the jury returned a verdict of "Accidental death," and expressed their appreciation for the manner in which Mr. Driver-Holloway acted towards Hudson after the occurrence.

CONVICTIONS OF MOTORISTS.

Place.	Summoned for	Fine.
North London	No rear number to motor-bicycle	10s., etc.
Romford	Driving to the danger of the public	£3.
Axminster	Above legal limit	£2, etc.
Bristol	Riding motor-bicycle without licence	5s., etc.
Chelmsford	Driving to public danger	£5, etc.
Birmingham	Unilluminated front number plate	10s., etc.
Stourbridge..	Driving backwards	Costs.
Kingston	Excessive speed	£5, etc.
Tewkesbury	No licence	£2.
Bristol	Furious riding	40s., etc.
Sunderland	Not stopping when desired	20s., etc.
Birmingham	Driving motor-'bus on wrong side of the road	Costs.
Teddington	Exceeding the legal limit	£7.
Tunbridge Wells ...	No rear light	10s., etc.
Bridlington	No rear light	2s. 6d., etc.
S.W. London	Irregular identification mark	40s., etc.
Littlehampton	No rear light	£1, etc.
Rugby	Reckless driving	£20.*
West London.....	(1) Driving to public danger and (2) Failing to produce licence	(1) £10 and (2) £2.
North London	No licence	£4.
London (City)	Causing unnecessary obstruction by leaving car in Leadenhall Street, E.C., fifty minutes	10s., etc.
Marylebone	(1) Driving recklessly; (2) failing to produce licence; (3) giving false name and address	(1) Fined 40s., etc. (2) adjourned; (3) dismissed.

* Notice of appeal given.

CASES of the misuse of military motor-cars having been brought to the notice of the Army Council, notice has been issued that only officers on duty and in uniform are to be permitted to ride in them, except on such occasions as staff rides, etc., when they have been authorised to wear plain clothes. Under no circumstances are the cars to be used by unauthorised persons or for other than public purposes.

TO CORRESPONDENTS.

All communications intended for insertion in this Journal or relating to Editorial matters should be addressed to THE EDITORIAL DEPARTMENT, MOTOR-CAR JOURNAL, *39 and 40, Shoe Lane, London, E.C., and must be written on one side of the paper only. Letters must in all cases be accompanied by the name and address of the writer, as no notice will be taken of anonymous communications.*

The Editors cannot undertake to return MSS. or drawings, although every effort will be made to do so in the case of rejected communications. Where such are regarded as of value, correspondents are requested to retain copies.

To insure insertion communications and contributions must be in the Editor's hands by Tuesday forenoon of the week in which the same are intended to appear. Disappointment may be caused by non-compliance with this rule, and to avoid this earlier receipt, if possible, is necessary.

The Editors do not hold themselves responsible for the opinions expressed by their correspondents, or for statements and facts which do not appear in the editorial columns.

The Editors and Publishers beg also to state that they will accept no responsibility for unsolicited contributions, even if used, unless payment for same is directly specified in forwarding, and the terms arranged before publication.

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THE

Motor-Car Journal.

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COMMENTS.



ELSEWHERE we publish the report of the judges in the Small Car Trials, and would commend them on the promptitude with which they have enabled Mr. Basil Joy to communicate their observations to the Press—a marked advance on the state of things in some of the earlier Trials. So completely do they deal with the various points upon which prospective buyers of cars want information that comment is scarcely necessary, while the tables contained in the report constitute a really useful index for the guidance of budding motorists. The heading of Table VIII. is perhaps a little faulty; the order of merit having most probably been assigned under the head of "noiselessness," rather than "noise,"—a little distinction that makes a great difference.

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Track Racing in America.

DURING the week ending with the 29th ult. four important track races took place in the United States—in Cleveland, Omaha, Detroit and St. Louis, respectively, and each was marked by some exciting performances not on the programme. At Cleveland one car broke a wheel and ran into the fence, fortunately without harm to the driver or spectators; in Omaha, a car skidded and went through the fence, wrecking a wheel, but causing no personal injuries; in Detroit, a car was driven into the fence to avoid a collision, the driver receiving slight injuries; and in St. Louis, Barney Oldfield, blinded at the turn by the dust of a preceding car, drove through the fence, killing two men and receiving serious injuries himself. Evidence as to the dangers of track racing is thus rapidly accumulating. The chief factors are the enormous strains on the *chassis* and the blinding dust clouds stirred up at the turns, owing to skidding. With the enormous increase in the power of racers and the consequent greater speed, the ordinary unbanked tracks have become entirely unsuitable for motor racing, and the construction of special banked tracks with tarred, dustless surface imposes itself if track racing is to be continued, and at the same time frequent smash-ups and fatalities are to be avoided.

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Tyres Again.

IN Scotland, as elsewhere, the tyre question is a great cause of expense in the running of motor services, and at the half-yearly meeting of the North of Scotland Railway Company last week the Earl of Aberdeen made reference to the subject. He said that the service of motor-omnibuses which the company commenced to run between Ballater and Braemar in May last had been largely patronised, and the revenue was satisfactory; but they were experiencing some drawbacks, almost entirely, however, with the tyres, and it seemed evident that the tyre manufacturers had not as yet been able to produce rubber of a quality suitable for omnibus traffic. When the difficulties were overcome and the present cost of tyre renewal materially reduced, they would feel justified in establishing similar services in other districts which were likely to be remunerative. The universal interest now felt in motor-cars by the railway companies should encourage makers of tyres to give scientific study to the subject, and experiments conducted on proper lines should reap a good financial reward.

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En Route.

SUNDAY last was one of the finest motoring days of the year, there being just sufficient crispness in the air to warrant the abandonment of summer garments for those of a thicker character. The roads are still covered with dust, but not of such density as during the summer months. One of the pleasantest runs out of London is to Brighton, and one of the most comfortable hotels is the "Old Ship." Thither we travelled, the journey down, by bye-lanes and side lanes, being without incident or stoppage. As usual, the garage, one of the most roomy and convenient in the country, was well filled, while outside the "Old Ship" itself several cars were standing. Numbers of vehicles were continually passing, and our Identification Card enabled us to note that cars *en route* were from such far away places as Cornwall, Bute, Dundee, Antrim, Leeds, Somerset, etc. After lunch the return journey was made *via* Steyning, Horsham, Ewhurst (the Surrey Highlands), Merrow Downs, and Ripley to Wisley, where a halt was made for tea. Outside the Hut, as usual, there were numbers of cars standing, and amongst the owners present were Dr. Rutherfoord Harris, M.P., Messrs. S. F. Edge, Napier, Stocks, Swindley, Dangerfield, Cordingley, etc. The remainder of the journey to town was finished in the cool of the evening, as pleasant a day having been spent as the most fastidious could desire.

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Missing Motorists.

OUR German correspondent informs us that the police in Berlin are searching for the owners of cars bearing the numbers A 677, A 1,504 and P 209, against whom a great many complaints have lately been lodged. It is believed that certain German motorists have been guilty of using false number plates, in order to shield themselves from the consequences of accidents due to furious driving. We hope that the similarity of the above numbers with three in the London district is merely a coincidence, and that the owners of the cars which bear them in this country will not be called upon to prove an alibi!

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Ten Miles an Hour.

ON the subject of the speed of automobiles a correspondence is taking place in the "Times," in which we trust motorists will take useful part by correcting the errors of those who write without an abundance of thought. It is significant that the editorial columns have also been utilised to discuss the problem, and that the conclusion has been arrived at that "a glance over the complaints soon makes it manifest that a definite proportion of these complaints would be obviated if the

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Act of 1903 were properly enforced by local authorities. That Act provides that the statutory or generally permitted speed of twenty miles an hour shall be reduced to ten miles within any limits or place referred to in regulations made by the Local Government Board on the application of the local authority. It is clearly the duty of every local authority to consider the requirements, under this provision, of the area over which its powers are exercised, and to obtain the sanction of the Local Government Board to the necessary restrictions. A place of the kind described would certainly seem to be afforded by a

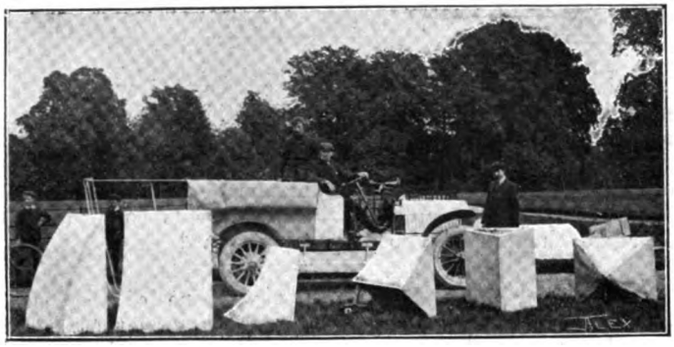


Photo by] Various forms of Bodies used in the Dust Trials. [Campbell and Gray.

village street, which is often narrow and winding, and is always liable to be occupied by children." There is little doubt that the implied hint will be adopted in some localities, in view of which we would suggest that the organisations connected with automobilism should quickly prepare themselves to defend the little that was gained by the 1903 Act. Otherwise the position will become even worse confounded.

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The Dust Trials.

AFTER some inevitable postponements due to the weather, the trials of the Dust Committee of the A.C.G.B.I. took place on Saturday on a private road kindly provided by Sir A. Harmsworth at Sutton Place, near Guildford. The road-sweepings which had been promised by the Guildford surveyor for the purposes of the trial were, for reasons sufficiently obvious, not forthcoming, but some sacks of flour provided an efficient substitute. A *chassis* lent by Messrs. Dennis Bros., fitted with numerous removable bodies and extensions, was used, and, under the supervision of Mr. Crawley and other members of the committee, driven over the flour-strewn patch, ten or twelve yards long, at a uniform speed of thirty miles an hour, photographs being taken in every case of the cloud raised. A light T frame carrying 6-foot lengths of tape was also carried behind the car, with the idea of indicating to some extent the direction of the air currents, while a "standard" dust cloud was provided by Mr. R. W. Buttemer's 10-h.p. Decauville, which covered the course at the same speed at intervals. The trials, which began at 11.30, were continued till 5, upwards of fifty sets of photographs being obtained, and it was sufficiently evident that results of considerable value may be expected from them. No opinion can, of course, be pronounced till the official report is issued, but the impression to the casual observer was that the shapes approaching the Roi des Belges were distinctly worse than plainer and simpler lines.

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Educating Rural Districts.

SOME weeks ago we expressed the view that the small car trials at Hereford would do a great deal to educate public opinion, as well as the beasts of burden in that district, and from Stoke Lacy Rectory the Rev. H. George Morgan writes, saying that the interest and enthusiasm shown during the trials surpassed anything he had seen in the county for more than thirty years. Hereford is notoriously a slow-going place, and, in fact, only natives of some of the towns and villages seem able to keep awake. It has a most enervating influence on visitors from a distance who spend any time in the district. The fact that between fifty and sixty motor-cars were running all over the county, sometimes in narrow and frequently along sinuous lanes, without a single mishap, shows the safety that can be associated with the modern means of locomotion, and also emphasises the fact that when drivers exercise some amount of moderate care, no danger need lurk in the automobile.

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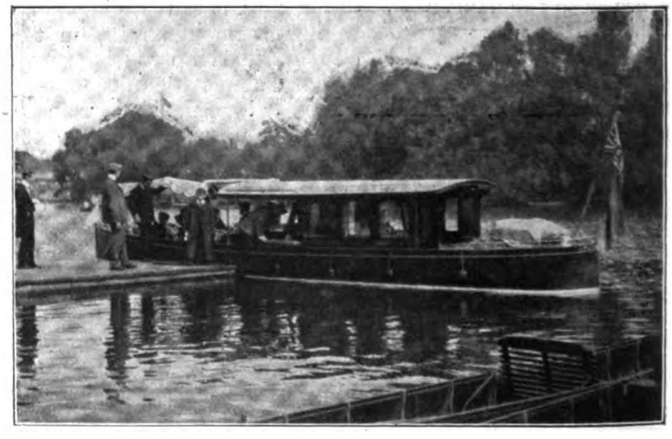
Motorists should Be Careful.

MOTOR-CAR drivers, however, will have to be careful, for there seems a recrudescence of that prejudice against motor-cars which marked the early years of advance. Last week we were congratulating ourselves that most of the large centres of population had not seen fit to suggest a speed limit other than that allowed by law; but it would now appear that the authorities of the City of London have not only asked the Local Government Board to restrict the speed of automobiles passing through the area of their jurisdiction, but that the Board has appointed a day, viz., the 27th of September, on which to hold an inquiry into the matter. Before taking his seat on the Bench the other day, the Mayor of Ripon announced that he had been requested by his fellow magistrates to read the following resolution:—"That the present speed of motor-cars in the city is not to the safety of the public. The City Council is requested to fix a speed limit within the city." The matter will be brought before the Corporation at an early date. These two instances are sufficient to show that, whilst motorists generally have exercised discretion, there are still some foolish persons who do not recognise the injustice they are doing the whole movement by furious driving and by flouting public opinion in a very high-handed manner. As the Rev. George Morgan says, motorists, by careful driving and by the exercise of consideration and courtesy, were able to make converts, and we appeal to all users of the road to do something to strengthen the good feeling which has grown up in country districts. Hence it is all the more regrettable that the same consideration has not been shown in urban localities, where the dangers of immoderate driving are even greater than in country districts.

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The Motor Boat "Florence."

ON Friday of last week a party of Pressmen and others, to the number of a dozen, met on Paddington Station for the purpose of journeying to Henley to meet the Napier motor-launch, "Florence," and participate in a trip to Kingston. To many this was the first trip in a petrol-driven boat, and as such



was looked forward to with pleasure. Although rain threatened in the morning, as the day wore on the clouds disappeared and the sun broke forth in all its noonday splendour. The first appearance of the launch excited the admiration of the beholders, its subsequent behaviour confirmed the early impressions, and the general opinion expressed was that the "Florence" was the finest and handsomest boat on the Thames

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—and withal the most serviceable. The motor occupies but little space, and the boat runs as steadily as any turbine steamer yet built. Aft of the engine is a roomy cabin, 7 ft. 6 in. by 6 ft. 6 in., and fore is ample accommodation for a number of wicker armchairs, the boat having room for from fifteen to twenty passengers. The dimensions of the boat are as follows:—Length, 40 ft.; beam, 6 ft. 6 in.; maximum draft, 2 ft. 8 in.; motor power, 20 m.p.; size of cylinders, 4 in. by 6 in.; cylinder capacity, 75 in.; speed, twelve miles an hour; and price £800.

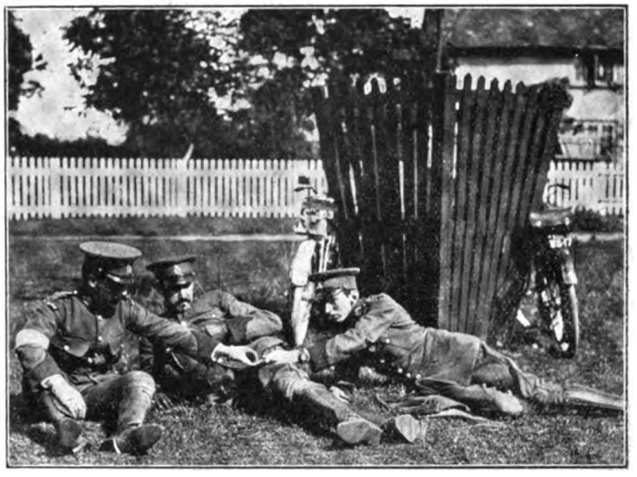
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Roads in France and England.

AMONG recent visitors to this country has been Mr. Chas. Weber, an automobile maker of Chicago and Milwaukee, who has been motoring in France and England on an American car. Comparing the wear and tear on his vehicle caused by the roads of the respective countries Mr. Weber said:—"The straight roads of France do not affect American cars, but the many quick, short turns entailed by the winding roads of England, the curves of which are usually hidden by the high hedges, play 'hob' with the transmission gears and steering columns and steering knuckles. I saw several American cars in which these parts had been practically torn apart or racked out of use. At the finish of our tour my steering post was some six inches out of true, but the other parts showed no bad effects whatever."



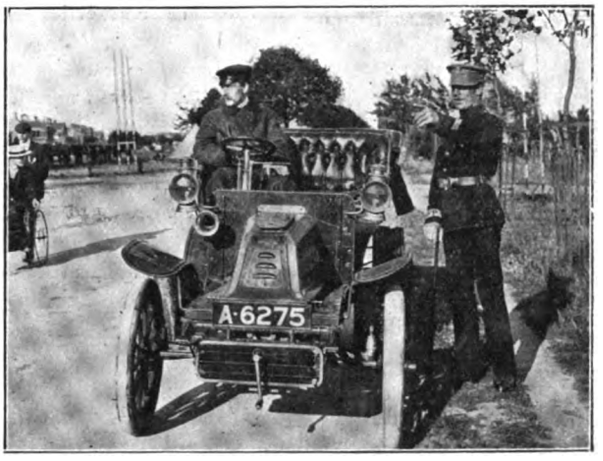
Major General Scobell (standing), Major-General Baden-Powell and Capt. Marchand (at the wheel) at Witham.



Motor-cycle Volunteers Awaiting Instructions.



Officers Watching the Progress of an Engagement.



A Military Policeman directing the Driver of a De Dion Car.

MOTOR-CARS AT THE MANŒUVRES.

En Voyage.

THE launch and general arrangements were in charge of Messrs. John S. Holmes and J. W. Stocks, and the first run to Maidenhead was made in two and a half hours, much time of necessity being spent in passing through the locks. Lunch was partaken of at "Skindle's," and then another pleasant run was made to Staines, where a stoppage was made for tea, Kingston being reached in the dark at half-past eight. The trip was a delightful one; the machinery might have been automatic so far as the passengers were concerned, and the trial was convincing that once this new method of propulsion is better known then it will be "good-bye" to steam and electric launches. The possession of a motor-car for the road and a petrol-driven launch for the river or sea and a man's happiness should indeed be complete.

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Solids *versus* Pneumatics.

THE seventeenth autumnal meeting of the Institute of British Carriage Manufacturers was opened at Leicester on Tuesday, when Mr. W. H. Hamshaw, of Wimbledon, delivered his presidential address, after which several local works were visited. The congress is largely attended by coachbuilders from all parts of the United Kingdom, as well as from India, and on Wednesday listened to a paper on rubber tyres by Mr. J. M. Maclulich, who gave some historical

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information of interest just now, in view of the expiry of the Welch-Dunlop patents. In the course of his paper he said that in theory, and therefore in practice, a properly constructed solid rubber tyre was a better hill-climber than a pneumatic tyre inflated to an ordinary pressure, because with a solid tyre there is a direct drive and therefore no waste of power in transmission to the road. This he proved on his own car, and as an example of the superiority of a scientifically constructed solid tyre over a pneumatic tyre when climbing hills, mentioned that last week Mr. W. C. Prideaux, at the Dorset Automobile Club Meet at Bridehead, Dorchester, gained the first prize in the hill-climbing contest on his voiturette, fitted with such solid tyres, in competition with the pneumatic tyred cars. We shall return to this interesting subject next week.

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Motors at the Manœuvres.

THIS year's manœuvres in Essex have been made remarkable by the number of motor-cars, cycles and steam and petrol lorries employed. Nearly every General of any note was conveyed about the country on a car, and some of the correspondents complained of the popularity of the car as opposed to the horse. Conspicuous amongst the vehicles professionally engaged was an 8-h.p. De Dion car which was used by Pressmen. This car travelled throughout the manœuvres a distance of over



The Military Manœuvres.—The 8-h.p. De Dion stationed by Abbey Fields, Colchester, in readiness for the next move, whilst the unloading of the umpire's tents is being pushed forward in the adjoining field.

700 miles without a single breakdown and without needing any repair or adjustment, notwithstanding that it was on many occasions called on to leave the main road and to take to rough camp fields torn up by heavy transport, and even to open agricultural land. The Commander-in-Chief, the Duke of Connaught, and his immediate staff seemed to be everywhere, and they were rapidly conveyed from one centre to another in a 30-h.p. Napier car. As far as heavy transport is concerned, horses seemed to be rapidly becoming a thing of the past, and a remarkable fact is that the whole of the bread turned out by a large field bakery at Abbey Fields, Colchester, which supplied the rival armies with 21,000 rations a day, was conveyed by steam and petrol lorries, not a single horse being employed in distributing the staff of life.

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The Value of the Automobile.

THERE can be no doubt that this year's manœuvres will satisfactorily decide the question of the usefulness of motor-cars in all future military operations, as they keep the forces in so much closer touch with the different positions, and enable the generals to more rapidly survey their different points of attack and defence, apart from considerably reducing the time necessary for scouts to convey information to the armies. During the whole of the manœuvres our representative only noticed one car requiring attention out of all the hundred employed, notwithstanding the greater part of the time was conspicuous by heavy rains and muddy roads, which were certainly not improved by the heavy transport and the march of men and horses over the surface.

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The Middle of the Road.

MR. GIBSON M'LAGAN, a Scottish gentleman who has a gift of writing to the papers, has been suggesting in the columns of a northern contemporary that coachmen should always keep in the middle of the road, thus forcing motorists coming behind to slow down and have no opportunity of passing. "They dare not venture," he says, "to run into a carriage, as they boast to be able to draw up at once." His coachman, who has had some experience in London, is said to have given him this useful tip, and from experience he finds it useful, as automobiles in the rear have necessarily to slow down because of the obstruction. We would advise any motorists meeting coachmen who have taken a hint from this suggestive writer to at once give information to the police, for such wanton obstruction can find no justification. It is, however, the sort of thing with which motorists unfortunately have to put up in many places. Where manners cannot be made the voluntary rule of conduct, the police should certainly enforce the law, so that Mr. Gibson M'Lagan may find himself in serious difficulties if he continues advancing such views north of the Tweed.

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The Revival of the Pump.

WHILE so many suggestions have been made for the local authorities to give more attention to the construction of the roads, it is interesting to learn, that a proposal has also been mooted to turn the old iron pumps, with their wells, to the use they served in the coaching days. Then the dust nuisance was almost as prominent as now; hence the liberal showering of water upon the roads. It is thought by some that a revival of the pump might well be made, to the advantage of all orders of users of the road. This is only a palliative; a far more radical remedy must be found.

PROFESSOR HELE SHAW has returned from South Africa.

THE Sheffield Automobile Club will meet at Ashopton on Saturday, the 17th inst.

MESSRS. METHUEN AND COMPANY have published "The Complete Motorist," which we hope to review in an early issue.

THE dinner which is being held on the 16th inst. in celebration of the expiry of the Dunlop patents might well be termed a "wake."

MOTORISTS in the Witham district of Essex will be interested to learn that Mr. Geo. J. Fisher is keeping a stock of petrol, oils, and greases at his depot in the High Street, Tollesbury.

ARTICLES of incorporation have been filed with the Canadian Government for the Ford Motor Company, Limited, of Canada, with a capital of £25,000. The works are to be established at Walkerville, where similar cars to those made by the Ford Motor Company of Detroit will be built.

IN Chichester Street, Belfast, the Northern Motor Company have a large and well-equipped garage. They have facilities for charging accumulators by day or night, and make a special feature of cleaning cars properly. A vulcaniser has also been installed for repairing tyres. Centrally situated and of a large extent, this garage should be of great convenience to motorists when in that part of Ireland.

THE Vanderbilt cup race is to be held on October 8th, on the Jericho and Hempstead roads, in Nassau county, Long Island. The course will measure thirty-two and a half miles, and ten circuits will be made. The roads are stated to be, almost without exception, excellent, and though there are some rather sharp turns, it is expected that some high speeds will be attained.

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AN AMERICAN MOTORIST'S TOUR IN EUROPE.

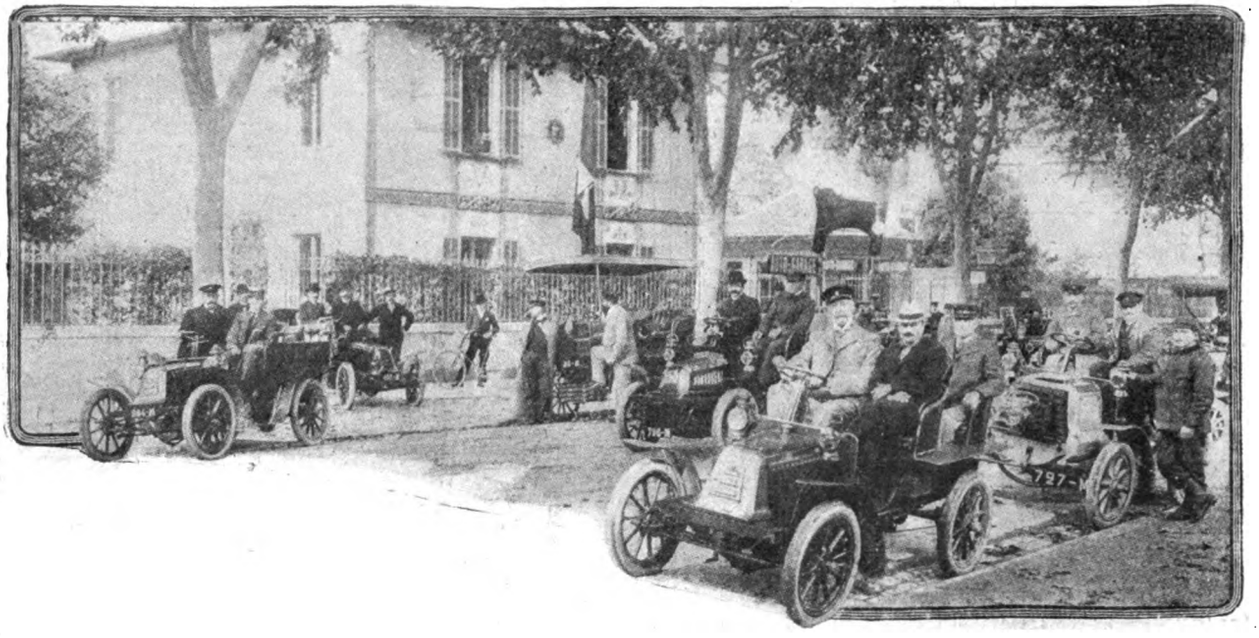
MR. PAUL DEMING writes to an American contemporary regarding his recent automobile tour in France and a portion of England, as follows:—"My recent trip through Italy and France on a White steam car was a revelation to me, as it probably is to every American motorist who for the first time motors abroad, of the wonderfully easy and interesting touring that is possible over the unsurpassable roads of Europe. Our party, consisting of my wife and myself, accompanied by a mechanician, arrived at Genoa, February 1st, after a voyage uneventful, except for stops at Gibraltar and Algiers. The city of the famous fortified cliff was reached the day after we had sighted the first land—Cape St. Vincent, Portugal—and during a stop of several hours we easily kept busy sightseeing.

For practically the entire distance to Nice the road winds about the beautiful cliffs that overhang the Gulf of Genoa, which merges into the blue Mediterranean in the distance, with Corsica just visible on the horizon. Sharp turns and steep grades are frequent, and necessitate careful driving, but it is for the most part all that is to be desired. In the towns it was necessary to pass through cobbled streets, and take the utmost care to avoid the children who swarmed out to see us. A railway that crosses and recrosses the highway with patience-destroying regularity is another source of annoyance. At each crossing there are gates, usually in charge of women. Before opening the gates they would always insist on our starting the engine and be ready, and it was not always easy to convince them that our car was not a petrol vehicle and was always ready. At one place we were not permitted to proceed until a train had passed, which at the time we appeared was due in half an hour!

We reached Mentone, on the French border, too late to arouse the customs officer, so had to stay there all night. We arrived in Nice just in time for the famous "carnival," and after spending two weeks enjoying this, and making side trips to Cannes, Grasse, and Monaco, and riding over Napoleon's engineering masterpiece, the Corniche Road, we retraced our way to Genoa.

From this city we went southward, reaching Pisa by night. The roads here were the best we found in Italy; the towns were far apart, and delays for railway crossings infrequent. After a night at Pisa, we entered upon a complete change in scenery. We were now in the mountains, and in every direction from the winding road were tiny towns, nestled in nooks and crannies of the all but inaccessible hills, and each clustered close to the village church, within range of its tinkling bells. So long that day did we let our eyes dwell upon the scenic beauties spread before us, that we finally had to give up the idea of reaching Rome by night, as had been planned. So we put up at one of the very poor hostelries of Civita Vecchia. The next day our road led to Rome. Nothing of exceptional interest was seen *en route*, but, when still many miles from the Eternal City, the dome of St. Peter's guided us to our goal.

We stayed in Rome for ten days, attempting at that time to have at least a fleeting glimpse of the innumerable places of historic interest. From Rome we went to Naples, starting out by the Appian Way, and from there, as our time was rather limited, Mrs. Deming and I went to Venice by train, while the mechanician took the car to Marseilles, whither we afterwards proceeded, having spent ten days in Venice. From Marseilles to Paris we toured in four and a half days, passing through Avignon, Lyons and Saulieu. The road—one of the famous "routes nationale"—was perfect, and the towns were clean and the hotels good. We encountered many other motor-cars on the way, practically all of which were of the touring type.



A Motor Meet outside the Club House of the Nice Automobile Club. [*Motor Age.*

In Paris we stayed eleven days, seeing the many sights in and about that famous city. Then we drove to Dieppe in a day, wasted another day in securing rebate on duties we had paid, and shipped the car to Newhaven by the night boat. We went over on that day boat, and from Newhaven drove to London without incident, except for a pouring rain. From the fleeting glimpses we here had of English roads and villages, we should gladly have stayed much longer, but it was necessary to end the tour at London.

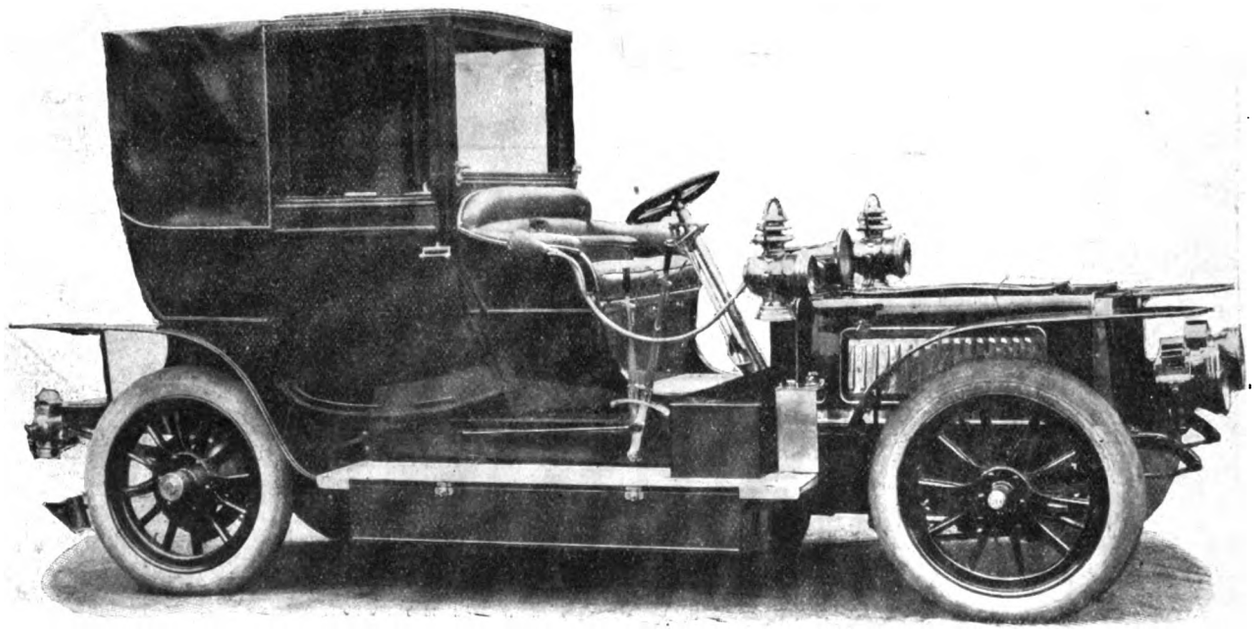
AMONG the rumoured Parliamentary measures of next session is a short bill in the charge of the Earl of Onslow, as President of the Board of Agriculture, having for its purpose to assist the development of motor-car services for the transport of agricultural, garden, and other produce.

THE imports of motor-cars into the United States almost doubled during the first six months of this year, as compared with the corresponding period of 1903. During the six months ending with June there were imported 254 automobiles, valued at about £180,000, while in the first half of 1903 there were only 153 cars, valued at £90,000, imported. Most of the vehicles imported came from France.

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THE IDEN PETROL LANDAULET.

WE are able this week to illustrate a 25–30-h.p. petrol landaulet, the latest production of the Iden Motor Co., Coventry. The main frame of the vehicle is of pressed steel construction, the secondary frame carrying the engine and gear box being arranged in the same plane, instead of below, as usual. The motive power is supplied by a four-cylinder vertical engine, the cylinders being 100 mm. diameter by 130 stroke. Both rotary magneto and accumulator ignition are provided. The valve actuating and governor mechanism is entirely enclosed, while a bearing is provided between each throw of the crank shaft. Special attention has been paid to the question of cooling the cylinders, a special radiator not requiring the use of a fan being employed. The motor is entirely controlled by one lever, and can be throttled down to a speed of four miles per hour. A useful feature is the provision of a valve by means of which the engine can draw in cool air in place of mixture, when running down hill. Three speeds and a reverse are controlled by one lever, the power from the gear box being transmitted by a cardan shaft and bevel gear to a rear live axle. Powerful brakes are provided, these being all provided with a water-cooling arrangement, the water for which can be supplied from the pressure circulating pump. A valve is fitted in the first receiver of the silencer, which can be opened at will, to give either partial or free exhaust when running through open country. The steering gear is of the "Coronet" patent type. The motor and gear box are protected from mud by a shield, which, to avoid raising the dust, is tapered down to the rear. There is a large amount of locker accommodation on the car, and, if necessary, a cabinet can be fitted behind. Arrangements are made for the storing of a tyre over the cardan shaft, without it being seen. The seating in the car is wide and roomy. The doors, which are wider than usual, cannot be closed unless the window frames are dropped. The springs are particularly long and of the laminated Grasshopper type. The axles are of the girder type, while the road wheels are of equal size and shod with 850 mm. by 120 mm. tyres. On the dashboard are fitted a petrol gauge, water gauge, speed indicator, and distance recorder, clock, and voltmeter. As is well known, Mr. Geo. Iden has had a long and varied experience in the construction of both steam and petrol engines, and has devoted himself very closely to the perfecting of every detail connected with this car, the appointments of which are most complete.



The Iden Petrol Landaulet.

SILENT CARS.

TIMES have changed since the days when the average owner of a petrol car did not seriously object to the noise it made. Now he demands a silent car—silent, that is, by comparison with the thunderous, nerve-racking vehicles which were only a short time ago the rule rather than the exception. The motorist who gauges his pleasure by the volume of noise emitted from his silencer has not wholly passed away. Some extremists of this type will even cut out their silencers in order to give the public the full benefit of the exhaust from the engine, with the result that may readily be imagined. But they are in a decided minority, a minority which steadily decreases. It does not take any abnormal amount of discernment to see that the time is likely to come when people of this class will execute a *volte face* and go in for silence quite as strenuously as they formerly did for noise.

At the present time nearly all cars have undergone improvement in this respect. Designers and makers have been quick to see that the public wanted quieter cars, and as they know full well that quiet cars mean efficient cars, and that in following the present fashion they are pursuing the logical line of development, the progress made in this direction is not surprising. In minimising noise power is conserved and used in propelling the vehicle, instead of being wasted; for it has become an axiom that noise is power diverted from its proper use.

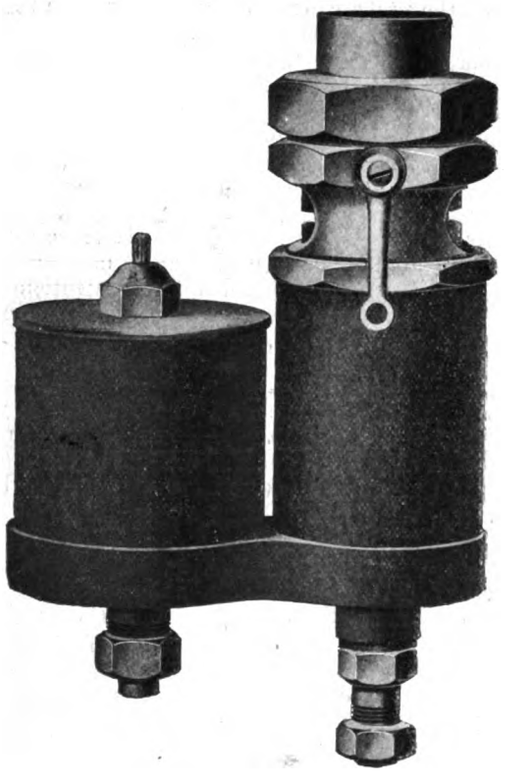
Sensitive people like neither noise nor its concomitant, vibration. With them the highest possible praise of a petrol car is to say that it is as quiet as a steam or an electric vehicle; and motorists who have once experienced these qualities are never content to take a backward step and return to the old order of things.

A NEW illustrated catalogue showing the designs of Argyll cars that the Hozier Engineering Company, Limited, are now building, has just been issued. This is a supplementary one, and is intended to show the improvements that have been effected on the designs since their last issue in the beginning of the season. The Argyll brougham with detachable top shown on one of the pages is proving a very popular type of car for autumn and winter work. It is readily converted into an open car and then looks smart and serviceable for summer use. The catalogue should prove of general interest to motorists.

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THE BROWN AND BARLOW CARBURETTOR.

MESSRS. BROWN AND BARLOW, LIMITED, of Birmingham, who are devoting much attention to the construction of carburettors for petrol motors, have recently introduced the apparatus illustrated herewith. It is designed to work upon the now well-known float feed principle, and although it comprises no radical departure in design, it includes improvements in many little details, which all conduce to giving satisfaction in working. The carburettor, which has been designed for engines from 3·5 to 4·75 in. cylinder bore, is built up on a stamped base, obviating the use of castings, which are always more or less porous to the action of petrol. The float chamber is made of seamless tube, thus giving the maximum strength with a minimum of weight, and at the same time lending itself to a much better finish than is possible with castings. The jet chamber and the heating jacket are built up in a similar way, except that the necked tube is turned from the solid bar. In thus building up a carburettor the makers claim that they are



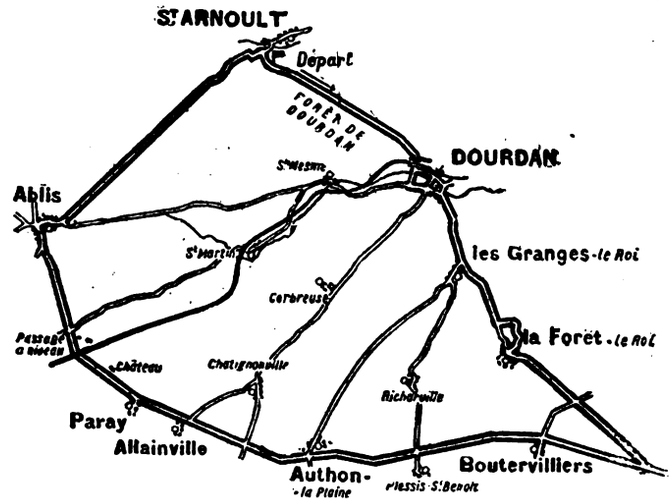
able to get them absolutely true in every way, which is very essential if satisfactory working is desired. The illustration shows a carburettor with a straight throttle fixed, but they are also supplied with a right angle throttle and air valve, which can be set and locked in any position, so making it more convenient when fitting by doing away with the bending of the pipe on the carburettor end.

THE two British-built Duryeas which took part in the Portmarnock trials embodied the firm's latest constructional features for 1905, and after the races were given long test runs on the road. One, after landing at Holyhead, took a course through the hilliest part of Wales to Tenby, returning to Coventry *via* Cardiff with about 700 miles to its credit and five minutes only spent in attention, viz., to tighten the end nut of the magneto. The other was driven to Belfast and taken across to Glasgow and from thence home, Shap Fell and other hills *en route* being taken on the top gear, the attention required being the adjustment of the clutch and the repair of a bad puncture caused by a clog nail in Lancashire.

CONTINENTAL NOTES.

The International Motor-Bicycle Race.

Increasing interest is being shown in the international motor-bicycle race which is to be held on the 25th inst. The course, which is shown in the accompanying map, is 54 kilometres long and has to be covered five times, giving a total distance of 270 kilometres. The starting point is between St. Arnoult and Dourdan. Racing will not be permitted when passing through Dourdan, Le Foret, and Ablis, these places being neutralised,



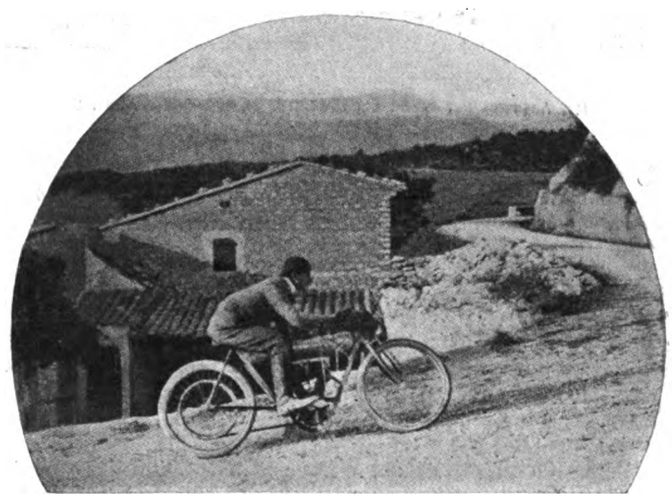
Map of Course of the International Motor-Bicycle Race.

the time allowances being 8, 3 and 5 minutes respectively. During the whole race 1 hour 20 minutes will be spent in the "neutralisations." The following are the colours allotted to the competitors: France, black; England, green; Denmark, red; Germany, white; and Austria, blue.

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The French Team.

The eliminating contest to select the French team was held on Sunday last over the Cup course, the start taking place at



Inghilbert on his Griffon.—One of the French Team in the International Race.

6 a.m., the competitors being sent off at minute intervals. Of the fifteen entries fourteen were weighed in on Saturday, and of these there was not a single absentee. Two riders failed to complete the first round; a further couple were knocked out in the third circuit; only five were left in for the final round, the result being:—1, Lamberjack (Griffon), 3 h. 31 min. 14 sec.; 2, Inghilbert (Griffon), 3 h. 38 min. 34 sec.; and 3, Demester (Griffon), 3 h. 41 min. 21 sec. The fourth and fifth places were taken by riders of Peugeot machines. Lamberjack's average speed works

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out at over forty-six miles per hour. The French team in the international race on the 25th inst. will thus consist of three Griffon machines.

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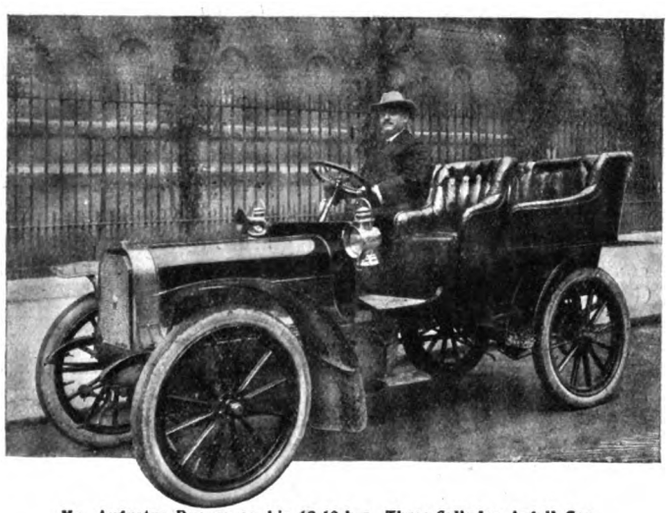
Hill-Climbing in Italy.

A hill-climbing competition, known as the Consuma Cup, was run off on a 15 kilometre course near Florence on Sunday last. The open class was won by Lancia on a Fiat in 13 min. 20 sec. Teste on a Panhard was first in the heavy car section in 14 min. 17 sec., while the victory in the light car category fell to Hemery on a Darracq in 16 min. 8 sec.

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Motor-Boat Racing in Switzerland.

An interesting series of motor-boat races was held on Lake Lucerne on Saturday and Monday last. The race for "cruisers" not exceeding eight metres in length, and with a maximum of 30-h.p., over a course of 114 kilometres, was won by the Pertuisane, with a Panhard motor, in 3 h. 25 min. 28 sec. The race for "cruisers" not exceeding twelve metres in length, with a miximum of 50-h.p., was a victory for the Marie Madeleine, which is also fitted with a Panhard engine; time 3 h. 11 min. 28 sec. On Monday the first event was a race for "cruisers" up to eight metres in length, this being won by Rapée III. (Panhard engine), in 2 h. 54 min. 7 sec. The race for twelve metre boats was a victory for Fournier's "Hotchkiss"



Mr. Augustus Perono on his 12-16-h.p. Three-Cylinder Argyll Car.

time 2 h. 43 min. 40 sec. In the course of the banquet at the Lucerne Regatta Club, an offer was made to put up a prize of £2,000 for the first man who should succeed in crossing the Atlantic in a motor-boat.

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More Speed Trials.

The "Velo" is organising a series of kilometre speed trials, to be held on the Dourdan road on October 2nd, the necessary official authorisation having now been obtained. It is expected that some fast times will be recorded.

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Motor-Vehicles for German East Africa.

The German Kolonial Wirtschaftliche Komite in Berlin is organising a competition among German firms for a heavy motor-vehicle suitable for use in German East Africa. The wagon is not to exceed a weight of two tons, and must be capable of carrying a load of two tons at speeds ranging from three to eight miles per hour and of ascending grades of one in eight.

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Public Services in Denmark.

A company has just been formed in Copenhagen with a capital of £16,800 to start a number of public services in Denmark, especially in districts not provided with railway accommodation. The new concern has contracted with the Danish postal authorities to carry the mails between certain small towns, and has placed orders for six cars—four with a Danish company and two with a French firm.

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A German Automobile and Motor-Boat Year Book.

The first edition of the "Jahrbuch der Automobil und Motor-Boot Industrie," issued under the auspices of the German Automobile Union, has just made its appearance. Its compilation is due to Herr Ernst Neuberg, who has apparently spared no pains in making it complete, a point which will be appreciated when it is stated that the work extends to close upon 600 pages and comprises 745 illustrations. Chapters are devoted to commercial and public service vehicles, frames, wheels, axles and tyres, internal combustion engines, electrical and steam cars, while over a hundred pages are allotted to the subject of motor-boats. A useful feature of the work are the abstracts of all the recent patents taken out in England, Germany, Austria and America. The book is, of course, printed in German, and its circulation will consequently be largely confined to the Fatherland, but it should prove a useful work of reference to designers in other countries. Messrs. S. Calvary and Company, Berlin, are the publishers.

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Renault Redivivus.

Since the fatal accident to Marcel Renault in the memorable Paris-Madrid race, Messrs. Renault Freres have abstained from taking part in any of the big automobile races and speed competitions It is, however, announced that they have built a racing car for an American gentleman, who intends to compete with it in the Vanderbilt Cup race, and that they themselves will again take part in the racing events of the 1905 season.

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The Gordon Bennett Race.

Germany has now sent in a formal challenge to the French Automobile Club for the 1905 Gordon Bennett race. England and Italy having already notified their intention to compete, there are thus already twelve prospective competitors for next year's event.

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Motor Racing in Italy.

The Brescia race meeting, the results of which were reported last week, is to be repeated next year, when the event is likely to rank as one of the most important of the Italian racing season, the Chevalier Florio, an ardent motorist, having just offered a cup, valued at £4,000, for competition.

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Petrol Motor-Boats for River Service.

The Cudell Company, of Aix-la-Chapelle, have lately completed a petrol motor-launch for a public service on the river Saale, at Halle. The vessel, which can carry 120 passengers, is propelled by means of a 24-h.p. four-cylinder engine.

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The 1904 Gordon Bennett Race.

A meeting of the subscribers to the guarantee fund for the 1904 Gordon Bennett Race was held in Frankfort-am-Main last week, to receive and consider the report of the financial committee of the Automobile Club of Germany. It showed that a heavy deficit had taken place, and 80 per cent. of the guarantee fund will have to be called up. The German Club has undertaken that any profits that might be made by any future race meetings would be handed over to the guarantors.

STILL another brand of motor spirit has made its appearance on the market. It is known as the "Shell," and has been introduced by the General Petroleum Company, Limited. It is being supplied in two qualities, "Shell A," having a specific gravity of about ·700, and "Shell B," about ·715. It is distilled from crude petroleum, and is guaranteed to develop full power under any atmospheric conditions or temperatures possible in Great Britain. We have given the A brand a trial and found it to give results equal to what we have become accustomed to with other motor spirit. It is supplied in the usual oblong two-gallon cans, but, to meet the convenience of an ever-increasing number of users of small cars and motor-cycles, it can also be obtained in one-gallon square tins.

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MOTOR CYCLING NEWS.

ON Saturday, the 24th inst., the annual motor-cycle contest held under the auspices of the Auto-Cycle Club will take place at the Crystal Palace. It will begin at 2 p.m, when the following cups will be competed for:—Motor-Cycle Cup. For a one hour's race for motor-bicycles with engines having a total capacity not exceeding 70 by 70, or the equivalent volume swept out. *The Motor-Car Journal* Cup. For a five miles handicap for bicycles having a total capacity of 76 by 76, or the equivalent volume swept out. Automotor Cup. For a series of one mile time trials, for machines not exceeding 76 by 76, or the equivalent volume swept out. Mr. J. F. Crundall is the present owner of the first of these cups and Mr. J. J. Leonard of that given by the *Motor-Car Journal*.

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THE Motor-Cycle Club wound up their season on Saturday at Redbourne (Herts.), with successful reliability trials of motor-cycles of entirely British manufacture, for the Albert Brown trophy. The course extended to 150 miles over roads well calculated to prove staying power. There were sixteen starters, the first in being:—1, William King, Cambridge (King); 2, F. Hulbert (Hulbert-Bramley); 3, F. J. Crundall (Humber); 4, Rupert M. Brice (Brown). Crundall, who was the first to arrive with a tri-car, received a special prize. No fewer than ten rode 150 miles without a stop.

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THE hundred miles non-stop run of the Manchester Motor Club was held last week, the route being from a spot six miles from Knutsford to Shrewsbury and back to Plumbly. Messrs. G. Brown (Lloyd), F. Bullock (Clement-Garrard), and J. W. Leech (Bradbury) each made non-stop runs and will receive gold medals.

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THE "Auto" is organising a competition for motor-bicycles with engines of a cubical capacity of not more than one third of a litre. The trials will be held in Paris from the 3rd to the 11th prox.

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THE most exciting motor-bicycle race ever seen in Ipswich took place at the Suffolk Police Athletic Sports on Wednesday of last week, before an attendance of over 8,000 spectators. The event was a three mile open handicap, Mr. F. Straight being handicapper. There were three heats. In the first heat, Tessier, on a Bat, won easily, as did Tyler, on a Triumph, in the second heat. The third heat was won amidst great excitement by Hodgkinson, on a J.A.P., who beat Egerton, of Ipswich, the only local competitor, on a 2¾-h.p. roadster Pat, by five or six lengths. The latter, however, was qualified for the final by virtue of his being the fastest loser in the three heats. In the final Egerton rode splendidly and won amidst great applause, beating Hodgkinson (who had beaten him in the third heat) by two lengths; time, 5 min. 45 2-5 sec. The course, which is a grass one, was very soft, owing to heavy rain having fallen the day before, and has very sharp corners. One of the competitors was unable to take a corner, and ran into the crowd, injuring two people.

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ON Saturday last the members of the Motor Union of Ireland held a non stop run to Maryborough and back. The start was from Inchicore Bridge, by the road made familiar during the Gordon Bennett week, to Maryborough and back to Inchicore, total distance ninety-six miles. The contest was open to members who had not won a prize in any motor-cycle competition during the present season. The start was fixed for mid-day, the minimum time at Maryborough 2.30 p.m., maximum 3.20. Here a compulsory stop of forty minutes was enforced, during which repairs and adjustments were permitted without incurring any penalty, while tanks could be filled with oil and spirit. The minimum time for the return to Inchicore was 5.20 p.m., maximum 7.20 p.m. A penalty of five marks deducted from the total to be made for each and every stop, no matter from what cause, save and except that at Maryborough; for all competitors going through from Inchicore to Maryborough without a stop full marks would be awarded, and in a like manner those completing the return journey from Maryborough to Inchicore Bridge would gain equal marks. The event resulted in a tie between Messrs. Turpin, Lewes, Horby, and Cathcart, and the prize will be divided.



Photo by] The Competitors in the Albert Brown Trophy Motor-Cycle Competition. Mr. W. King, the winner, is seen with his machine on the extreme left. [E. W. Ashworth.

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MESSRS. R. AND J. DICK, whose driving belts are largely used on motor-cycles, draw attention to a few points connected with the subject which are worth noting. The life of belts mainly depends on their being kept at such a tension as just to prevent their slipping. It is also important that the pulleys should be quite in line, otherwise, the pull being unequal, the belt will soon be destroyed. As a remedy for a dirty or greasy belt they recommend that it be wiped with a rag dipped in paraffin, but care must be used not to unduly wet the belt. As regards the varying results riders get out of belts of similar make, it is well to note that much depends on the treatment the belt receives, the weather, and the roads over which the machine is running. It is generally conceded that a belt is all the better for having the tension relieved by slipping it off the pulley at the end of the day's run.

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ON Thursday and Friday, the 15th and 16th inst., the reliability trial of the Auto-Cycle Club to Exeter and Southampton is being held.

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THE SMALL CAR TRIALS

REPORT OF THE JUDGES.

THE Trials commenced on Monday, August 29th, and concluded on Saturday, September 3rd, when the cars were assembled, and traversed the city of Hereford in procession. During the twelve runs of about fifty miles each which constituted the Trials the judges watched the performance of the cars and carried out various tests. On two days following the Trials they made further tests, and examined the construction and condition of each car. They now report as follows :—

Out of the 38 entries 35 competitors started, and of these 26 completed the 620 miles. The order of merit as to non-stop runs of all cars which completed the 620 miles is given in Table I., and the class and performance of each competitor appears in Table II., a record of road performances summarised in previous issues.

TABLE 1.—NON-STOP RUNS.

ORDER OF MERIT.

Siddeley, No. 18	12 Non-stop Runs.
Croxted, No. 30	
The Wolseley Team { No. 20, 12 N.S. / No. 10, 11 N.S.	11½ Non-stop Runs.
The De Dion Team... { No. 22, 12 N.S. / No. 23, 11 N.S.	
The Humber Team, No. 16 and No. 34 ...	11 Non-stop Runs.
The Swift, No. 14	10 Non-stop Runs.
The Oldsmobile, No. 25	
The Swift, No. 26	
The Alldays Team... { No. 32, 10 N.S. / No. 17, 9 N.S.	9½ Non-stop Runs.
The Star Team ... { No. 38, 10 N.S. / No. 15, 8 N.S.	9 Non-stop Runs.
Prosper Lambert, No. 37	
6-h.p. Mobile, No. 11	8 Non-stop Runs.
6-h.p. Speedwell, No. 2	7 Non-stop Runs.
8-h.p. Mobile, No. 24	
9-h.p. Speedwell, No. 13	6 Non-stop Runs.
6-h.p. Pelham, No. 8	5 Non-stop Runs.
8-h.p. Brown, No. 12	
9-h.p. Anglian, No. 31	
The Jackson Team... { No. 4, 6 N.S. / No. 1, 3 N.S.	4½ Non-stop Runs.
The Clyde, No. 21	4 Non-stop Runs.

Of the cars which failed to complete the runs a few were, nevertheless, of promising novelty, and some of already proved merit failed in consequence of defects not likely to be recurrent. Of the latter, there were the 7-h.p. Oldsmobile Runabout, in which the cooling system proved defective; the 8-h.p. Cadillac, one bearing of which heated and seized; and the 6-h.p. Vauxhall, which broke its connecting rod. The novelties were the 8-h.p. Rover, which was disabled by the breakage of one ball in a crank shaft bearing, and the 7-h.p. Downshire, in which one of the gear wheels was broken by displacement of a pin. Defective pipe connections were mainly accountable for the other retirements.

A large number of cars appeared to be made up of almost identical parts, individually well designed, but roughly and sometimes flimsily assembled. This was particularly noticeable with regard to parts of tubular frames, back axles, gear box, and engine connections. Several of the tubular frames are made with weak lugs carrying the underframe, and five of these lugs broke during the Trials.

The majority of live back axles differ little in design, except that some have trussing stays to the bevel gear-box, whilst others leave the somewhat heavy weight in the middle of the axle insufficiently supported. The bevel gear-box of some axles is conveniently arranged to permit withdrawal of the bevel pinion without dismantling the axle. The Wolseley, Siddeley, and Prosper-Lambert cars carry the back wheels on extensions of the tubular part of the axle, thus relieving the differential axle of all weight and all stress other than that of torsion—a construction to be commended.

In more than one instance it was found that the axles were neither parallel nor at right angles to the frame, nor did the front wheels track with the hind wheels. Although no appreciable difference in the wear of the tyres was noticed at the end of the 620 miles of running, the result of improper alignment of axles cannot but have a detrimental effect on the life of some or all of the tyres.

In the construction and arrangement of brakes great improvement is shown. The side brakes on a few cars are effectively compensated, but in others, where wire rope with sharp bends is used, the intended compensation is not effective. In several cases the absence of a flange on the inside of the brake drum permits the band to wander from its place.

The foot brakes are generally effective, but several, when applied, tend to displace and strain the gear-box shaft, causing unnecessary wear of the bearings. Adjustments of some kind, though not always accessible, are provided on all cars. The foot brake on the De Dion cars is notably easy to adjust, and two or three cars have right and left-handed shackles for ready adjustment.

The order of merit of the cars in respect of their brakes, as shown by the tests on hills, is given in Table III. This does not take into consideration the design or construction of the brakes, but only their performance when tested unexpectedly towards the end of the Trials.

TABLE III.—BRAKES.

ORDER OF MERIT.

First grade	No. 12	8-h.p. Brown.
	22	6-h.p. De Dion.
	23	Do.
	25	9-h.p. Oldsmobile.
Second grade	14	7-h.p. one-cylinder Swift.
	15	7-h.p. Little Star.
	17	7-h.p. Alldays.
	26	7-h.p. two-cylinder Swift.
	32	7-h.p. Alldays.
Third grade	13	9-h.p. Speedwell.
	18	6-h.p. Siddeley.
Fourth grade	8	6-h.p. Pelham.
	37	8-h.p. Prosper Lambert.
	38	7-h.p. Little Star.
Fifth Grade	1	6-h.p. Jackson Dog Cart.
	11	6-h.p. Mobile.
	20	6-h.p. Wolseley.
	24	8-h.p. Mobile.
Sixth Grade	2	6-h.p. Speedwell.
	4	6-h.p. Jackson Dog Cart.
	10	6-h.p. Wolseley.
	16	6½-h.p. Humberette.
	34	7½-h.p. Humberette.
Seventh Grade... ...	21	7-h.p. Clyde.
Eighth Grade	30	8-h.p. Croxted.
	31	9-h.p. Anglian.

A remarkable improvement is shown in the carriage springs and body suspension, and the seating and footboard accommodation is less cramped than hitherto.

TABLE IV.—Consists of dimensions and other particulars, most of which have already appeared in the *Journal* in describing various vehicles.

Many cars have steering gear of the rack-and-pinion type, with the rack not protected in any way from the ingress of dust and mud. All these show signs of considerable wear, and some were nearly worn out. The steering gear is in several cases poorly attached to the frame by a single bracket flange. With a steering rack some distance below, not stayed in any effective way to take the thrust, a twisting strain is thrown on the bracket, and causes looseness. Pins in the links of the steering gear frequently have small wearing surfaces, which give rise to backlash and rattling, but on the whole there is a general improvement in the design and construction of steering gears.

The number of tyre troubles was exceedingly small, as might be expected considering the light weight of the cars, but it must be noted that the road surfaces were exceptionally good.

Twenty-two of the engines which completed the Trials were vertical and four horizontal. Many of the vertical engines have their commutators placed in inaccessible positions close to the front or side of the frame. In the two-cylinder Humber, No. 34, bevel gears are used to bring the commutator into an easily accessible position; in others, the entire commutator is designed for easy detachment. It was noted that the horizontal engine designs lend themselves to convenient arrangements in this respect.

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One of the most frequent causes of stoppage was defective junctions in pipework. Rubber connections on water pipes are often too short, and the edges of the pipe ends, aided by vibration, cut through the rubber. Petrol and oil pipes frequently broke off at the terminal collars or unions, owing to neglect to anneal after brazing, and to the vibration of long unsupported lengths of pipe. Slack-fitting coarse-threaded unions, which came unscrewed, were numerous. Water pipes attached to tanks without a flange, riveted as well as soldered, in several cases came adrift. The use of brass flanges on exhaust pipe connections caused trouble, and is to be deprecated. The petrol tanks on some cars are inadequate for ordinary requirements, and a few are placed too low to feed the carburettor on steep hills.

Except for broken pipes, no troubles arose through insufficient lubrication. Few cars are fitted with ring lubricated bearings, a feature which might with advantage be more generally adopted.

The number of stoppages on the road caused by defects in inlet valves shows the need of attention to proper design of the cottars and the fittings at the end of the stem.

There was marked superiority in the cleanliness of those cars provided with good aprons or undercasings. One badly-fitting apron, however, caused trouble, and several aprons, leaving large open spaces, were ineffective.

Bowden wires are used in a few cases for throttle and spark connections, and proved unsuitable.

The construction of clutches as to adjustment and end thrust shows considerable improvment, especially in some cars of British design and make.

The electric wiring on most of the cars has received more attention than was usual a year ago, but still leaves much to be desired. The two-cylinder Humber and the De Dions in particular, and also the Swifts, the Mobiles, the Wolseleys, and the Siddeley, have taken special pains to avoid loose wires, with their consequent liability to breakage, more particularly in the case of the heavy high-tension leads. Terminals on British-designed cars were notably better considered than those on the usual foreign type.

The consumption of petrol, as seen from the accompanying Tables V. and VI., varied considerably, the best performance being remarkable, and the average highly creditable.

TABLE V.—PETROL CONSUMPTION PER CAR MILE.

ORDER OF MERIT.

No.	Description.	Total quantity for the 620 miles run.	No. of passng's.	Tot'l w'ght loaded (11st. per pass.)	Car miles per gallon.
		Gals. pts.		Lbs.	
21	7-h.p. Clyde	13 1	2	1414	47·3
14	Single-cylinder Swift ...	16 0	2	1512	38·8
18	6-h.p. Siddeley	16 1	2	1603	38·5
16	6½-h.p. Royal Humberette	16 3	2	1407	37·9
32	7-h.p. Alldays	18 0	3	1710	34·5
17	Alldays	18 5	2	1533	33·3
30	8-h.p. Croxted	18 5	2	1848	33·3
12	8-h.p. Brown	19 6	2	1904	31·4
22	6-h.p. De Dion	20 4	2	1414	30·3
23	6-h.p. De Dion	20 4	2	1414	30·3
15	7-h.p. Little Star	21 0	2	1694	29·5
1	6-h.p. Jackson Dogcart ...	21 6	2	1330	28·5
10	6-h.p. Wolseley	21 7	2	1596	28·3
37	8-h.p. Prosper Lambert ...	23 5	2	1890	27·2
2	6-h.p. Speedwell	24 0	2	1309	25·8
38	7-h.p. Little Star	24 3	3	1904	25·4
11	6-h.p. Mobile	24 4	2	1582	25·3
20	6-h.p. Wolseley	25 1	2	1554	24·6
4	6-h.p. Jackson Dogcart ...	25 3	2	1428	24·4
13	9-h.p. Speedwell	25 6	2	1547	24·1
26	7-h.p. Swift...	26 2	2	1610	23·6
8	6-h.p. Pelham	26 5	2	1638	23·3
31	9-h.p. Anglian	30 7	5	1862	20·1
24	8-h.p. Mobile	33 6	4	2·93	18·4
34	7½-h.p. Royal Humberette	36 6	2	1722	16·9
25	9-h.p. Oldsmobile... ...	39 7	3	2394	15·6

TABLE VI.—PETROL CONSUMPTION PER TON MILE.

ORDER OF MERIT.

No.		Gals. per ton per mile.
21	7-h.p. Clyde	·033
18	6-h.p. Siddeley	·036
30	8-10-h.p. Croxted	·036
12	8-h.p. Brown	·037
14	Single-cylinder Swift	·038
32	Alldays Light Car No. 3	·038
16	6½-h.p. Royal Humberette	·042
17	Alldays Light Car No. 1	·044
15	7-h.p. Little Star	·045
37	8-h.p. Prosper Lambert	·045
38	7-h.p. Little Star	·046
10	6-h.p. Wolseley	·050
22	6-h.p. De Dion	·052
23	6-h.p. De Dion	·052
11	6-h.p. Mobile	·056
20	6-h.p. Wolseley	·058
24	8-h.p. Mobile	·058
8	6-h.p. Pelham	·059
26	7-h.p. Swift	·059
1	6-h.p. Jackson Dogcart	·059
31	9-h.p. Anglian	·060
25	9-h.p. Oldsmobile	·060
13	9-h.p. Speedwell	·060
4	6-h.p. Jackson Dogcart	·064
2	6-h.p. Speedwell	·066
34	7½-h.p. Royal Humberette	·077

The water consumption on the majority of cars was negligible, no less than fourteen of them requiring less than 1½ gallons, although the country traversed was exceptionally hilly. Tables VII., VIII., IX. and X. show the order of merit of the cars in regard to vibration, noise, ease of manipulation, and comfort of passengers respectively.

Table XI. shows the hill-climbing performances of the various cars on the timed hills, and Table XII. gives their order of merit considered with reference to speed and hill-climbing performance generally. Table XI. also gives the calculated power developed on the driving wheels, taking 60 lb. per ton as the tractive effort or draw-bar pull. This figure was arrived at by experiments carried out on Frome's Hill a few days prior to the Trials. These experiments also showed that the starting effort required on the steepest portion (gradient 1 in 6·25) was about 600 lb. per ton.

TABLE VII.—VIBRATION.

ORDER OF MERIT.

First Grade	No. 26	7-h.p. Swift.
Second grade	18	6-h.p. Siddeley.
Third grade	1	6-h.p. Jackson Dogcart.
	14	Single-cylinder Swift.
	17	7-h.p. Alldays.
	20	6-h.p. Wolseley.
Fourth grade	10	6-h.p. Wolseley.
	12	8-h.p. Brown.
	25	9-h.p. Oldsmobile.
	30	8-h.p. Croxted.
	31	9-h.p. Anglian.
	32	7-h.p. Alldays.
	34	7½-h.p. Royal Humberette.
Fifth grade	2	6-h.p. Speedwell.
	11	6-h.p. Mobile.
	13	9-h.p. Speedwell.
	15	7-h.p. Little Star.
	16	6½-h.p. Royal Humberette.
	22	6-h.p. De Dion.
	23	6-h.p. De Dion.
	24	8-h.p. Mobile.
	37	8-h.p. Prosper Lambert.
Sixth grade	8	6-h.p. Pelham.
	38	7-h.p. Little Star.
Seventh grade	4	6-h.p. Jackson Dogcart.
	21	7-h.p. Clyde.

TABLE VIII.—NOISE.

ORDER OF MERIT.

First grade	No. 26	7-h.p. Swift.
Second grade	25	9-h.p. Oldsmobile.
	17	7-h.p. Alldays.
Third grade	14	Single-cylinder Swift.
	16	6½-h.p. Royal Humberette.
	32	7-h.p. Alldays.
	34	7½-h.p. Royal Humberette.
Fourth grade	10	6-h.p. Wolseley.
	12	8-h.p. Brown.

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TABLE VIII.—NOISE.—*cont.*

ORDER OF MERIT.

Fifth grade	1	...	6-h.p. Jackson Dogcart.
	2	...	6-h.p. Speedwell.
	11	...	6-h.p. Mobile.
	13	...	9-h.p. Speedwell.
	15	...	7-h.p. Little Star.
	18	...	6-h.p. Siddeley.
	22	..	6-h.p. De Dion.
	23	...	6-h.p. De Dion.
	24	...	8-h.p. Mobile.
	30	..	8-h.p. Croxted.
	31	...	9-h.p. Anglian.
	38	...	7-h.p. Little Star.
Sixth grade	20	...	6-h.p. Light Wolseley.
Seventh grade	4	...	6-h.p. Jackson Dogcart.
	21	...	7-h.p. Clyde.
	37	...	8-h.p. Prosper Lambert.
Eighth grade	8	...	6 h.p. Pelham.

TABLE IX.—EASE OF MANIPULATION.

ORDER OF MERIT.

First grade	No. 10	...	6-h.p. Wolseley.
	20	...	6-h.p. Wolseley.
	12	...	8-h.p. Brown.
	14	...	Single-cylinder Swift.
	18	...	6-h.p. Siddeley.
	25	...	9-h.p. Oldsmobile.
	26	..	7-h.p. Swift.
Second grade	8	...	6-h.p. Pelham.
	1	...	6-h.p. Jackson Dogcart.
	4	...	6-h.p. Jackson Dogcart.
	11	...	6-h.p. Mobile.
	24	...	8-h.p. Mobile.
	15	...	7-h.p. Little Star.
	31	...	9-h.p. Anglian.
	17	...	7-h.p. Alldays.
	32	...	7-h.p. Alldays.
	37	...	8-h.p. Prosper Lambert.
	34	...	7½-h.p. Royal Humberette.
	2	...	6-h.p. Speedwell.
	13	...	9-h.p. Speedwell.
Third grade	38	...	7-h.p. Little Star.
	23	...	6-h.p. De Dion.
	30	...	8-h.p. Croxted.
	22	...	6-h.p. De Dion.
Fourth grade	16	...	6½-h.p. Royal Humberette.
Fifth grade	21	...	7-h.p. Clyde.

TABLE X.—COMFORT OF PASSENGERS.

ORDER OF MERIT.

First grade	No. 14	...	Single-cylinder Swift.
	26	...	7-h.p. Swift.
Second grade	18	...	6-h.p. Siddeley.
Third grade	11	...	6-h.p. Mobile.
	24	...	8-h.p. Mobile.
	10	...	6-h.p. Wolseley.
	20	...	6-h.p. Wolseley.
	17	...	7-h.p. Alldays.
	30	...	8-h.p. Croxted.
	32	...	7-h.p. Alldays.
	21	...	7-h.p. Clyde.
Fourth grade	5	...	9-h.p. Oldsmobile.
	22	...	6-h.p. De Dion.
	23	...	6-h.p. De Dion.
	34	..	7½-h.p. Royal Humberette.
	37	...	8-h.p. Prosper Lambert.
Fifth grade	1	...	6-h.p. Jackson Dogcart.
	4	...	6-h.p. Jackson Dogcart.
	12	...	8-h.p. Brown.
	13	...	9-h.p. Speedwell.
	2	...	6-h.p. Speedwell.
	15	...	7-h.p. Little Star.
	31	...	9-h.p. Anglian.
Sixth grade	8	...	6-h.p. Pelham.
Seventh grade	38	...	7-h.p. Little Star.
	16	...	6½-h.p. Royal Humberette.

TABLE XI.—Performance on Timed Hills.—This, as given in the report, is an amplification of the table published on page 582 of last week's *Journal*.

TABLE XII.—HILL CLIMBING.

ORDER OF MERIT.

Position.	No.		
1	10	...	6-h.p. Light Wolseley.
2	22	...	6-h.p. De Dion.
3	14	...	Single-cylinder Swift.
4	15	...	7-h.p. Little Star.
5	18	...	6-h.p. Siddeley.
6	20	...	6-h.p. Light Wolseley.
7	26	...	7-h.p. Swift.
8	30	...	8-h.p. Croxted.
9	38	...	7-h.p. Little Star.
10	23	...	6-h.p. De Dion.
11	32	...	7-h.p. Alldays.
12	25	...	9-h.p. Oldsmobile.
13	34	...	7½-h.p. Royal Humberette.
14	24	...	8-h.p. Mobile.
15	16	...	6½-h.p. Royal Humberette.
16	13	...	9-h.p. Speedwell.
17	17	...	7-h.p. Alldays.
18	31	...	9-h.p. Anglian.
19	37	...	8-h.p. Prosper Lambert.
20	11	...	6-h.p. Mobile.
21	8	...	6-h.p. Pelham.
22	12	...	8-h.p. Brown.
23	2	...	6-h.p. Speedwell.
24	1	...	6-h.p. Jackson Dogcart.
25	21	...	7-h.p. Clyde.
26	4	...	6-h.p. Jackson Dogcart.

The awards were published in the *Journal* last week, and the judges recommend the bestowal of the following medals:—

GOLD MEDALS.

To the Wolseley Tool and Motor Car Co., Ltd., for their cars Nos. 10 and 20, for general excellence of design, construction, and workmanship, and for hill-climbing.

To the Siddeley Autocar Co., for their car No. 18, for general excellence of design, construction, and workmanship, and for hill-climbing.

To the Swift Motor Co., Ltd., for their cars Nos. 14 and 26, for general excellence of construction and workmanship, for hill-climbing, and for smoothness of running.

SILVER MEDALS.

To De Dion Bouton, Ltd., for their cars Nos. 22 and 23, for excellence of workmanship, for consistent running, and for hill-climbing.

To Humbers, Ltd., for their two-cylinder car No. 34, for general excellence and attention to detail.

To Alldays and Onions Co., Ltd., for their cars Nos. 17 and 32, for general construction, neatness of design, and smoothness of running.

BRONZE MEDALS.

To the Speedwell Motor and Engineering Co., Ltd., for their car No. 2, for its construction and performance considered with reference to price.

To Brown Bros., Ltd., for the quality and construction of details of their car No. 12.

To the Star Engineering Co., for their cars No. 15 and 38, for hill-climbing and for construction with reference to price.

To Jarrott and Letts, Ltd., for their Oldsmobile No. 25, for ease of manipulation and for details of construction.

To the Holland Park Motor Co., for the design and construction of parts of their Prosper Lambert car No. 37.

To Messrs. F. W. Garner and Co., for their Croxted car No. 30, for its performance and for its construction considered with reference to price.

HON. MENTIONS.

To the Clyde Cycle and Motor Co., for low petrol consumption, of their car No. 21.

To the Mobile Motor and Engineering Co., for their car No. 24, for its general performance as a four-seated vehicle.

The performance of the cars generally has been remarkable. The Judges are, however, of opinion that a greater distance than six hundred miles is necessary to bring out by automatic records the qualities of the cars and their minor but important details. They also draw attention to the fact that although the non-stop performances provide an automatic indication of some of the qualities of the cars and drivers combined, the important matters upon which the ultimate durability, performance and choice depend are chiefly shown by the examination and consideration of details which takes place after the non-stop runs have been completed, and have on this occasion determined the distribution of the medals.

CHASE MOTORS, LIMITED, is the title of a company registered with a capital of £5,000 to acquire the business carried on at 9 and 9A, Station Road, Anerley, as Chase Motors, to adopt an agreement with Messrs. A. A. Chase, F. W. Chase, D. C. Goodwin, and W. Worne, and to carry on the business of manufacturers of motor-cycles, motor-cars, etc.

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HERE AND THERE.

A PEUGEOT car is being used in the Dutch military manœuvres at present being held in North Brabant.

THE New York Fire Department has purchased a Columbia 35-h.p. petrol car for the use of the Chief of the Brigade.

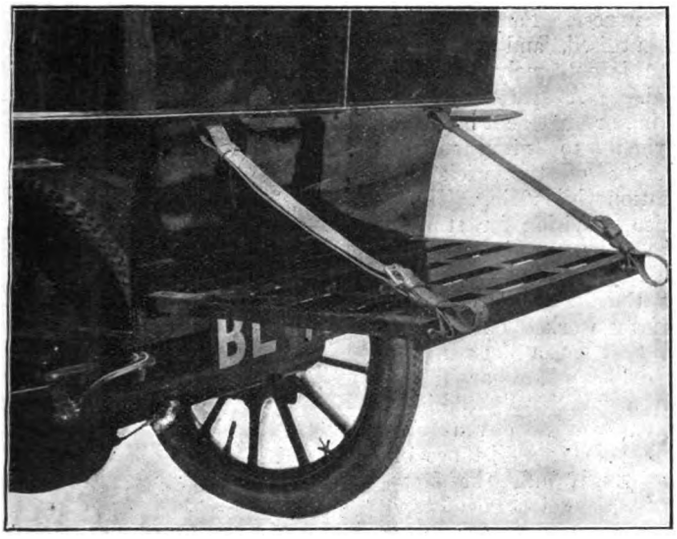
THE city of Kiel, Germany, is now being supplied with milk twice daily from in the neighbourhood of Pretz by means of motor-wagons.

DURING the month of July last there were exported from the United States automobiles and parts to the value of £36,636, as compared with only £31,947 in the same month of 1903.

MOST of the annoyances that motorists encounter are due to little things. A broken electric connection can be quickly remedied, yet if ignored, small though it be, it exerts an insurmountable influence in keeping the car out of service.

THE growing importance of the automobile movement in Canada is shown by the trade returns recently issued for the season ending April, 1904, which gives the value of automobiles imported into the Dominion from the United States as £35,600.

THE accompanying illustration shows a telescopic luggage grid fitted to a body recently built by the Lacre Motor-Car Co., Limited, for Mr Arnold Hall, of Reading, for his Argyll car.



The feature of the grid is that it forms part of the back panel, and when closed is almost invisible. It is very secure and capable of carrying a great amount of luggage.

THERE are 2,150 automobiles registered with the Secretary of State of Connecticut, U.S.A. Of these Hartford, with a population of 90,000, claims 500, or nearly one-fourth of the whole. On the other hand, New Haven, with a population of 125,000, has less than 300 motorists.

THE Wolseley Tool and Motor Car Company, Limited, have secured an order for a six-cylinder petrol engine to develop, at normal revolutions, 140 brake horse-power. The order has been placed by the General Electric Company, of Schenectady, New York, for the first of their new petrol electric railway coaches.

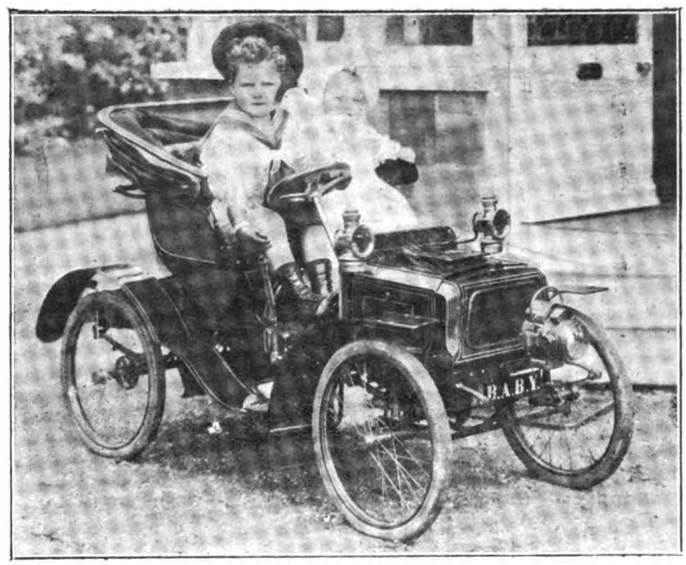
THE Father L. E. Wahlmier, of Plainville, Kan., has purchased an Oldsmobile for use in his missionary work on the plains. He states that the automobile was a necessity because of the great distances he has to cover in his work, the part of the State in which he lives being sparsely settled, and the parishes widely separated.

MESSRS. BELL AND MOORE'S first auction of motor-cars on the De La Warr track at Bexhill must be regarded as a success, seeing that the sales totalled £2,000. Four cars were sold by auction, and several by private treaty, so that it may be safely assumed that those who intend to dispose of their present vehicles will look forward to the announcement of the next auction at Bexhill with some degree of interest.

THE King has ordered a pair of Parson's non-skids for his new car.

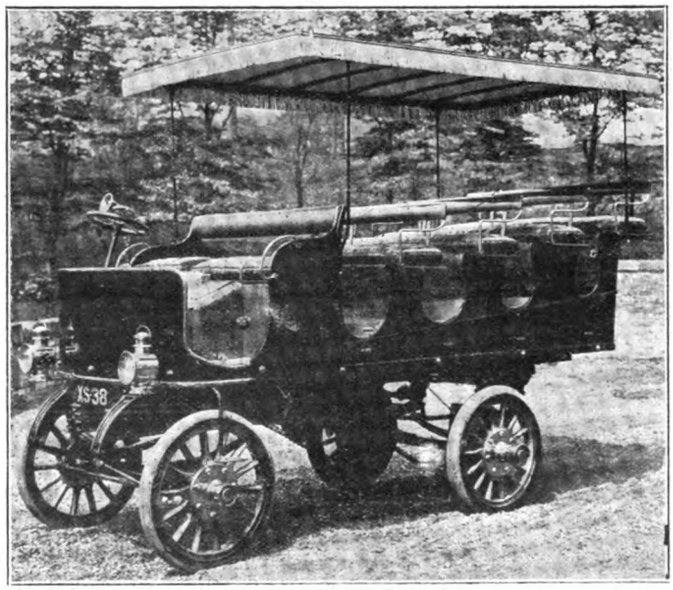
MESSRS. PEMSEL AND WILSON have opened a garage and repair works at Apsley End, on the main road between Watford and Tring.

IT is announced that the Mayor of Ostend has issued an order restricting the speed of motor-cars in the town and on the promenade to five kilometres an hour.



Master George Du Cros on his home-made Automobile.

THE Mo-Car Syndicate, Limited, have lately supplied two public service vehicles of the type shown in the accompanying illustration to the Fleetwood Motor Passenger Carrying Company, Limited, which is running a service between Knott End and Garstang, Lancashire. These vehicles have accommodation for sixteen passengers, a driver and conductor, and are fitted with the Arrol-Johnston standard, horizontal, balanced 12-h.p. engine running at a normal speed of 800 revolutions per minute. The



speed attained is twelve miles an hour with full complement of passengers. The vehicles are fitted with solid tyres, and everything has been done to make them as reliable as possible. It will be noticed that each bank of seats is stepped, so that all the occupants get a clear view ahead in the approved char-a-banc style.

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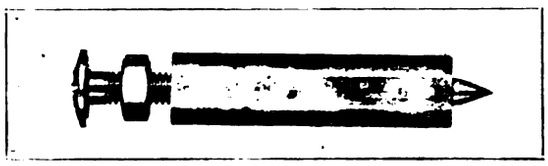
He who likes his own car has a good one.

In Murray Street, Perth, Mr. B. Shiell has opened a garage for thirty cars.

The Bull Hotel, at Redbourne, has a motor pit included in its accommodation for automobilists.

A motor-car shed, with capacity for six vehicles, is being erected by the G.W.R. at Falmouth Station. A public service to Redruth is being contemplated.

An addition to the number of signposts in Herefordshire is being suggested to the county surveyor—one result of the awakening caused by the small car trials.

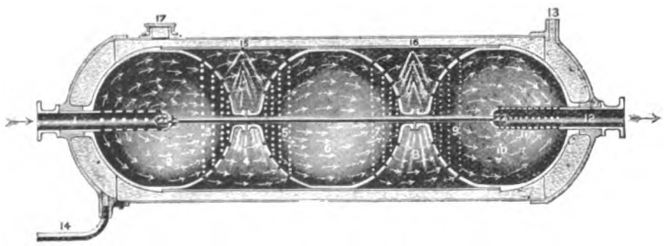


The above illustration shows the lock nut on the needle valve of the carburettor on the De Dion car driven by Miss Dorothy Levitt in the Small Car Trials, which, by coming loose, unfortunately spoilt her record of non-stop runs. Commenting on this, Messrs. De Dion-Bouton, Ltd., inform us that it is the first time that such a fault has occurred in their experience.

Motor-cycles amounting to an aggregate value of £43,040 were exported from Belgium during the first half of the current year, as against £39,955 in the corresponding six months of 1903.

In the 1,000 miles Motor Cycle Reliability Trial recently held, four of the seven motor-cycles that secured first-class certificates were fitted with "A Won" Clincher motor-cycle tyres, two obtaining gold medals and two silver medals.

The Imre Engineering Company, whose "Universal" silencer for petrol cars has met with great success, have recently brought out a new form of the device specially designed for use on petrol motor-boats, and of which a sectional view is given herewith. The gases enter at 1, and are broken and allowed to escape into the first bulb through the holes in the nozzle, where the first expansion of the gases occurs in the space 2. After this expansion, the gases escape through perforations, 3, into the chamber, 4, where a further expansion and cooling takes place. It will be seen that water is sprayed into the chamber, 4, through very small holes, 15, which materially reduces the temperature of the gases as they pass into the bulb, 6, by way of a larger number of finer holes, 5. Cooled and expanded, the gases are again broken by passing through the perforations, 7, into the chamber 8, where another fine water spray from very small holes, 16, combined with the expansion, again decreases the temperature so materially that on emerging through perforations, 9, into the bulb, 10, the gases are so thoroughly broken up, expanded, and cooled, that they emerge from the fine holes, 11, into the discharge nozzle, 12, almost, if not as cool as the atmosphere. An additional cooling medium is provided by fitting the silencer with a water jacket, the construction being so arranged



that every portion of the silencer proper is surrounded. It may be remarked that when circulation of the water ceases through stoppage of engines, the fine spray holes, 15 and 16, would allow the water above them to flow into the silencer. The spray holes are, however, so drilled to regulate the depth to which the water would rise in the silencer (about the height of 4), that the water so taken into the silencer is expelled, practically as spray, through 11 and 12, by the pressure of the exhaust gases, on the engine being restarted. The water inlet from the pump is shown at 13, 14 being the outlet, and 17 the filling cap.

A motor-car is to be obtained for the use of the Highways Committee of the Leeds Corporation.

"Looping the Loop" performances by motor-car are at present taking place in Paris and Breslau.

Sir Montague Turner, of Havering, has recently acquired a 16-h.p. Wolseley side-entrance phaeton.

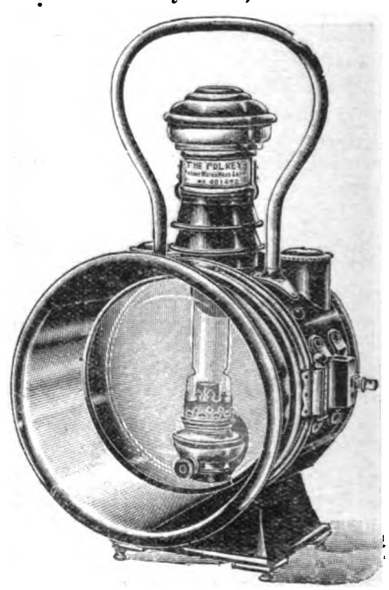
Messrs. Alford and Alder, of Newington Butts, S.E., have been appointed agents in London and the South of England for the Downshire cars of Messrs. Chambers and Co.

Doubtless the recent trials in Herefordshire will give an impetus to the automobile branch of Messrs. Connelly and Son's business in the county town, which is being superintended by Mr. T. E. Connelly.

The Coventry Motor Bodies Co., Percy Street, Coventry, have started business as motor-car body builders. We learn from Mr. Hobley, the principal, that he has a large amount of work in hand, and already contemplates removing to larger premises.

Messrs. A. Townend and Company, Limited, has been registered with a capital of £1,000 to acquire the business carried on at 11, New North Road, Huddersfield, as A. Townend and Company, and to carry on the business of manufacturers and repairers of automobiles, etc.

The "Polkey" headlight is seen on many a car, its excellent light proving well adapted for the purpose. Paraffin is the fuel utilised, and the light given is extremely well diffused. A patent wick-locking arrangement has been provided to prevent the lowering of the wick by vibration while riding. There is also provision for storing spare chimneys in case of accident, and it is evident that the details have been carefully worked out. It is said that on a dark night the driver of a car fitted with a "Polkey" headlight can easily pick out a telegraph pole at a distance of sixty yards, and the facts that it can be lit immediately and has no smell are good points in its favour. The lamp is made by Messrs. George Polkey, Ltd., of the Hockley Lamp Works, Birmingham.



Dogs appear to have a liking for motoring, more particularly the poodles, but, as their eyes suffer, "lunettes pour chiens" have lately been introduced in Paris. It is now no uncommon sight in the French capital to see a poodle perched on a motor-car gravely peering through goggles.

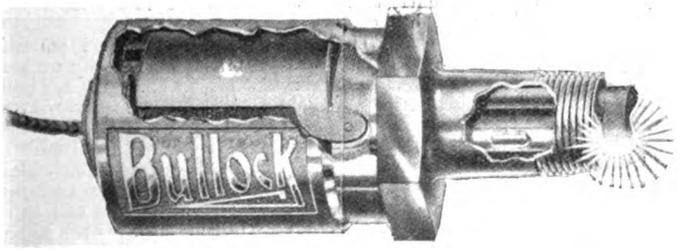
We learn that a Mr. E. H. Perkins, of Warren, Mass., U.S.A., has begun the construction of a novel car. It is to have six cylinders, four to be used for driving the car, one for generating electricity for ignition and electric lighting purposes, and one for running an air compressor for use in starting and to operate the air brakes.

The Eclipse Motor and Cycle Company, Birmingham, have brought out a little novelty known as the "XL'ALL" puncture stop, to enable ordinary punctures to be repaired without having recourse to solution, patches, or vulcanizing. The stop consists of a metal plug, made in two parts, which are held together by a screw. When the puncture is found a small round hole about 1-8th inch diameter is made in the tube. The bottom disc of the plug is slipped through the hole; the thin washer is then placed immediately above the hole and a small screw fixed into the countersunk hole, the whole being screwed up as tight as possible. The makers state that the outside metal washer does not affect the outer cover in the slightest, owing to its being held in place by the air in the tube only.

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THE BULLOCK IGNITION DEVICE.

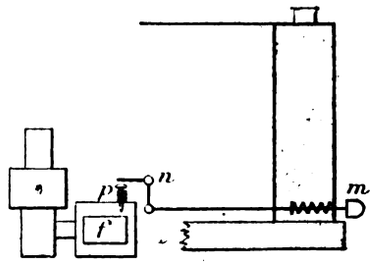
A MAGNETICALLY operated primary electric igniter has lately been introduced by the Bullock-Beresford Manufacturing Company, of Cleveland, Ohio. The device consists of a plug screwed into the wall of the cylinder, somewhat similar in form to an ordinary high tension sparking plug, and is used in conjunction with a battery and a contact device on the cam shaft of the engine. One of the plug terminals is earthed, and the other is connected through the contact maker to the battery. Self-contained within the plug is a low voltage, electro-magnetic device, the magnetic influence upon which its operation depends being produced by wiring within its enclosing case. Briefly described, it is a simple sparker which by means of a movable electrode produces a spark that might be expressed as a cross between a jump spark and a make and break. The movable electrode comprises a platinum pointed arm on the end of a rotary shank whose outer end is so connected to a movable piece that the vibration of the latter causes a similar and concomitant vibration of the electrode. This vibration being extremely rapid, a stream of sparks, which are in effect one continuous flame, occurs between the points of the movable and stationary electrode as long as the circuit remains closed. A positive spring system insures the return action of the vibrating parts, whose initial movement is, of course, produced by the electro-magnetic influence due to the passage of the low voltage current through the wiring. Assuming that the engine is at the ignition point and current flows through the wire winding on the body part of the device, this causes the same to become magnetised and attract the annular armature, the movements of which are communicated to the moving member which controls the electrodes and extends from one end of the igniter to the other. Owing to the construction, no leakage of gas takes place through the opening provided for this moving member. The body of the device carries a winding of a very few turns of coarse copper wire embedded in fire-proof cement. The insulated electrode is firmly and rigidly constructed, both electrically and mechanically, so that it is impossible for it to become short-circuited or earthed, and the terminal wire is held securely in place in an ingenious manner. The device is wound to operate with 12 volts, and the makers recommend that at least eight dry cells or a 12-volt dynamo be used in conjunction with it. On account of the use of a low voltage current, supplied either by a battery or a dynamo, no high tension induction coil is necessary, this not only reducing the parts liable to cause trouble, but simplifying the wiring. There is one wire from the igniter to the battery and one earth wire from the battery to the motor. A suitable contact maker on the cam shaft of the motor is connected up to the circuit, as is also an ordinary switch for interrupting the current. An important advantage claimed for the low voltage at which the igniter operates is that it shows less tendency toward leakage of current over wet or dirty surfaces, or on account of oil and soot collecting on the sparking points. Economy



of current consumption is another advantage of the system, for, according to figures presented by the makers, the Bullock igniter, when on a closed circuit, consumes from ¼ to ½ ampere, and produces at this velocity of current from 75 to 150 electric flashes or sparks per second. With a suitable contact maker, making a firing contact of ono-tenth of a revolution, the rate of discharge of current is correspondingly reduced.

SOME USEFUL NOTES.

AFTER a car has been standing for some time it is usual to agitate the float in order to allow a supply of fresh petrol to flow into the carburettor. To do this, the side door in the bonnet has in most cases to be opened and in others the whole bonnet has to be raised. A useful little device to obviate this is now being fitted to the Richard-Brasier cars. Referring to the sketch



which is taken from "La Vie Automobile," a light rod, m, with spring, is fixed so that it passes through one of the holes in the honeycomb radiator or lies against the frame; the rod terminates in a small bell crank lever, n, one end of it being over the upper end of the float spindle. Thus a few pushes on the rod, m, secures a supply of fresh petrol in the carburettor and away starts the engine on the first turn of the adjacent starting handle.

◆ ◆ ◆

A MOTOR-CAR is like any other machine in many respects, and should be treated accordingly. It should be used with due regard to the work for which the manufacturers designed and built it. A light runabout is not a touring car, and is not, properly speaking, a four passenger vehicle. There is no doubt that the light car will stand up under a good deal of touring, with proper care, but the wear and tear on the machinery is bound to be greater than when the car is used under normal conditions, and it should not occasion surprise if more than usual attention and more frequent renewals are required.

◆ ◆ ◆

THEN there is the extra passenger question. Almost any two-seated car can be fitted with an extra seat for the accommodation of one or two passengers more than the normal capacity of the vehicle, and no trouble will be experienced on smooth roads; but on rough or hilly roads the matter assumes a different aspect. The same springs cannot be made to carry four passengers with the comfort and safety with which they will carry two, for the overloaded springs will leave most of the work of absorbing shocks to the tyres, and a rough journey may be expected. With a heavy car of the touring type it will, of course, be different, as the proportionate weight of the passengers is less and the springs are larger and have a greater range of movement. Consequently if one wants to take out a couple of extra passengers in a light car, smooth and level roads should be chosen. If much touring is to be done, or if it is desired to carry more than two passengers most of the time, a heavier type of vehicle should be used.

◆ ◆ ◆

IF a valve or the porcelain in a sparking plug breaks care should be taken to ascertain whether any of the pieces have got into the cylinder. If so, they should be removed before attempting to run the motor, as it does not take a piece of steel or a few chips of hard porcelain a very long time to so cut a cylinder that it must be renewed. As a rule, cylinder walls are not of sufficient thickness to permit reboring if it is necessary to take off more than the merest suspicion of a cut, and a few chips caught by the piston can make fairly deep grooves the entire length of the stroke.

THE Heron Motor Company have taken large premises at 89 and 91, John Bright Street, Birmingham, and have equipped a factory with tools for the execution of all kinds of repairs.

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CORRESPONDENCE.

TYRE BURSTS.

To the Editor of *The Motor-Car Journal.*

Sir,—I have read with interest Mr. W. H. Bartlett's letter in the *Journal* of the 3rd inst. in regard to the bursting of tyres. Whilst admiring his optimism and being anxious myself to fall in with his view that, no matter what the speed or the weight of the car, no danger is involved through the tyres bursting, nevertheless I am compelled to disagree with him. In the majority of cases, in the hands of a fairly expert driver, I agree that accidents need not be occasioned through either the front or rear tyres bursting, but Mr. Bartlett must be perfectly well aware, as other automobilists are aware, that accidents have been occasioned through the bursting of tyres, and hence every care should be taken in periodically examining the tyres in order that no mishaps of this description should occur.

I, myself, in the last Circuit des Ardennes race, saw one of the rear tyres on Rigolly's Gobron-Brillie car burst, and a tremendous swerve took place; so great, in fact, that the other rear tyre was torn off in consequence, and in a second the car, which was travelling at a very high rate of speed, was practically out of hand. Had it not been for the masterly manner in which Rigolly handled it, a very serious accident would have taken place.

Accidents can happen from tyres bursting, in spite of any statement to the contrary, although I agree that in ninety-nine cases out of a hundred there is no danger; nevertheless the hundredth case may result in a serious accident, and hence it behoves every automobilist to see that his tyres are safe and sound before setting out for a run.—Yours truly,

Chas. Jarrott.

ENGINE STARTING TROUBLES.

To the Editor of *The Motor-Car Journal.*

Sir,—Two months ago I received a new 11-h.p. car, but, though I had a driver or teacher for about three weeks, I was never able to start the magneto. Then I had a low tension auxiliary fitted, with no better results. The company said it only wanted "knack," so I practised for five weeks and rarely started the car. After the driver left I was never able to start it once. Then the company sent an expert, who put in seven hours with but little if any improvement, so he came again and put in another seven hours. Now sometimes, after eighteen or twenty tries, I can start on half turn. Both driver and expert could always if they cranked round two or three times, but that is hot work at any time. The expert pronounced both ignitions correct, but fancied the carburettor did not work well. I am used to single cylinder, two and four-cylinder engines.

Can you or your readers give me any hint what to do to overcome this annoyance, as it is not much fun to turn the crank daily and get no benefit except a strained back?—Yours truly,

R. Hannen.

[We fancy our correspondent's trouble is due to the carburettor, providing the ignition is quite correct. In all probability the suction does not prove sufficient to enable the engine to get the required amount of petrol. This can be remedied by shutting off the air-ways and let engine suck harder at the petrol, thereby enabling it to get the required charge. Failing this, we should be inclined to think that the magneto was not working correctly, the spark being too weak unless the machine be driven at high speed, which can only be remedied by giving the engine several sharp turns.]

RECKLESS DRIVING.

To the Editor of *The Motor-Car Journal.*

Sir,—As a motorist and horse owner, may I suggest a very simple, certain, and cheap way of stopping the furious driving of motor-cars? It is to lay down about half a cart load of gravel across the road so as to make a slight bank. The horse traffic would not perceive it, and it would not hurt motorists conforming to regulation speed, but the "scorcher" going faster would break his car's springs and considerably disturb the occupants of his car, and would soon be made amenable. I make this suggestion in the best interests of motorists, for it is this craze for speed that has brought odium on all motorists.—Yours truly,

Ernest C. F. James.

TYRES.

To the Editor of *The Motor-Car Journal.*

Sir,—In reply to "Perplexed's" letter in the *Journal* of the 3rd inst., I would like to state that when I had read half-way down the letter, I guessed at once by the enormous weight of the car that the reason of his tyres bursting was that they were undersized in circumference. The makers are quite correct in what they state, and for that weight of car I should advise "Perplexed" to go in for at least a 32-in. or 34-in. tyre, with a 5-in. tread, anyway on the back.

For satisfaction and reliability, I would recommend the Clincher Michelin. I have driven over 6,000 miles on them on a car weighing 17 cwt, and bad roads, and the tyres are no worse for wear, having had only one puncture through a horseshoe nail.—Yours truly,

H. Hughes.

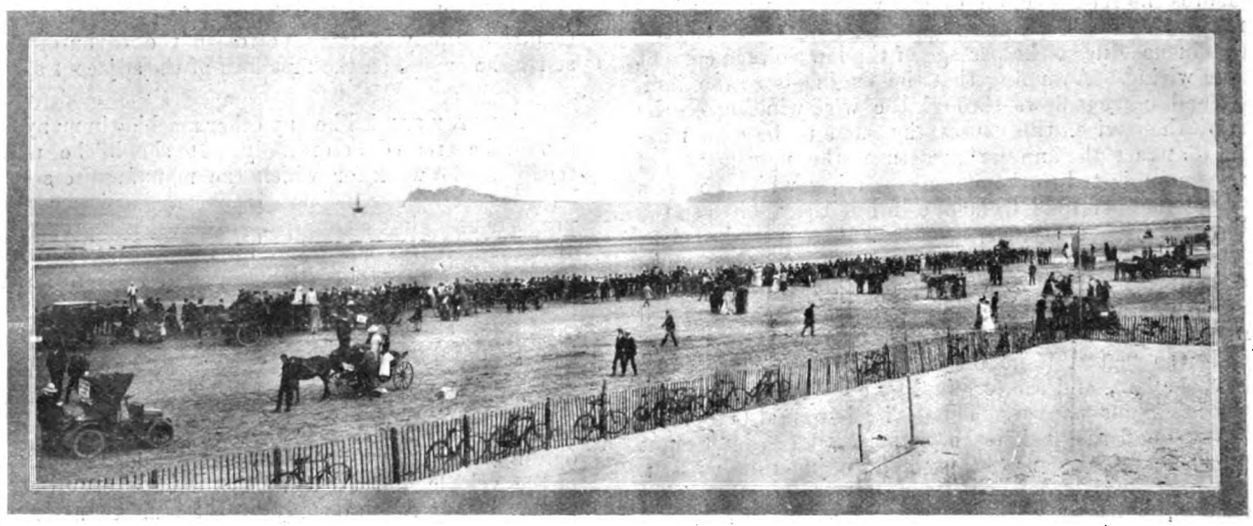


Photo by] **The Portmarnock Motor Races. View of the Course.** *(See page 613).* *[Chancellor and Son.*

ADVICE WANTED

To the Editor of *The Motor-Car Journal.*

Sir,—I read in your paper of the 3rd inst. a reply to a letter from "J. S." I think "Verdant Green" is very wrong to give such frivolous advice to one who is evidently trying to learn a most intricate subject, and "J. S." should be enlightened.

As a motorist of two weeks' standing I venture to think I am able to help him. There is no handle to work the brake, that is why we hear of so many dreadful accidents through brakes not acting. "J. S." must turn round when he gets to a steep descent and run backwards (the bump is much softer this way). The gear-box is at the side of the car usually, or is sometimes placed under the front seat. Often the spirit tanks take up all this latter space, and in this case the only place for the gears is under the tonneau seats, though this is very awkward when one wants to get any tools out. Fortunately I have not had to do this yet, as the weather has been too bad to run my car ever since I bought it.

"J. S." is wrong in saying he touched one of the magnetos; it must have been an exhaust valve, as the man who sold me my car said I must not touch them when the car is running, or it may have been the needle in the carburettor—this would be bound to hurt if he pressed the sharp end against his finger.

If the car won't start after the first six turns he must look at the spark. This is done by opening the lid of coil box and seeing if a lot of sparks are by the screw; if there are no sparks, move the switch over to the other side and try again, most likely it will be all right this time,

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then mount in the seat, see that the speed lever is in the free notch and start away.

It is very simple, and I cannot understand "J. S." going wrong, and how his starting handle could go through his front window I can't conceive; he must have been very near his house, and the handle must have been a long one. My handle is fixed on, and so are al the others I have seen.

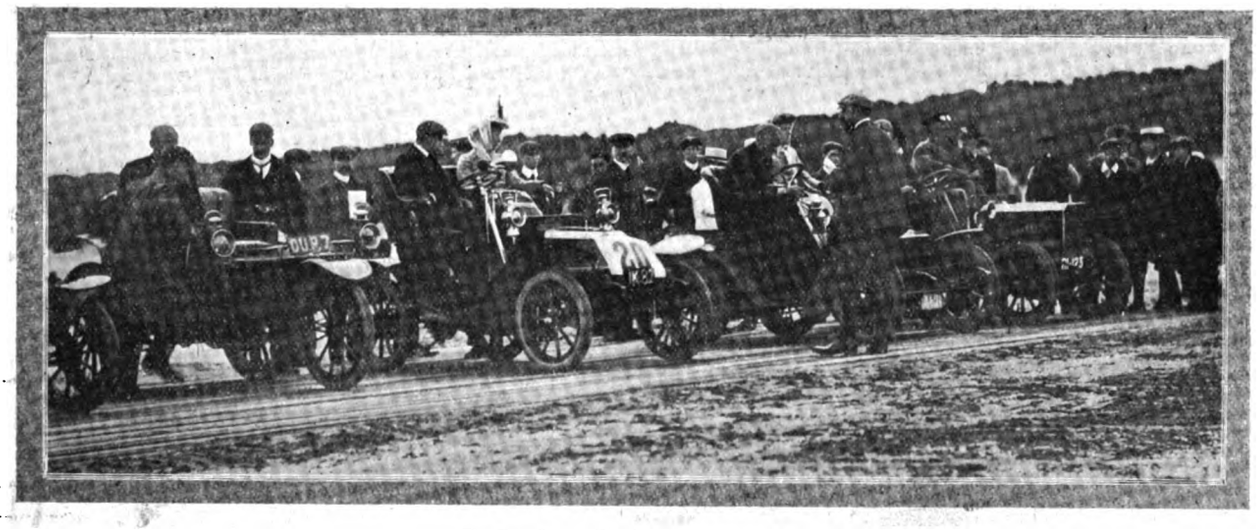
I don't quite know what "J. S." means by chain "drives." Mine was cinder, but, as it would cut the tyres, I had it all asphalted.

I shall be glad to help any motorist who has not had so much experience as myself, and would recommend him to read a book about motoring; he can thus have it all at his finger ends.—Yours truly,

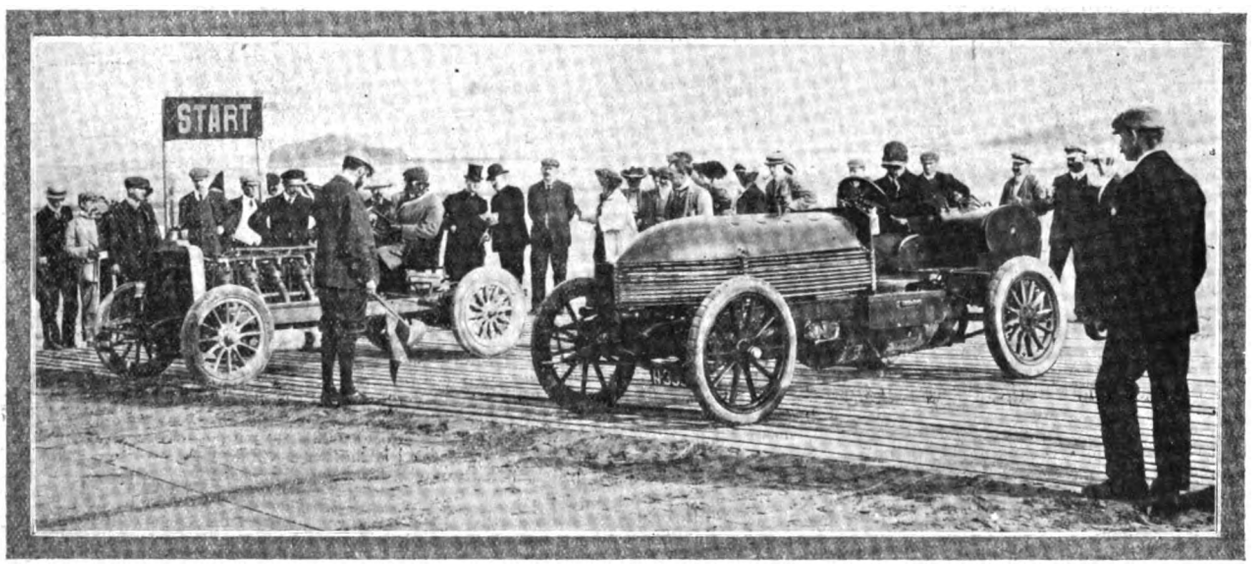
EXPERT.

misrepresenting the capacity of the engine, but purely through ignorance of the actual or possible horse-power of the motor employed, but even so the question is one of great importance to both builders and users of motor-cars.

The question of the power developed by internal combustion motors has already been a somewhat vexed one from the theoretical point of view, lacking that elegant correspondence with theory which the steam engine affords; but as the practical application of the brake tests offers no more difficulty in the one case than in the other, there is little excuse for the very wide discrepancies which attract unfavourable attention on looking over the various makers' catalogues. The adoption of some form of standard, if only a conventional and empirical one, which would enable the specifications of cars to be more easily comparable, *inter se*, is certainly much to be desired.



The Two-Seated Touring Cars Ready to Start.



Mr. A. Rawlinson's Darracq v. Mr. S. F. Edge's Six-cylinder Napier. The new form of Bonnet and Radiator of the latter is worthy of notice.
Photos by] [*Chancellor and Son.*

THE PORTMARNOCK MOTOR RACES (*See page* 613).

THE HORSE-POWER OF PETROL MOTORS.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—I am glad to see the correspondence on this subject, for every motorist knows that the horse-power ratings of petrol motors are not at all times reliable; that they are often overrated, and that a standard system of rating which would convey a more comprehensive idea of the capacity of the motor and form a basis for comparison would be the actual filling of "a long felt want."

It is no doubt true that the horse-powers of many of the motors in use are rated, not by how much work they are capable of doing, but by how much work it is considered they ought to do. The rated, or rather, the advertised, power of a motor depends, therefore, to some extent on the designer, as well as on the motor, a sort of personal factor being introduced. Of course, this may not be done with intention of

One obvious cause of this lack of uniformity is the fact that the modern light motor vehicle has evolved—more or less simultaneously—from two different sources. The heavy car of a few years back was usually built with a slow-speed engine, and its horse power catalogued on that basis, though capable of a considerably higher output if run at a higher speed. Then, as weights were cut down and powers went up, one type of light car developed from this source, but the tradition of cataloguing the engine under the maximum power remained.

On the other hand, the evolution of the high-speed engine from its beginnings as a cycle motor was accompanied by the practice of listing its horse-power according to its maximum performance on the brake test, a performance not often reached in actual work; and the other type of light car, which owes its origin more or less directly to this source, often continues to be an example of the same practice.

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The maker may plead with some plausibility that in the absence of any standard agreed upon he is, on the one hand, taking the only natural standard in quoting the maximum output of his engine, or that, on the other, he prefers to quote a power well within what the motor is capable of under adverse conditions, it obviously being better for him that his car should, say, be called a good 10-h.p. than a poor 12-h.p.

From the foregoing it can readily be seen that the present confusion and want of system in this matter should be reduced to order, even if this can only be done by an arbitrary standard. Obviously such a standard could be dispensed with by listing every engine at its maximum power by factory test; this, however, would probably be less satisfactory to purchasers, who are in the habit of expecting a margin of power above that listed, than the adoption of an arbitrary standard somewhat after this manner:—Let the maximum brake horse-power be taken; then let the brake horse-power at two-thirds or three-quarters of that speed be measured, this la ter to be the nominal horse-power and speed. Thus the usual margin would be allowed, but it would be a definite and an accepted one, and some uniformity in the classification of engines would be attained.—Yours truly,

F. J. REYNOLDS.

TAIL LAMP TROUBLES.

TO THE EDITOR OF *The Motor-Car Journal.*

SIR,—I have also been unable to find any lamp that would keep alight behind my 6-b.p. De Dion, with the exception of a Lucas bicycle candle lamp. I was determined, however, to make use of one of the many handsome lamps I had collected, so selected one which shows a white light on each side in addition to the rear red light. All I did was to purchase a four-volt B.C. lamp, with holder, and three yards of flexible wiring, cost 4s. I then removed the oil reservoir from the lamp case and cut a round hole in the middle of the bottom of lamp case, just large enough to allow the holder to be inserted but not big enough for the screw collar to pass through. The collar was then screwed down and the lamp was complete. I connected one end of the flexible wiring to the pole of accumulator and the other to an ordinary interrupter on dash board, which was in turn connected to the + pole of the accumulator. As far as I can make out this system takes about ·08 ampere with four-volt accumulator.—Yours truly,

B. 453.

TO THE EDITOR OF *The Motor-Car Journal.*

SIR,—In the *Journal* of the 3rd inst. there is a letter from "Rosthern" regarding tail lamps. I had the same experience as many others, viz., that no tail lamp I could fix on would keep in, and I adopted the following, which I think "Rosthern" will find an absolute cure, although it will entail the purchase of another lamp. Get one of Lucas's Cetyphote lamps, No. 317, detach the face from the body, and, as it is only held on by a small screw through the back of the face, there is no difficulty in doing this; also unsolder the small thick tube which holds the burner. Into the remaining portion of the tube solder a small piece of brass tubing thick enough to allow the inflator tubing to fit tightly on to it, then fix the burner on the rear bracket in such a way that when the burner is in position there should be a small portion of a similar size of tubing projecting at the rear of the bracket; fix the face on above the burner, but when screwing this on to the bracket it is best to put a small bolt through the bracket having a leather washer between the lamp face and the bracket, then put a nut at the back of the bolt and screw it up tight; a jam nut will also be an improvement. Fix the body of the lamp in any favourable position, preferably near the steering seat, fix the inflator tubing, one end to the small tube projecting from the lamp and the other end to the burner at the rear. The inflator tubing I find best for this purpose is that sold by, I think, the Continental Rubber Company, and has practically no canvas in it. It is sold in yard lengths, but these can be connected with a small piece of brass tubing inserted about an inch in each end. Test all the joints to see that they are tight.

The above arrangement will be found to work with absolute satisfaction, I have one in use myself; but I have two faces, one at the front and one at the back of the machine, working from the same lamp. It has never been blown out, and I have tested the arrangement thoroughly. The burner supplied with the lamp gives rather a large flame for the rear light, but I understand that smaller burners can be obtained from the manufacturers of acetylene gas house lighting apparatus; in any case, it is better to have too large a light than none at all.—Yours truly,

A. O. F.

TO THE EDITOR OF *The Motor-Car Journal.*

SIR,—In reply to "Rosthern's" letter in the *Journal* of the 3rd inst. *re* tail lamp troubles, I may say that I have had exactly the same trouble in finding a lamp that would not jar out. I have had half a dozen lamps at prices from 10s. 6d. to £1 1s., and never had one that would burn for an hour without going out. At last I bought a good cycle lamp which had a strong spring, and put a piece of red glass in the left side of the lamp, so as to show red behind when the light was on the number plate, and I find this works to perfection. I have used it for several months and have never had it jar out or blow out once. I may add that I bought the lamp at a cycle dealer's auction sale for eighteenpence, and it took me about half an hour to fix the glass in, but it has been worth pounds to me.—Yours truly,

R. R. S.

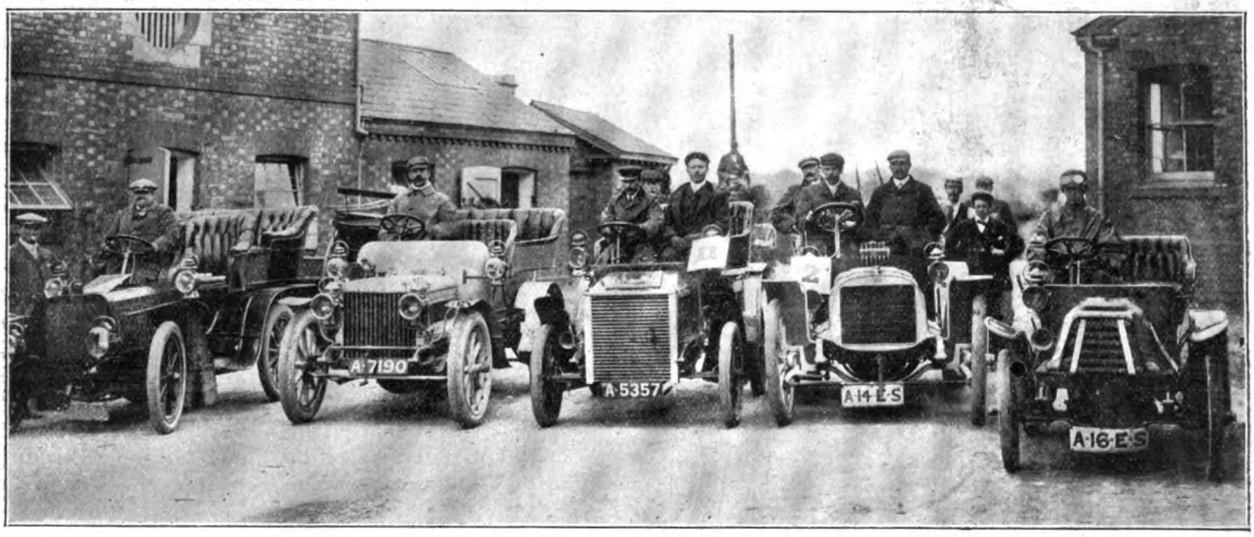


Photo by The Hertfordshire Club's Hill-climbing Competition. The Cars weighing in at Boxmoor. [*Argent Archer.*

QUERIES *re* DE DION CLUTCHES.

TO THE EDITOR OF *The Motor-Car Journal.*

SIR,—In answer to "A. H. R.," he evidently does not understand the adjustment of the most perfect of gears. There was no need to take the gear box down simply to adjust the long internal expanding screw. If he would write to Messrs. J. Child Meredith and Company, of Summer Hill, Birmingham, he would get the diagram of adjustment for a shilling.—Yours truly,

J. T. A.

TO THE EDITOR OF *The Motor-Car Journal.*

SIR,—in answer to "A. H. R." *re* De Dion clutches, I would suggest the following treatment, which I have found effectual. Make certain that the fibres are in good condition and level when the change speed handle is in "free" position. Now slack off the regulating screw until they are apparently ineffective for use on the road, and fill the gear case with lubricating oil. In a very short time it will be found that the clutches have expanded to their proper adjustment and may even have to be

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further reduced by the regulating screw. When the exact position for the regulating screw has been found, no further adjustments will be found necessary, provided the gear case is really kept full of lubricating oil.—Yours truly,

B. 453.

To the Editor of *The Motor-Car Journal.*

Sir,—Replying to "A. H. R.'s" letter in the last issue of the *Journal*, his trouble is no doubt due to the clutches, the fibre having become swollen through being soaked with oil, thereby causing the tightness complained of. If, before making the clutches, the fibre is soaked in oil (even boiling oil might be used), it will greatly lessen the chances of this happening. The slip mentioned on top speed I should imagine to be due to the clutch not being quite correctly fitted, or owing to the fact that both clutches were partially engaged, thereby causing a drag on the drive.—Yours truly,

J. T. H.

THE RATING OF CARS.

To the Editor of *The Motor-Car Journal.*

Sir,—I was much interested in the letter by Mr. E. M. C. Instone in last week's *Journal*. His reference to the growing tendency of makers to understate the horse-power of their engine should cause agents to be more insistent on accuracy. He could contribute something tangible to the discussion if he would inform us how he would prove that his own 28-h.p. car is exactly of the power listed by the makers. Such a demonstration would assist others in gauging the "powers" of other engines. Otherwise it might happen that, in winning a race against a car of the same described horse-power, there would be an inclination to regard the engine as of 30 or even 35-h.p. I notice that at Portmarnock Mr. Martin's 28-h.p. car beat a 20-h.p. of another make. At Bexhill the latter beat a 60-h.p. vehicle. Verily we want some authoritative declaration on the subject.—Yours truly,

Rose Dartell.

GEAR FOR DECAUVILLE CAR.

To the Editor of *The Motor-Car Journal.*

Sir,—Having seen the letter from "H. D." in the *Journal* of the 3rd inst. *re* gear for Decauville car, I should strongly advise him to write to Mr. W. H. Scotton, of All Saints Road, Ipswich, who will give him all particulars of his patent gear. I have one on my own car (a 9-h.p. Aster) which has now run hundreds of miles, and I may say it is practically perfect. The gears are all in mesh, very quiet in running, and, from its mechanism, impossible to damage in changing, and so simple that any amateur can change, it being impossible to miss.—Yours truly,

H. A.

CATTLE ON THE ROAD.

To the Editor of *The Motor-Car Journal.*

Sir,—As a reader of your valuable paper, I wish to draw the attention of fellow motorists to the following incident. The other Saturday evening I was journeying from London to Leicester on a car. A few miles before reaching Market Harborough, on turning a bend in the road, I ran into about twenty oxen which had been left to graze on the roadside. At the time of the incident I was only travelling twelve miles per hour; what would have been the result if I had been going at a fast pace?—a serious accident, probably with fatal results; but, luckily, I managed to escape with about £3 worth of damage to the car. I think that if the county police were to attend more to matters of this kind, instead of trying to trap motorists, it would be better. Are travellers' lives to be risked so cheaply in allowing herds of cattle to graze and wander on main roads at night unattended?—Yours truly,

J. W. Morris.

LOOK AFTER THE CHAINS.

To the Editor of *The Motor-Car Journal.*

Sir,—With reference to chains, I have been using Brampton's on a 10-h.p. Panhard. The car I am using having run 3,400 miles, and that independent of trial runs, etc., I might conclude, I suppose, they have done particularly well, seeing that half that distance has been done in Scotland, being so hilly, and to all appearance seem fairly good still, though the rollers are showing considerable wear. Would this be a fair life for chains?—Yours truly,

A. B.

THE OLDSMOBILE.

To the Editor of *The Motor-Car Journal.*

Sir,—The letters under the above heading have interested me, and my personal experience may be of interest to some of your readers. In the spring I bought an Oldsmobile, and at first had great trouble with it; I have since found out the reason. I saw it driven, and thought one had only to turn the handle to start it and then to work the lever; but, like every beginner, I had back fires and a number of minor troubles, and it was partly with an idea of selling the car I called in an expert, who gave me four lessons, the first two explaining the parts of the engine (in doing so he took most of it to pieces), then two lessons on the road. Since then I have travelled many hundred miles and never had the slightest trouble. My advice to anyone buying one of these useful little cars is to thoroughly understand the engine, the oiling, spark, gears and timing, and then to have some lessons in driving. I have a back seat, and always carry four, and I have climbed Westerham, Wrotham and Shooter's Hills. On one occasion I hauled a large car into Eltham (five miles) and still had my four passengers on board.—Yours truly,

A Lover of Kent.

STEAM CARS.

To the Editor of *The Motor-Car Journal.*

Sir,—A feature which I am sure tells heavily against the steamer, especially in the eyes of the moderate country dweller, who uses his car more frequently and for shorter trips than the townsman, is the tedious process of getting under way.

For example, I was expatiating the other day to a friend on the superior merits, as it seems to me, of a steamer to a petroler; and his reply was, "Granting all you say, yet a steamer would not do for me, for I often have my car out several times a day, and getting up steam repeatedly would be too much bother."

It has been suggested that the time necessary for this operation might be also utilised for filling tanks, oiling, etc.; but, apart from what seems to me the bad practice of putting off these details to the last moment, it might very well be that they were not needed, owing to the car having just come in from a short run.

Makers, I think, seem too often to assume that a car is only used for long journeys, in which case the time spent in getting up steam would not be grudged; but, as I have said above, there is a large and increasing number of cars which are chiefly used for short and frequent runs; and a type which does not start readily is seriously handicapped in the market, so that it would seem to be well worth the while of steam car makers to endeavour to make the process of lighting up as short and convenient as possible.—Yours truly,



Mr. W. G. James on his 14-h.p. Crypto Car.

Faber.

SINGLE TUBE TYRES.

To the Editor of *The Motor-Car Journal.*

Sir,—Using tyres hard, I should be glad if your correspondent, "A. H. 59," in the issue of the 3rd inst., would enlighten me a little *re* their protection. Where does he get his protecting band, and how is it put on? Any hint will be of value to the users of single tube tyres, as that is the great trouble and expense in using cars.—Yours truly,

W. A.

The Small Car Trials.—Mr. J. Chambers, of Messrs. Chambers and Company, writes:—"In reference to the Hereford trials, and the unfortunate accident to our Downshire car in Ludlow, I may state that I ran her to Hereford the same afternoon, using third speed only, the first and second being deranged, and after fitting a new part, supplied from Belfast, did a non stop on the afternoon run on Friday, the 2nd inst., including Bishop's Frome. On Saturday, the 3rd inst., the car was driven to Liverpool with two up and heavy luggage without an involuntary stop in five hours' running time. The accident was primarily due to our car being one of the first made, and was only on the road for four days before the trials."

Tail Lamp Troubles.—"Well Pleased" writes:—I have found that a good way to stop the lamps shaking out is to put some cotton wool in the bottom of the lamp and then fill with oil.

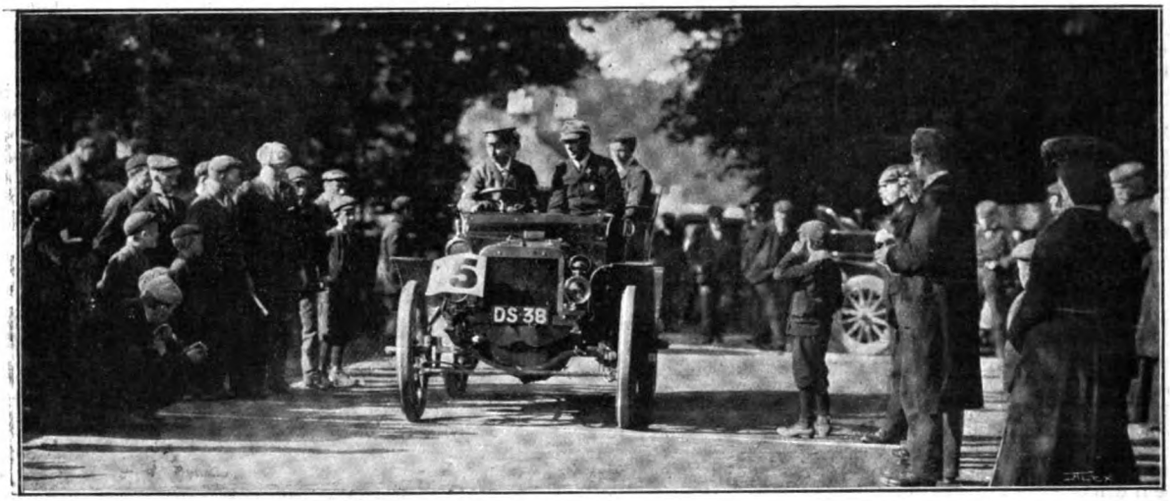
Starting Handle Found.—We believe the police at Albany Street, N.W., have a starting handle found in Abbey Street, N.W., which they are anxious to return to its owner.

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CLUBS AND ASSOCIATIONS.

SCOTTISH.

A HILL-CLIMBING competition took place over the Kirkfield Hill, Lanark, on the afternoon of Saturday, under the auspices of the Scottish Automobile Club (Western Section). The competition was purely a sporting one, and was confined to the vehicles owned by members of the Scottish Automobile Club, and members of the Club only were eligible to drive the cars. The contest took place from a standing start over 821 2-3 yards of road with an average gradient of about 1 in 9, the steepest stretch being about 150 yards of 1 in 7·8. A large number of members of the club and interested spectators were present, over fifty cars being ranged on the side road, and the arrangements worked out admirably. The police gave every facility and assistance. The times were taken by Messrs. Alex. Blair, Jas. H. Inglis, and A. G. Rennie. This was done by synchronized chronographs, and an electric timing apparatus was also employed, a special telephone being fitted up between the start and finishing points. For both the timing apparatus and the telephone the Club were indebted to the kindness of Mr. Inglis. Single cylinder cars carried two, and all others four adult passengers. All the arrangements were admirably directed by Mr. R. J. Smith, the hon. secretary, and other officials of the Club. The following were the results:—



The Scottish Club's (Western Section) Hill-climbing Competition at Lanark. Mr. J. P. Wright's 12-16-h.p. Albion Car.
Photo by [*A. Brown & Co.*

Competitor.	Car.	Seating Capacity.	Approx. Weight, Unladen. cwts.	Time of Ascent. m. s.	Miles per Hour.
CLASS I.—Vehicles having One Cylinder.					
William Weir	6-h.p. Wolseley	2	10	2 32⅕	11·04
Dr. David Lamb	6½-9-h.p. Cadillac	2	9½	4 36⅕	6·08
CLASS II.—Vehicles having Two Cylinders.					
Sir Duncan E. Hay, Bart.	10-h.p. Renault	4	15	3 30⅘	8·0
Alex. Mackenzie	12-h.p. Albion	4 or 5	21	2 54⅘	9·63
Hugh Kennedy	12-h.p. Darracq	4 or 5	16	2 20	12·0
George Owen	10-h.p. Argyll	4	13½	3 1½	9·27
A. Ure Barr	12-h.p. Peugeot	5	15	2 46⅘	10·07
P. G. S. M'Hutchen	12-h.p. De Dion	4	16	2 34⅘	10·88
James T. Forgie	7½-h.p. Wolseley	4	16½	4 22⅘	6·4
Henry M. Napier	10-h.p. Wolseley	4	19	3 38⅘	7·69
Prof. Archd. Barr	12-h.p. Albion	5	22	3 20⅕	8·39
John P. Wright	12-16-h.p. Albion	4	22½	3 14⅘	8·63
J. Hunter Steen and C. J. Campbell Steen	12-h.p. Wolseley	4	18	2 25⅘	11·5
William Macdonald	12-h.p. Darracq	4 or 5	15	3 13⅕	8·7
L. C. Seligmann	10-h.p. Wolseley	4	19	3 9⅕	8.88
CLASS III.—Vehicles having Three or more Cylinders. (All Entries below are Four Cylinder Cars.					
J. B. Shanks	12-14-h.p. Daimler	5	18	3 15⅕	8·6
John R. Richmond	15-h.p. Darracq	4	17½	1 54⅘	14·69
Owen R. Williams	15-h.p. Darracq	4	18	2 34	10·91
W. L. Sleigh	16-h.p. Argyll	4	17	2 1⅘	13·8
Col. Andrew Pearson	16-h.p. Renfrew	4	18	3 20⅕	8·39
Claud Hamilton	16-h.p. De Dietrich	4	22	2 42⅕	10·36
Hugh Reid	14-h.p. Renault	4	19	2 39⅘	10·51

YORKSHIRE.

THE committee of the Yorkshire Automobile Club have now definitely decided to hold their speed trials on Saturday, October 1st. The trials will be held at Wentworth Woodhouse by permission of the president, Earl Fitzwilliam, and will be strictly limited to entries from members of their own private cars.

JOINT MEET AT RAGLAN.

A CLUB RUN has been held at Raglan, Mon., at which the members of the South Wales and Monmouth Automobile Club met the members of the Hereford Automobile Club. After a very enjoyable run the members of both clubs took tea at the Beaufort Arms Hotel, Raglan. Several visited the ruins of the old castle. Among those present were Colonel L. Scudamore (Panhard), Captain Otho Shaw (40-h.p. De Dietrich), Captain Englefield (12-h.p. Darracq), Messrs. W. Groom (5½-h.p. Rexette), Hall (8-h.p. M.M.C.), Chave (9-h.p. Rex), H. West (22-h.p. Daimler), Graham (16-h.p. Brush), Duchemin (20-h.p. Decauville), J. J. Neale (12-h.p. New Orleans), Lennox Robertson (11-h.p. Clement), Parker Thomas (14-h.p. Talbot), Gray (F.I.A.T.), D. W. Graham, J.P. (Mercedes), C. Peaty (6-h.p. De Dion), J. T. Willows (8-h.p. De Dion), Peaty, jun. (4-h.p. Werner fore carriage), Willows, jun. (3-h.p. De Dion fore car), Perry (6-h.p. De Dion), and Hopkins (Oldsmobile).

WOLVERHAMPTON.

FULL particulars of hill-climbing competitions to be held at Gatacre Hill, Stourbridge-road, Bridgnorth, by the Wolverhampton Club, on the 24th inst., together with entry forms, can be now obtained from the secretary, Mr. S. R. Rhodes, Carlton Chambers, Lichfield Street, Wolverhampton. Prizes in both the club and open handicaps consisting of orders addressed to any Wolverhampton tradesman to supply articles desired to specified values, will be awarded to the winners, in addition to which trophies of the respective values of £25 and £10 10s., given by the Star Engineering Co. and the Wolf Motor Co., Ltd., respectively, in the club and open events will be competed for.

MANCHESTER.

THE Manchester Automobile Club had a run on Saturday to Lawton Hall, in Cheshire, and, though a good many of the members were away from home, a score of cars turned up and seventy members and their friends sat down to tea. The Hall is full of historic interest and associations. Before the Restoration, it appears that Charles II. was concealed for some time in the Hall of Lawton, during which period he stood sponsor at the baptism of his host's eldest son, born in 1656, marking this auspicious occasion by presenting to his godchild an exquisite drinking cup. Subsequently he presented to the family his own portrait by Sir Peter Lely, and also that of the Duke of Monmouth, both of which still adorn the walls of the lofty large dining hall. Another of his gifts was the picturesque octagonal pigeon tower still in existence. Beneath a passage leading from the small drawing room to the library is a vault, said to have been the hiding-place of Charles II. Near by is a magnificent oak-panelled room, known as the King's room.

LINCOLNSHIRE.

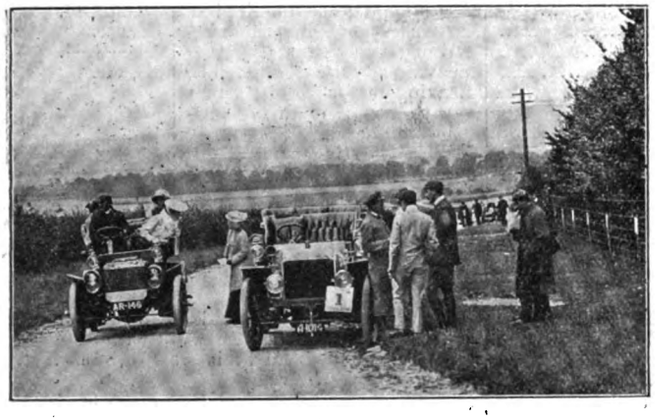
A MEET of the Lincolnshire A.C. was held at Little Grimsby Hall on Thursday of last week on the occasion of the invitation of Mr. W. Haddon Owen. There were acceptances from nearly thirty cars, but it rained hard, and the gale added to the inconvenience. Still several of the regular patrons of the meets of the club were there, including Major F.

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Goddar, 12-h.p. Richardson; Mr. E. Cragg, M.D., hon. sec., Mr. Robinson, Grimsby, 8-h.p. De Dion; Mr. T. W. Swaby, 12-h.p. Darracq; Mr. E. J. Brocking, Cleethorpes, 9–11-h.p. Talbot; Dr. Sharp, Brant Broughton, 12-h.p. Richardson; Mr. Tomlinson, Sleaford, Mr. Wright, Scamblesby, 6-h.p. Bardon; Mr. and Mrs. A. A. Padley, Market Rasen, 10-h.p. De Dion; Mr. Parson Wright, 6-h.p. Regal; Mr. J. R. Richardson and Mr. W. R. Pennell, Lincoln, 12-h.p. Richardson; and Mr. G. Garnett, Mr. R. W. Forest, and Mr. J. H. Marsden, Gainsborough, M.M.C.

A meeting of members was held in the billiard-room at the Hall, presided over by Mr. Owen, and the resolution of the general committee as to the amalgamation of the South Lincolnshire Motor Club with the County Club was confirmed.

The awards in the hill-climbing competition, held at Gainsborough



The Hertfordshire Club's Competition.—Getting Ready for the Hill Climb.

Photo by] [*J. T. Newman.*

on the 1st and reported in last week's *Journal*, have now been made known, the handicap resulting as follows:—

1. Mr. R. M. Wright, Lincoln, 6½-h.p. Humberette.
2. Mr. W. Rose, Gainsborough, 15-h.p. "National" car.
3. Mr. G. E. Sandars, Scampton, 4½-h.p. De Dion.
4. Mr. G. W. Jefferey, Gainsborough, 12-h.p. Darracq.
5. Dr. W. H. B. Brook, Lincoln, 9–11-h.p. Clement.
6. Mr. C. W. Pennell, Lincoln, 16–22-h.p. Martini.

The first and second prizes consist of two beautiful silver jugs.

HERTFORDSHIRE.

On Saturday the Hertfordshire Automobile Club held a hill climbing competition at Aston Hill. The weather was magnificent, and a large concourse of spectators was present, including Mr. Alfred C. de Rothschild, who hospitably entertained the members of the club and the competitors to a "champagne tea." The hill is 1,150 yards long, and the average gradient 1 in 9, the surface being rather loose in one or two parts. Everything passed off without a hitch, the police keeping the hill clear of all horse traffic. Messrs. N. B. Kenealy and E. T. Pryor were judges, Mr. F. Straight timekeeper, and Messrs. E. Kenealy and A. Hunt starters. The marshals were Dr. Gruggen, Mr. J. Harwood, and Mr. J. Hunt, and Mr. C. Wood was in charge of the flagmen.

Car.	Entered by	Cylinders.	Bore and Stroke, in Millimetres.	Revolutions.	Time.
					m. s.
20-h.p. Napier ..	Mr. S. F. Edge	4	126 × 126	1,000	1 27⅘
24-h.p. Leon Bollée	Mr. A. J. Dew...	4	106 × 130	1,000	1 42⅖
12-h.p. Wolseley ...	Mr. O. Thompson	2	115 × 127	800	3 54⅘
12-h.p. Wolseley ...	Mr. O. Thompson	2	115 × 127	800	2 22⅖
12-h.p. Pipe	Mr. C. Watney	4	80 × 124	1,200	3 26⅘
6-h.p. Speedwell..	Mr. J. Dew	1	90 × 110	1,400	3 23⅘
10-h.p. White ...	Mr. F. Coleman	2	3" & 5" × 3½"	various	2 31⅕
10-h.p. White ...	Mr. B. Rhodes...	2	" "	"	3 11⅕
10-h.p. White ...	Mr. F. Gardner	2	" "	"	3 3⅘
10-h.p. White ...	Mr. J. W. Hunt	2	" "	"	4 41⅘
10-h.p. White ...	Mr. C. Stent ..	2	" "	"	3 19⅖
8-h.p. M.M.C. ...	Mr. R. Cooper...	1	100 × 130	1,450	5 29
8-h.p. Crypto ...	Mr. A. W. Hudden	1	100 × 120	1,500	6 50⅘
10-h.p. White (steam)	Captain D. B. Fulton, R.A.	2	3" & 5" × 3½"	various	2 50⅘
7-h.p. Alldays ...	Mr. A. Pemsel	1	—	—	5 28⅘
7-h.p. Swift ...	Mr. E. de Wilton	2	80 × 85	—	5 9⅘
7-h.p. Alldays ...	Alldays and Onions	1	4" × 4½"	—	4 11
16-h.p. Martini	Capt. Deasy ...	4	—	—	2 22⅖

THE MOTOR RACING AT PORTMARNOCK.

The first day's proceedings having passed off so successfully, it was quite expected that the public taste was whetted for the second day's event. This proved to be the case, and, favoured by even better weather than on the previous day, and with the course in a drier condition, the events passed off with even greater *eclat*. To add to the interest, most of the finals were to be run off, and in some of the events these provided very exciting finishes. The 100-h.p. Mors was on its best behaviour, and the Hon. C. S. Rolls had the satisfaction of pulling off his heat against Mr. A. Lee Guinness. The triple contest between Mr. A. F. Macdonald, the Hon. C. S. Rolls, and Mr. Lee Guinness was the event of the day, and excited the greatest interest.

The following are the results of the several heats and finals:—

Class C.—For motor-bicycles up to and including 150 lbs. weight.

First Heat.—C. B. Franklin, 2¾-h.p. F.N., 1; J. G. Drury, 2¼-h.p. Triumph, 2; H. S. Huet, 3½-h.p. Minerva, 3. Won easily. Time, 1 min. 30 3-5 sec.

Second Heat.—Evan Jones, 2¾-h.p. Humber, 1; F. A. Wallen, 2. Time, 1 min. 45 1-5 sec.

Final.—C. B. Franklin, 2¾-h.p. F.N., 1; Evan Jones, 2¾-h.p. Humber, 2; F. A. Wallen, 3-h.p. Triumph, 3. Time, 1 min. 32 1-5 sec. Won easily.

Class E.—For two-seated cars costing £200 or less.

Final.—H. Sturmey, 10-h.p. Duryea, 1; J. "Edwards," 6-h.p. De Dion, 2. Time, 1 min. 53 4-5 sec. Won easily.

Class D.—For motor-cycles, weight unrestricted.

First Heat.—C. B. Franklin, 2¾-h.p. F.N., 1; Evan Jones, 2¾-h.p. Humber, 2; Oswald-Sealy, 2¾-h.p. Excelsior, 3. Time, 1 min. 31 sec. Won easily.

Second Heat.—W. R. Ireton, 3-h.p. Riley, 1; J. G. Drury, 2¼-h.p. Triumph, 2; H. S. Huet, 3½-h.p. Minerva, 3. Time, 1 min. 33 4-5 sec. Won easily.

Final.—C. B. Franklin, 2¾-h.p. F.N., 1; Evan Jones, 2¾-h.p. Humber, 2; W. R. Ireton, 3-h.p. Riley, 3. Won easily in 1 min. 29 1-5 sec.

Class F.—For touring cars costing over £200 but not more than £400, to carry four passengers.

Final.—F. Churchill, 14-h.p. Hallamshire, 1; H. Sturmey, 12-h.p. Duryea, 2; H. Kennedy, 12-h.p. Darracq, 3. Time, 1 min. 57 3-5 sec.

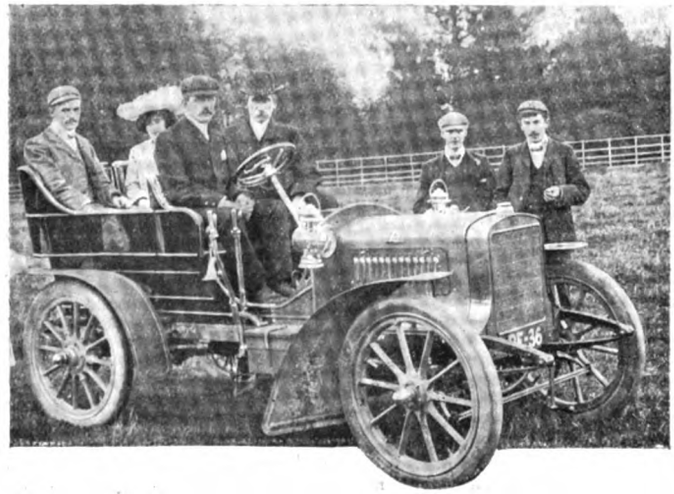
Class G.—For touring cars costing over £400 but not more than £600, to carry four passengers.

Final.—A. Huntley Walker, 15-h.p. Darracq, 1; A. Rawlinson, 15-h.p. Darracq, 2. Time, 1 min. 58 1-5 sec. Tight finish.

Goff Challenge Cup, value 20 guineas. To be won twice in succession or three times in all. A handicap.

First Heat.—T. L. Plunkett, 28-h.p. Daimler, scratch, 1; Major C. Thornhill, 6-h.p. Wolseley, 550 yards, 2; A. J. Hardy, 5-h.p. Peugeot, 650 yards, 3. Time, 1 min. 36 4-5 sec. Won easily.

Second Heat.—Dermot Mooney, 10-h.p. Argyll, 375 yards, 1; W. D. Saunsbury, 9-h.p. Argyll, 450 yards, 2; Rt. Hon. Sir H. Plunkett, 10-h.p. Panhard, 250 yards, 3. Time, 2 min. 7 3-5 sec.



The Gainsborough Hill-Climbing Competition.—The 15-17-h.p. "National" Car.

Final.—T. L. Plunkett, 28-h.p. Daimler, 1; Major Thornhill, 6-h.p. Wolseley, 2. Time, 1 min. 32 2-5 sec.

Class L. (Semi-Final).—For racing cars not more than 1,000 kilos. (19 cwt. 3 qrs. 20 lbs.).

First Heat.—Hon. C. S. Rolls, 100-h.p. Mors, 1; A. Lee Guinness, Gordon Bennett Darracq racer, 2. Won by 50 yards. Time, 57 2-5 sec.

Second Heat.—S. F. Edge, 6-cylinder Napier racer, 1; A. Rawlinson, Gordon Bennett Darracq racer, 2. Time, 56 2-5 sec.

Class L. (Final).—S. F. Edge, 6-cylinder Napier, 1; Hon. C. S. Rolls, 100-h.p. Mors, 2; A. Lee Guinness, Gordon Bennett Darracq racer, 3. Time, 57 2-5 sec. (an exciting finish).

Class H. (Semi-Final).—For touring cars costing over £600, but not more than £1,000, to carry four passengers.

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First Heat.—Percy Martin, 28-h.p. Daimler, 1; S. F. Edge, 20-h.p. Napier, 2. Time, 1 min. 24 4-5 sec.

Second Heat.—T. L. Plunkett, 28-h.p. Daimler, 1; A. Huntley-Walker, 30-h.p. Darracq, 2. Time, 1 min. 39 1-5 sec. Won by a few inches.

CLASS H. (Final).—Percy Martin, 28-h.p. Daimler, 1; T. L. Plunkett, 28-h.p. Daimler, 2. Time, 1 min. 31 1-5 sec.

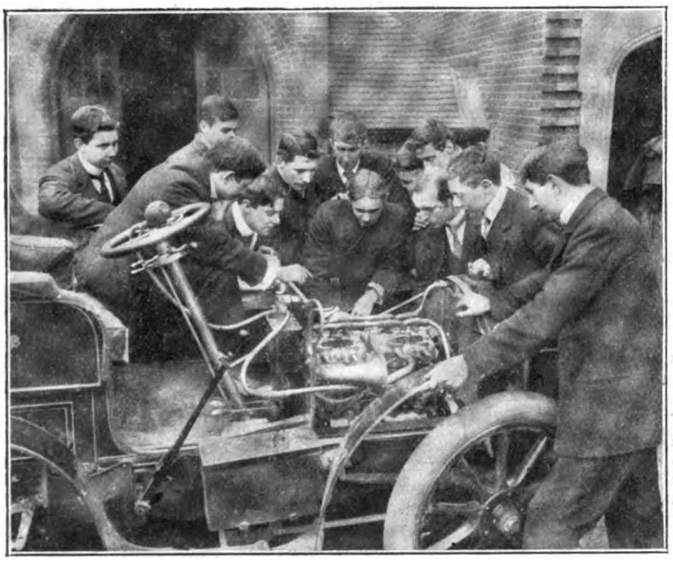
CLASS J. (Trial Heat).—For touring cars irrespective of price, to carry five passengers. A. Lee Guinness, 60-h.p. Mercedes, 1; A. Rawlinson, 40-h.p. Darracq, 2. Time, 1 min. 19 2-5 sec. Won by about 40 yards.

CLASS K.—For racing cars weighing less than 650 kilos. (12 cwt. 3 qrs.). A. Rawlinson, 30 h.p. Darracq, 1; G. Wilton, 30-h.p. Darracq, 2.

Time Trials.—(Flying Kilometre).—A. Rawlinson, 28 4-5 sec.; A. Rawlinson, 29 3-5 sec.; A. Lee Guinness, 30 sec.; C. S. Rolls, 32 4-5 sec.

CASE DISMISSED.

BEFORE the Samford Bench of Magistrates Mr. J. R. Egerton, of Ipswich, was charged that he "did on a certain public highway, at Copdock, drive a certain motor-car at a speed dangerous to the public, on August 4th." Mr. L. H. Vulliamy appeared on behalf of the defendant, and after the witnesses for the prosecution had been heard addressed the Bench. The chief point was that actual danger to the public must be proved before there could be a conviction under section 1, sub-section 1, of the Motor Car Act, 1903. It was no offence under that section to drive a car at an excessive speed unless there was evidence to prove actual danger to some person. In the evidence for the prosecution, one of the



The Motor Class at Battersea Polytechnic.—A Practical Lesson.

witnesses said that the car was travelling 20 miles an hour, another 30 miles, and a third witness 40 miles per hour. The evidence, therefore, tended to show that the defendant should have been charged under another section of the Act for exceeding the speed limit. Mr. Vulliamy read reports of cases heard at various quarter sessions, where persons were charged with driving motor-cars to the danger of the public. In the various appeals, when it was proved that there was no actual danger to a person or persons, the charges had been dismissed. Twenty miles an hour was quite a legal speed for a motorist to go in such a place as Copdock, unless it could be proved that danger was caused to a particular person or persons. The Magistrates subsequently retired, and on their return the Chairman said that they had decided to dismiss the case, on the grounds that the car was not driven at an excessive speed and to the danger of the public.

LEAVING WORK WITHOUT NOTICE.

AT the Aberdare Police Court, Richard Littlehales and Thomas Williams have been summoned at the instance of the Aberdare Valley Motor-Car Company, with leaving work without notice. The damages against Littlehales were laid at £2 and against Williams at 10s. Mr. W. D. Phillips prosecuted on behalf of the company. Mr. David Hughes, the manager of the company, said that owing to a dispute between him and the fitter, a man named Douglas, he dismissed Douglas, and Douglas called upon the defendant not to take out his car but to stand shoulder to shoulder, man to man. Defendant thereupon declined to take out his car and had since absented himself from work. He and the rest of the drivers had also come in on Saturday night at 8 o'clock instead of half-past 11. The defendant Littlehales said he did that because his car was not safe to run, but could not explain why all the drivers came at the same time. He denied that they agreed to do so on the Monday, but he admitted that they talked of it on the Monday morning. Both defendants were ordered to pay the full amount claimed with costs.

CASES AGAINST MOTORISTS.

Place.	Summoned for	Fine.
Nottingham	Driving dangerously	40s., etc.*
Shrewsbury.....	Not stopping when desired	Dismissed.
Exeter	Driving at dangerous speed	£1, etc.
Bradford	Driving at dangerous speed	Dismissed.
Malvern	Leaving motor-car unattended	£5, etc.
Worthing	Leaving motor-car in street with no light during prohibited hours.	15s.
Taunton	Dangerous driving	£2, etc.
Littlehampton	Failing to produce licence	£1 10s., etc.
Birmingham	Furious driving	£1, etc.
Banbury	Driving to public danger	£5, etc.
St. Neots	(1) Driving to common danger; (2) Refusing to stop	(1) £5. (2) £5.
Grays	No rear light	10s., etc.
Coventry	No rear light	10s., etc.
Samford	Driving at dangerous speed	Dismissed.
Woking	Driving at dangerous rate	21s., etc.
Croydon	Driving beyond legal limit	40s., etc.
„	Not producing licence	5s., etc.
„	(1) No proper identification plate; (2) No tare weight painted on the motor-van; and (3) not having a person with the van capable of applying the brake	Fines of 40s. in all, and 19s. 6d. costs
S.W. London	Furious driving and upsetting a trap.	Committed for trial.
Thrapston	Driving to danger of the public	£1.
Brighouse	Not giving audible warning of approach.	Dismissed.
Tonbridge	Driving recklessly	£3.
Coventry.....	Driving to common danger	Dismissed.
Spelthorne	Beyond legal limit	£5.
Hythe	Driving on the marine parade	£2, etc.
Chelmsford	Driving to public danger	£5, etc.
Marylebone	Driving at dangerous speed	£5.
Sheringham	Reckless driving	£10, etc.
Carlisle	No tail lamp	10s., etc.
Altrincham	(1) Driving dangerously; (2) Refusing to stop when requested	(1) £5; (2) £2 10s., etc.
Bray.....	(1) Driving dangerously; (2) Carrying no light	(1) 5s.; (2) 5s., etc.

* Notice of appeal given.

POLICE TRAPS.

AT Southborough, near Tonbridge, is a vigorously worked police trap.

AT Brighton Road, Croydon, the police have a trap, and motorists passing that way should be careful, lest peradventure they are caught therein.

MOTORISTS continue to be trapped on the Hampton Court road. This is the third time of warning.

THE police have a trap in Hyde Park, and a well-known motorist has been caught therein.

THE police have established a trap in the Bayswater Road, W., in which to catch Metropolitan motorists.

THE FATAL MOTOR-CYCLE ACCIDENT.

BEFORE the Croydon county magistrates, on Tuesday, Mr. Densham presiding, Mr. G. D. Holloway, of Beddington, surrendered to his bail to answer the charge of causing the death of Henry Hudson, by knocking him down with his motor-cycle. Chief-inspector M'Kay informed the Bench that at the coroner's inquest the jury had returned a verdict of "Accidental death"; in those circumstances the police had no further evidence to offer. The chairman said that, this being so, the Bench had decided to acquiesce in the jury's verdict.

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THE

Motor-Car Journal.

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COMMENTS.



AT the last meeting of the Dudley Town Council the Teams Committee reported that the Borough Surveyor produced replies from many towns as to the use of motor-vans, and after considering the same the committee could not recommend the adoption of motor-vans by the Corporation. Councillor G. F. Thompson moved the adoption of the report. The Borough Surveyor, he said, made inquiry of thirty or forty towns as to the motor-vans, and there was a concensus of opinion that they could only be worked economically where they were continually running, whilst the cost of repairs—which was fixed by the makers—was a very serious item. Councillor Adshead seconded, and the report was adopted. It would appear that this is a decision based on very inadequate knowledge, for some of the reports are from towns where practically no experience has been gained.

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A Gymkhana at Portsmouth.

ON Saturday an automobile gymkhana confined to motoring officers of the Services was held at Portsmouth. In the glass-of-water race Major A. H. Cox was the winner. In the tortoise race of fifty yards Lady Arbuthnot, 5-h.p. Oldsmobile, won in the ladies' class, with Mrs. Allen, 14-h.p. Renault, second; while among the gentlemen Captain Dixon secured first, that is to say, last place, by driving his 6-h.p. Eagle at the speed of an active snail, Professor Dykes, on a 6-h.p. Humberette, unwillingly attaining a slightly higher velocity. Lady drivers were prominent in the gymkhana, and one event was a test of their mechanical proficiency. They had to drive round the course to a line fifty yards from the finish stop and change a sparking-plug, and then proceed to the tape. Mrs. Vereker won, Lady Arbuthnot being second.

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Against Motor Cars.

THE agitation against motorists in rural districts is growing at too rapid a rate to be pleasing, and from all parts of the country we hear ominous rumours of local prejuduce being aroused against automobilists. As we have so often emphasised in these columns, this adverse public opinion is being ignored by the persons who use the road without any regard for the consideration of others, and provincial clubs will shortly have to consider whether, in addition to advising motorists to be careful, they do not add the warning of publicity to those members who ignore their policy. The District Council of Shifnal, in Shropshire, has been discussing the matter, and it has been decided to call the attention of the County Standing Joint Committee to the subject. The Rotherfield Parish Council in the south, too, is taking steps to petition the county authorities to get the Local Government Board to put into operation the restricted speed limit with regard to motor-cars. The Belper District Council is attempting to move its county authority in the matter; King's Lynn is considering the problem, and Newport (Mon.) is definitely asking for a restriction on the speed limit. These are but a few instances, which were brought to our notice on one day this week. They show that it is really time motorists recognise that their own interests are in the direction of keeping strictly to the law as regards furious driving.

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Energy in Defence.

THAT there is need for a thoroughly active and wideawake organisation in the interest of motorists is becoming increasingly apparent. In some places motorists are having their licences endorsed in quite an illegal fashion, and in others local prejudice is finding vent in police traps, which secure the attendance of innocent persons in a police court. A general movement seems afoot, calculated to adversely threaten the progress of business next season, and so widespread is the agitation against automobilism that the time seems ripe for a consideration of the positions for defence.

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Existing Organisations.

THE central organisation, with its racing cares, its attention to trials, its social functions and its other troubles, has so much to do that little heed can be given to the wrongs of individual motorists. The Motor Union has seemed inert to the ordinary layman suffering from legal wrongs. It has appointed correspondents, and has much to do in looking after errors perpetrated by magistrates in some country districts. Interest in its proceedings is unfortunately lukewarm, and, although distance may lend enchantment to the view of provincial motorists, they are beginning to realise it is too far removed from the ordinary happenings of the automobile world. They want something to knit them together in local strength, otherwise they are isolated and can only brood over grievances—supposed and real—in a silence which bodes ill for the future success of the automolile organisations.

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Local Work.

LAST week it was announced in the *Journal* that the motorists of Bristol were organising. That is good news, for neither the Somersetshire nor the Gloucestershire County Clubs can adequately safeguard the interests of motorists in Bristol city. On the motion of Mr. Robert Stotesbury, who presided, it was resolved, "That in the opinion of this meeting of motor vehicle owners in Bristol and district, a club or association should be organised to act in conjunction with similar clubs or associations and to carry out the objects as now before the meeting, both for the benefit of its members and for the furtherance of the automobile movement." This was seconded by Mr. Percy Ogden, supported by Messrs. S. Webber, C. Enstey, T. Genge and A. H. Wyatt. Mr. C. H. Dodd, the chairman of the General Purposes Committee of the Motor Union, urged support for the new movement, and the resolution was carried unanimously. A provisional committee was elected, of which Mr. T. R. Davey was appointed chairman. We wish

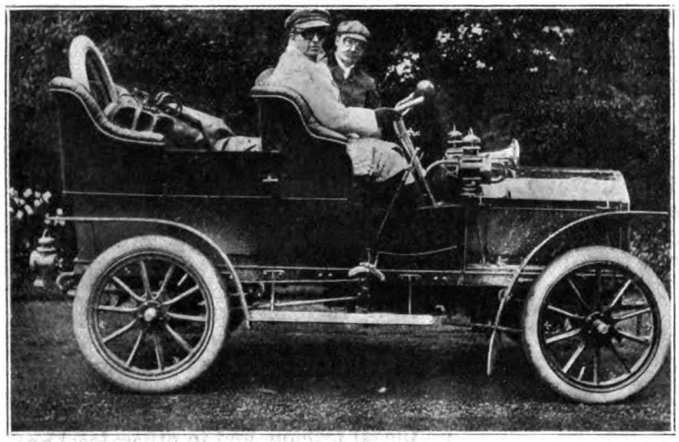
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well to the new organisation, and trust that other localities will quickly follow in the wake of Bristol.

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A Network of Societies.

WHEREVER a dozen motorists reside in a town or district some kind of local organisation should be formed to protect their mutual interests. There are many things that can be done when joint work is possible and which would be absolutely impossible in the case of isolated units. Not only has the education of local councillors in motor matters to be undertaken, but judicious questioning at election times can often be made the means of improving the tone of public bodies towards motorists. With a society to become the vent for public declaration of wrongs in every town, the work of the central bodies in London would be materially facilitated.



On a Highland Tour (*see opposite page*).

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Motor-Car Imports and Exports.

WHILE the number of foreign motor-cars imported into this country in August was less than in the same month of last year, the value of the imports showed a marked increase, thus indicating that the vehicles now reaching this country are of higher power than formerly. The number of cars imported last month is returned at 594, of a value of £243,729. Parts were responsible for £44,139, bringing up the total for August to £287,868, as against £278,128 in the preceding month and £193,364 in August, 1903. So far this year, that is to say, for the first eight months, the imports stand at £1,833,826, or approximately £335,000 more than in the same period of last year. Passing now to the exports of British automobile productions, the returns continue somewhat disappointing, only fifty-three vehicles being shipped last month, these with the "parts" being valued at £24,558, while for the eight months ending with August the exports are returned at £186,023, or about £20,000 below the total recorded for the corresponding eight months of last year.

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Pneumatic Tyres.

IN the paper he read at the Conference of the Institute of British Carriage Manufacturers at Leicester, to which we referred last week, Mr. J. M. MacLulich gave the following hints with regard to the care of pneumatic tyres. They should be kept in a temperature of about sixty degrees in a dark place, and, if possible, out of a draught, and should never be exposed to the rays of the sun before they are used (the sun has not so much effect upon tyres after use); if they are, they will lose their elasticity and become brittle, and small cracks will appear, which will gradually grow larger. Immediately after use, pneumatic tyres should be cleaned from wet and mud, and cuts in the covers should be closed, so as to prevent water getting in and rotting the canvas, which is the cause of many burst covers. Oil or grease should not be allowed to get on the rubber, as it destroys the nature of it. The pump for inflating the tyre should always have a pressure gauge upon it, and the tyres should be pumped sufficiently hard, if they are to last any reasonable length of time; on bicycles about 30 lbs. to the square inch: on voiturettes about 50 lbs. to the square inch; on light cars about 75 lbs. to the square inch; and on heavy cars about 100 lbs. to the square inch; and racing motor-car tyres are frequently pumped to about 120 lbs. to the square inch, that is, speaking generally. It is, of course, an advantage on a motor-car, with pneumatic tyres fitted, to have all the wheels of equal size, as it means carrying fewer spare covers and tubes, all the tyres being interchangeable, and the larger the diameter of the wheel, the less wear and tear there is on the tyres.

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Solid Tyres for Public Services.

WITH regard to public service motor-omnibuses, which are coming so much into favour, it was found with single tyres that the swaying motion was so great it was impossible to prevent the 'bus slipping, and the wear and tear on the tyres was excessive. Mr. MacLulich therefore introduced twin tyres, which have since been adopted generally; the bulk of rubber in each tyre is reduced, therefore, the tendency to roll on the tyre is less, and side slip is checked in its initial stages by the edges of the two tyres instead of one. He has recently recommended and introduced triplet tyres as being more economical than twins. These have now been adopted by the Eastbourne Corporation, and whereas the motor-omnibus tyres used to cost 6d. per car mile, they are now contracted for at about 2d. per mile.

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A Terrible Collision.

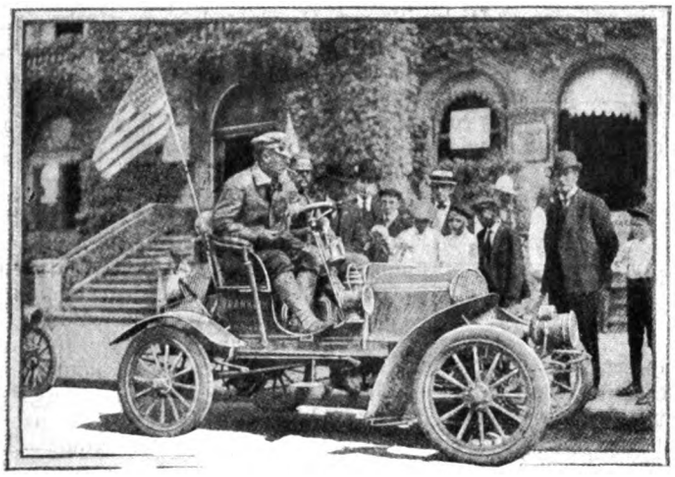
MOTORISTS fight shy of tramcars whenever possible, and avoid tram-lines as they would a police trap. That there is infinite danger is apparent from the accompanying photograph of a car wrecked in a terrible collision with a couple of tramcars at Shepherd's Bush, W. Mr. J. Grace, of Harlesden, was driving his 8-h.p. car, and overtook a tram, steering to the middle of the road in order to pass it. As the automobile swung out into the centre of the tram route the occupants saw for the first time that a tramcar bound for the terminus was bearing swiftly down upon them. But to the driver there seemed a chance to cut through between the two meeting tramcars. He took it, and at top speed dashed for the rapidly-diminishing gap, but unfortunately he had misjudged the pace of the tramcars. In another instant the motor-car was caught in the trap and was completely wrecked, not a square foot of woodwork or metal remaining intact. The side of one of the electric trams



Debris of the Wrecked Motor-Car.

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was crushed in, and when the trams were drawn apart the three occupants of the motor-car were seen lying amidst a mass of wreckage. One of the passengers is now in the West London Hospital, the others having been taken at once to their homes.



The Transcontinental Car on arrival at New York.

A 1,000 Miles Tour.

NOT so very long ago an uneventful run of one thousand miles on a motor-car was a novel and unique experience. Nowadays it is accounted as only testifying to the reliability of the vehicle making such a trip and finds little of the public heralding that was wont to be accorded to such exploits. A motorist who has just done 1,000 miles on a Sanderson-Aster car over some of the mountainous passes north of the Tweed, in weather of varied character, writes graphically of his experiences. "After spending a night in Edinburgh, we set out to Pitlochry, *via* Stirling and Perth. This route was selected in preference to the direct road to Perth, *via* Granton and Burntisland, owing to the inconvenient running of the ferry across the Firth of Forth. The first portion of the journey (to Stirling) is through the mining district of Scotland, and carries us far too near Glasgow to be pleasant. The road in parts, particularly in the vicinity of Linlithgow and Falkirk, is defective, but generally of a fairly good character. After passing through Stirling we reached Dunblane and stopped to lunch within a stone's throw of the Cathedral that Ruskin praised in such unmeasured terms."

In the Highlands.

THERE are evidently good roads for reliability trials in the district. After a spin of twenty-five miles from Stirling, the road ascends nearly five hundred feet in three miles, practically a steady, continuous rise from base to summit. Beyond Perth the Highlands are entered, and there is a glorious run to Pitlochry. Along the whole route the road runs by the side of the Highland Railway, and, though many quick turns render careful driving essential, the surface is perfect. Then, after a couple of days spent in sight seeing by motor-car, a day was devoted to hill-climbing around Pitlochry. "We determined," continues our motorist, "to reach the Trossachs through the wild Glen Dochart and the west side of Loch Lomond. We drove along the very indifferent road skirting the north bank of Loch Tay to Killin, then on through Glen Dochart and past the loch bearing the same name to Crianlarich, and passed through Glen Falloch to the head of Loch Lomond. From Killin to that point the road is exceptionally bad, loose metal playing havoc with any tyres but the very best, and the sheep which wander about the road without let or hindrance render the duty of the driver anything but a sinecure. From Ardlui, at the head of Loch Lomond, the road is magnificent right round the foot of the loch and on to Aberfoyle. A good road leads from the latter to the Trossachs, but for some reason known only to the local authorities, it is closed to all motor traffic, and we therefore were compelled to retrace our steps, and, branching off past Lake Menteith, make our way to the Trossachs *via* Callender. When we reached Rinaclack we were tempted to try a short cut over the mountain and past Lake Rusky to the main road from Dunblane to Callender. To those who would follow in our footsteps, my advice is 'don't!' It may not be the worst road in Scotland—there are certain sheep tracks that I have not explored, and therefore I am not competent to judge, but I can say in very truth it is the worst I ever saw. However, all things come to an end, and at length we reached the King's highway once more. Passing through Callender, we skirted Loch Vennachar, and drew up at the Trossachs Hotel, on the banks of Loch Achray, in time for dinner, after a run of 130 miles, the car still going splendidly, without the slightest sign of the rough usage to which it had been exposed during the day." And at the end of a thousand miles of such touring our correspondent was as enthusiastic as when he began.

Racing at Blackpool.

BEXHILL, Southport and Hastings have each had their automobile attractions, and now the popular resort for Lancashire people intends to hold a two days' race meeting on its promenade. The Corporation has just sanctioned a race meeting to be held on the promenade between the Central and Victoria piers on the 14th and 15th prox. Alderman J. Bickerstaffe, the Chairman of the Blackpool Advertising Committee, made the proposal, and several prizes have been promised by local people. Coming at the end of the week the event will doubtless attract a large attendance of sightseers from Lancashire towns.

Foliage.

FOLIAGE adds a charm and a danger to our English roads. Riding down the Westerham Hill the other day, a cyclist lost control of his machine and sustained fatal injuries. A friend accompanying the unfortunate man said they did not notice the hill until they were on it. There is a notice board, but it was hidden by the foliage of trees. This is not the first serious accident occasioned by such a cause, and local authorities must recognise their duties should be concerned with the protection of the lives of users of the road. What are the uses of notice boards if allowed to be hidden by the foliage?



A Typical Stretch of the Vanderbilt Cup Race Course. (*See page* 618). [*Motor Age.*

A Transcontinental Record.

THE distinction of being the only person to have twice crossed the North American continent in a motor-car may now be claimed by Mr. L. L. Whitman, who, accompanied by Mr. C. Carris, arrived at the Automobile Club of America in New York at 1.10 p.m. on September 3rd, after having made the trip from San Francisco, a distance by road of 4,500 miles, in 32 days 23 hours 20 minutes. The car used was an air-cooled Franklin of 10-h.p. Mr. Whitman's record supersedes the

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record of sixty-one days made last year on a Packard car. Remarkably fine weather favoured the tourists, and this fact is responsible in a large measure for the good time made. Practically all the running was done during the day, the average daily runs being nearly one hundred and forty miles. The machine stood the work extremely well, and mechanical troubles were few and far between.

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Steam Roller v. Motor Car.

SOME few months ago the Great Western Railway Company inaugurated a motor-car service in Cornwall, and during the summer season this has proved highly popular among visitors to the pleasant places of that county. Unfortunately, however, differences have arisen between the company and the Rural District Council of Helston, with the result that the automobiles are being withdrawn this week, and the service between the Lizard and Helston will no longer be carried on. The reason given for the abandonment of the service is that, the Council having decided not to steam roll the road, it will not be practicable to continue the service. It is a pity that such a decision should have been come to, and the local council ought to regret its decision, for such a convenience as the G.W.R. had inaugurated was not only a boon to the district, but a source of prosperity. Probably, when too late to influence the company, the Council will reverse its sense of economy.

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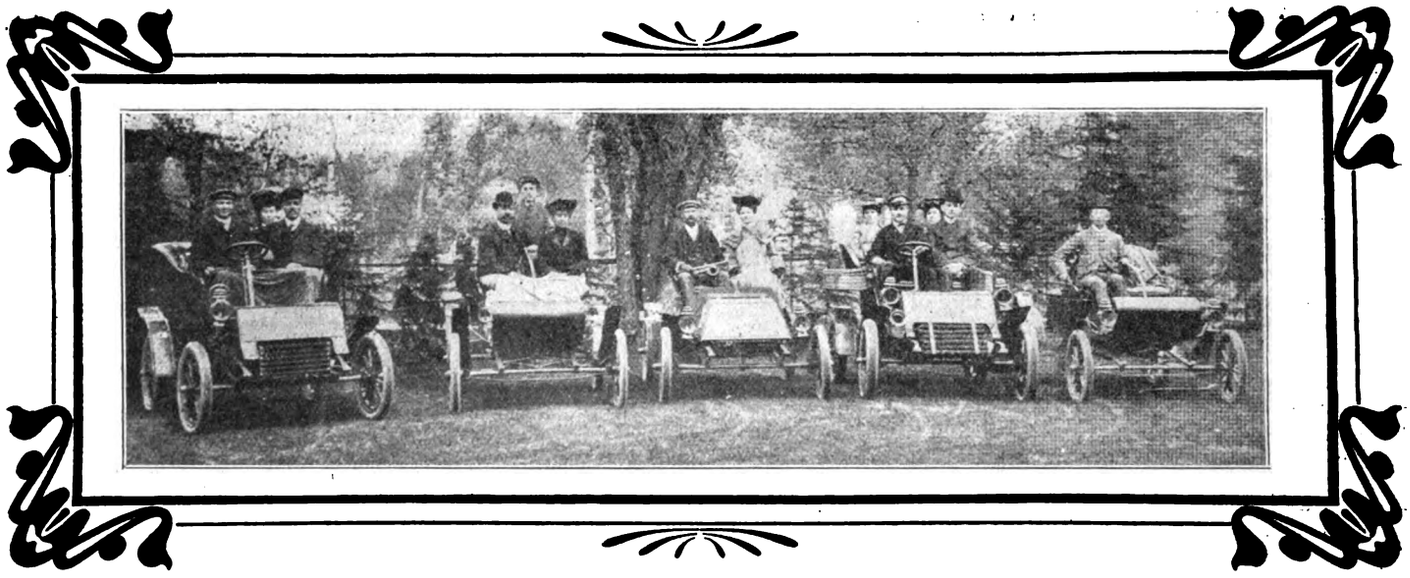
The Vanderbilt Cup Race.

THERE is no doubt but what the race for the cup presented by William K. Vanderbilt, jun., to be run on Long Island, U.S.A., on October 8th, will be an important international contest, although unfortunately this country will not be represented. The full list of entries is as follows:—By the German Automobile Club—Five Mercedes cars. By the French Automobile Club—Three 90-h.p. Panhards, to be driven respectively by Messrs. Heath, Teste and Tarte, an 80-h.p. Clement-Bayard, with Mr. A. Clement at the wheel, a Renault, and a De Dietrich. By the Italian Automobile Club—Two 90-h.p. Fiat cars, one being that of Mr. A. G. Vanderbilt, to be driven by Paul Sartori, and the other belonging to Mr. W. Wallace, of Boston. By the Automobile Club of America—Two White steamers of 60-h.p. each, one to be driven by Mr. Rollin White and the other by Mr. Webb Jay; two Pope-Toledos of 60-h.p. each, to be driven by Mr. A. C. Webb and Mr. H. Lyttle; one Royal Tourist of 36-h.p., to be driven by Mr. J. Tracy; a Simplex entered by Mr. F. H. Croker, and the Packard "Gray Wolf." The course over which the race is to be held is 32·4 miles long and has to be covered ten times; in shape it is an elongated triangle, the base lying to the eastward between Plain Edge and Jericho and the apex of the triangle being at Queens. The starting point is at Westbury, on the north side of the triangle, toward the base. The turns are all sharp ones, and are to be made to the right. There will be two "controls" on the course, one of three minutes and one of six minutes, at Hicksville and Hempstead, respectively. All cross roads will be barred and a hundred and twenty-five special constables will police the course. Dangerous curves will be oiled and probably the rest of the way watered. The allotment of numbers for the contestants and their time of starting will be made at the Automobile Club of America on the evening of October 1st.

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Motoring in Canada.

MOTORING in the Canadian North-west is by no means an unheard-of thing, as might be imagined by those who think of the towns out there as collections of wigwams and tents. Winnipeg, Manitoba, for instance, which is by far the most important city in the Canadian North-west, has a flourishing automobile club, though at first there were about as many discouragements to motorists as could well be imagined. Probably the worst feature of all was—and still is, to some extent—the famous "Winnipeg mud," a particularly gummy brand of red clay that not only sticks to anything with which it comes in contact, like molasses, but is so slippery that it is a matter of no difficulty whatever for pedestrians to slide on it and fall. It can be imagined what this mud is in wet weather, and especially in the spring, when the snow is melting off. A large proportion of the country roads are simply tracks through this clay, and in really bad weather are absolutely impassable. In the city and its immediate vicinity, however, things are different, and there are now miles and miles of well-paved thoroughfares. The accompanying illustration shows some of the members of the Winnipeg Automobile Club with their cars in the grounds of ex-Mayor John Arbuthnot.



Motoring in Canada.—A Group of Members of the Winnipeg Automobile Club.

IN view of the forthcoming general meeting of the Marine Motor Association, proposed alterations of rules should be forwarded without delay to the secretary, Mr. James A. Smith, 47, Leadenhall Street, E.C.

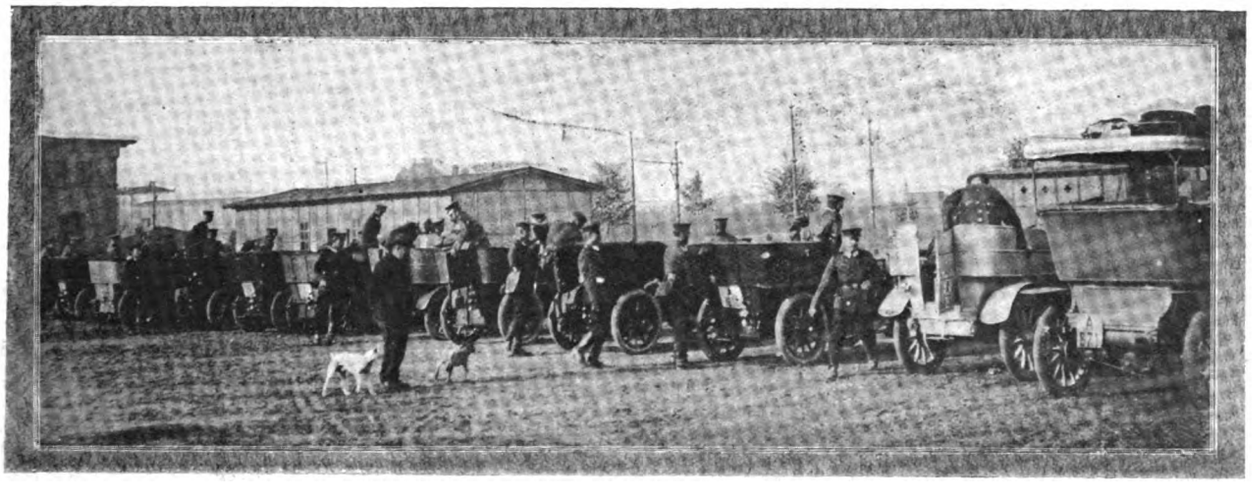
MESSRS. J. WELCH AND J. BAYLEY, who have had considerable experience in the manufacture of radiators, bonnets, lubricators, &c., have severed their connection with the Doherty Motor Manufacturing Company, and have joined forces with Messrs. Walsh, Nicholls and Company, Wolverhampton.

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THE COMPLETE MOTORIST.*

THE literature of the automobile is extending, and already our bookshelves are become crowded with a multitude of literary guides. The late Sir Henry Thompson was one of the first to write lightly of the motor-car; then followed the two great volumes of Mr. W. Worby Beaumont, volumes which already require to be brought up-to-date if they are intended to remain the standard work on the subject. Mr. Paul Hasluck's "Automobile" and Mr. W. Rhys-Jenkin's "Motor Cars" were two other volumes dealing with the modern method of locomotion. Mr. R. J. Mecredy's "Dictionary," and the *Badminton* book have also been widely read, to say nothing of the verbose work of Mr. Geoffrey de Holden-Stone, the chatty chapters of Major Matson and Mr. O'Gorman's Pocket Book.

Now comes another with the high-sounding title of "The Complete Motorist," and it must be confessed it justifies such a designation so far as is possible within the limits of about 300 pages. Mr. Filson Young is a practised book-maker, using the word in its literary significance, and has already shown his skill with the pen by writing of Mafeking, of Ireland, and of the Mastersingers. Latterly he has studied automobilism, to the advantage of automobilists, who may turn to his volume in full confidence of finding a good account of modern developments. Of the beginning of the motor-car little new can be said, although the illustration of Steven's sailing carriage of 1600 has not yet become so hackneyed as the drawings of Murdock's, Trevithick's, Gurney's and other pioneer coaches. Fortunately for the reader familiar with the early days, the first steps are quickly overtaken, and the pictures of Daimler's motor-bicycle of 1886 and the Peugeot benzine car of 1895 bring us to the period when Sir David Salomons and Mr. Evelyn Ellis did much to place the motor-car permanently upon English roads.



The Fleet of Cars engaged in the German Military Manœuvres.

Having introduced himself and the industry of which he writes, the author proceeds to deal with the petrol motor and its connections, giving a detailed description of the actual working of the engine and its various accessory parts. Transmission and control also form the subject of some excellent pages. Proceeding to the various types of petrol car on the market, Mr. Young makes reference to the competition of English and Continental makers. He rightly recognises that some of our own firms are now holding their own with the best types of French and German manufacturers, although a qualification is made with respect to the ordinary makes, for "the average of their (the British makers) work is still below the average of, say, the French makers." With regard to the present position, Mr. Young says:—"It cannot be said that the British manufacturers have hitherto fully availed themselves of Continental experience, for some of the best-known English motor-cars are designed, if not with a contempt for, at any rate with a complete avoidance of, Continental practice; and the result is that although the makers of English cars of repute are few in number as compared with the French and Germans, their practice shows far greater variety and lack of unanimity, even with regard to broad principles of construction." Chapter IV. is one of the best in the book, and the way in which the author describes the manner of construction of a modern motor-car is admirable. Few will quarrel with the selection of types which are explained in detail, viz., the Crossley—placed first because, in Mr. Young's opinion, it "bids fair to place English motor-car construction at last on a level with that of the Continent"—Napier, Mercedes, Lanchester Daimler, De Dietrich, Wolseley, Renault, Duryea, Hutton, and Thornycroft. This division of the work might be usefully supplemented with a series of tables summarising the various cars in the varying types, giving the sizes in which they are made and the prices at which they are sold. Such matters are sometimes not easy to find in the text; their setting in tabular form, supplemented by mention of other vehicles otherwise unenumerated, would be useful to the reader, and remove from the author's mind the fear of invidious selection. Certainly the suggestion is worthy of consideration when the book reaches its second edition—as it should do very quickly.

Steam cars, now under a "temporary eclipse," are the subject of a chapter which is, in many ways, the least satisfactory in the book. We are surprised, for example, that nearly three times the space should be devoted to a new car with whose performances the public are unfamiliar, as to such a vehicle as the "White," which, despite the failures of other American vehicles in this country, has earned a high name among steam vehicles. Mr. Young is far happier when writing of petrol vehicles, and his points as to the selection of a car will be useful to all. "The first test of a motor-car is, of course," he says, "the test of the road. A car should be given a good trial of not less than a hundred miles on what is called a give-and-take road, and the possible purchaser should study very carefully its behaviour during the test. If any adjustments have to be made he should satisfy himself as to whether they are rendered necessary by the ordinary shaking-down process incidental to all newly assembled machinery, or whether they are due to inherent imperfections of design or construction. The loosening of a bolt, however drastic its effect upon the running of a car, may mean nothing; but irregularities of speed, difficulties in gear changing, heating of the engine, difficulty in starting, although they may have comparatively little effect upon the day's run, may possibly mean a great deal." Other chapters are concerned with the running of cars, small automobiles, tyres, etc., and followed by interesting letters, completing a book which has attained a standard reputation on first publication.

* "The Complete Motorist." By A. B. Filson Young. London: Methuen and Co.

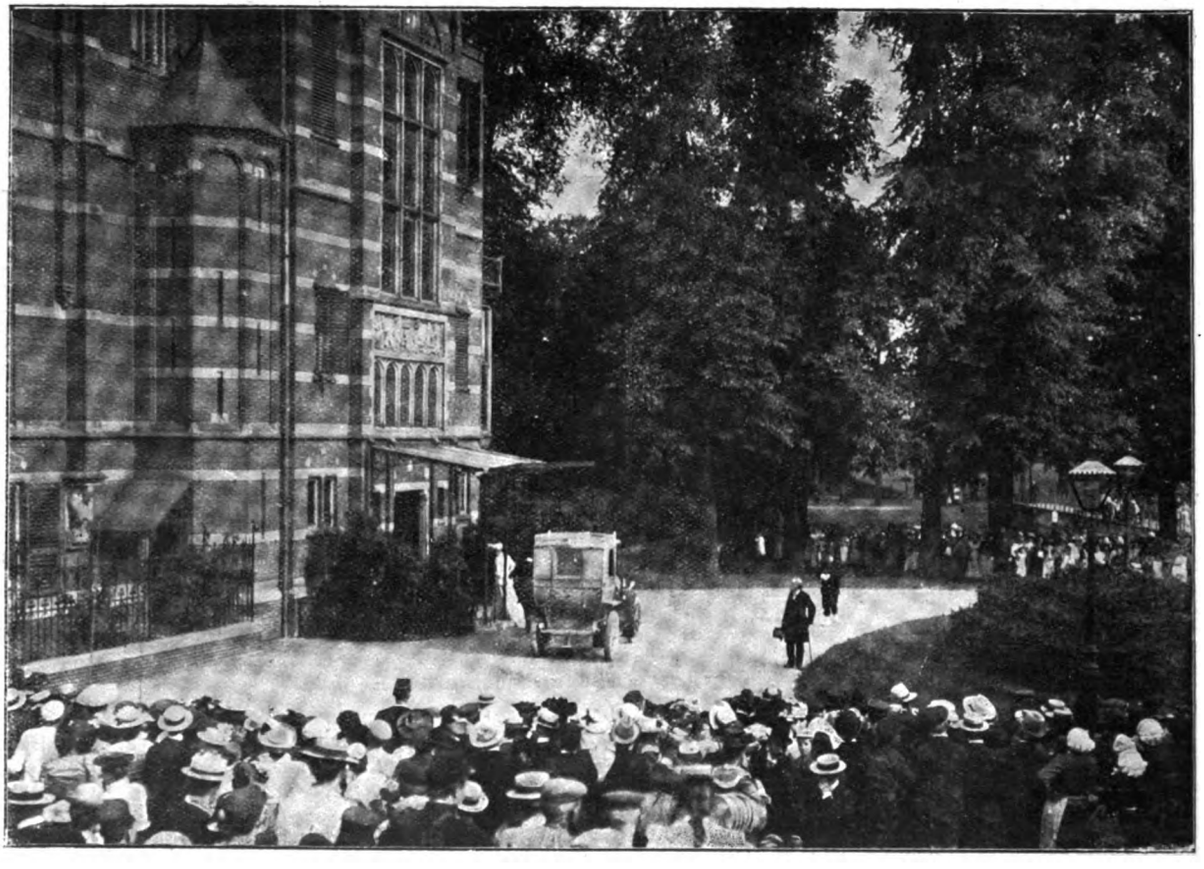
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CONTINENTAL NOTES.

The International Motor-Bicycle Race.

The motor-cycling world is now looking forward to the international motor-bicycle race which is to take place on Sunday next. The English competitors in the contest are Messrs. T. Silver, Quadrant; Harding, Lagonda; and Hodgkinson, J.A.P France will be represented by three Griffon machines, ridden respectively by Lamberjack, Inghibert and Demester. For Germany, Adolf Mraz will ride a Progress-Charlottenburg, and for Denmark H. C. Nielsen will pilot a Jorgensen, while Austria will be represented by Messrs. Wondrick and Jomann, both on Laurin-Klements. The race is over five circuits of a 32½ miles course, starting from St. Arnoult, by Dourdan, Boutervillers, and Ablis. The Austrian competitors reached Paris on Monday evening, while the English team arrived on Wednesday morning.

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The Queen of Holland's First Automobile Trip. [De Auto.

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Motor-Boat Racing in Denmark.

A joint meeting has recently been held in Copenhagen of the Danish Automobile Club, the Automobile Industry Association, and the Motor Cycle Club, when a committee was appointed to deal with the proposed Scandinavian automobile and motor boat races, which are to be held in the Sound early in June, 1905.

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The Chateau-Thierry Hill Climb.

The Prefet of the Aisne having given the necessary authorisation, the annual hill climbing competition at Chateau-Thierry, organised by the "Auto," is to be held on October 23rd. The event is reserved for touring vehicles, the racers' "day out" being at Gaillon on October 30th.

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Motor Boat-Racing at Juvisy.

A motor-boat race meeting is to be held at Juvisy, near Paris, on the 25th inst. The morning will be devoted to the cruisers, for which there will be several races of 36 kilometres starting at Ablon and finishing at Viry-Chatillon. In the afternoon there will be a 100 kilometre event for racers up to 8 metres, and one over the same course for vessels from 8 to 12 metres in length. All the well-known boats, including Mercedes IV., M. Fournier's Hotchkiss, the Panhard Rapée and three Clement-Bayards, have been entered for the meeting.

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Reliability Trials in France.

It is announced that the Automobile Club of Seine-et-Oise intends to organise a series of reliability trials in February next, the daily runs starting from Versailles.

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An Italian Tourist's Guide.

The excellent publications issued by the Italian Touring Club have been frequently referred to in these columns. The latest effort is an *Annuario dell' Automobilisma*, or automobilist's annual handbook, which reflects great credit on all concerned in its production. It is, of course, intended for the use of Italian motorists, in whose language it is printed, but it will prove almost indispensable to all foreign motorists touring in Italy. Beginning with a brief description of the petrol motor and motor vehicles, the subjects of Italian customs duties and motor traffic regulations are next dealt with. Then follow a list of the motor clubs, owners of automobiles, builders and repairers of motor-cars and motor-boats, petrol and lubricating oil depots in Italy, &c. The second part is devoted to the clubs, traffic regulations, customs duties, &c., in foreign countries.

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The Transatlantic Motor-Boat Race.

The offer of a prize of £2,000 for the first motor-launch to cross the Atlantic Ocean is attracting considerable interest, and looks like providing one of the most sporting events of the year. A committee has been appointed to draw up rules, but in the meantime entries are rolling in, there being already over a dozen, including Mr. Noé Boyer, with a 100-h.p. boat; M. Henri Fournier, with a Hotchkiss craft to be something between 58 ft. 6 in.

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and 81 ft. 3in. in length; M. Charley, with a 65 ft. Mercedes boa; and Mr. S. F. Edge, with the nominal 300 h.p. Napier boat that is being built to carry six passengers and a crew of two men.

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Another Motor Boat Cup Race.

A challenge cup of the value of £1,000 is being offered by M. Boin-Taburet for motor-boats, employing heavy oil as fuel, of such a character as to be suitable for Colonial service. The boats must be of a minimum length of 12 metres, and have a maximum draught when fully laden of ·8 metre, and must attain a minimum speed of 10 knots. Each boat, whether decked or otherwise, entered for this cup must be so constructed as to be capable of being employed, first for towing purposes, secondly for the transport of troops or of goods. The cup is to be competed for at Trouville annually in one stage of ten hours. The classing will be governed by (1) number of kilometres run (2) the fuel consumption during the run. The winner of the cup will receive a money prize of £40, and the second boat classed £20.

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Motor Boats in Sweden.

Under the auspices of the Swedish Automobile Club a motor-boat regatta has just been held at Waxholm. Motor-boating has recently become very popular in Stockholm, and the thirty-eight boats which took part in the event were the centre of much interest.

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Wanted, a Name.

Considerable interest is just now being evinced in French motor-boating circles in the question of a suitable word for motor-boats. Here are a few of the words which have been suggested. "Motoscaphe," "Autonef." "Autocanot," "Canot Automobile," "Autoscaphe," Automobile-Canot." The French Academy has been appealed to, but M. de Herida, of that body, while personally favouring "Autoscaphe," replies that the function of the Academy s not to create words, but to register new words which may come into general use.

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Motor-cycle Racing in Bohemia.

The Bohemian Motor-Cycle Club is organising a motor-cycle road race for the 9th October. The course is from Prague to Pisek, a distance of 100 kilometres. In conjunction with the event there will be a hill-climbing competition from Pisek to Nava Hospoda.

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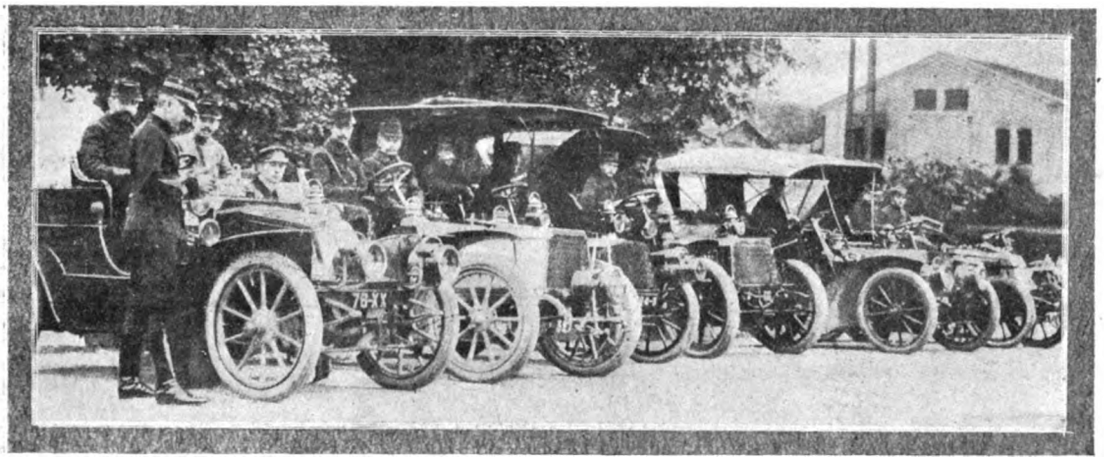
Motor-cabs in Berlin.

A service of motor-cabs is about to be started in Berlin by a company which has just been formed with a capital of £3,500 and with the title of the Berliner Motor-droscken Gesellschaft.

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The Renard Road Train.

An interesting scheme is under consideration at St. Malo, where it is proposed to run a road train, on the system of Colonel Renard, between St. Malo, Parame, St. Idenc, La Guimorais, St. Coulomb, Cancale, Doe, St. George de Grehaigne, Pontorson, and Mont St. Michel. This train was much in evidence last year at the Automobile Exhibition in Paris, and several trials were made in the streets of Paris with remarkable success.



As in England, Motor-cars were extensively used in the Military Manœuvres just held in France. The above illustration depicts Captain Genty, himself an enthusiastic Motorist, reviewing the vehicles.

A Complaint against Petrol Distillers.

Complaints are rife in Paris against the distillers of petrol, who, it is asserted, are not giving full measure. One well-known motorist states that he has measured the contents of the five-litre sealed cans he has lately purchased, and that he finds them to contain from ten to fifteen per cent. less than the correct quantity.

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Hill Climbing in Switzerland.

The Swiss Automobile Club is organising a hill-climbing competition from a standing start on the road between Trelex and Saint Cergues (Vaud) on Sunday next. The distance is ten kilometres, there being a rise of 500 metres between the starting and finishing points.

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The Semmering Hill Climb.

The annual hill climb from Schottwein to Semmering organised by the Austrian Automobile Club is to be held next Sunday, when some fast times should be recorded. The entries in the heavy car class include a 90-h.p. Austrian Mercedes, driven by Braun, a 80-h.p. Darracq, a 75-h.p. Fiat driven by Lancia, a 80-h p. Opel-Darracq, a 60-h.p. Regent and Mr. Clarence Gray Dinsmore's 80-h.p. Mercedes, which will be driven by Herr W. Poege, Werner having left for the United States to take part in the Vanderbilt Cup race. Three cars have been entered in the voiturette section, while about twenty motor-cycles will also compete.

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The Gordon Bennett Race.

The German Club has granted the Daimler Motoren Gesellschaft two places in the German team for the 1905 Gordon Bennett team without competition, and will further allow them to compete in the eliminating trials for the third place.

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Speed Trials at Dourdan.

The "Velo" is organising a series of speed trials to be held on the Dourdan road on October 3rd. The trials will consist of a mile competition with a standing start and the flying kilometre. The racing section provides for: (1) motor-bicycles weighing under 50 kilogs.; (2) motor-bicycles from 50 to 80 kilogs.; (3) motor-cycles from 80 to 250 kilogs.; (4) voiturettes from 250 to 400 kilogs.; (5) light cars from 400 to 650 kilogs.; and (6) heavy cars from 650 to 1,000 kilogs. The categories in the touring class are (a) motor-bicycles under 60 kilogs.; (b) motor-cycles; (c) cars costing from £160 to £320; (d) ditto, £320 to £480; (e) ditto, £480 to £720; (f) ditto, £720 to £960; (g) ditto, £960 to £1,200; and (h) ditto over £1,200.

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A THIRTY DAYS' TRIAL.

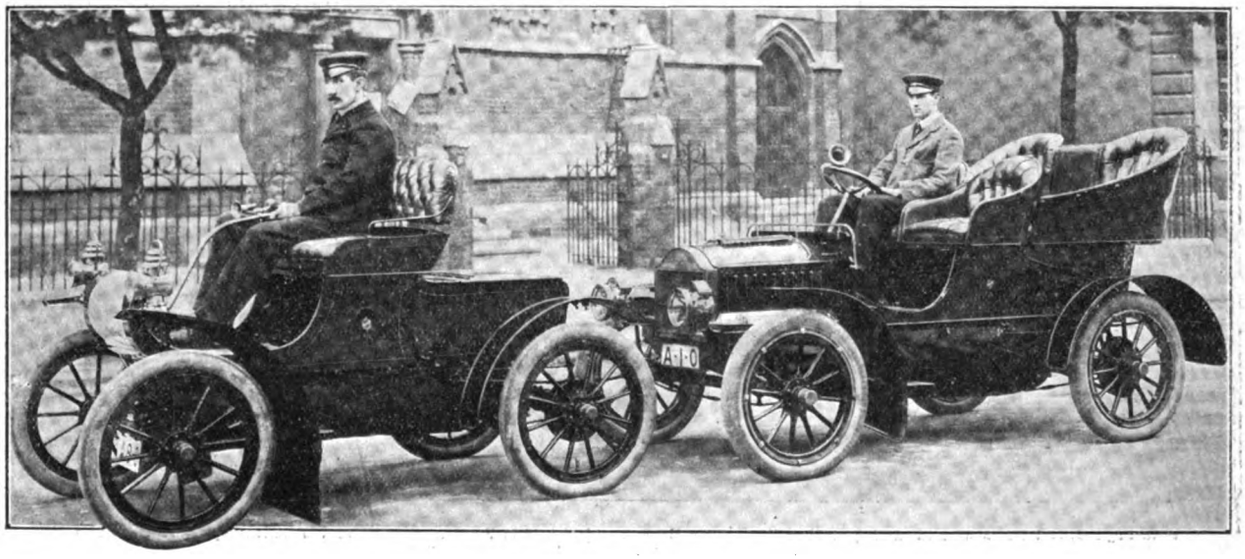
A GREAT deal of interest is being taken by the public in the small car, or the car for the man of moderate means. A great deal of this concern is due no doubt to the recent reliability trials at Hereford, following which Messrs. Jarrott and Letts, Limited, have put two Oldsmobiles on the road for an extended trial. On Wednesday the two vehicles—one a two-seated car, and the other a four-seated light tonneau—started from Great Marlborough Street, London, each car carrying two people and their entire luggage.

The idea is that the cars will do 50 miles in the morning and 50 in the afternoon, making a total of 100 miles per day, and this for 30 days makes a total of 3,000 miles, throughout England, Scotland, Ireland and Wales. The observer who will accompany each car will keep a record of everything that happens. The cars will be run under the ordinary conditions that any man would expect to run his little car, *i.e.*, to take half an hour in oiling the vehicle and looking carefully over it, then do 50 miles non-stop in the morning, stop at mid-day for lunch, again oil up his car and do a further 50 miles in the afternoon, non-stop.

The observers will report to Messrs. Jarrott and Letts, by telegraph, the arrival at the destination each day, and a large map will be shown at the offices in Marlborough St., whereon flags will denote the distance the cars have travelled each day, and where they are; but in case there should be any question of the cars not touching the different towns, the driver of each vehicle will carry a book which will be signed by the proprietor of the hotel where lunch is taken at mid-day, and the hotel at which they stay each night, so that an absolutely reliable and independent record will be kept of all the towns at which they stop. The cars are both painted red, and a map of the route is also painted on the side of the car, and the distance that the cars have to cover, so that the public in the different towns will know exactly how far they have come, where they are going and all about them.

Starting on Wednesday last, the destinations to be reached each day are as follow:—First day, Bournemouth; second day, Brighton; third day, Dover; fourth day, London; fifth day, Norwich; sixth day, Nottingham; seventh day, Leeds; eighth day, Newcastle-on-Tyne; ninth day, Edinburgh; tenth day, Glasgow. The further routes will be published in subsequent issues of the *Journal*.

The vehicles attracted much notice as they sallied forth from Great Marlborough Street towards Hyde Park Corner, attended by a long line of other cars, including Spykers, Bollees, Crossleys, and De Dietrichs, driven by the principals and assistants of the firm to whose enterprise this new attraction of the road is due.



The Two Oldsmobiles which started on a Thirty-Days' Trial on Wednesday.

SOME USEFUL NOTES.

WHEN travelling over rough roads, the driver should sit in such a position that the feet will not be shaken off the pedals. Otherwise, when the clutch is disengaged, as it should always be for a rough spot, and the car allowed to "coast," the feet may be jarred off the pedals, allowing the clutch to slam in, and causing great strain on the gears and transmission mechanism.

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WHEN about to pass over holes in the road, or short patches of loose stones, the car should have sufficient momentum to carry it over such rough places, so as to allow the clutch to be disengaged. This prevents racking the mechanism.

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THE low speed gear should invariably be used when starting the car, as this saves both the clutch and the transmission. Cars having powerful motors may be started on the third speed, but this does not do the vehicle any good and may do it a great deal of harm. A practice which should be avoided as much as possible, and which is responsible for many broken gears, chains, and twisted shafts, is that of "racing" the motor before the car is started, and then dropping the clutch in.

As serious accidents often occur when a car "skids," it will pay to be careful when running on wet pavements, particularly asphalte. "Skidding" is more likely to occur when the surface of the road is about half-wet, as it is then in the condition known as "greasy." It will be generally found that a car skids less when the side or emergency brakes are used than when the foot brakes are used. The latter usually act through the differential gear, and the former directly on the rear wheels. A car on which the brakes on the rear wheels are adjusted precisely alike, so that they both grip equally, will skid much less, other things being equal, than one on which the brakes are adjusted unequally.

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WHEN the car skids, remember that putting on the brakes hard will make matters worse. About the only thing which can be done is to take out the clutch, keep the brakes gently on, and steer the front of the vehicle in the same direction as the back tends to go. When driving a car fast on a slippery road it is best to drive close to the kerb. Then, if one wants to stop suddenly, the front wheels should be turned slightly away from the kerb and the brakes applied. The back wheels will then slide against the kerb, and cannot, of course, skid any further.

MR. P. REID, the well-known carriage builder, of Perth, has opened a garage in that city, where he will have accommodation for a hundred automobiles.

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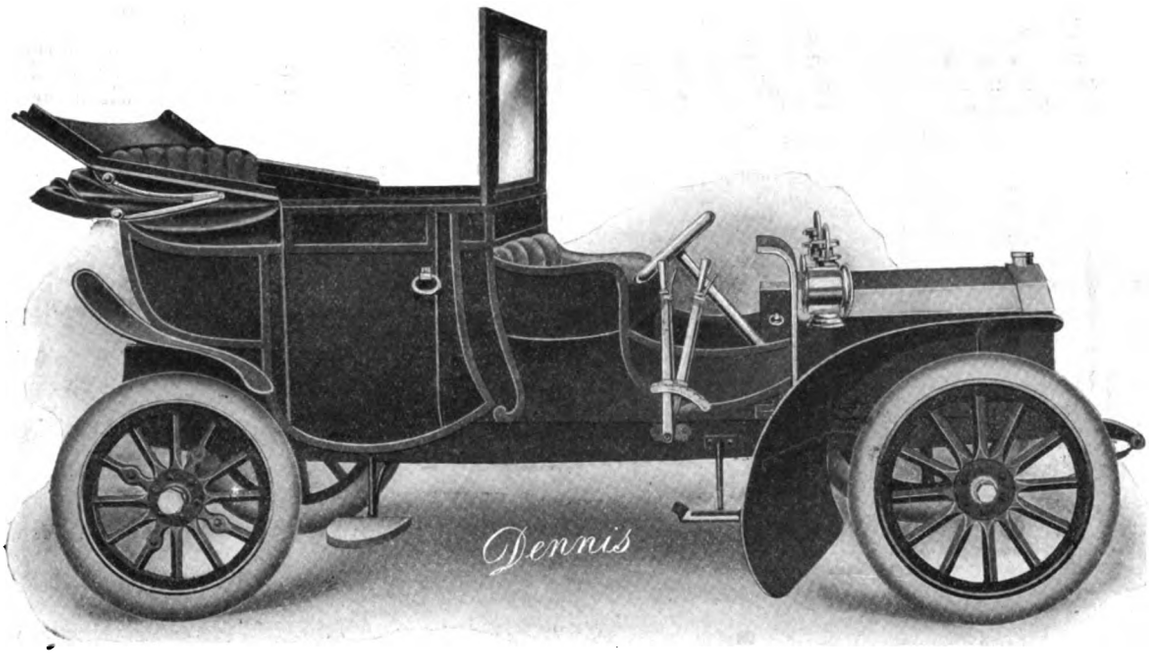


Fig. 1.—The Dennis 20-h.p. Landaulet.

THE 20-H.P. DENNIS CAR.

WE have already briefly dealt with the 20-h.p. car built by Messrs. Dennis Bros., Limited. Recently, however, we had an opportunity of going more closely into its details, when many new points revealed themselves, a description of which may not be without interest. The main frame of the vehicle is of stamped steel, the forward end being so reduced in width as to allow of an extremely large wheel lock, permitting the car to be turned in comparatively narrow roads. An underframe is provided to carry the engine and change speed gear. The motive power is supplied by a four-cylinder Aster engine of the latest type, with mechanically operated inlet valves. The usual type of electrical ignition is provided, the contact

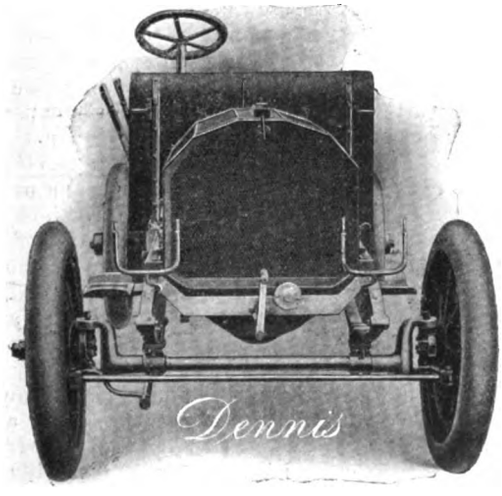


Fig. 2.—Front View of 20-h.p. Dennis Car.

maker being located right in front, below the radiator, and is therefore extremely accessible for adjustment. The water circulation is maintained by a gear-driven pump and a honeycomb radiator, a current of air being drawn through the latter by a belt-driven fan.

The clutch is of the usual cone type, but of large diameter, and is provided with a detachable loose joint between it and the gear-box, which permits of the clutch being taken down without having to disturb any other part. The spring is located within the clutch, and is provided with a ball-thrust race. Three speeds forward and a reverse are controlled by one lever.

The gear box is a substantial aluminium casting, and contains a set of gear wheels of ample width; on the top speed, the drive is direct, with none of the gear wheels in mesh. The secondary shaft itself is a fixture, the gear wheels being keyed to a sleeve, which is steel bushed, and rotates on the fixed shaft. Automatic lubrication is ensured to this sleeve by oil scoops formed thereon, which pick up the oil in the box and pass it to the bearings. The bearings of the primary gear-shaft are lubricated from an exhaust pressure feed lubricator on the dashboard. The gear is changed by the horizontal swinging lever seen within the gear box (Fig. 4), the spindle of this lever protruding through the top of the box, which is practically oil-tight. From the gear-box to the universally jointed propeller shaft the power is transmitted through the Dennis spring drive arrangement, which has already been illustrated in the *Journal*.

One of the principal features of the car is found in the method of conveying the power to the rear live axle. In place

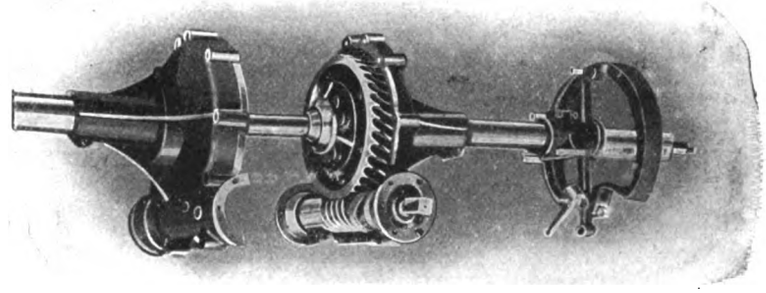


Fig. 3.—The Dennis Worm Drive.

of the usual bevel gear transmission, Messrs. Dennis have adopted a worm gear, the worm being enclosed in the upper portion of the differential gear-box, and running at each end in phosphor-bronze bearings. Ball thrust bearings are placed so as to take up thrust either forwards or backwards. The worm is formed with a quick-pitched thread, and drives either forwards or backwards with equal smoothness. The worm wheel, which is of phosphor-bronze, encircles the differential gear, the latter being

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of the parallel pinion type, with six pinions and two star pinions. The rear road wheels are not mounted on the axle proper, but on a sleeve, consisting of a malleable casing, surrounding the latter, the power being conveyed from the axle to the wheels by jaw clutches in the hubs. The live axle runs on 5-8 in. ball bearings. The lubrication of the rear axle is provided for by

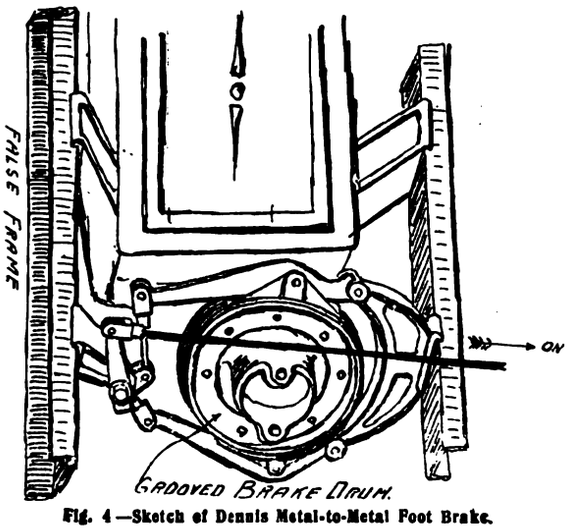


Fig. 4.—Sketch of Dennis Metal-to-Metal Foot Brake.

the supply of graphite and oil to the worm case through an inspection cover on the upper side of the case, access to which is through a small trap door in the floor of the car.

Another novel feature of the Dennis car is the foot brake, which surrounds the spring drive immediately in rear of the gear-box. It is of an exceedingly powerful type, the steel drum being provided with a series of grooves similar to a rope driving pulley. At the top and bottom of this are mounted phosphor-

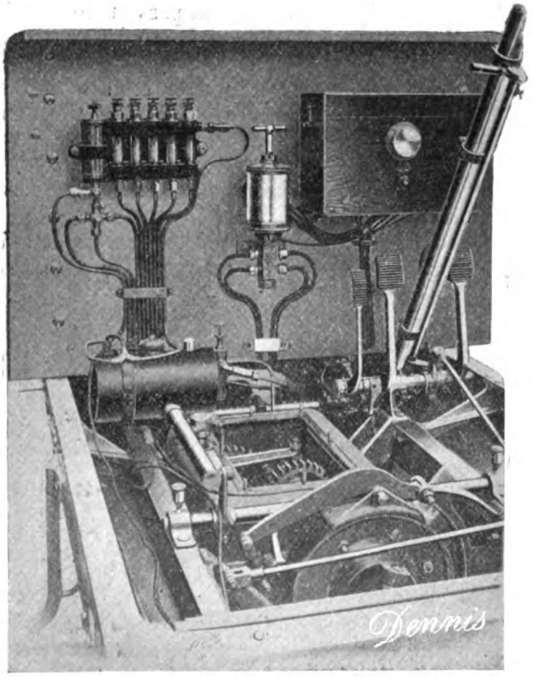


Fig. 5.—View of Dashboard, Gear-box, Foot Brake, etc., with Foot-boards up.

bronze shoes, each provided with grooves corresponding to those on the drum. It will be readily seen that by means of the grooves the braking surface is greatly increased. The rear brakes are of the internal expanding type, consisting of two shoes acting at equal distance on the inner face of the steel drum. Both the foot and hand brakes, it may be added, act equally well whether the car be running in a forward or backward direction.

The steering gear is of the irreversible worm and sector type. As will be seen from Fig. 2, the front axle is formed of a straight piece of tube, and the arms which carry the swivel are fitted with hardened steel cups top and bottom, in which the steering centre rotates. The bottom cup is made adjustable to take up any play, and is locked by a set screw, there being no pins running through the steering centre, which gives it additional strength. The engine and gear-box are protected from mud and dirt by an aluminium casing attached to the frame, which extends to the rear end of the gear-box. The road wheels are of special design and exceedingly strong. They are of what is known as the double artillery type, the spokes diverging from each other where they leave the hub and entering the felloes anglewise.

The mixture is furnished by a Longuemare automatic carburettor, so that only two levers are necessary to control the speed of the engine—a hand lever connected with the ignition, and a pedal which acts on the governor and allows the speed of the motor to be accelerated. The wheel base of the standard car is 7 ft. 6 in. Recently, however, to meet the demand for side-entrance cars, a handsome double phaeton and a laudaulet, with 8 ft. wheel base, have been introduced. A view of one of the latter is given in Fig 1.

Being somewhat sceptical of the worm drive, we recently accepted the invitation of Messrs. Dennis to a thirty-mile spin on one of these cars, and are free to admit that we were surprised at the ease and quietness with which it ran. Indeed, on the top speed the only sound we could hear was the ticking of the trembler four-cylinder induction coil. On the run we had evidence as well of the speed qualities of the car as of its hill-climbing capacities, Mr. R. Dennis driving us almost to the top of the Hog's Back, out of Guildford, on the top speed. Altogether the Dennis 20-h.p. car is a well-thought-out vehicle, and merits the success which it is achieving.

INSTRUCTION BOOKS.

ONE noticeable improvement in the automobile movement which will conduce to the mutual advantage of user and manufacturer is the helpful instruction books which are being furnished to purchasers of modern cars. Until recently there has been a lack of definite information furnished the owners of vehicles relative to the lubrication of their cars, the adjustment of parts and the derangements to which the various portions of the mechanism are likely to be subject, and their remedies. Some of the larger and older manufacturers have long furnished books of directions which were valuable in that they contained matter which was the result of the experience of a great many users and thus laid due stress upon the points which service had demonstrated to specially require elucidation; but many of the smaller and newer concerns have naturally been unable to furnish as satisfactory and useful directions to their patrons, on account of the somewhat untried character of their product and the lack of the experience necessary to demonstrate what particular matters the instructions should include.

The tendency which formerly seemed to exist to allow the user to find out through experience what might better have been told him in the beginning, appears to have passed away with the growth of the spirit of candour in the industry, and now the instruction books generally contain particular advice as to the peculiarities of the cars to which they refer, and are written in a lucid and comprehensive way with full diagrammatic illustrations which cannot fail to lead to a more intelligent use of the car by its owner and a better *entente* between the manufacturer and his patron.

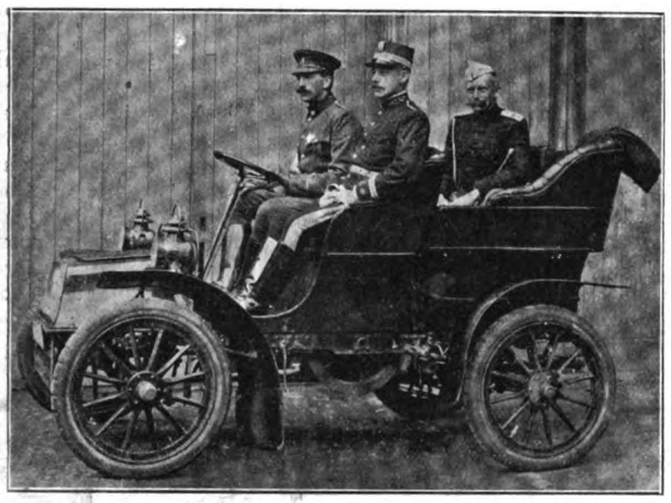
However much information a motorist may possess as to motor vehicles in general, there is still a most urgent need for particular detailed instructions referring to the special car he is using, for no amount of general information will instruct him as to the special methods of lubrication and adjustment and the easiest manner of disassembling and assembling the various portions of a specific machine in which the details of construction necessarily differ in many minor respects from all others.

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HERE AND THERE.

MESSRS. STANBURY AND CO. intend to make motor-car bodies on premises lately acquired at Prescot Street, Liverpool.

THE Collier Tyre Co., Ltd., have changed their address, having removed from Shaftesbury Avenue to 127, 128, 129, and 130, Long Acre, London, W.C.



The Military Manœuvres.—The Cadillac Car driven by Lieut. P. W. Northuey. At his side is seated the Spanish Military Attache, Col. J. de Manzanos, with Capt. Alex. de Kauffmann, A.D.C. to the King of Denmark, in the tonneau.

MR. L. M. MUSGROVE, of Brixton, is endeavouring to organise a benefit society in connection with the motor industry, and has forwarded us a statement of allowances which could be granted to members in the event of certain payments being made. We do not know on what actuarial calculations these have been based, and it would appear that the scheme is still in an embryo stage.

AS shown in our columns last week, the motor-cars used in the recent military manœuvres proved a great success. The



The Military Manœuvres.—General French on Mr. Stanton's Car. Prince Alexander of Teck is a Passenger on the other Vehicle.

vehicle upon which Mr. O. Stanton drove General French, illustrated on page 630, was supplied with an outfit by Messrs. Alfred Dunhill, Ltd., the accessories including a rifle case so placed that the rifle can be extracted by the driver without leaving his seat. Our photographs of General French were taken by Mr. Herbert Smith, a director of the Association of Diamond Merchants and Silversmiths, Ltd., with a Kodak camera.

THE Glasgow and South Western Railway have recently built at their works at Kilmarnock a steam motor-carriage.

ON the main road between Carlisle and Glasgow, at Dumfries, the local Brass and Iron Foundry Company have opened a free garage.

THE expenditure on the roads in the Kington Rural District, said to be the best in the county of Hereford, is £8 per mile under the county average.

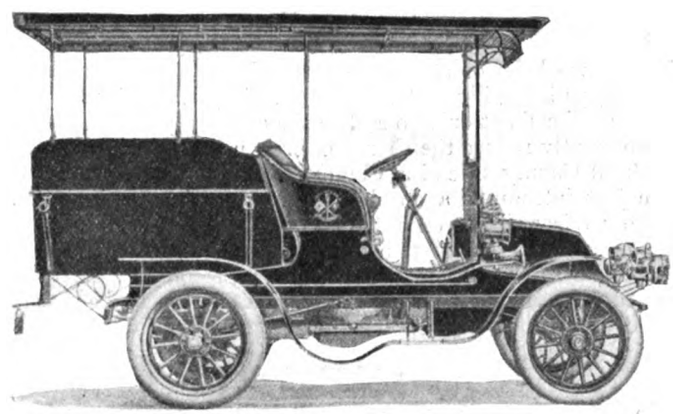
IT is reported that Messrs. Panhard and Levassor are building a new type of 50-h.p. touring car, which will be shown for the first time at the Paris Salon in December next.

MESSRS. STEVENSON AND COMPANY, Polmadie Saw Mills, Rutherglen Road, Glasgow, inform us that they have taken up the manufacture of artillery pattern wheels for motor-cars.

AS already announced, the Aero Club will hold an ascent at Birmingham to-day, Saturday, in connection with a meet of the Midland Automobile Club. The aeronauts in charge will be Mr. Frank H. Butler and Mr. C. F. Pollock, and prizes will be given for the cars which will succeed in capturing the balloons.

MESSRS. VAN RADEN AND COMPANY, Coventry, have lately introduced a single trembler coil which will fire a double-cylinder motor, and a double-trembler with two coils to operate a four-cylinder motor. They are now also making a specially cheap small high-speed trembler coil for motor-cycles, of which one firm has, we hear, already contracted for two thousand.

THE illustration herewith shows one of the two Winton cars ordered by the U.S. Government for the signal service. As men-



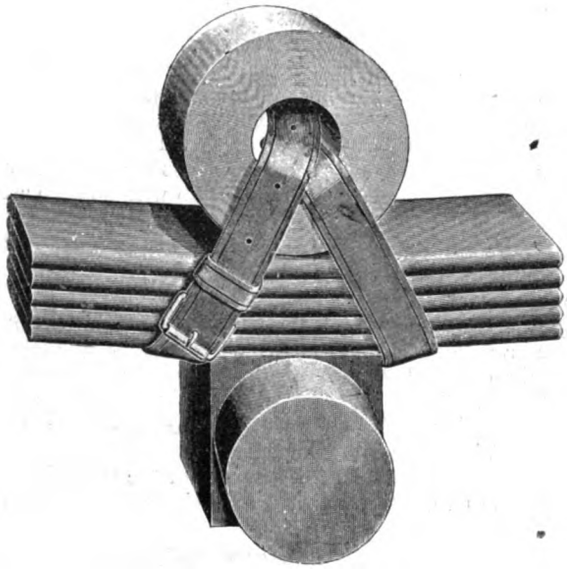
tioned in a recent issue of the *Journal*, one of the cars took part in the August manœuvres on the Pacific coast and the other is participating in the Manassas manœuvres this month. The official title of the vehicle is "Signal Corps Telegraph Auto-Car." In the rear of the car is a table to hold telegraph instruments for two men and space for telephone, wire, shovels, and other tools necessary to erect telegraph lines.

THE N.A.G. Automobile Company of Great Britain and Ireland, Limited, has been registered with a capital of £10,000 to adopt an agreement with Messrs. T. L. Spencer and C. E. R. Holmes, and to carry on the business of automobile storers, garage keepers, manufacturers of and agents for motor-cars and carriages. The registered office is at 106, Great Portland Street, W.

AMONG the latest non-skidding and puncture proof bands to be brought before the notice of motorists is the "Sawyer," made by Messrs. Sawyer and Co., of Kensal Rise. The band is made of chrome leather of an extra special tannage; steel studs are inserted on the tread, which effectually prevents any possibility of side-slips and punctures. It is claimed for the bands that they do not interfere with the resilience of the tyre, and are equally effective for light or heavy cars. As the whole of the tyre cover is protected by the leather band, the latter tends to strengthen the tyre, as it is impossible for the damp to penetrate through the material used. The bands are made for all sizes of motor-cars from 650 by 65 mm. to 1,370 by 120 mm., and can also be supplied for motor-cycle tyres, for which they are strongly recommended. The dreaded side-slip is stated to be rendered impossible, no matter how greasy the road may be.

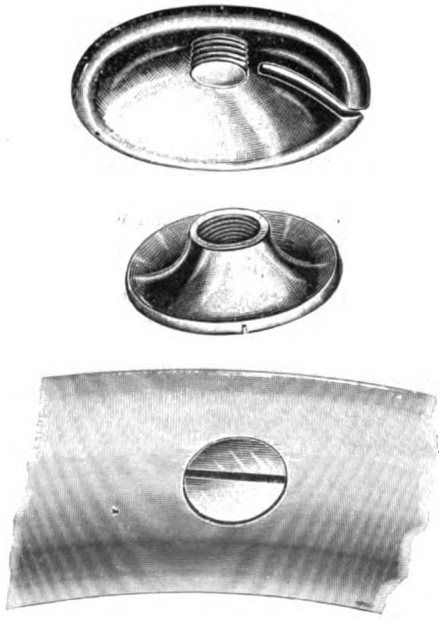
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THE Continental Caoutchouc and Guttapercha Company has lately brought out a series of rubber buffers for attachment to the springs of motor-cars, to reduce the shocks due to the body of the vehicle, when travelling over rough roads, bumping on the springs. The buffers are made in a variety of forms and with



different methods of attachment to suit all kinds of spring, a simple type being illustrated herewith. They are easily attached and are claimed not only to add to the comfort of the passengers but to greatly reduce the chance of broken springs.

THE County Chemical Company, Limited, of Birmingham, have just introduced a novel puncture repairing device known as the "Wizard." It consists of two metal parts, as illustrated. The upper or larger portion is a light saucer-shaped brass cap carrying a screw stud in the centre, and is radially slotted, as shown in the illustration. When a puncture has to be mended, the edge of this slot is inserted in the puncture in the air-tube



(which is widened so as to admit it). The saucer is then worked through the puncture until it is entirely inside the tube. The screw stud is then pulled through the puncture, and the top portion, or cap, is screwed home on the saucer. The repaired tube then appears as in the lower illustration, and can be at once inflated, the cover replaced, and the journey resumed. The action of the saucer and the stud coming together is to form an air seal around the edge of the saucer, into which the upper stud recesses. The repair thus effected will stand as long as the tube may be used, and we need scarcely add that it is not possible for another puncture to be made in the same place. The discs are made in three sizes—1 in., $1\frac{1}{4}$ in., and $1\frac{1}{2}$ in. in diameter—and can be used for repairing $\frac{1}{2}$ in., $\frac{5}{8}$ in., and $\frac{3}{4}$ in. cuts or punctures respectively. Therefore, with a selection of these discs in his possession, the motorist can confidently tackle the repair of any ordinary puncture, and have his car running again in a few minutes.

THE first mishap that has occurred to the mechanical transport used in the recent manœuvres in East Anglia happened on Friday of last week, when a tramcar and a supply wagon, drawn by a military patrol car, came into violent collision on Lexden Road, Colchester. The front part of the tramcar was smashed in, whilst the forecarriage was knocked off the wagon, and its contents were scattered broadcast.

AMERICAN motor-car builders and accessory manufacturers will shortly receive from the United States Census Bureau schedules of inquiries which they are expected to fill up. The schedule to be sent out includes returns covering the character of the organization, date when present organization commenced



The 6½-h.p. Royal Humberette, with Cabriolet Canopy, which gained the First Prize in the recent Hill-Climbing Competition at Gainsboro'.

operations, capital invested, number of proprietors and firm members, salaried employees, wage earners, including piece workers, miscellaneous expenses, materials used, value of products, power employed, and various other items. The statistics to be collected will cover the business year of each manufacturing establishment most nearly conforming to the financial year ending June 30, 1904.

THE Belsize Motor Car and Engineering Company, Limited, held their first annual general meeting at the Midland Hotel, Manchester, on Thursday of last week, Mr. G. P. Dawson presiding. In moving the adoption of the report, the Chairman said he was glad to be able to say that the company was maintaining its position, and obtaining its fair share of orders. Their works at Clayton, Manchester, were well employed, and their orders for the coming season were above the average of past years, owing mainly, he thought, to the very high reputation the company's three-cylinder cars had made for themselves. The report was adopted, and it was decided to pay a dividend at the rate of 5 per cent. per annum and to carry forward the balance to the reserve fund.

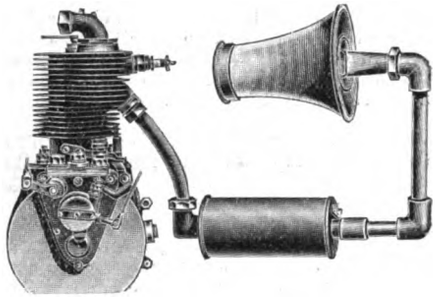
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MOTOR CYCLING NEWS.

A FUEL consumption trial organised by the Auto-Cycle Club will be held on the 1st prox. On November 30th the club will hold its annual dinner at the A.C.G.B.I.

◆ ◆ ◆

ONE of the most frequent causes of unsatisfactory running of tri-cars and small air-cooled engines generally is "overheating," and this is more particularly noticeable when a two-speed gear is fitted. The overheating arises from causes for the most part inherent in this type of vehicle, and it cannot be altogether eliminated, except perhaps by the most careful and experienced driving. Neglecting such remedies as fans, etc., the usual remedy is to water cool the engine in one way or another. This method is efficient, but, on the other hand, it adds considerably to the weight of the machine, renders the parts less accessible, and generally complicates matters, as well as increasing the cost. To overcome the difficulty in a simple way Clarke's "Ejector" cooler has recently been introduced by Mr. L. Anderson, who claims that it affords a highly efficient,



reliable, and durable remedy for "overheating." It weighs but a couple of pounds, is easily fitted, and it works as long as the engine runs. As will be seen from the illustration, the "Ejector" cooler is fitted in conjunction with the silencer in such a way as to cause the exhaust gases to induce a powerful draught of cold air, which is directed upon the cylinder in a continuous stream. The device is automatic, and needs no power to drive it. It causes the air draught to correspond with the speed of the engine, without either causing or providing a tendency towards "back pressure." A Tri-car, fitted with one of Clarke's "Ejector" coolers, 75 by 80 mm. engine, two-speed gear (12 to 1 on low gear), carrying 25 stone, has, we learn, been driven up Westerham Hill and Dover Castle Hill without pedalling.

◆ ◆ ◆

ON Thursday and Friday of last week the Auto-Cycle Club's Reliability Trial took place, its interest being mainly centred in the novel system of fining by means of which the prize list was to be enhanced. Starting from Staines on the first day were Messrs. M. Ponder (2¾-h.p. Humber) F. Applebee (3¼-h.p. Dux), Mr. Hayes (who retired from the contest at Salisbury), Mr. O'Gorman (3½-h.p. Ormonde), H. J. Densham, 2½-h.p. Anglian), J. J. Leonard (2¾-h.p. Lurquin), and H. P. Rose (2½-h.p. Roc). Exeter was reached in the evening, and on the following day the riders made for Southampton, where Messrs. O'Gorman, Densham, Leonard and Ponder arrived shortly after 4 o'clock. Trouble had befallen Messrs. Applebee and Rose on the way.

◆ ◆ ◆

ON the Stockiemuir Hill, on the Drymen road, the Glasgow Motor Cycle Club held a hill-climbing competition on Saturday last. Mr. J. S. Fulton, the hon. secretary of the club, supervised the contest, Messrs. Farrow and Cree acting as starter and timekeeper respectively. The three prize-winners were:—1, A. Lawrie, 3-h.p. Centaur; 2, John Falconer, 2¾-h.p. Bradbury; 3, A. D. M'Connell, 3-h.p. Automotor.

◆ ◆ ◆

THE accompanying illustration depicts the 3-h.p. ladies' motor-bicycle recently introduced by the Singer Cycle Company, Limited. The ease of control is a conspicuous feature of the machine; both throttle and exhaust are actuated from the left handle, and one turn of the wrist will either increase or decrease the pace. Owing to the position of the engine, the rider's skirt is kept absolutely clean, and she can present herself at a friend's house on the termination of a ride scarcely more dusty than if she had been riding an ordinary safety bicycle. The transmission is by chain, well covered in a gear case. Mrs. Kennard writes that she has ridden this machine with much



interest and pleasure, and has found it an admirable hill climber and very fast. She adds that "the horse power is somewhat high for a novice, who would be well advised to content herself with a 2-h.p. engine for making her debut."

THE Automobile Club of Cleveland, U.S.A., has decided to send a circular to each registered automobile owner in the city, quoting the State law and city ordinance in regard to the use of motor-cars on the public highways, and calling upon their owners to comply with the law at all times and to co-operate with the club in suppressing furious driving.



The International Motor-Bicycle Race.—A View on the Course at Foret-Le-Roi.

IT is proposed to organise a motor reliability trial from Sydney to Melbourne, a distance of close upon 600 miles. Should sufficient support be forthcoming from the motorists of Melbourne and Sydney, the run will most likely be held towards the end of February next, and will probably be divided into three classes, viz., cars, voiturettes, and motor-cycles. The route would be divided into three sections—Sydney to Yass (191 miles), the first day; Yass to Albury (186 miles), second day; and Albury to Melbourne (196 miles), third day.

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CORRESPONDENCE.

MOTORING IN CANADA.

To the Editor of *The Motor-Car Journal.*

Sir,—A few lines on automobile doings in the far West of the great Dominion of Canada may be of interest to your readers and tend to show the steady progress which the horseless vehicle is making in every quarter of the globe. The part of Canada of which Winnipeg is the principal city, and the centre between the East and the extreme West, was twenty years ago practically undeveloped, the present large and well-ordered city being represented by a village of some 1,000 inhabitants, which to-day has altered to a total population of 82,000, an average increase of four thousand a year. Some two or three years ago motoring was confined to one gentleman, who is the secretary of the present Winnipeg Automobile Club, which was formed in April of the current year and now numbers over fifty members, the progress of the club from the commencement having been very gratifying. A good number of chauffeurs with a racing bent are numbered in its ranks, and it is intended to make Winnipeg take the lead in Canada in arranging motor racing events, endurance trials, etc., on similar lines to those followed in the arrangement of these contests in the old country. At the recently concluded Dominion Exhibition, which was held in Winnipeg for the first time this year, a series of races were arranged by the writer, and aroused considerable interest, a great crowd being present each evening when the races were held. Although there were no racing cars in the city, some very good times were accomplished by the local drivers, the best performance being that of J. K. McCullock on an ordinary 12-h.p. Ford touring car, he covering five miles in 8 min. 20 sec. on a half-mile track, which was practically unbanked. This taste of speed driving has resulted in the arrangement of an endurance test, in the shape of a race to Stonewall and back, a distance of between sixty and seventy miles, and a trophy has been promised by a well-known Canadian firm. It is proposed to make this an annual event open to all comers, the cup to be held by the winner for one year.

There is plenty of scope for automobilists in the West of Canada, and a great future is open to a manufacturer who has business enterprise enough to commence the manufacture of automobiles in the Dominion of Canada, and thereby save the present heavy duty incurred by cars coming from the United States or other countries.—Yours truly,

Winnipeg. A. Emmett.

ARE MOTOR-CAR WHEELS STRONG ENOUGH LATERALLY?

To the Editor of *The Motor-Car Journal.*

Sir,—Having regard to the recent accidents, fatal and otherwise, due to the lateral instability of motor-car wheels, it is questionable whether the present pattern "artillery" wheels, now so popular, are sufficiently strong enough to withstand the severe lateral strains they are subject to, particularly on heavy and high-powered vehicles. The front steering wheels especially are called upon to bear enormous lateral strains in rounding a curve at high speeds, as they have to take the whole thrust in a direction in which all wheels are more or less weak. The present system of manufacture, in taking the spokes vertically direct from the rim centre to the centre of the hub, may be more or less satisfactory in the case of the rear driving wheels, where the strains are mainly vertical and parallel to the driving power, but in the front steering wheels it would appear to be a wiser policy on the part of manufacturers to copy the principles of the bicycle wire wheel a little more by taking the spokes alternately at a slight angle by "splaying" the spokes from the rim to a wider hub, and thus give the wheels considerably more lateral stability.

It is obvious that in all four-wheeled vehicles, mechanically propelled, severe lateral strains are imposed on the wheels. Even the rear wheels of a car are subject to these owing to the constant "sag" and side-to-side swinging movements of the car body and framework on the springs, set up and due to the inequalities of the road surface and the steering of the car, but the lateral strains of the rear wheels are infinitesimal compared with what the front steering wheels have to withstand in this respect, and yet how many cars do we see, especially of the light voiturette type and the cheaper varieties, where the whole of the four wheels are identical in design, build and strength, which is surely a mistake.

Anyone has only to study a broken-up motor-car front wheel to have it forcibly brought home to him how unstable and weak they are, and the wonder is that there are not more accidents due to their failure to stand the strains, though they are numerous enough. Let any driver watch how the two steering wheels behave in running over a rough macadam road, and he will realise the enormous strains thrown on the hub centres in keeping the wheels straight. Some wheels seem to crush up like egg shells directly any unusual side strain is thrown upon them, such as running at an angle on to a kerbstone or high footpath or bank, and numerous accidents have occurred owing to wheels collapsing in turning a corner at high speeds.

It will be remembered that a serious accident happened in the Isle of Man, on Snaefell mountain, to a touring car during the elimination trials, owing to a wheel collapsing in turning a corner. The front wheels of Mr. Earp's car on the occasion of his memorable accident at Douglas broke into matchwood on meeting the edge of the footpath at an angle of about forty degrees, and the writer remembers, when sadly examining them as they lay smashed to splinters near the wrecked car, wondering how they had safely gone through the severe strains put upon them two days before in the 255 miles trials—they seemed to have been built so frail. Then the arguments as to lateral weakness have been still further borne out by the recent tragic accident to Sir William Rattigan, M.P., near Biggleswade, owing to his car wheel collapsing in turning a corner even at a slow speed. Such accidents prove that there is something radically wrong in the present construction of the "artillery" pattern wheels now so popular, and makers will be well advised in returning to the principles of the bicycle wheel in theory, at any rate, if not in the material used.

The writer recently interviewed a manufacturer who confines his attention solely to building motor-car wheels of the "artillery" pattern. While admitting that the spokes would be better alternately "splayed" from the rims to wider hubs, he contended that a properly-built wheel of real "hickory" wood spokes ought to stand any strain that could be put upon it. He stated, however, that in the desire for cheaper wheels many makers used "greenheart" wood for the spokes instead of "hickory," with the result that in case of accident the greenheart spokes snapped off like carrots, whereas real hickory spokes were almost impossible to be broken transversely. It is, therefore, of importance to insist on real hickory wheels being fitted to all cars. A firm of engineers at Blackburn have recently brought out a new wheel in which the spokes are of steel tubes swaged to a special shape at the axle ends, so that they all bind upon one another circumferentially and are then clamped together by two specially shaped hub flanges. The spokes are all in equal tension and are unbreakable and cannot collapse, while the appearance is similar to the ordinary wooden pattern; there is no shrinkage of the spokes, as in wood, causing unequal tension.

To sum up the whole matter, the writer is of opinion that motor-car wheels can be considerably improved in design and lateral stability, and that front steering wheels should be built much stronger laterally than the rear wheels. The opinion of other motorists on this important subject would be interesting; the writer, however, simply gives his impressions from his own experience and observations, and has based his notions on examination of broken car wheels which have frequently come under his personal notice.—Yours truly,

J. T. Ward.

HOTEL CHARGES.

To the Editor of *The Motor-Car Journal.*

Sir,—The letter in the *Journal* of the 10th inst. reminds me of our touring trip through the New Forest. We landed one evening at Horsham, the car was put up in the yard of the "King's Head," where a very large signboard proclaimed, in big letters, "Head-quarters of the A.C.G.B.I." Being of humble mind, we did not put up there ourselves. Next morning in the hotel yard, in consequence of such cobblestones as I never saw before, my steering gear broke down on starting. The repairs were very reasonably done by Messrs. Jackson Brothers, who I would wish remembered when the A.C.G.B.I. appoint official repairers in Horsham. Before starting I ordered three cans of Pratt's petrol from the hotel yard, but, at the charge of 3s., refused two of them. These two were supplied by Messrs. Jackson Bros. at 1s. 2d. per gallon, viz., 2s. 4d. per can, thus saving the overcharge at the head-quarters of the A.C.G.B.I. of 1s. 4d. on the two cans refused, and they were delivered to my car in the yard, as, without the steering-gear, I was unable to move.—Yours truly,

Motor Union, D 372.

THE PORTMARNOCK MEET.

To the Editor of *The Motor-Car Journal.*

Sir,—With reference to the disqualification of Mr. A. Govan in class G of the motor races held at Portmarnock by the Irish Automobile Club, Mr. Alec Govan was disqualified owing to an objection lodged by Mr. A. Rawlinson for not carrying passengers weighing in all forty stone. There was no mention in either the programme or the entry form of the actual weight required to be carried. Neither were the passengers required to be weighed before or after the race, nor were they asked in this particular instance to return the gross weight. When the officials were asked about this they merely stated that they were running the races under the rules of the English Club, and that the rules required a gross weight of forty stone. Now last year the Irish Club ran their races under the same rules, and yet they ran them without any passengers beyond the driver. In face of the club changing this year surely it would be an easy matter to put down the actual weight required to be carried.

I fear, however, that trade influence has a good deal to say to these unfortunate frivolous objections. Mr. Govan won his heat by 300 or 400 yards and in much shorter time than any other heat, and it was self-evident that the race was at the mercy of the Argyll for the final. I hold that in view of the fact that the officials omitted to put down in the programme the gross weight required to be carried as a *condition* of this particular race the judges' decision was hasty and not based on reason. Mr. Govan, as well as many others, attended this meeting at great inconvenience and expense to themselves. It would be well if

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sport-promoting clubs were to take more trouble in publishing conditions and thus obviate hasty decisions.—Yours truly,

W. R. McTaggart.

TAIL LAMP TROUBLES.

To the Editor of *The Motor-Car Journal.*

Sir,—I cannot quite reconcile "B 453's" letter with my knowledge of electricity. He states that with a four volt accumulator he uses ·08 amperes with his lamp. That is to say, ·32 watts. Now I understand that electric lamps use four watts to the candle power. Apparently, therefore, "B 453" illuminates his back number plate with about one-twelfth of a candle power. I should doubt whether the law would consider this strong enough to "render easily distinguishable every letter or figure, etc." If this device proves satisfactory and the data given by "B 453" are correct, then the lampmaker should reap a well-deserved fortune for manufacturing a lamp with such extraordinary illuminating powers.—Yours truly,

A. T.

A SUGGESTED COMPETITION.

To the Editor of *The Motor-Car Journal.*

Sir,—During the period while the automobilist is debarred from satisfying the elementary sporting instinct of humanity—to *get there first*—competitions flourish, and nearly every desirable quality in a car—reliability, economy, power—to observe the law, has been the subject of distinct and separate test. But, notwithstanding improvement, now and then—more then than now we may hope—a little, just a little, trifling adjustment is necessary. And cars vary exceedingly in the facility with which such adjustments are effected, as was borne in upon me recently when lining up some bearings in two cars. In one, the removal of half-a-dozen bolts was all that was necessary; in the other, twenty-eight bolts had to come out, and involved the search for some box spanners and ratchet brace especially designed for getting at out-of-the-way corners. Of course, the car that wants no adjustment is best, and, fortunately, to judge by the catalogues, there are many of them; but for the others, a repair competition in which the drivers should have to get at, remove, and replace certain specified parts, or rectify some supposed mishap—as, for instance, fired connecting-rod bearing, obstruction in petrol supply, broken valve spring, slipping clutch, damaged pump, foul valves, etc.—would bring out some important points in design that do not always receive the attention they should.—Yours truly,

Motor Mechanic.

THE CARE OF ACCUMULATORS.

To the Editor of *The Motor-Car Journal.*

Sir,—I should be obliged if you or any reader of the *Journal* would give me some hints as to how an accumulator should be treated which is not in constant use. I have two accumulators, and they often have to stand over several months without being used. Would it be best to partially discharge these and then recharge them? I understand it is injurious to accumulators to let them stand without being charged and discharged. I should also like to know whether accumulators should be entirely discharged before emptying the acid in order to clean them. If so, how should they be discharged?—Yours truly,

Willebrook.

[An accumulator which is to stand idle can be treated in two ways, either of which can be selected to suit the convenience of the user. It should either be thoroughly discharged or kept thoroughly well charged, in which latter case it is, of course, always ready for use. In the first instance, proceed as follows:—Thoroughly discharge the accumulator by connecting it to a 4-volt lamp, or a coil of iron wire until it has discharged down to 1⅘ volts per cell, or 3·5 volts for a 4-volt set. Immediately after discharge, empty the acid out, and rinse the cells with water until they are quite free from acid in the plates or in the cell. Then drain it out and thoroughly dry the terminals and top of the case. Carefully vaseline the terminals and rubber bands to keep the latter soft, and put away in a card box to prevent dust settling on the top. In the second instance, charge up the accumulator so that it can be said to be thoroughly well charged. If there is a connecting wire joining the two cells together at the terminals, take this away, as it leaves the two cells with their pressure divided. See that the top of the cell is very clean and vaseline the terminals and rubbers; take out the vent corks, as they cause spraying. After three months, charge up again, if the accumulator appears to have lost its voltage. After an accumulator has been once properly formed, it is not necessary to charge and discharge it when standing, provided it has received a good charge before standing. The easiest method of discharging is by connecting a lamp up to the terminals and leaving it until quite out.

TYRES.

To the Editor of *The Motor-Car Journal.*

Sir,—I have recently taken to motoring, and last July had delivered to my order a 12-h.p. Darracq. I have not yet mastered all the technicalities of the engine, but that portion of the car is eminently satisfactory, and gives no trouble whatever, but I think I can justify the claim to a past-mastership in the matter of wearing out tyres. The car is fitted with Clincher Michelin, size 800 by 85, and in a run of about 600 miles they were reduced to what was practically inflated ragbags, then the puncture fiend came on the scene, and it was with considerable difficulty that I got home. A visit to the Liverpool agents of the company elicited the consoling information that "it was a matter of luck," with a recommendation to purchase new tyres for the hind wheels. I should be obliged if any motoring experts can inform me if there are any other "matters of luck" connected with the sport, which may prove equally as expensive, as I am very anxious to know the worst.—Yours truly,

John Anson'a.

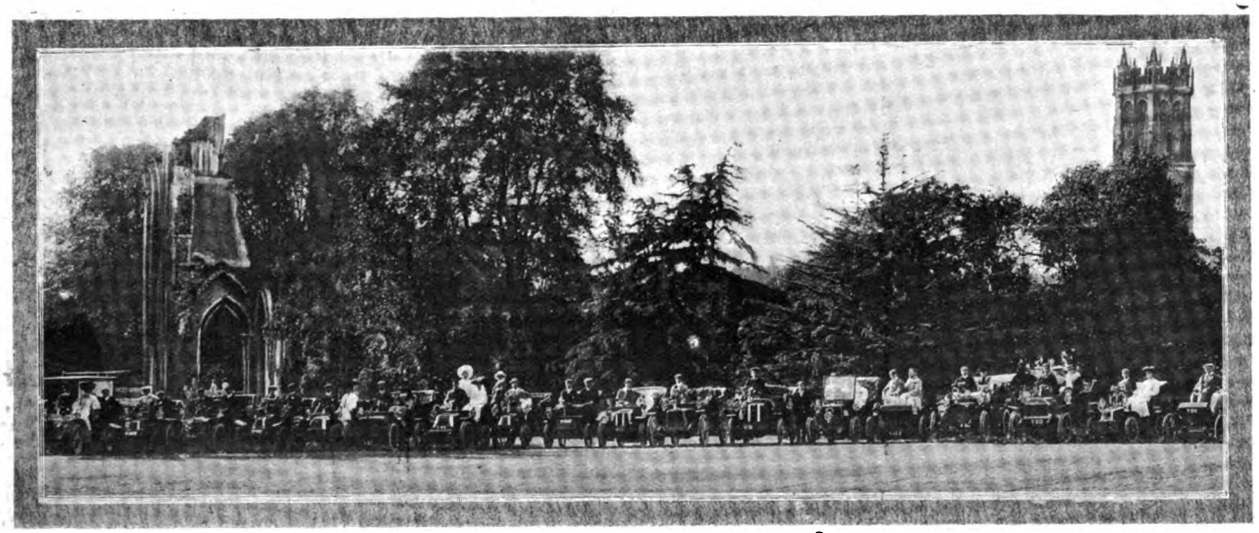


Photo by] The Meet of the Somerstshire Club at G'as'onbury Abbey. (*See page* 633.) *[Monlague Cooper.*

ENGINE-STARTING TROUBLES.

To the Editor of *The Motor-Car Journal.*

Sir,—I can sympathise with Mr. R. Hannen *re* his trouble in starting up, as I have experienced the same trouble, which I found due to carburation, viz., a great enough suction cannot be got by turning the handle to draw enough petrol into the cylinders, not even with the airways closed.

I advise him to do as I do. Carry a small squirt can of the flat type, at about 1s. 6d., and always keep it full and on the car, and when he wants to start up, inject into each cylinder, through compression taps, just so much as one nip of the squirt will ejeet, close the taps, and then turn the handle. This should start the motor all right.—Yours truly,

R. H. Antill.

RECKLESS DRIVING.

To the Editor of *The Motor-Car Journal.*

Sir,—The practice of doing everything possible to avoid frightening horses and causing annoyance to horse drivers is one that should be encouraged. Motor-cars are still in the minority on the road, and, though they certainly have equal rights with other users of the highway, and the automobilist should not permit himself to be imposed upon, still it is the best policy to make as many friends as possible, for the good of motoring generally. The old saw concerning prevention and cure si

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exceedingly applicable to meetings between horses and motor-cars. If you are a frequent traveller over the same roads you will soon see the result of your good work in this direction. One thing that should be avoided as much as possible is the continuous use of the horn. Use it when necessary, but do not be lavish in your solos, for it is a species of music that few are capable of appreciating.—Yours truly,

JOG ALONG.

BELT TRANSMISSION.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—It would appear from articles in the press on the recent failures in the light car trials, that the moderate priced car for the business man or the man of moderate means is a long way off yet. I am one with your other correspondents in believing that a simple efficient belt-driven car, minus the weak points of both gear and previous belt systems will be found to be the solution of the problem. From the remarks already made in the letters that have appeared in your *Journal*, this does not seem very remote either, nearly all the defects having been intelligently dealt with in recommendations for their abolition. Also I am pleased to see that trials are being made by inventors, and manufacturers would do well to go thoroughly into the light car question; the market for a simple, inexpensive, reliable vehicle would be immense.—Yours truly,

INTERESTED.

SOLID TYRES

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—I have a 5-h.p. Oldsmobile motor-car, and I should be greatly indebted to any reader of the *Journal*, who has had the required experience, for advice as to whether these little cars can stand having



The Military Manœuvres.—General French and Staff at Clacton
Photo by *Mr. Herbert Smith.*

some form of solid tyre fitted to the rear wheels, and also if there would be much loss of speed and hill-climbing power by doing so.—Yours truly,

M. B.

REPAIRS AT BRISTOL.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—There is plenty of room in Bristol for a reliable motor repairer. The city and suburbs number nearly 400,000 people, and an automobile club is at last about to be formed there.. All riders from John o' Groat's to Land's End pass through Bristol, and the best position for a repairer would be found somewhere on the route through Bishopston, Cheltenham Road, Stokes Croft and Victoria Street.—Yours truly,

S. C. G.

TAIL LAMPS.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—In answer to "Rosthern" in the *Journal* of the 3rd inst., I had some trouble with tail lights and tried all makes, but found they would not stand the vibration, until I came across a lamp made by Lucas, Ltd., and was induced to purchase one at a cost of something like a guinea, and from that day to this—namely, last November to now—I have driven car about 7,000 miles, and have never removed lamp except to trim and clean it, and have never had any trouble with it.—Yours truly,

SATISFIED ONE.

SILENT CARS.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—I read your article on "Silent Cars" with interest. I have a rather noisy car, and would—and I expect many others similarly circumstanced would—willingly suppress the noise if it could be done without sacrificing power. Hitherto I thought that muffling the exhaust caused an appreciable loss of power.

I am more hopeful since you state that "in minimising noise, power is conserved and used in propelling the vehicle instead of being wasted." If any of your readers will kindly put me on the right track I shall feel grateful, and, providing the cost is not prohibitive, I guarantee there shall not be a more peaceful car than mine.—Yours truly,

A. G. J.

NAIL CATCHERS.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—I have not tried any "special" nail catcher advertised, as they are so very expensive, so I do not know whether they are effective or not. What I have done, and done with undoubted success, is to fix an ordinary chain on my wings to hang over the wheels and so prevent flints and nails from cutting the tyre. It is worth while to try the experiment, as chains are cheap. I have made use of my wing guard stay to fix a chain. I find this very effective, and furthermore the tyre is not worn in any way, although the chain may often want renewal.—Yours truly,

H. HUGHES.

STEAM CARS.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—I think many prospective motorists, also many petrol car owners who are considering the purchase of a new car, cannot but be struck with the increasing interest in the steam car industry, which is evinced by the correspondence in the motor press and also the increasing number of steam cars on the roads. Such being the case, it would be very interesting to know how such cars behave under trying conditions as compared with petrol cars, what are the more vulnerable portions of their mechanism, and generally what are the most usual causes of a temporary roadside halt I am alluding in this letter to such well-known steamers as the White, Miesse, or the Serpollet. Of these the Miesse appears to be by far the simplest, an advantage for which it may possibly suffer in other respects, but that is not the point at issue, and except for a little care in regulating the fire so as not to burn out the tubes, I should think the advantages gained by eliminating all automatic regulators must more than compensate for the slight extra trouble involved. However, to return, the Miesse has one main burner, two water pumps and one air pump, and it is difficult to see how these four pieces of apparatus, three at least of which are to be found in many cases on that most reliable machine, the modern locomotive, can be as liable to derangment as coils, clutches, carburettors, ignition systems, and possibly gear boxes, all of which are eliminated. Still, where one has no practical experience it is unwise to draw conclusions, and I think if some of your readers who use these or similar cars could be induced to write their experiences showing clearly the ills to which the steam car is heir, they would be conferring a great boon on a large class of motorists which admire the steam car's silent easy running, but fears to abandon the evils of the petrol car which it knows, for those of the steamer which it wots not of.—Yours truly,

DOUBTFUL.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—I have read in your *Journal* of the 10th a letter signed "Wise Man."

I would like to point out to this gentleman that there are other steam cars on the market besides the one he names, and that, just because he has had bad luck (probably due to ignorance) as he says he scorched his boiler, which to my thinking ought never to happen to a man who is careful and blessed with a little common sense, he at once condemns the steam car. Perhaps it may interest this gentleman to know I have driven my car, certainly of a different make to the one he names, but selling under £200, to carry four, over several thousand miles, and except for occasional tyre troubles have gone there and back every time. Of course I always take care to have water in my boiler.—Your truly,

UNBIASSED.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—The troubles of a "Wiser Man" with his Locomobile were, I think, entirely his own fault. The pumps fitted to this car are amply large enough, and the failure was most likely owing to the check valves being out of order. If so, it did not matter how large the bore of the pump, the water gauge not showing the proper level was due to sediment getting into the bottom pipes, and when kept properly clean there is no trouble.

I have driven my car many miles and never had any trouble with the pump or water gauge. Every time I stopped I blew off a little water, keeping everything clear. I have not had any experience with paraffin burners so cannot say about them.

I have had many pleasant rides on my Locomobile, and just lately went with a friend on his Weston from London to Canterbury, through Chatham, and back home *via* Maidstone, and nothing better could be desired by any reasonable person, not the slightest trouble all the way

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Such a letter as "Wiser Man's" will create a prejudice against a type of car that in the hands of a careful user will give every satisfaction, as many readers will not consider that this particular car was in the hands of a gentleman who seems to possess hardly enough mechanical ability to take charge of a mangle.—Yours truly,

W. T. WARNE.

TO THE EDITOR OF *The Motor-Car Journal.*

SIR,—I have just read "A Wiser Man's" letter in the *Journal* of the 10th inst. Your correspondent seems to have bought a "pig in a poke" with a vengeance, but he surely did not expect that a £275 car would be sold for £85 unless there was some need to spend money on it. Had he been wise enough to pay a competent man to examine and report on the car he would probably have been saved much annoyance and loss—he would most likely have found that he had to spend some £50 in repairs before he could hope to run the car, but he would have had some fun out of it, anyway. The mere fact of "drinking" paraffin, and only doing twenty-one miles in four hours, and requiring also hard labour at the hand pump shows that engines and boiler must have been sadly in need of repairs when he bought it, hence the "cheap" price. If he buys any car, steam or petrol, in such a haphazard way he is likely to buy trouble as well.

How can he fairly blame the car for burning his boiler? Common sense would dictate to anyone to make allowance for the car not being on the level. I am afraid if "A Wiser Man" were to burn a boiler in a steam-boat because she was not on even keel and the gauge glasses deceived him, that the Board of Trade would not accept such an excuse.

I hold no brief for steam cars, but I do like to see fair play, and don't like to hear a man blame a machine for his own stupidity; it reminds me of the story of the Irish engineer, who tried to put the bolts in a crank-pin bearing upside down, and then swore that the smith had put the heads on the wrong ends.—Yours truly,

C. S. DREWRY.

TO THE EDITOR OF *The Motor-Car Journal.*

SIR,—Being an old subscriber to the *Journal*, I have watched the discussion therein on the merits and demerits of steam carriages. On the one hand I find that the experience of some motorists is such as to enable them to speak well of steam cars, whilst on the other hand others appear to have had an unfortunate experience with them, and in relating that experience some of their remarks are such as to cause many non-technical men to believe it to be impossible to construct a sound steam carriage. I admit that some of the American steam cars are particularly faulty, the chief evil being the bad construction of the boiler. Most of the vertical firetube boilers are too short in height, too thin in the tube plates, and the vertical shell too thin. The fire tubes are too narrow in diameter, and too close together. With these thin tube plates, together with the small quantity of water contained in the boiler, even when at its highest level, the tubes are easily set leaking. Furthermore, with thin plates, aforesaid, the riveted seams will not keep steam and water-tight, but soon commence leaking. A height of 14in. between the top and bottom tube plate is much too little, tubes ½ inch external diameter are too narrow, and boiler plates only $\frac{3}{16}$ inch thick are much too thin, yet the above dimensions of boiler are found in connection with some of the American steam cars. In vertical firetube boilers it is important that tubes should always be surrounded by a good depth of water, which does much to prevent leakages, also makes steam faster. A steam boiler ought not to be put out of sight under the driver's seat. It ought to be fixed in front of the driver, with its steam and water gauges screwed on it, so as to be constantly in view of the driver. A height of twenty-four inches between the top and bottom tube plate, with tubes one inch external diameter, and not closer together at any point than $\frac{3}{16}$ of an inch, with the vertical shell $\frac{3}{8}$ of an inch thick, and tube plates each ½ inch thick, would do well for a boiler in a motor-car carrying five or six persons. The water round the tubes should never be less than twelve or thirteen inches deep, when at its lowest level, with an additional five or six inches depth for variation in the glass gauge, and the remainder depth of space for steam, making twenty-four inches depth altogether between the top and bottom tube plates. The smoke box on the top of the boiler, together with the stand for the burners underneath, would add a little more to the height of the boiler. It could be welded in the vertical seam, the bottom tube plate could also be welded in, and the top tube plate riveted in, or both tube plates welded in, the holes for the tubes being bored afterwards. Smoke box, and stand for burners, each put on with screws. This would be a substantial boiler, and not give trouble.

The wire-spoked wheels and the frame of some American steam cars are too fragile for a substantial car. A few steam carriages were made in England years ago, and successfully and economically worked until the law prohibited the use of self-propelling carriages. One steamer, amongst others, has conveyed four persons at a cost of one penny per mile, including toll bar charges, making one farthing per mile for each person. Steam acts as a lubricant for the cylinders and pistons, limiting the heat of cylinders, etc., to the temperature of the steam itself, thus preserving them, and thereby giving the engine a longer life than the petrol explosion engine. In case of a worthless boiler, then get a new one properly constructed. A steam carriage of good design, well and strongly made throughout, is the best thing on the road.—Yours truly,

MECHANICAL ENGINEER.

BOWDEN WIRES.

TO THE EDITOR OF *The Motor-Car Journal.*

SIR,—In the report of the judges on Small Cars occurs the following paragraph:—

"Bowden wires are used in a few cases for throttle and spark connections, and proved unsuitable." This specific mention, derogatory as it is, calls for explanation. If the judges had said they proved unsuitable because they were improperly fitted, I could have understood it, but when it is known that the Bowden wire mechanism is universally used with pronounced success in numerous mechanical operations, it is late in the day to condemn it without qualification. One might think that the fact that over a million bicycle brakes, operated by Bowden wire mechanism, have been made and sold, is some evidence of its suitability for such operations, but if further proof is required, its common use on motor-cycles, the shutters of photographic cameras (demanding the most delicate movement), organ valves, and many similar operations, may be cited.

As for its suitability for motor-car work, I may say that it is largely used in France, and its use increasing. In Germany, after a year's testing, about a dozen firms have adopted it, two of them using it for brake work, as well as for the lighter operations, while the German War Office have adopted it for light and heavy vehicles. For such purposes as the last mentioned we have recently been called upon to produce a combined wire capable of braking ten-ton vehicles, its function being a flexible connection between driver and trailer. Schiemann, of Dresden, inventor of the one-track train of road vehicles, is licensed, and is using the Bowden mechanism freely on his vehicles.

It is regrettable to have to say that in the adoption of this, as in many things, I have found my own country the most conservative. In seeking for an explanation, I have concluded that it is chiefly because up till now British manufacturers have been engaged in making up lost time on the essentials of motor-car construction, and have, therefore, paid little consideration as yet to economies and refinements. The Continental firms have passed the one stage and reached the other. It was not so with the British bicycle trade; they had reached comparative perfection, and so readily embraced the Bowden mechanism.

I may add that my firm was not aware of the Bowden wire mechanism being used by any of the competitors in the light car trials, or that it would be subjected to the criticism of the judges, otherwise care would have been taken to see that it was properly fitted, for our experience is that there is a lamentable lack of knowledge of the functions of the mechanism in engineering circles.

Had the judges added to their criticism the simple words "as fitted," this somewhat lengthy letter need not have been penned.

My firm will at any time be pleased to place a car at the disposal of the judges, or any manufacturer, to demonstrate the suitability of the Bowden mechanism for the purposes indicated.—Yours truly,

JAMES R. NISBET,
Chairman, E. M. Bowden's Patents Syndicate, Limited.

TO THE EDITOR OF *The Motor-Car Journal.*

SIR,—Reading through the report of the judges in the Small Car Trials in the last issue of the *Journal*, I notice that they remark, "Bowden wires are used in a few cases for throttle and spark connections, and proved unsuitable." Why the judges should have gone out of their way to make such an adverse comment on the products of a firm not officially competing in the trials, I quite fail to understand; the more so in that on my own car Bowden wires are used not only for the throttle and spark connections, but also for the carburettor control, and have so far not given me the slightest trouble. I really think that such a condemnatory remark on the part of the judges should not have been made unless accompanied by some explanatory statement.—Yours truly,

A SATISFIED BOWDENITE.

QUERIES RE DE DION CLUTCHES.—Messrs. De Dion-Bouton, Limited, write:—We note the letter signed "A. H. R." in the *Journal* of the 10th inst. under the above heading. If "A. H. R." will bring or send his car or gear to us we shall be pleased to advise him how to remedy the trouble he complains of, providing the car is licensed for use in this country."



"What do you want to sell your car for?"
"Great heavens, man! It's a last month's model."

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COACH WORK IN CONNECTION WITH AUTOMOBILES.*

By J. Boarland.

The best horse-drawn vehicles have been produced, but the people want to go faster, unfettered by rail tracks or tramways. The motor-car has come to stop because it goes faster than horses, and humanity desires to go faster. There will, perhaps, be a great many horse-drawn carriages used in the future; some may be displaced by the motor-car, but the number of drawn and propelled vehicles owned by those whom we call carriage people is likely to remain the same, and in addition, there will be the probable demand of the middle classes, who are likely to find something within the reach of their income. There is nothing to alarm the coach maker in this evolution, except he has a rooted conviction that the world is at a standstill. There is money in it and coach makers can cater for it. We have centuries of experience and good taste to help us, and it only remains for us to study how to keep our own work in our own hands. I believe we can do it by keeping up the reputation of British carriage manufacturers for good workmanship and graceful design. It is well known that the most ancient trades turn out the most beautiful objects, and that the origins of these objects are to be found in nature.

We have instinctively copied the parabolic curves of the most graceful of all animals. Coach makers have for generations kept to this ideal. Only once did they depart from it, when some ingenious vandal (probably thinking to cheapen production), discarded sweeps and substituted straight lines. The straight line craze caught on, until it was found that other wood workers, with half the coach maker's experience and none of his good taste, could bolt together a number of straight pieces of wood into the form of a box, mount it upon elliptic springs and call it a dog-cart. This was utility without beauty, and in a few years we had lowered the public desire for good design. The railway carriages on most lines furnish an example of utility without beauty. The production of the motor-car is largely a question of design. The engineer's draughtsman is ready to produce something made up of straight lines and circles. He frames his work strictly in accordance with the parallelogram of forces with a few arcs of circles thrown in. He can construct a frame upon which sheets of metal may be placed, and strips of wood nailed on the latter for mouldings. Stresses are his first consideration, gracefulness comes second. The coach maker, on the other hand, gives the required space in which the occupants may sit comfortably, and sweeps his frame round it in such combinations of curves as are most pleasing to the eye. A piece of work built up with straight lines and perfect arcs has a heavy look. It is not enough to build up something that will do. It ought to answer the purpose and be graceful at the same time. My contentions are:—That the front, back, or angle view of a car ought to be as artistic as the side elevation. That the car ought to be as beautiful in design as it is possible to make it, and that it is essentially the mission of the coach maker to produce a perfectly designed car. The present time may be considered the iron age of the motor-car. Coach makers have been familiar for years with the suggestion to substitute various metals instead of wood for panels. The idea has been condemned again and again only to be reiterated by someone else, and in connection with this new industry it has actually taken shape, and we have not only metal panels, but in some cases metal frames also. The reasons for condemning panels of this description are many. The thin metal shows the battens which are inserted in the frame to give rotundity of appearance. They are easily bent or buckled. In the case of sheet iron they rust through under the trimming, and they add to the vibration of the car. With mild mahogany panels the shape can be neatly rounded and the battens are not seen through them. When properly filled up they give a good foundation for highly finished coach painting. They are stronger than metal panels. The difference in weight between mahogany and sheet iron is trifling. Panels may be shaped in mahogany to such designs as would require templets in the case of metal, and instead of being planted on strips of wood tacked on for mouldings, showing all the nail heads, proper English ash framing can be made without nailheads to be an eyesore, and with very few joints visible. The wings of a motor-car when made of sheet iron are noisy; not even the raised border milled round them stops the drumming sound. The same material should be employed in motor bodies as coach bodies are made from, viz., wood, and I will be glad to hear what the exponents of metal panels have to say in their favour. I believe that the best way to make a carriage perfect is to try to remedy its defects. In this paper I will only point out a few defects, but will not suggest remedies. We will begin at the back of the car, and the door of the tonneau must be voted a nuisance when it does not shut properly. How many coach makers in this Institute would dream of sending out a wagonette with a door which would shut so badly as that of the ordinary armour-plated tonneau motor body? The coach maker who does not forsake the principles of construction used in his trade can make a body the doors of which will open and shut properly. The dash, upon which the bonnet hinges, is often an inferior piece of wood, utterly unfit to carry the number of articles which are bolted upon it, and soon succumbs to the heat from the engine. The steps are poor and badly placed. The engineer takes upon himself the selection and the placing of the steps upon the frame, with the result that they are similar in design and general inconvenience to those upon a locomotive engine. The coach maker has spent many hours of his working life in spacing the height from the ground to the bodies of the carriages which he builds, in considering the proper size and shape of the treads, in booting them and in rendering them safe, so that the carriage user may enter and (what is equally important) may alight in safety, whether in the day or night. The bucket seat has its advantages. It separates the servant from the owner of the car, and it gives support to the sides of the occupant, as well as to his back. The angle of inclination may be right for a car running at thirty miles an hour, and for fast touring cars perhaps it is best, but for the smaller cars and for such persons as do not care to go fast, I am inclined to think that the strained, anxious-looking forward position hardly gives that idea of comfort which one is likely to associate with people who are enjoying their ease and the scenery at the same time. The canopy of the touring car may be made dainty or clumsy, according to the taste of the builder. The curtains, which are hung on rings sliding upon a rod attached to and under the roof, and which are gathered round the standards and tied much after the style of a cotton umbrella, may be effectual in keeping out the storm, but I must intrude my personal opinion and state that they do not look smart. The curtains, which are cut to the rounded shape of the car and are made to hang without wrinkles, give the canopy a more dignified appearance. The sliding wind shield perhaps gives the coach maker most trouble. After he has made it to work properly and fitted so that it will not rattle either when down or under the roof, he finds that the dainty French fasteners which keep it in position are badly fitted in themselves, and make noises when the car is running. Might I appeal to those members who belong to one of the accessory trades to produce a fastener which will not rattle; something which may be turned with the wrist and not with the thumb and finger? It may be said that any fastener which cannot be turned with a

* From a paper read at the Congress of the Institute of British Carriage Manufacturers at Leicester last week.

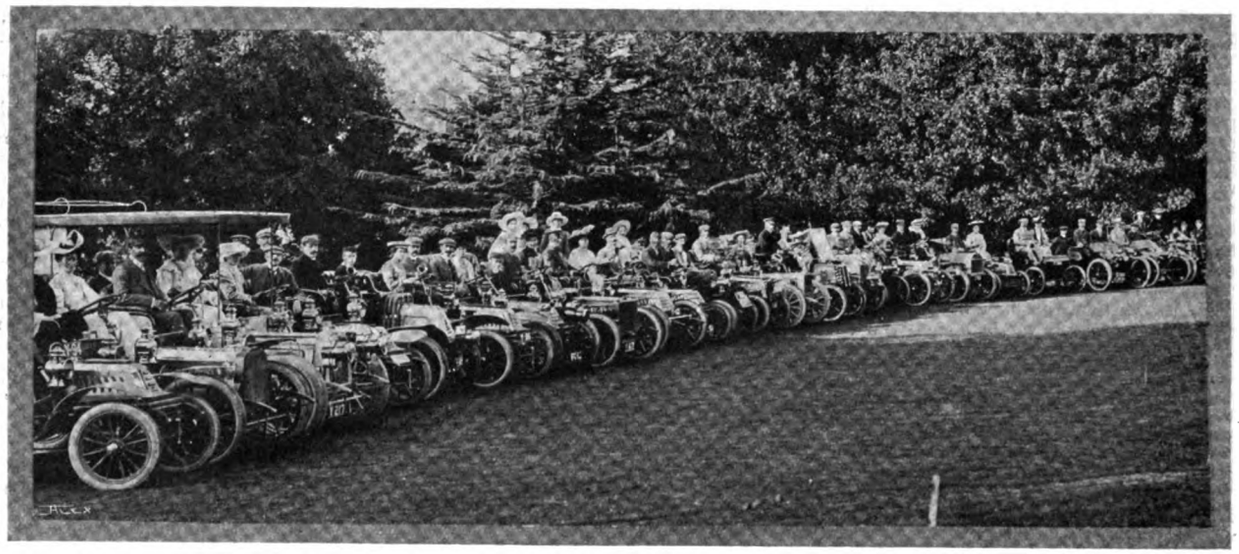


Photo by] The Meet of the Somersetshire Club at Glastonbury Abbey. (See page 633.) *[Montague Cooper.*

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touch will be condemned. I do not think so. English men and women are strong in the wrist, and it is hardly logical to argue that the ladies and gentlemen who play golf and tennis, and who as boys and girls played with cricket bats and hockey sticks, cannot turn something stronger than the fasteners which are now used for wind shields. With regard to the trimming and painting very little can be said, because the taste of the purchaser has to be consulted. Personally, I think that in a climate where from October till April the sun is but an inconstant visitor, bright warm colours are preferable to deep cold shades. Human nature is paradoxical, for we see the carriage users who in times gone by complained of the slightest noise in their carriages now taking no notice of such things when driving in motor-cars. Motoring is new, but when the novelty has somewhat worn off it is not improbable that noisy doors and windows, and the various things which were found fault with in horse drawn carriages, will be commented upon by the users of motor-cars. When that time comes, some of the attention which is now centred upon the engine will be diverted to the body, and a good body will be considered as essential to a motor-car as a good engine now is. To sum up, the British coach maker in building motor bodies should keep to his old ideals of good workmanship and graceful designs, of utility coupled with beauty. He should model them on the shapes used so long in horse drawn carriages and build them of similar materials.

CLUBS AND ASSOCIATIONS.

LINCOLNSHIRE.

On Thursday last week the members of the Lincolnshire Automobile Club were invited to Boothby Pagnell, near Grantham, to witness some motor competitions which had been promoted by the Hon. Maurice and Mrs. Gifford. Delightful weather favoured the event, and close upon 30 cars, which carried nearly 100 passengers, drove over to the meet. Two amusing competitions were arranged. The first was a driving contest, in which a road lined out with string and stakes in a field, and very tortuous in outline, had to be negotiated. On the way a police trap was arranged, and a mechanical gentleman in "blue"—deftly manipulated—popped out of his hiding-place every time a car approached. Just beyond this there was an obstruction, a child, represented by a huge doll, being thrown across the course. This was done with a view of testing the brakes, the cars having to be brought to a dead stop to avoid collision with the child, and then proceed to the finishing line. The competition was judged by marks, the handicap being based on the time, stopping, and dodging the policeman. The wheel base was also taken into consideration. At least 200 people watched the proceedings, and the efforts of the motorists to get by the police trap caused immense fun. Eight cars were entered for the competition, and when the adjustments had been made it transpired that the following was the order of merit :—

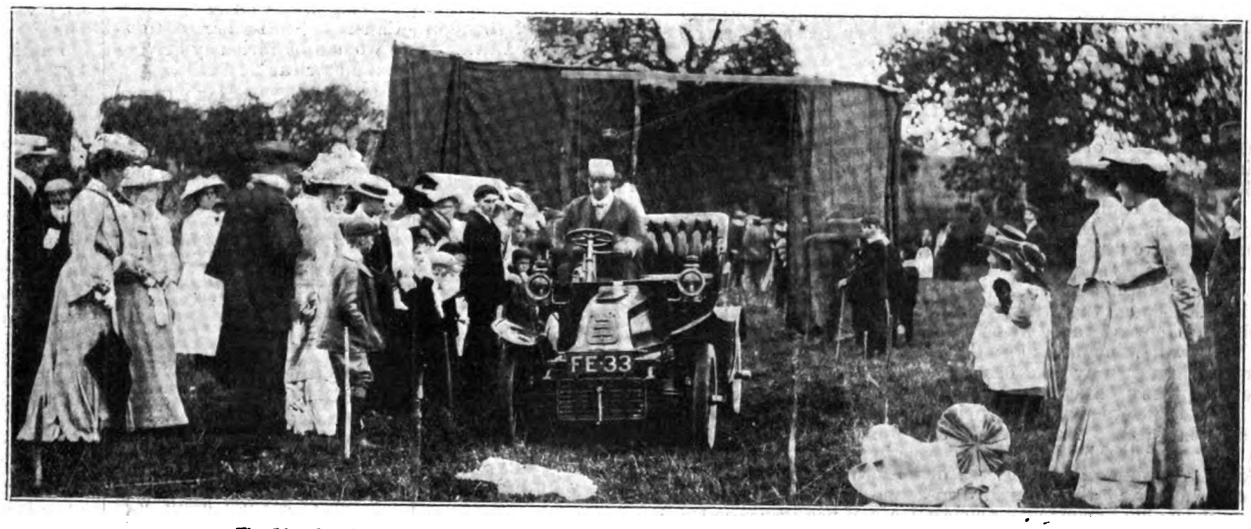
	Marks.
1. Capt. Cole, J.P. (Roxholm), 12-h.p. Durkopp ...	17½
2. Major Goddard (Lincoln), 12-h.p. Richardson ...	22
3. Mr. C. Holland (Boston), Baby Peugeot	26½
4. Mr. R. M. Wright (Lincoln), 8-h.p. De Dion	42½
5. Dr. Hancock Steil (Colsterworth), 7½-h.p. Wolseley ...	43
6. Capt. Lyall (Grantham), 7-h.p. Panhard	48½
7. Dr. Mason (Boston), Baby Peugeot	49½
8. Mr. C. Nelson (Lincoln), 4-h.p. De Dion	62½

To the winner (Capt. Cole) a handsome set of silver apostle teaspoons and sugar tongs was presented. Dr. Gilpin officiated as starter and timekeeper, and Mr. Cyril Greenall was judge. The small cars had an infinitely better chance of negotiating the difficult turning points, and the larger cars received an allowance on this account. When this competition was over an *al fresco* tea was served to the visitors, after which there was a surprise competition, the Hon. Maurice Gifford offering a special prize to the owner of the car whose engine was found to be in the best cared for condition. This competition was sprung upon the motorists so suddenly that there was no possible opportunity of one being able to secure an advantage over the other; in fact, many of the motorists did not know of it until the "bonnets" were off and the judging was in actual progress. Where a car had a chauffeur to look after it, marks were deducted. Capt. J. A. Cole, and a motor expert from Grantham (Mr. J. Smith) were deputed to make the inspection and report. There were several very well-kept engines, and it was very soon seen that the prize lay between Mr. J. D. Sandars' Peugeot and Mr. C. Greenall's Panhard. After a further examination the first named gained the award.

SOMERSETSHIRE.

The famous Benedictine Abbey at Glastonbury, traditionally said to have been founded by Joseph of Arimathea in A.D. 63, visited by St. Patrick in 433, and by him formed into a regular monastic community, was gradually, under succeeding Abbots, extended and adorned until in the reign of King Henry 8th, under Cardinal Wolsey, it had attained the position of the handsomest and wealthiest establishment of the kind in the kingdom. On November 14th, 1539, Abbot Whiting (the last Abbot) after a mock trial was hanged at Wells, and the work of spoliation commenced. Little now remains of the old grandeur beyond the walls. The entire property was purchased some years ago by Mr. James Austin, who has spent considerable sums of money in preserving and collecting all the scattered fragments that can be found.

On Friday of last week, by the kind invitation of this gentleman, the members of the Somersetshire Automobile Club assembled in the Abbey Grounds for a garden party. A magnificent day tempted motorists from all parts of the county, and all were most hospitably welcomed. Sweet music was discoursed by the Glastonbury Band, and with the setting sun the members dispersed to their homes.



The Lincolnshire Club's Competition.—Mr. R. M. Wright on his 8-h.p. De Dion in the Obstacle Race.

KENT AND EAST SURREY.

The last meet of the season of the Kent Automobile Club took place at East Grinstead, on Saturday, where the members of the Club were invited and entertained by the East Surrey Automobile Club. Fine weather made the united clubs' meet a most enjoyable event. Mr. David J. Barry, the hon. sec. of the East Surrey Club, was one of the first to arrive and received the members of the club, among whom were Dr. Charles Firth, Mr. and Mrs. Granville Kenyon, Mr. W. Willis, Mr. Edward Latter, Mr. Owen Firth, Mr. and Mrs. Bernard, Arnold, Mr. Cosh, Mr. Madeley, Mr. and Mrs. Symonds, Mr. and Mrs. Cornell, and several others.

BBEA

SHEFFIELD.

On Saturday 40 members and friends, on fourteen cars and three motor-cycles, went to the Sheffield Club meet at Ashopton, and thence to Birchinlee, taking advantage of the permission accorded by Ald. T. R. Gainsford, the chairman of the Derwent Water Board, to go over the new water-works. From Ashopton the road is not an ideal one for motor vehicles. In the first mile a 200 yards stretch of newly metalled road was encountered. Then there came several short, steep hills, which tried the capacities of both vehicles and drivers. On arriving at the "village" (which, by the way, is quite a town) the motorists were met by one of the resident officials, Mr. S. G. Hallett, and conducted over the works. Amongst the cars present were :—Mr. E. F. Coupe, 24-h.p. Darracq; Mr. C. D. Leng, 10-h.p. White steamer; Mr. Ben Hind, 11-h.p. Clement; Mr. C. Burnly, 6-h.p. La Plata; Mr. Jos. Barber, 7-h.p. Belsize; Mr. W. Watts, 6-h.p. Humber;

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Mr. J. F. Pickering, 10-h.p. Norfolk; Mr. Turton Chatterton, 6-h.p. De Dion; Mr. H. Beesley, 6-h.p. Wolseley; Mr. A. J. Blyde, 3½-h.p. De Dion; Mr. E. H. Hill, 12-h.p. Darracq; Mr. E. W. Hatfield, 6-h.p. Regal; Mr. J. R. Wade, 10-h.p. Norfolk; Mr. Hudson Lygo, 10-h.p. Cavendish; Mr. E. Ott, 2½-h.p. Humber motor-cycle; Mr. F. W. Oates, 2¾-h.p. De Dion; and the hon. secretary, Mr. F. B. Cawood, 2¼-h.p. M.C. tricycle.

TYRES ON AUTOMOBILES.

BEFORE the Brentford magistrates, on Monday, John Cronk, of West Ealing, was summoned for causing to be travelled a light motor with improper tyres, contrary to the Motor Car Act of 1904. The motor in question was of the Wallis and Stevens type, and the wheels were ribbed. The complaint was laid under the clause of the Act which provides that all light motors shall have flat surfaces to the wheels. For the defence, it was contended that the surface resting on the roadway was perfectly flat, and that the definition of the terms of the Act was to provide against the use of pyramids and bolts, spikes, &c., such as were used in traction engines. Mr. Shrapnel Smith, who said he had studied this type of machine for six years, stated that this particular machine met the requirements of the Act by having more than 4 in. of even surface on the roadway. The question had been raised before the various commissions on light motor transport, and new regulations were being drafted or were already in print. It was impossible mechanically to build wheels of this class flat, because of the tyre expanding as a result of impact with the road, and the whole wheel was put out. Many thousands of pounds had been expended in the manufacture of these light motors, and he himself had had charge of the Liverpool trials and had given evidence before commissions on the subject. The magistrates decided that the ribs on the wheels went beyond the law, and fined the owner £1 and the driver 2s. 6d. For a technical offence in drawing two vehicles instead of one behind a light motor, contrary to the Act, the same defendant was fined £5 and costs.

A MOTOR-CAR ACCIDENT.

THE inquest on the body of John Hales, of Coventry, who was killed in a motor accident at Kenilworth on August 31st, has been concluded.

Thomas Stevens, the driver, was a witness, and detailed the progress to Kenilworth. Before he could start the car he had to flood the carburettor and shut off some of the air. Just before the accident the car was going from twelve to fifteen miles an hour. He sounded the horn when turning the corner. He saw two lights approaching on the wrong side. He put out the clutch and applied the two brakes, but failed to avoid the collision, although the car was almost at a standstill when the impact took place. He was winded by the steering wheel, and considerably dazed. Mr. Parfitt, in addressing the jury, said he felt sure no intelligent jury would return a verdict of manslaughter upon the evidence given that day in support of the contention that Stevens was drunk; but, on the other hand, ten witnesses had conclusively proved there was no truth in the suggestion that Stevens was the worse for drink. The accident was very regrettable, but Stevens was in no way responsible for it. The Coroner, in summing up the case, dealt with the contradictory nature of the evidence as to the alleged drunkenness of Stevens, and said the jury must be able to ear-mark an actual act of negligence on his part before they could bring in a verdict of "Manslaughter." The jury found that Hales met his death by accident.

POLICE TRAPS.

THERE is a measured mile in the village of Minskip, near Boroughbridge.

IN the Huddersfield Police Court a solicitor has been describing a trap in the Leeds Road, Huddersfield. There were, he said, four officers stationed in the road, two at one end and two at the other end of the measured quarter of a mile. Each officer had in his possession a stop watch. These watches, before the motor-car came in sight, were all stopped. As the car passed the first two constables, the two stop watches were set going. When it passed the second two officers, their stop watches were set going. At a given interval the signal was given for the stop watches to be stopped, so that the interval between the stopping of the watches was the time in which the quarter of a mile was covered.

THERE is a police trap on the main London to Coventry road *via* Dunchurch. It commences directly after passing a mile out of Dunchurch towards Coventry, and for the next mile and a half motorists should be careful.

A TELEPHONIC trap between Tring and Berkhamsted police station is in daily operation.

AT the cross roads in the village of Wallop, Hants, the police have a measured furlong.

CARE should be exercised in passing through Maidenhead.

CASE DISMISSED.

AT Hailsham Petty Sessions, Lord Ninian Crichton-Stuart was summoned for driving a motor-car at a dangerous speed at Ersham Road, Hailsham, on July 16th. Mr. Andrew Walsh, of Oxford, appeared for the defence. Edward Pape, of Moor Hall, Ninfield, who was in the motor car at the time, said Lord Ninian Crichton-Stuart was driving. There was an accident at a very sharp corner, up to which they had gone at a fair pace. His lordship then slowed down. They came upon a milk cart driven by a boy in the middle of the road. There was a collision, and the cart was upset. His lordship turned the car and ran into the ditch. Witness went to the boy, who was crying, and gave him 2s. 6d.; he further went to find out the owner (Mr. Lade), apologised, and offered to pay—and had paid—for the damage. The car was going about eight miles an hour when they met the cart. The defendant, in evidence, said that the corner was an "S" curve with a very sharp second turn, which looked as if it were the end of the road. There was a descent, and he naturally slackened speed. He was nearer the left-hand side than the right. He suddenly saw the milk cart, and slewed his car round into the ditch. It ran through it on to the road again, after hitting the cart on the off splashboard. The cart was overturned, but no part of it was against the hedge; in fact, witness passed several times between the cart and the hedge. No complaint was made. He paid the damages and other money to the boy, not because he felt he was legally liable, but "purely in the motoring interest." The magistrates retired to consider their decision, and on their return the Chairman said the majority of the Bench had given the defendant the benefit of the doubt, and the case would be dismissed.

CASES AGAINST MOTORISTS.

Place.	Summoned for	Fine.
Scarborough	Driving recklessly	£5, etc.
Todmorden	No rear light	£1, etc.
Andover	Driving dangerously	£3, etc.
County of London Sessions	Causing bodily harm to a woman by furiously driving a motor-car	Three months' imprisonment.
Middlesbrough	No licence	£8.
Marylebone	Driving dangerously	£10.*
Manchester	Refusing to allow constable to inspect the record of the names and addresses of persons driving cars	£1, etc.
Market Bosworth	No licence	2s. 6d., etc.
Pontypridd	Furious driving	30s., etc.
Liverpool	,, ,,	10s., etc.
Dover	No rear light	Dismissed on payment of costs, 11s.
Marlborough Street, W.	Dangerous driving	£10, etc.
Windsor	Negligent driving	Dismissed.
Huddersfield	Exceeding legal limit	£3, etc.
Bristol	Not making a record of the name and address of a person having a motor-car	5s., etc.
,,	Driving backward for a distance greater than was safe	40s., etc.
Aberystwith	Driving dangerously	21s., etc.
Ross	No number plate	£1, etc.
Knaresborough	Driving dangerously	£5, etc.
Bray	Driving at excessive speed	5s., etc.
Dolgelly	Not stopping when requested	Dismissed.
Mansfield	Driving to public danger	£5, etc.*
Stratton (Devon)	Driving to public danger	£5, etc.
Chelmsford	Neglecting to give information which would lead to the identification of a person driving a motor-car	£5, etc.
Brentford	"Causing to be travelled a light motor-car with improper tyres"	£10, etc.
Maidenhead	Excessive speed	£5.
Clacton	(1) Driving unregistered car; (2) driving without licence	(1) 10s., etc.: (2) 10s.
Berkhamsted	Beyond legal limit	Dismissed on payment costs.
Winchester	Driving dangerously	5s.
Tonbridge Wells	,, ,,	40s., etc.*
Tonbridge	No rear light	5s., etc.
Hailsham	Driving at dangerous speed	Dismissed.
Penge	(1) Reckless driving; (2) not showing licence when requested; (3) not having bell or horn on motor-cycle.	£7 6s.
Glasgow	Colliding with farmer's cart	10s., etc.
Eccles	Furious driving	10s., etc.

* Notice of appeal given.

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THE

Motor-Car Journal.

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COMMENTS.

AMONG the most serious evils that can befall a motorist dogs certainly rank high, and, in spite of "cut outs" and other devices, serious accidents daily occur from these canine depredators. As a rule one smash up cures the dog, but, considering the number of dogs, even this method would become monotonous. However, as owners of dangerous dogs are being "listed" in some quarters, and the question being generally discussed in motoring-circles, the following incident is of interest. The daily motor-cycle rides of Mr. A. E. Bradford, of Wolverhampton, carry him through four of the manufacturing towns of the Black Country, and on several occasions he has narrowly averted accidents owing to dogs and fowls. On one hill he was tackled twice by a collie whose owner could not be located. A few days later, at the same spot, the animal made a desperate rush, and, the motorist being unable to pull up, struck the front wheel, the impact being such that the handle bars made a half turn in the socket and Mr. Bradford came with a crash to the ground. A bent pedal, two radiating fins minus, and a cut hand constituted the principal damage. After collecting his watch and other sundries he made a tour of investigation. The owner proved to be Mr. Golcher, of Darlaston. The motorist communicated with the police, who in due course favoured him with an official communication intimating that the dog was to be executed on the following day. If motorists would, on locating owners of dangerous dogs, take their names and warn them, their animals will get salutary lessons in behaviour. At present such owners generally laugh at the dogs' antics; but a warning from the police will place them beyond such false security.

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An Irish End to End Run.

MR. L. R. OSWALD-SEALY has made a successful attack on the Irish End-to-End Record, covering the distance of 392 miles in 29 hours 58 minutes. Owing to the nature of the roads to be traversed, some of the very worst to be found in the whole country, the Irish end to end trip has had very little inducement for the Irish motorist. It was with no little surprise reported by the motor cyclists that in the month of September of last year Mr. Oswald-Sealy had started on a record ride from Mizen Head to Fair Head, which he accomplished in 32 hours 49 minutes. This record remained undisturbed until August of the present year, when Mr. C. B. Franklin reduced the time by 1 hour 19 minutes, his total time being 31 hours 30 minutes. On Thursday of last week Mr. Oswald-Sealy left Mizen Head on his 3½-h.p. Brown at 8.45 a.m., with the object of regaining the record. Before reaching Gouleen he received his first puncture, and arrived at Skibbereen at 9.55 a.m.; from this to Bandon he had trouble with his exhaust valve tappet, and on calling on Mr. Slattery, at Bandon, had the defective part made right. After a delay of over an hour he got to Cork, and on through Mitchelstown, where he arrived at 4 p.m. to report several punctures. From this to Cahir the roads improved, and at the latter place he took a supply of petrol on board. Nearing Cashel a collision with a dog brought him down; the rider fortunately escaped, but the machine suffered to the extent of a bent crank and pedal pin and the breaking of the exhaust valve lifter. He proceeded on his journey, and, passing through Johnstown, Durragh, Monasterevan, Kildare, arrived in Dublin at five minutes after midnight, having in the meantime covered 243 miles in 15 hours 20 minutes.

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A Record.

AFTER an interval, during which he had supper, and the crank set and valve repaired, a start was made at 12.55 a.m. When nearing Balbriggan another dog caused trouble, this time more serious, Oswald being completely unseated and deposited on his back in the middle of the road, while the machine was temporarily disabled, the petrol feed pipe being broken and the crank again bent. Fixing the pump connection as a temporary repair, the intrepid rider again starting, got to and through Drogheda, Dundalk, and Newry, where he refilled with petrol and repaired, as far as possible, the damage done by the second dog. Proceeding, he passed through Banbridge, Lurgan Cromlin, and Ballymena, with only two punctures to his credit, leaving Ballymena at 12.45 p.m., Ballycastle at 1.45, and Fair Head at 2.12 p.m., thus covering the distance in 29 hours 32 minutes, beating Franklin's record by 1 hour 58 minutes.

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Motor 'Buses for London.

MUCH has been heard of late with regard to motor-'buses for London, and on Wednesday Messrs. Thomas Tilling, Ltd., placed a Milnes-Daimler motor-'bus upon the road. This is intended for the route between Rye Lane, Peckham, and Piccadilly Circus. It will carry thirty-four passengers. A similar vehicle is to be placed by the Associated Omnibus Company on the route from Charing Cross to the south side of Westminster Bridge, at ½d. fares. The London General Omnibus Company are putting a steam omnibus on the road between Piccadilly and Hammersmith as soon as the necessary licence has been obtained from the authorities at Scotland Yard. Trial trips were taken on three days last week, when a speed of fifteen miles per hour was obtained on level roads in the Metropolis, and at least ten miles per hour up Pentonville Hill. The mileage per gallon of oil was about three and a-half, and the trials were very satisfactory.

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Balloons v. Motors.

ON Saturday the Aero Club had a combined meet with the Midland Automobile Club at Birmingham. An ascent was made by Mr. C. F. Pollock and Professor Huntingdon, and two hours and ten minutes later the balloon descended at Ross, seventy miles away, Mr. W. A. Brown on his Renault being the first motorist to appear on the scene. The

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second balloon, with Mr. F. Butler, Mr. C. S. Rolls and Mr. P. Spencer, descended at Monmouth in a little over two hours and remained uncaptured until the expiration of the time during which the aeronauts were compelled to remain on the spot. Among the motorists who scoured the country round for the balloons were Messrs. F. Mitchell (Mercedes), C. S. Baynton (Wolseley), T. C. Aveling (Thornycroft), C. K. Lloyd (Minerva motor-cycle), J. Wingfield (M.M.C.), G. H. Lanchester (Lanchester), A. J. Millership (Lanchester), S. J. Davis (Wolseley), G. Bird (Clement Talbot), C. W. Dixon (Lanchester), R. R. Brown (Wolseley), J. A. Holder (Mercedes), A. E. Holder (Wolseley), H. C. Holder (De Dietrich), and W. A. Brown (Renault).

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Justice at Exeter.

MR. E. F. STUDD, J P., who is, we are informed, a member of the Exeter bench of magistrates, is apparently of the class of persons known as anti-motorists. He left the bench the other day to prosecute in a case where a motorist had failed to recognise the signal given by a son of Mr. Studd to stop. We did not know that people who were not lawyers were allowed to appear in such a capacity, and the way in which he spoke to the solicitor in the case was a revelation to frequenters of the court. That, however, by the way. His son was driving a horse which



Philippine Natives Trying a Motor-Car.

[*The Automobile.*

was inclined to bolt on approaching a motor-car. The young fellow flourished his whip—a habit that seems familiar, judging from a letter we have received from an Exeter motorist—intending the motorist to stop. The driver of the car, on the other hand, did not see any signal to stop, and further, he believed that the holding up of the hand was the proper signal. In the end, the magistrates on the bench, Colonel Blake and Messrs. W. T. Bayne and C. J. Webber, imposed a fine of £1 and costs.

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Up with the Hand.

THE hand, and not the whip, is, according to the wording of the Act, the means of signalling to motorists to stop their cars. It can be readily understood that the raising of the whip might easily lead to confusion, and absolutely frustrate its purpose; hence the insistence on the hand being used. But if magistrates are to be allowed to accept evidence of the kind brought forward in the Exeter case to which we have referred, no motorist will be really safe. The point is one of some importance to motorists, and the sooner the magistrates can be brought to understand the provisions of the Act with regard to the matter, the better.

The Race in India.

GREAT interest is being aroused in India by the forthcoming race for the Gaikwar of Baroda's cup, which will be run under the direction of the Motor Union of Western India. The distance between Delhi and Bombay, which is approximately 880 miles, is to be traversed by the competing cars between December 26th and January 2nd inclusive. The timing of the competing vehicles between any two places will be made on a basis of twelve miles per hour as a minimum, and thirty miles per hour as a maximum speed. Entries will be received for all cars up to December 1st, and in addition to the cup, which will be awarded on the score of reliability, there will probably be prizes for:—(a) The car in best condition after the trial, (b) the car best suited for work in India, and (c) absence of noise. Considerable importance should attach to the results in connection with the most suitable vehicle for use in the great Dependency.

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Welsh Justice.

A CASE has just been heard at Carmarthen which is typical of the way in which motorists are being forced to the conclusion that they are often unjustly treated by magistrates. A driver was summoned for recklessly driving a motor-car to the danger of the public, but amongst the witnesses was Captain Thomas, the deputy chief constable of Swansea, who was on the car on the occasion complained of. He testified to the fact that it did not endanger the public safety; and it might well have been assumed that the magistrates would have regarded such testimony as worthy of credence. But the constable had apparently declared that the public was endangered and a conviction was duly made. This is the sort of thing that persuades motorists to offer no defence when summoned, this being more economical than correcting wrong police evidence.

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A Motor Tour.

DR. J. T. ABBOTT, of Tunbridge Wells, recently made a motor-car tour of 1,015 miles in slightly less than fourteen days. From London he, with a friend, started for Holyhead, and had some adventures on the way. At Bicester they had a poor lunch, for which they paid richly, to say nothing of being mulcted in the sum of sixpence for standing the car in the hotel yard. At Shrewsbury they had inhospitable fare, and for standing the vehicle in the stable yard a charge of two shillings was made. A toll of a shilling enabled them to cross Menai Bridge. At Holyhead they paid a sum of thirty-five shillings for the single fare of their 8-h.p. De Dion across to Dublin. Dr. Abbott had a most pleasant tour through the Emerald Isle, and at the local hotel at Kilcullen, "about as big as a cottage," was informed that in the four days of the Gordon Bennett race meeting last year they made £60 for their beds alone. Food and drink were extra—as we well know; for it was the identical hotel we made our headquarters for a couple of hours before the morning of the race, ere we started off on a wild midnight rush around the course.

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Experiences of Repairers.

THE medical motorist has something to say as to the calibre of some of the repairers he met in Ireland. Mud having clogged up an adjusting pin in the car, he called on an agent in Dublin, feeling sure he would have a stock of spare parts on hand. "The agent probably knew about everything else under the sun except motor-cars, and more particularly the cars for which he was agent. He assured us he knew all about cars, but could not supply us with what we wanted. This we dragged out of him after a long time. His general slack manner irritated us to such an extent that it ended in my friend telling him that although he knew all about cars, and everything else, he did not know enough to get in out of the rain, and that, moreover, we had as much use for him as we had for a headache. This

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seemed to annoy him, whereat we were glad. I am sure such agents cannot improve the trade in Ireland. Having left the agent's, we now sought a garage. A slight adjustment in the gears was needed. Here let me refrain from criticising the methods of some repairers. 'Ah sure, sor, don't I know all about it; sure, isn't my mechanic the best in Oireland; sure, didn't he mend the Lord Lieutenant's when no one else could; ah, sure, lave it to me and don't dirty your hands.' This was our greeting at the garage. At least six men had a try; next day it was done, and, though many hours were taken to find out how to do it, I only paid a nominal sum. The next time I will do it myself."

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Some Practical Details.

During the whole time Dr. Abbott had no mechanical troubles and no punctures. He travelled 1,050 miles in ten running days. His tyres were almost without a scratch. The longest run on two gallons of petrol was seventy-three miles. The total cost of petrol was £2 5s. He is already looking forward to next year, when he hopes to have more time to run over to the Emerald Isle, where police traps are unknown, and where the true sporting element exists.

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Magistrates and Prejudice.

At the Congleton Court a magistrate whose prejudice against automobiles had been publicly exposed has narrowly escaped sitting in judgment upon a motorist summoned to appear before him. Mr. Bedworth, of Harley, was the defendant, it being alleged that he had driven a car at a speed which was dangerous to the public. The case was adjourned on the first hearing, and on the second occasion Mr. Bedworth laid an objection to the proceedings. On the previous Monday Mr. Barlow (one of the magistrates then sitting) made the following remark before the case was heard, or any evidence taken at all, that "these motors want stopping." To that remark he addressed a letter to the Press giving his view upon Mr. Barlow's remark to the effect that he was pre-judged, and that before he heard any evidence he distinctly and deliberately said that these motors must be stopped. Therefore, whatever he now said, and whatever defence he might bring before them, he was only going to be listened to, apparently, with contempt. The magistrates entered upon a somewhat lengthy discussion, after which Mr. Barlow removed to a seat farther along the Bench, where he could be a quiet listener to the evidence without taking part in the deliberations of the Bench, the magistrates adopting the suggestion that Mr. Barlow should not adjudicate in the case.

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The City of London Inquiry.

On Tuesday the Local Government Board inquiry into the question of restricting the speed of motor-cars passing through the City of London to ten miles an hour was held at the Guildhall, by Mr. E. P. Burd. Sir Homewood Crawford, the City Solicitor, who conducted the case for the Corporation, gave some interesting figures with regard to the City traffic. The day population of the "square mile" was 359,940 persons, and 1,250,000 people entered it daily, while the number of vehicles was upwards of 100,000. In one day 248,000 persons used the crossing in front of the Mansion House, without counting 61,185 who passed through the subways. It has been ascertained that in the City there are 48½ miles of streets. A police census of traffic, which had given the following figures of the number of vehicles passing one point in a day from 8 a.m. to 8 p.m. was given in evidence as follows:—

	'Buses, etc.	Cabs.	Other Vehicles.	Total.
Mansion House	8,391	8,365	12,989	29,745
Mansion H. Station	3,809	6,819	10,391	21,019
Ludgate Circus	4,742	3,763	17,217	25,722

Captain Nott Bower, the Commissioner of the City Police, acknowledged that he had heard nothing of accidents to life or limb and that motorists had been very careful—but, he added, with almost Dickensonian wisdom, "accidents might happen." No summonses had been issued under Section 1 of the Motor Car Act, and he had no positive evidence of danger to the public. On the other hand the Commissioner had to admit to Mr. Moresby White, who represented the A.C.G.B.I., that a large number of cab-drivers had been summoned for driving furiously. And yet no application for restricting their speed limit has been made, although from tests made by Messrs. Straight and Swindley on the Embankment on Monday it would appear that these vehicles travel at anything from twelve to fourteen miles an hour.

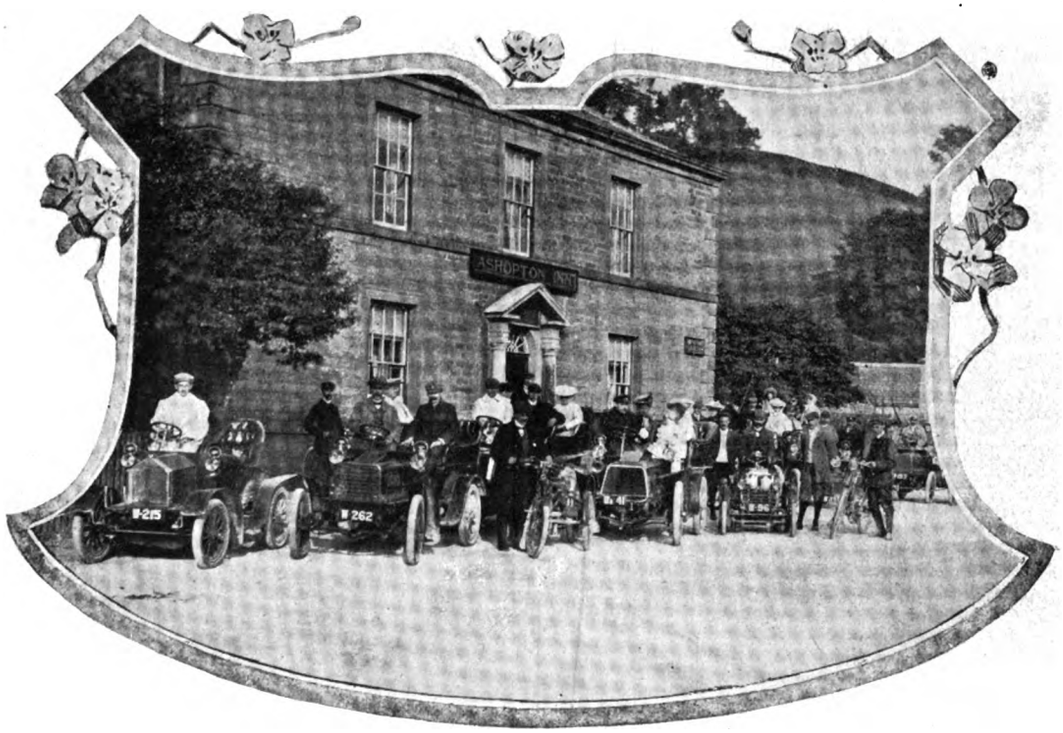


Photo by] The Meet of the Sheffield Automobile Club at Ashopton. *[Mr. Harold Hill.*

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When is a Motor-cycle not a Motor-cycle?

AT the Leeds City Police Court, on Tuesday, before Mr. C. M. Atkinson (the Stipendiary Magistrate), Mr. B. Scarth, of Harrogate, was summoned for driving a motor-bicycle without having an identification plate in front, and also for not producing his driver's licence. The defence was that he was not driving a light locomotive. He was riding a bicycle which had motor attachments, but on the occasion in question he was using it as an ordinary pedal-driven bicycle, and the motor was not in use. The Stipendiary Magistrate said the question was whether the defendant could be said to be driving a motor-car at the time he was asked for his licence. He thought there could be no doubt that if the motor-cycle was in such a condition that it might be stopped at will, without getting off, he would be liable if he did not produce the licence; but the evidence was that it could not be used as a motor-cycle at all without alterations and adjustments being made which would necessitate the driver getting off, and which would occupy some time. In this case it was not being driven as a motor-cycle, although it was a motor-cycle. It was a difficult question. He was prepared, if the defendant liked, to have the matter discussed, but if he was prepared to admit a breach and pay the costs, rather than come to court again without creating any precedent, he would adopt that course. So far as the defendant was concerned, it was a matter of no interest, but to the public it was a matter of interest. Mr. Scarth stated that he would pay the costs, which amounted to 8s.

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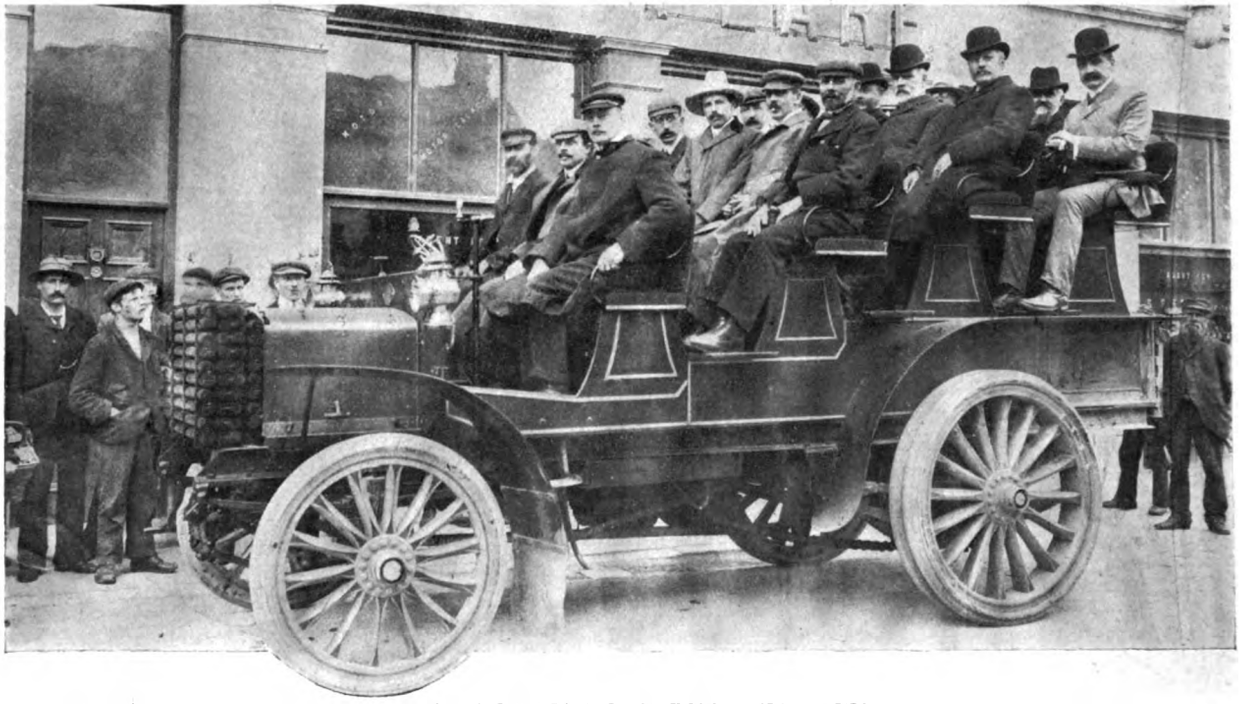
The Motorists' View of the Ten Miles Restriction.

COLONEL HOLDEN, the chairman of the Automobile Club, pointed out at the City of London inquiry that if ten miles were the limit of speed, the spectacle would be presented of a car falling behind other vehicles. He did not know how the police could secure reliable timing results over short distances in the City—a very different place to the rural localities in which police traps have hitherto been set. At ten miles an hour a car would travel 45 ft. in 3 sec., and an error of one-fifth of a second would make a vast difference in the speed shown. As regarded skidding, several devices now in common use would avoid that. Mr. Everard Calthrop stated that a motor-car could be stopped in 50 per cent. less time than a cab; that is to say, that if a cab could be allowed ten miles an hour, a motor-car could be permitted to travel with equal safety at fifteen. Mr. Jeffreys appeared on behalf of the Motor Union and Messrs. J. R. Nisbet, A. Robert, H. A. Cunis and W. H. Wells having given evidence the inquiry closed. It was generally admitted that the City authorities made out a very lame case, and that their application was very badly defended.

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Non-stop Runs.

THIS is apparently the season of tours and runs. In addition to the Oldsmobiles now on their long pilgrimage, Mr. A. Ford, of Liverpool is on a run of 3,600 miles on a 15-h.p. Darracq, which he hopes to finish without stopping the engine; and on Monday next Mr. D. M. Weigel will start at daybreak to drive over the 600 miles of roads used in the small car trials in Herefordshire on an 8-h.p. Talbot car. The attempt will be made to do the whole distance without stopping, and Mr. Weigel hopes to accomplish his task within thirty-six hours.



The Thornycroft Petrol Public Service Vehicle. (See page 642.)

F. R. and F. T.

TO-DAY (Saturday) two new county boroughs are being constituted, and consequently have to conform to the provisions of Section 2 of the Motor Car Act, 1903, with reference to having an index mark. The Local Government Board have therefore determined that the index marks distinguishing the new county boroughs shall be as follows:—Blackpool F.R.; Tynemouth, F.T.—letters which those who possess copies of the *Journal's* Identification Card may now add to their list. The selection of the letters seems to have been on the same haphazard principle as the original indexing. The single letter F. signifies Essex, F.P. is Rutlandshire, and now the succeeding letters of the alphabet refer to northern towns on the West and East Coast respectively. Was there ever such a lack of system?

MOTORISTS in the Bristol district are being organised for defensive purposes.

A 6-H.P. WOLSELEY car has just been sent out to Trincomalee, India, for Lieut. D. S. Skelton, R.A.M.C.

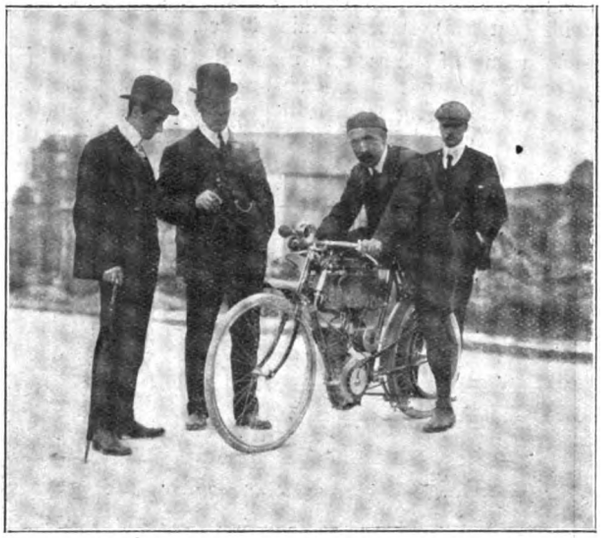
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THE INTERNATIONAL MOTOR-BICYCLE RACE

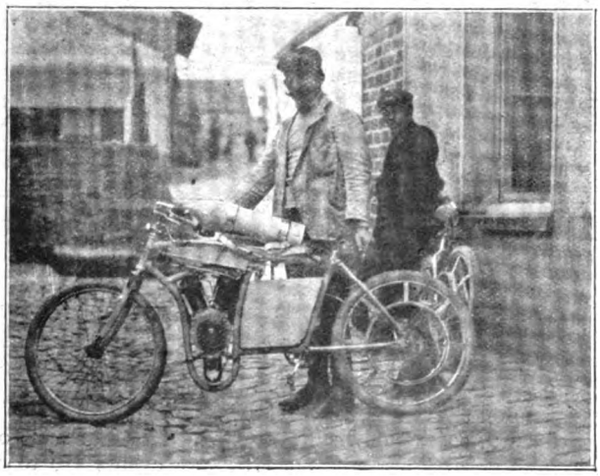
The first race for the International Motor-Cycle Cup, founded by the Moto-Cycle Club de France, was run off on Sunday last on a fifty-four kilometre circuit, about fifty miles from Paris. The starting point was between Saint Arnoult and Dourdan, the route followed being Etampes, Le Foret-le-Roi (neutralisation), Authon, Ablis (neutralisation), St. Arnoult; the circuit having to be covered five times to make the total distance 270 kilometres (about 169 miles). Four countries had sent in challenges to the French Club, but as one country was represented by a single rider, and two others by two each, there were only eleven competitors in the race, these being shown in the order of starting in the appended table:—



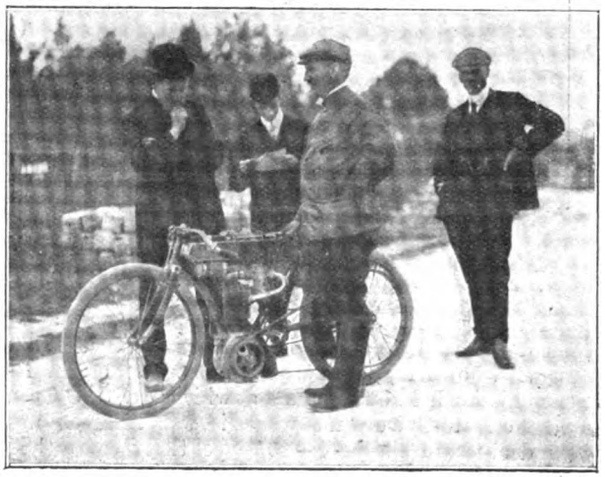
Demester, the Winner of the Race.



Silver on his Quadrant.



Tomann and his Laurin-Klement.



Petersen and his Jurgensen.

Rider.	Country.	Machine.	Weight of Machine.	No. of Cylinders.
			lb.	
1. Lamberjack ...	France	Griffon	108·6	2*
2. V. Wondrick ...	Austria	Laurin-Klement	116·1	2*
3. Rignold... ...	England	Lagonda	106·4	1
4. A. Mraz ...	Germany	Progress	116·6	1*
5. N. Petersen ...	Denmark	Jurgensen	—	—
6. Inghibert ...	France	Griffon	109·1	2
7. Tomann... ...	Austria	Laurin-Klement	115·5	2*
8. W. Hodgkinson	England	J.A.P.	109·4	1
9. Tolksdorf ...	Germany	Progress	116·4	1*
10. Demester ...	France	Griffon	109·4	1*
11. T. Silver ...	England.	Quadrant	109·3	1

* Magneto ignition.

The weighing in of the machines was carried out on Friday and Saturday of last week, 110 lb. being the limit, with an allowance of 6·6 lb. for those machines having magneto ignition. C. Mueller on a Brennabor machine was to have also competed for Germany, but his machine was found to be too heavy, and afterwards was damaged by fire.

The start took place at 6 a.m. in fine weather and in the presence of a large number of interested spectators, having regard to the early hour, the crowd increasing as the morning wore on. The eleven competitors were sent off at two minute intervals by M. Tampier, the timekeeper to the A.C.F., Silver, the last man, getting away at 6.20 a.m. There was a wait of about half an hour, and then the cry, "Here they come" went up, Wondrick, the Austrian, rushing by. He covered the first lap (slightly under 34 miles) in 56 min. 31 sec. gross time, and was closely followed by Petersen and Rignold, while Demester, who passed fourth, was the first Frenchman to appear. Lamberjack, who started first, and was a hot favourite, arrived last, a long way behind. He complained of several punctures caused by nails. Hodgkinson and Silver, of the English team, were also victims of punctures from the same cause, and were not checked at all on the first lap; in all, nine riders completed the first round within the time limit, but before the second circuit was completed the punctures had reduced the field to six. This time Wondrick was still leading, but Demester had run into second place, being only six minutes behind the leader. All hope of an English rider winning the race had gone, Rignold, like the other two members of the team, having had to retire through punctures. When the third circuit was completed it was seen that Demester had taken the lead, and although Wondrick passed second, he was fully 19

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min. behind. Only five of the eleven starters had survived at that point of the contest, these being the three Frenchmen and the two Austrians. No incidents or accidents were recorded in the fourth and fifth laps, but Demester further increased his lead, and scored a popular win for the home team, while Tomann had the honour of taking second place for Austria; the Frenchman, Inghibert, being third. The official net time of the winner for the 270 kilometres was 3 hrs. 43 min., which works out at an average of about 45 miles an hour. In the French eliminating race over the same course, a few weeks ago, Lamberjack covered the distance in the net time of 3 h. 30 min. 14 sec.

The names and times of the competitors who finished are as follow:—(1) Demester (France), 3 hrs. 43 min. 43 sec.; (2) Tomann (Austria), 4 hrs. 54 sec.; (3) Inghibert (France), 4 hrs. 14 min. 32 sec.; (4) Lamberjack (France), 4 hrs. 44 min. 53 sec.; (5) Wondrick (Austria), 4 hrs. 53 min. 41 sec.

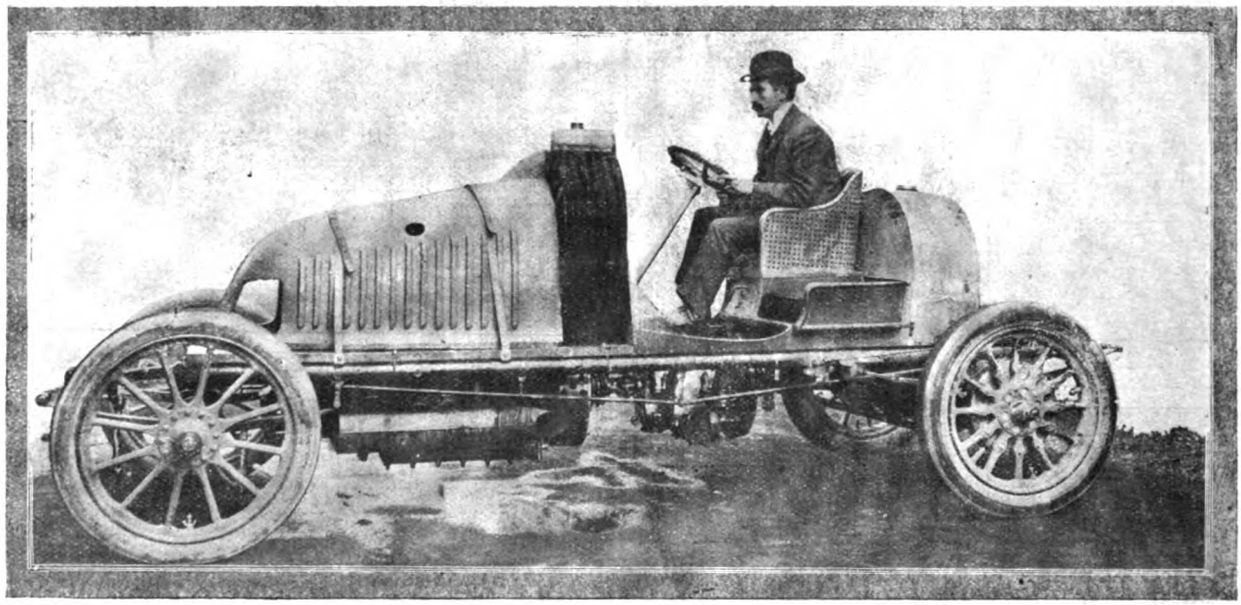
The poor result of the race is undoubtedly due to the fact that every one of the competitors sustained several punctures, owing to the course being strewn with nails. The committee intend to send a complaint to the police authorities, with a view of discovering, if possible, the authors of the mischief.

CONTINENTAL NOTES.

The 60-h.p. Renault Racer.

Two views are given herewith of the 60-h.p. car which Messrs. Renault Freres have built to the order of Mr. W. Gould Brokaw, jun., a prominent American motorist, for competition in the Vanderbilt Cup Race in the United States on the 8th inst. The four-cylinder engine, which is capable of being accelerated up to 90-h.p., is provided with mechanically-actuated inlet valves and the usual high tension ignition. The radiator is quite a new departure; as will be seen, it forms the dashboard, and consists of a series of ribbed radiating tubes arranged in circular form and provided with a fan. The circulation is on the thermo-syphon system, a small water tank being located at the upper part of the coil. The clutch is of the metal to metal type; three speeds forward and a reverse are provided, the drive on the top speed being direct. The front wheels are 810 mm. diameter, shod with 90 mm. tyres, while the rear pair are 820 mm. diameter and have 120 mm tyres. It is stated that the vehicle, which weighs complete about 950 kilogrammes, is capable of attaining a speed of over 90 miles an hour.

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The 60-h.p. Renault Car built for Mr. W. Gould Brokaw, jun., for the Vanderbilt Cup Race.

The judges held a meeting after the race with reference to the complaint of the competitors regarding the punctures, and the announcement was made that they had decided to cancel the race. The matter was, however, considered at a meeting of the International Commission held on Monday, at which Mr. M. O'Gorman represented the Auto-Cycle Club, when it was resolved not to approve the decision of the judges to cancel the race, so that the result as given above stands; France thus having the honour of winning the first competition.

THE Enfield Motor Car Co., Redditch, have appointed Mr. W. M Jenkins to the position of works manager. Mr. Jenkins was for a period general manager of Garlick's Motor Co. at Cape Town.

ONLY seven cars have been entered for the motor-vehicle competition which is to be held next week by the French military authorities. The competitors include three Hautiers, two Aries, a Cottereau, and a Latil.

THE new motor chemical fire engine at Leicester, which was only delivered there on Tuesday, was being driven up a road for inspection by a deputation from Glasgow, when it came into collis on with a coal cart. Baillie Clelland, who was standing on the platform of the engine, had his leg broken, and was removed to Leicester Infirmary.

The Transatlantic Motor-Boat Race.

A meeting of the Transatlantic Cup Executive Committee was held last week in Paris, Baron Henri de Rothschild presiding. It was decided that the committee should also have control of the Coup de la Méditerranée, a race across the Mediterranean, from Toulon to Algiers, with resting places, if necessary, at the Balearic Islands on the one side, or Corsica or Sardinia on the other. As the Mediterranean and Atlantic events are to mark a new stage in the motor-boat movement by introducing larger craft, it was decided that no limit should be fixed to the size of the vessels competing for the cups either in regard to length, breadth, or depth. To be qualified every vessel must be equipped with an engine that is theoretically capable of being started in ten seconds. The craft must give a minimum speed of fifteen knots. It was also resolved that in neither the Mediterranean nor in the actual Transatlantic event would any of the competing craft be allowed to take fuel supplies on board between the starting and finishing points. Of the minimum number of six men that each must carry two are to be qualified navigators. In regard to the period of the year at which the Transatlantic Cup could most safely be raced for it was decided that July was the most suitable month. No fewer than thirty owners have already notified their intention to enter craft provided the rules to be drawn up shall appear to them to be suitable.

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Falconry and Motoring.

The ancient sport of hawking and falcon flying is being revived in France in a novel form. Highways and by-ways of Normandy are filled with merry troops of motor-cars, whose owners carry hooded falcons on their wrists. From Dieppe and down the valley of the Dun, on the plateau of Veules les Roses, the sport has become immensely popular. Old books are being consulted for hints, and everything done to make the pastime exactly like that of our ancestors. The birds, quite unaffected by the speed of the vehicles or the tooting of the horns, are as ready to return to the owner's leather-clad wrist as though he rode the charger of old instead of a modern automobile.

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The Dourdan Mile and Kilometre Trials.

Already twenty-seven entries have been received for the speed trials which are to be held by the "Velo" at Dourdan on Monday next, among them being a Napier. Contrary to the original arrangements, it has now been decided to time the standing mile and the flying kilometre separately. It has also been determined not to classify the cars under a general heading, the competing vehicles being of such different horse-powers and cost.

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river Garonne and the Canal du Midi, to the Mediterranean. Already fifteen entries have been sent in for the event.

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Kilometre Speed Trials in Switzerland.

The Swiss Automobile Club held a series of kilometre speed trials with a flying start on the Geneva-Clancy road on Friday last week. The best time of the day was made by M. Dufaux, who, on the vehicle built to represent Switzerland in the 1904 Gordon Bennett race, covered the kilometre in 31 1-5 sec.

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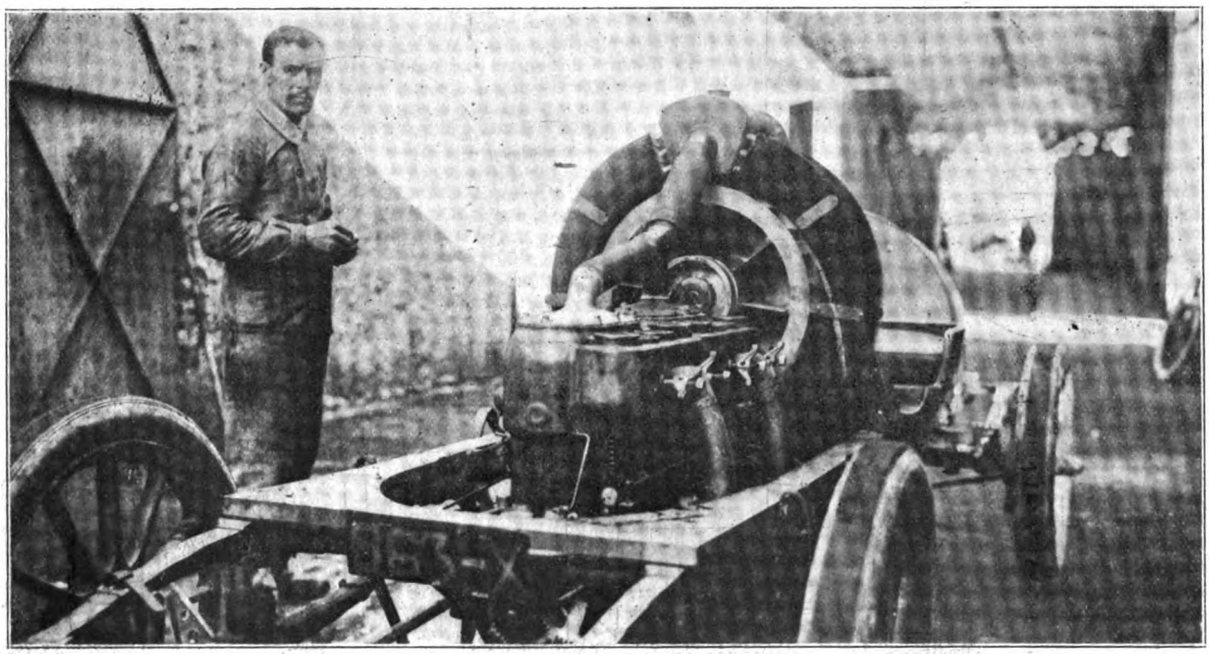
Motor Vans in Paris.

The French Post and Telegraph authorities in Paris are about to put into service fifteen electrical motor-vans for the transport of mails. Twelve of the vehicles will be constantly at work, the remaining three being kept in reserve in cases of breakdown. The vans, which are designed to carry a load of between 12 and 13 cwt., and weigh complete 1 ton 11¾ cwt., are intended to replace twenty horse-drawn vehicles.

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Motor-Cycle Racing in Germany.

A motor-cycle race around Berlin was recently run, the distance being a trifle over 149 miles. There were forty starters, of whom thirty-two completed the journey. The best time was made by Herr R. Muller, who covered the distance on a 3-h.p. Brennabor in 6 hrs. 48 min. 53 sec.



View of Engine and Radiator of the 60-h.p. Renault Car built for the Vanderbilt Cup Race.

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An International Motor Omnibus Service.

The first line of public service cars between Italy and Switzerland has just been inaugurated between Locarno, Sutrapallanza, Gravellona, and Serves. The cars, which are of Swiss construction, are of 14-h.p. and have accommodation for fourteen passengers. The service is subsidised by the Italian and Swiss Governments.

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A Motor-Bicycle Consumption Trial.

The Motor Cycle Club of Rheims, France, is holding a fuel consumption trial for motor-bicycles on Sunday next over a distance of 60 kilometres. Each competitor will have served out to him three litres of spirit, the winner being the one whose machine consumes the least. A minimum speed of 12½ miles an hour is required.

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A Motor-Boat Tour of France.

Following the example of one of its contemporaries, "Le Journal" is planning a motor-boat competition. This will be run by sea and by canal from Dunkirk to Nice. The motor-boats, starting from Dunkirk, will go by sea to Dieppe, Havre, Cherbourg, Brest, Nantes, La Rochelle, and Bordeaux, then, *via* the

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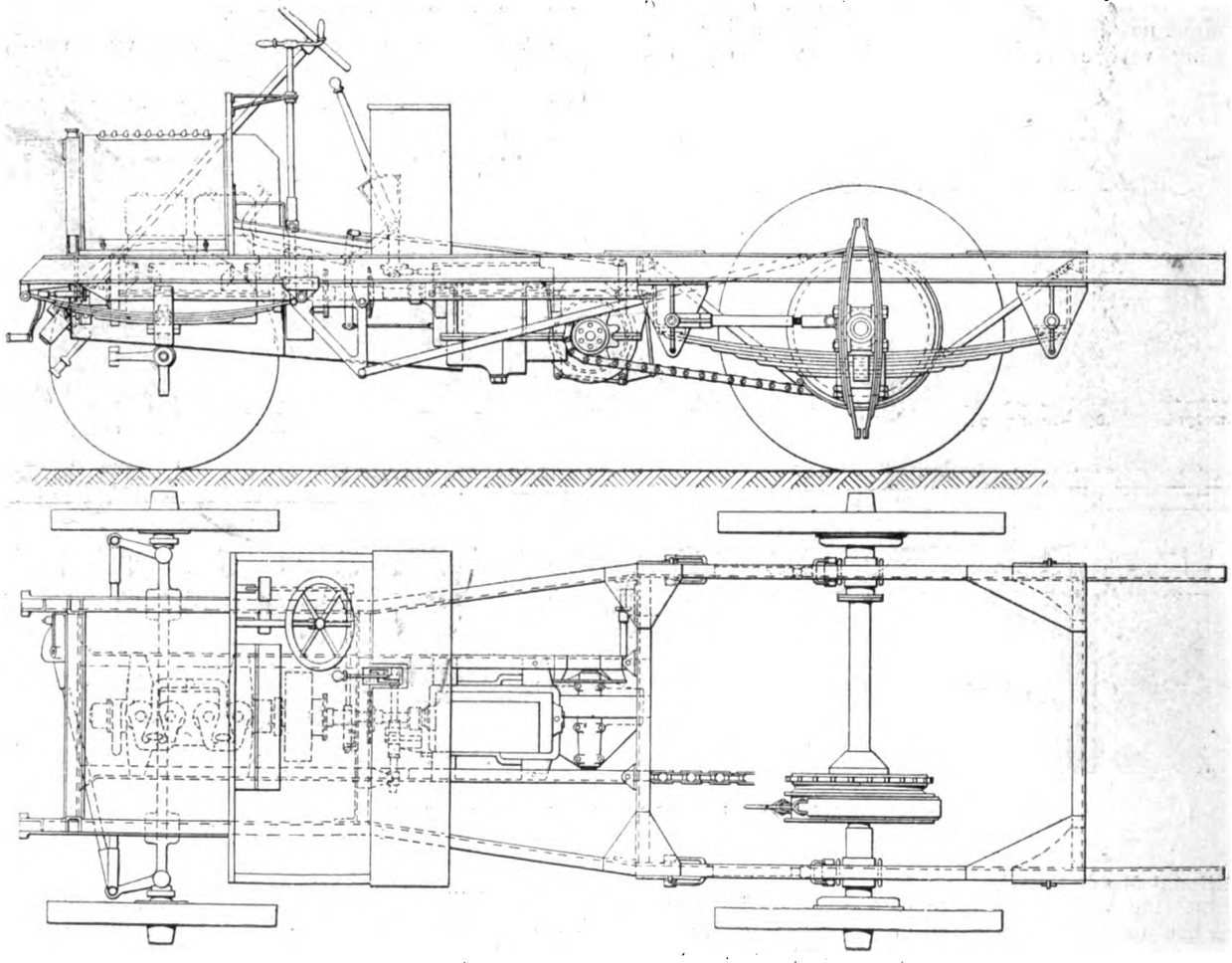
The Semmering Hill Climb.

The Austrian Automobile Club's hill-climbing competition took place at the Semmering on Sunday last. The Semmering is a mountain which rises to a height of 3,000 feet above the level of the sea, and is situated about two hours' journey from Vienna. On the summit is a fine hotel, the Hotel Erzherzog Johann, opposite the entrance of which is the little obelisk which marks the boundary between the provinces of Austria and Styria. The Semmering seems to have become the classical hill climb for Austria, and the start of the competition takes place at Schottwein, the distance being ten kilometres. The heavy car class was won by Braun on Herr Dreher's 80-h.p. Austrian Mercedes in 8 min. 11 3-5 sec. Duray on an 80-h.p. Darracq was second in 8 min. 32 sec., and W. Poege on Mr. Clarence Gray Dinsmore's 80 h.p. Austrian Mercedes third, in 8 min. 38 3-5 sec. The winner of the light car section proved to be Hieronymous, who with a Spitz car ascended the hill in 8 min. 52 2-5 sec. The best time in the 110 kilog. motor-cycle class was made by Nicodem on a Puch motor-bicycle, time 10 min. 21 3-5 sec.

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THE THORNYCROFT PETROL PUBLIC-SERVICE VEHICLE.

MESSRS. JOHN I. THORNYCROFT AND CO., LTD., have recently taken up the construction of public-service vehicles, one of which is illustrated herewith. As will be noticed, the body takes the form of a char-a-banc, the seats increasing in height towards the back, so as to enable all the occupants to obtain a clear view forward. The body is easily removable, so that the car can be converted into an omnibus or other covered vehicle for winter use. The motor is of the four-cylinder vertical type, capable of developing 20-h.p. at its normal speed. The engine, including the governor and the two to one gear, is entirely enclosed, lubrication being on the "splash" principle. The cylinders are cast in pairs, the water jacket being made in one with the cylinder proper. The exhaust ports of each pair of cylinders are connected in the casting and are then brought into a common exhaust-pipe by means of a bridge-piece which has gills cast on its exterior surface in order to assist in cooling the exhaust gases before they enter the silencer at the rear of the car. The gases pass from the exhaust pipe to the silencer through a series of small holes; they are thus made to take a swirling motion, so that by the time they emerge from the silencer they are cold and escape practically without noise. The clutch is of a special type, enabling the load to be taken up slowly, so preventing undue strain on the car. The gear-box provides four forward speeds of, respectively, three, six, nine, twelve miles per hour, and one reverse motion. All the speeds are controlled by one lever, which is placed to the left of the driver. The lever, by means of a side pressure, is made to engage in either of three racks projecting through the side of the gear box. The inner ends of these racks are attached to the sliding spur wheels. The two racks not in mesh with the quadrant are held by an automatic stop plate, which makes it impossible to get more than one gear in mesh at a time. The power is transmitted from the gear box to the back axle by means of a single centrally-located chain. A powerful foot brake is applied to a drum on the gear box countershaft. It is so arranged that no additional pressure is produced on the countershaft bearing when it is applied, there being a purely torsional effect. This is an improvement on the ordinary form of brake, with which there is considerable side-pressure on the bearing of the drum when applied. A hand brake acting on a drum on the back axle is also provided. The springs on this vehicle are particularly long and flexible, the rear ones being attached to the under side of the axle box. The road wheels are shod with solid tyres. The vehicle has accommodation for seventeen passengers, and in addition can carry about 10 cwt. of luggage. One of this type has lately been supplied to the London and South Western Railway Company for service between Lymington and Milford-on-Sea, where it has proved a great boon to the inhabitants of the district which it serves, which has hitherto been without any means of communication with the railway and market town. The particular vehicle illustrated on page 638 has been doing some test runs in various parts of Ireland for the different railway companies, and has made some excellent performances. The photograph was taken in Waterford, when there was a number of important railway officials aboard the vehicle.



Figs. 1 and 2.—Elevation and Plan of Chassis of Thornycroft Petrol Public Service Vehicle.

WHEN the Flintshire County Council wrote asking that copies of the Motor Car Act should be issued in Welsh, the Local Government Board humbly requested the council to tell them the equivalent for motor. A reply is being awaited.

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MOTOR CYCLING NEWS.

THE Bicester (Oxon) Rural District Council have unanimously passed a resolution of protest to the Oxfordshire County Council against the roads in that district being used for motor-cycle trials.



The "Motor-Car Journal" Challenge Cup, won by C. Collier on "Matchless" Motor-Bicycle.

IT is reported that Demester, the well-known French motor-cycle racer, is contemplating a run from Paris to Vladivostock on his Griffon motor-bicycle.

SEVENTEEN entries have so far been received for the "Criterium du 1-3 de Litre" which the "Auto" will hold at the Parc des Princes track in Paris from the 3rd to the 11th prox.

AT the Linco'n Wheelers' sports at Lincoln last week, in the race for the motor-cycle challenge cup, W. Evans met with a mishap. The winner was W. Pindar on a 2½-h.p. Minerva.

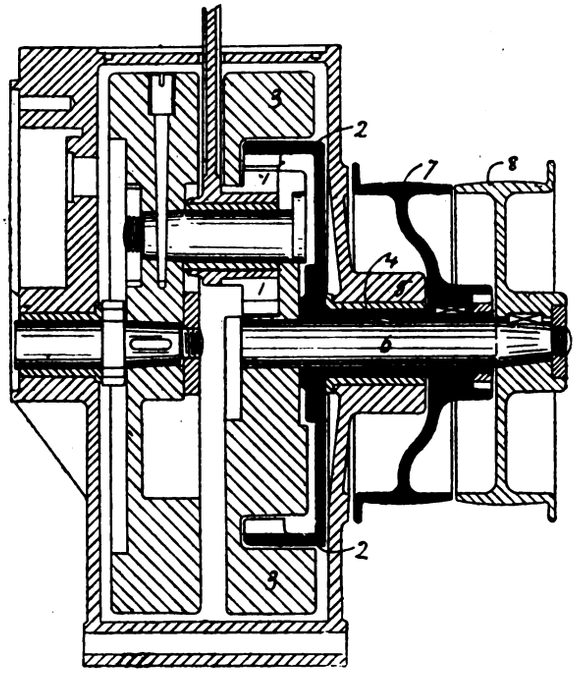


Mr. C. Collier on the "Matchless" Motor-Bicycle, on which he won the "Motor-Car Journal" Cup.

THE Auto-Cycle Club members' fuel consumption trial takes place to-day (Saturday), starting from the Angel, Thames Dittor, at 2 p.m. The route from this point will be to Milford, *via* Guildford and Godalming, and back, about 44 miles. A motor-car will set a fair average speed for the competitors, and any machine which drops behind the car or out of observation will be disqualified. Prizes will be awarded to the three competitors whose machines consume the smallest quantity of spirit.

THE Ulster Section of the Irish Motor Union on Saturday last held a reliability run confined to machines built for two, tri-car, cycle with fore-carriage or trailer, or tandem bicycle or tricycle or quad. The run, a non-stop one for points, was from the junction of the Newtownards and Comber roads at Dundonald, near Belfast, to Portaferry and back, a distance of 56 mile The conditions imposed a stop of half-an-hour at Portaferry, b t during that time no repairs or adjustments were permitted. The maximum speed was fixed in conformity with the legal regulation and the minimum fifteen miles per hour. Five minutes had to deducted for a stop caused by anything other than a punctured tyre, the penalty for the latter being fixed at three minutes, an competitors finishing inside the minimum or outside the maximum time to be disqualified. The following arrived in order printed within one minute of the qualifying time without a stop to their debit :—R. Sinclair (Humber Sinclair), A. W. Hamilton (Ormond R. W. Ireland (Riley) and divide the prizes.

FOR the 1905 season Minerva Motors, Limited, are introducin a 2¾-h.p. motor-bicycle fitted with a two-speed gear, of which



sectional drawing is given herewith. The gear is composed of two gear wheels always in mesh, and is fitted to the interior of the crank case of the motor, the same operation of lubricating the engine thus also oiling the gear. Attached to the big end of the connecting rod in a small pinion (1.) This engages with an internal toothed ring (2), the flywheel (3) being recessed to take the latter. It will therefore be seen that the internal toothed ring and the flywheel are always revolving in the same direction at two different speeds. A hollow shaft (4) fixed to the internal toothed ring is carried to the exterior of the crank case (5) and a solid shaft (6) attached to the flywheel runs through the hollow shaft. Fixed to each shaft is a pulley (7 and 8) to take a flat belt, and to change speed the belt is slipped by a lever from one pulley to the other. The width of the rim pulley attached to the rear wheel of the machine equals the width of the two engine pulleys, so as to ensure the belt always running in line. The control of the two speeds is by means of a Bowden wire operated from the handle-bar.

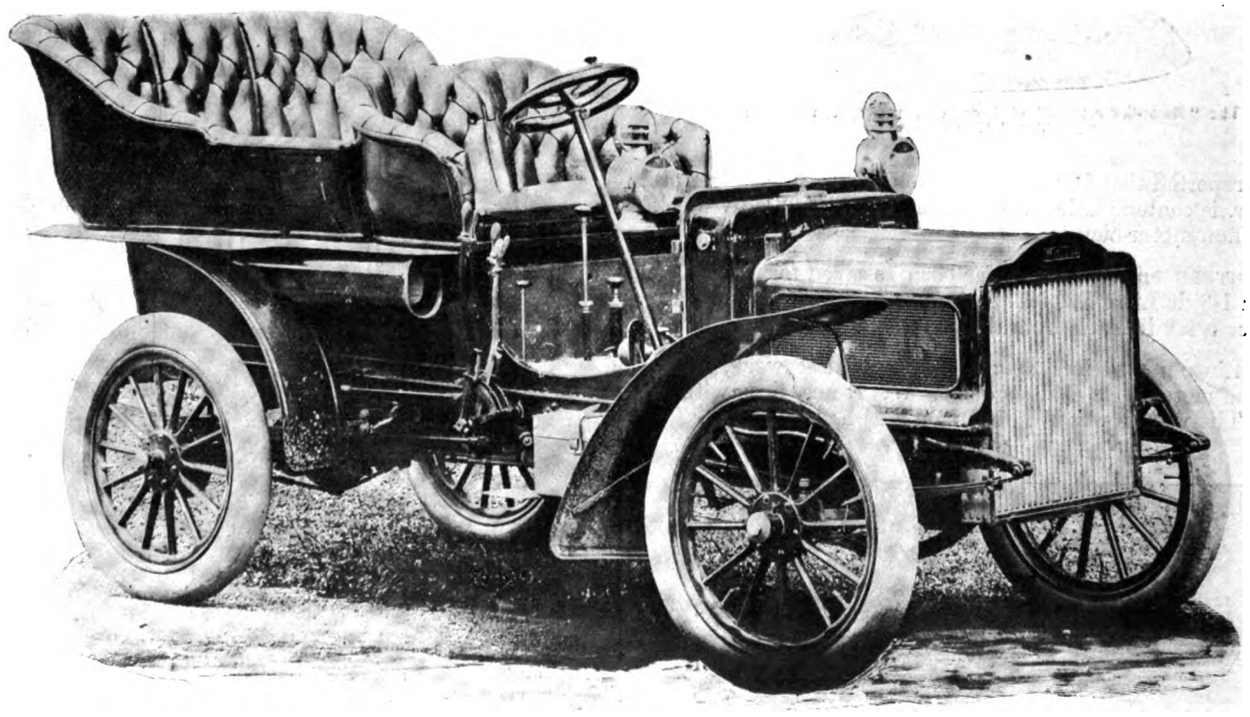
THE Mars Motor and Cycle Company, Limited, has been registered with a capital of £2,000. The first directors are Messrs. L. Wallet and C. W. Brown.

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THE WHITE 15-H.P. STEAM CAR.

WE are this week able to illustrate a new model of steam car which the White Steam Car Company are introducing for the 1905 season. This larger type has been built in response to a demand on the part of the users of the 10 h.p. car for a larger vehicle constructed on the same system. The generator is built on identically the same principle as formerly, simply being enlarged to secure a greater heating surface and more power. In appearance the 15-h.p. car has been changed in several details from the present type, the vehicle, as will be seen from the accompanying illustration, being much more ornate and luxurious. The wheel base has been lengthened from 6 ft. 8 in. to 7 ft. 8 in., giving additional room in the tonneau, and the body is also wider as well as longer, which, together with the fact that the car is higher from the ground, will make it comparatively dustless as far as the occupants are concerned. The front seats are of the bucket type. All the bodies will be built in London.

Other changes of interest in the new vehicle are the adoption of 34 in. artillery wheels with 4 in. tyres instead of the 30 by 3½ in. wheels and tyres, and on the present model a new system of springs has been adopted. The front springs are 40 in. in length and the rear springs 44 in. The latter are not underneath the car but placed a little on each side, and arranged in the manner which has been universally adopted in most of the higher priced European cars. The engine has been enlarged with special reference to the size of the bearings, which will increase its life and power considerably. Additional weight is being placed in the engine construction to enable it to run at a higher speed. The radius of the car has been considerably increased, it being possible to run about 150 miles on one filling of the tanks. The fuel tank of the car is larger, having a capacity in the 15-h.p. vehicle of twelve gallons as against eight gallons in the 10-h.p type. The water tank has not been enlarged, but the condensing arrangements are made so complete by the placing of a fan immediately behind the condenser that the 15-h.p. car can, it is stated, run a very much greater distance on twelve gallons of water than the 10-h.p. car is able to do. The condenser is of an entirely different construction, the tubes running vertically instead of horizontally as hitherto, and being so placed that the necessity for a grease separator is obviated. Several minor points have received attention, the bonnet, for instance, being constructed so as to lift up in front on hinges. The power pump arrangement is so made that rubber hose is done away with, and the throttle is constructed on an entirely different principle. Probably the most important change in the new car is the elimination of any necessity for pumping water by hand. This has been accomplished by providing a hill climbing gear consisting of a pair of sliding gears enclosed in a casing on the rear axle, enabling the car to be run at a 3 to 1 or a 6½ to 1 ratio. The low gear is intended for use on long hills, as it increases the torque of the axle and allows the engine to run at a higher speed, thereby furnishing the generator, through the power pump, with an increased water supply, no matter how long and steep the gradient may be. In connection with this hill-climbing gear there is a neutral point between the gears at which the engine is disconnected from the car. This enables the driver, on starting, to warm up his engine and to increase the steam pressure to the full amount without any hand pumping, as there is always enough water in the generator to make steam for running the engine, but sometimes not enough to move the car. In thus running the engine light the best steaming conditions are obtained without taking the car out of the garage, and the fact that the engine may be disconnected from the car enables it to be easily moved either forwards or backwards, as desired. In the operation of a steam car using a compound engine it has been found that in opening the throttle a sensitive place is encountered at a point where steam is first admitted to the cylinders. It is possible, under certain circumstances, for this sensitiveness to manifest itself in a knocking or rattling sound caused by the back lash in the universal joints. In the new car this has been overcome by providing a light flywheel. From the foregoing description it will be seen that the White Company do not intend to rest on their laurels, and that the 1905 car comprises many new features which will be more appreciated by users of steam cars than petrol motorists. The improvements have been given careful experiment ere being adopted, and while the 1905 car will remain equal in every way to the former models in regard to hill climbing without changing gear, it possesses the added facility of surmounting long, steep grades without requiring the use of the hand pump.



The White 15-h.p. Steam Car.

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HERE AND THERE.

MR. J. V. MOINET has succeeded Mr. A. E. Newton as the Hon. Secretary to the Reading Automobile Club.

THE Ladies' Automobile Club will visit Mrs. Wilson at Tangley Park, Guildford, on the 15th inst.

MORRISON'S Advertising Agency, of Hull, is now employing a motor-car in the distribution of posters within a distance of twenty-five miles of that town. About three hundred miles are covered weekly.

NEW works for the manufacture of calcium carbide have been established at Askeaton, co. Limerick, by Messrs. Hewson and Company. A mill on the river Deel has been rebuilt, and the water power of the river is utilised to drive a 300-h.p. turbine and generator which have been installed. Raw material is stated to be very plentiful in the neighbourhood, and is found at an average depth of 6 in. from the surface.

DURING the first four days of the tour of the two Oldsmobiles, to which we referred last week, 399 miles were covered, which works out to within a mile of 100 miles a day. On Saturday Mr. W. M. Letts went out to meet the cars, and saw the 7-h.p. car go up Pollhill all the way on the top speed. He was on his Crossley car, and led them back into London by way of the Crystal Palace. The roads were in a terrible state, all grease, but still they both came through in splendid style, and arrived at the garage about seven o'clock. The drivers seemed very pleased at the idea of the Sunday rest. In the different towns through which the cars passed there has been much enthusiasm displayed by the people and everything has gone off beautifully, with the exception of a few stops for tightening a mudguard, adjustment of a lubricator, or little things of that description, but apart from this there has been no trouble. The firm responsible for the enterprise is receiving a number of letters of congratulation on the way the cars are going from people who have seen them. Again, they have had a wire from the Surveyor of Norfolk asking which day the cars run over his roads. On Monday Mr. Letts went over the cars before they started for Norwich, and they certainly seemed very little the worse for the 400 miles. They have now ventured on the most difficult part of the route, *i.e.*, the journey north. If all goes well it will be the third week in October before they again touch London. Last week we gave the itinerary for the present week, terminating at Glasgow to-day (Saturday). On Monday next they will return southward *via* Annan to Carlisle, and the destination each day of the week will be:—Tuesday, Manchester; Wednesday, Shrewsbury; Thursday, Cheltenham; Friday, Newcastle-under-Lyme; Saturday, Holyhead. The next four days will be spent in Ireland.

A GARAGE is being established at Woodhall Spa by Messrs. Humpherson and Company.

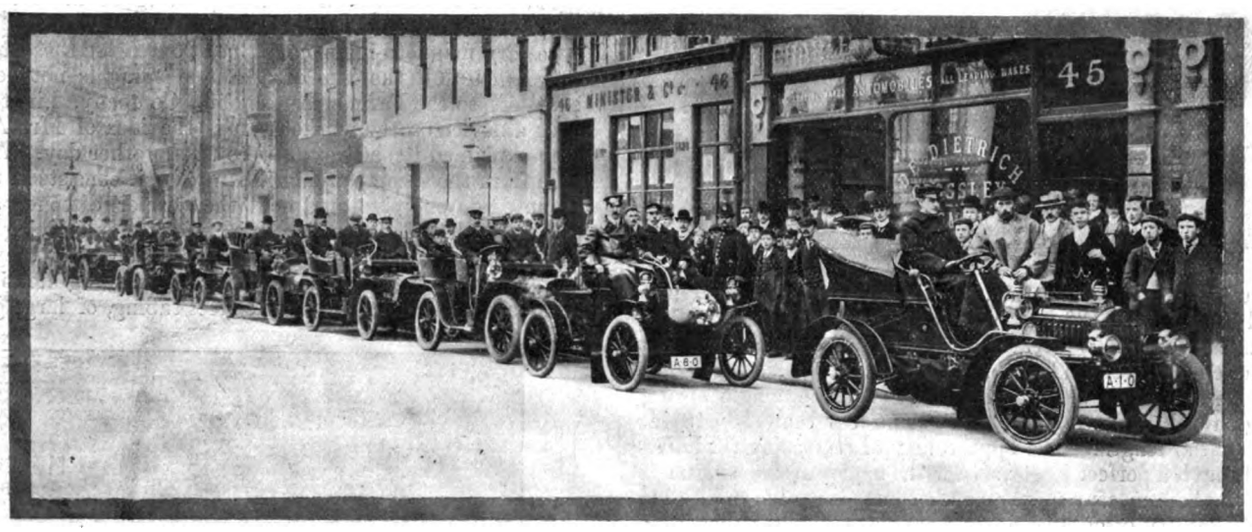
A STEAM 'BUS is to be put on the road between Pulborough and Horsham by the Sussex Motor Road Car Company.

ADMISSION to the Yorkshire Club's speed trials at Wentworth, Woodhouse, will be by way of Flood Hill Lodge, situated at the seventh milestone from Barnsley on the Barnsley-Sheffield road.

THE Maudsley Motor Co., Coventry, are now laying themselves out for all kinds of heavy motor work and petrol launch motors. We have had a 40 miles run on one of their 25-h.p. Lonsdale wagonettes, characterised by smoothness of running and quietness.

A STEAM car belonging to the Western Road Carrying Company, when descending Wicker Hill, in Wiltshire, skidded on the watered road, and, coming into collision with the kerb, turned almost completely round, and was brought to a standstill a few feet away. The granolithic paving was broken, but the damage done was not serious.

THE new time tables of the Great Western Railway Company contain notices of several new motor services by rail or road. Among them is a motor service between Calne and Marlborough. The stations are as follows:—Marlborough, Manton, Fyfield, Overton, West Kennett, Avebury, Beckhampton, Cherhill, Quemerford, Calne.



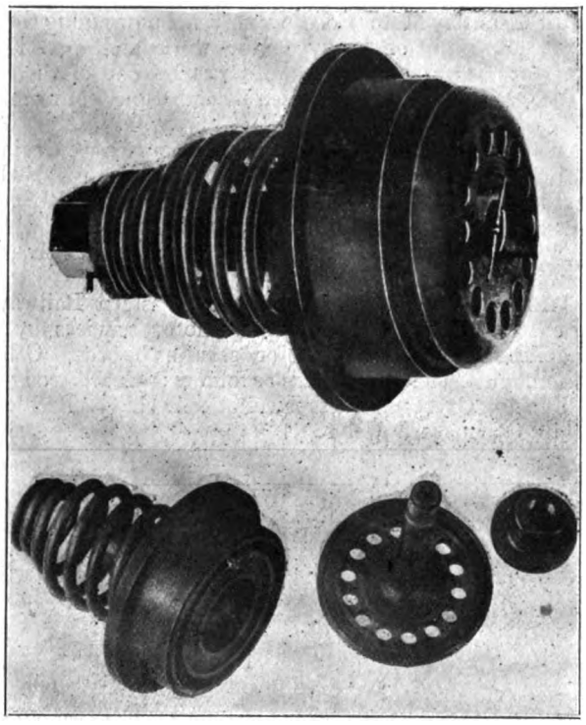
The Scene at the Start of the Two Oldsmobiles on their Thirty Days' Trial.

MESSRS PETO AND RADFORD, LIMITED, have acquired larger premises for their works at Ashtead, where they will be in a position not only to turn out accumulators, but also accommodate motorists who may be in the district with anything necessary for electric ignition. Charging, repairs, and all accumulator work will be undertaken at their new Ashtead premises, which are situated close to the main road between Epsom and Leatherhead. There is a private road leading off the main road direct into the works, with accommodation for any number of cars, ample power being available for charging electric vehicles of any size.

THE "Otto-Bennett" Company have recently effected several improvements in their "Otto" detachable band. The former solid steel attachment is replaced by flexible wires which can be made taut by an ingenious little lever, which works under the cover. This lever, which is fitted with three notches, enables the wires to be expanded or contracted as desired, rendering attachment and detachment a simple matter. The See bands have also undergone improvement; whereas in the former type the band was not wholly vulcanised, it is now fully vulcanised down to the beaded edge, fitting directly into the rim. Creeping is thus entirely obviated, as is also the possibility of the band working loose.

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MESSRS. S. F. EDGE, LIMITED, send us some interesting information with regard to the design of inlet valves for petrol motors. They state that for the purpose of comparison "we have taken a valve with a diameter of 3¾ in. seating. An ordinary type of single port valve of this size gives a circumferential length of 10·995 in. If, however, we use the three port Napier valve



in the same diameter of seating, we at once obtain a circumferential length of 13·136 in. When, however, we come to a four port valve, we find a greater improvement still, as we get 17·276 in. circumferential length. In the case of the Napier patent annular valve it has been found that with the single spring and single mushroom we are able to get no less than 18·848 in. circumferential length. The opportunity of increasing the horse-power through a perfect inlet valve with a given size engine is obvious on these measurements, as the same size valve will give an equal quantity of gas in a given time as a plain valve with either less lift or with a smaller valve." Referring to the accompanying illustration, the upper picture shows a complete Napier annular valve referred to, while the lower one shows it in pieces, with its three rings or seatings, making it clear how the gas has access through a greater circumferential opening than the ordinary valve can give for a given size of valve seating.

AUTOMOBILES figured very prominently in the American Army manœuvres just held at Manassas, Virginia. In addition to a number of private cars there were three automobiles in camp owned by the U.S.A. Government. One of these was with the artillery battalion of the second division, and is designed to take the place of both the forge and the artillery wagons, both of which are at present included in the equipment of each battery of field artillery. The other two cars were used by the signal corps to assist in the laying of wires about the camp.

In so far as manufacturers strive to assist their patrons in the care of their cars and in the forestalling and rectification of the particular derangements which, in the nature of things, are to be expected, in just so far will satisfaction result. The cars of 1904 are of sufficiently good quality to allow of their few remaining shortcomings being explained in a sincere spirit, without any loss of reputation to any one concerned. Motor vehicles will require care and adjustment and be subject to occasional derangements until the end of time, and it is a pleasure, remarks the "Horseless Age," to see this fact tacitly admitted by manufacturers at large by their treatment of these subjects fully and concisely in their manuals.

NAPIER MINOR won the challenge cup and first prize at the Portmouth Regatta on Saturday week.

MESSRS. REYNOLDS BROS., Peel St., Barnsley, are recommended by a reader as a competent firm for repair work.

SANCTION has been given the Southend Corporation to obtain a loan of £700 for the purchase of a combined motor tip wagon and watering van.

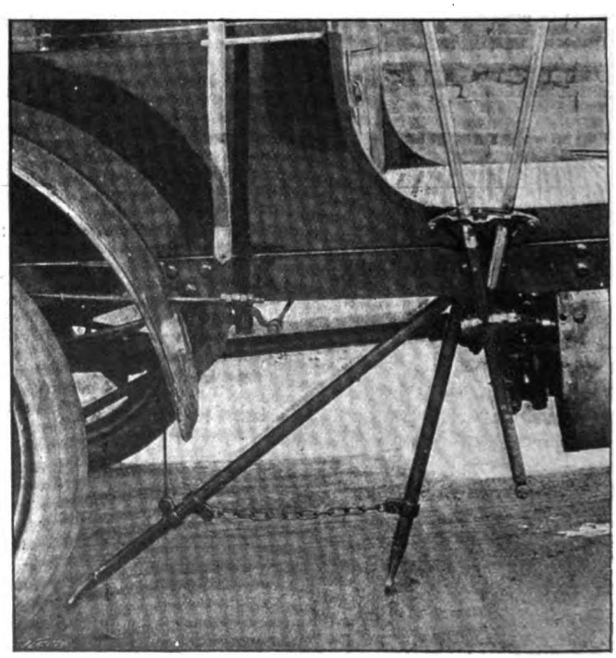
SIGNPOSTS, warning motorists of dangerous corners, in accordance with the Motor Car Act, are to be put up at Bray's Corner, Curtler's Corner, the corner of Fore Street and North Road, and the approaches to the railway station at Saltash.

THE Hozier Engineering Company, Limited, have just completed arrangements to set aside a large portion of their works for delivery vans and lorries, and we understand Mr. J. D. Brimlow, who has a thorough knowledge of this business, has been appointed manager.

AN autumn tour is being organised by the Automobile Club of America. It is to commence on the 10th October, and continue for five days. The route will be from New York to Delaware Water Gap, Philadelphia, Atlantic City, Lakewood and back to New York, a total distance of about 374 miles.

FOR the 1905 season Minerva Motors, Limited, are introducing a new 2-h.p. motor-bicycle at a popular price. Large price concessions have been made in the 2¾-h.p. and 3½-h.p. complete motor-bicycles, to the former of which a patent two-speed gear can now be fitted if required. Prominent among the innovations will be found a special spring fork, while where necessary magneto ignition can be adopted for these models.

ALTHOUGH the idea of a double sprag is not new, it has been left to the Farman Automobile Company, Limited, to put such a device on the market. It is the idea of Mr. A. Pereno, who explained its advantages to us the other day. As will be seen from the accompanying illustration, it consists of two sprags mounted on one pivot and held the proper distance apart by a chain. Each sprag is provided with a forked end, giving altogether four contacts with the ground, so shaped that they will dig instantly into the road and giving astonishing holding power They are constructed of bicycle steel tubing, of large gauge; the



The Pereno Double Sprag.

ends being, of course, solid, and brazed on. Another improvement in connection with the double sprag is that it is arranged to be operated from the dashboard by a lever working vertically. A second form of the sprag has been patented for use on commercial motor vehicles, this having two front rods and two rear rods, giving eight points of contact with the road.

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CORRESPONDENCE.

BOWDEN WIRES.

To the Editor of *The Motor-Car Journal.*

Sir,—The unfavourable comment of the judges in the recent light car trials on Bowden wires, and Mr. James R. Nisbet's reply thereto in last issue of the *Journal*, is of peculiar interest to me, and whilst some motorists have been—or profess to have been—fortunate with the system, to me it has been a dismal failure. In justice to Messrs. Bowden one cannot deny that the system is very ingenious, and adds to the smart appearance of motor-cycles and tri-cars, but I have now arrived at that stage when nothing appeals to me unless there is not usefulness in it. I have done everything I could do to make the Bowden wires as fitted to my motor-cycle and tri car a success, but without result. I may have been particularly unfortunate, but they have never been the slightest use to me, and had they acted as they should have done, I shou'd have been spared the indignity and pain of doing a double somersault over the handle-bars and wrecking my machine last November against a sign post on Barnet Common. When my tri-car was delivered at Christmas I again had the Bowden system fitted in the form of band brakes on the two front wheels, which was strongly recommended by the maker. The upkeep of these was no trifle, and I regret to say they were never satisfactory.

In June I was driving my machine by road to Homburg, to witness the Gordon Bennett race, and, being anxious before starting of having my brakes perfectly adjusted by the makers, I wrote Messrs. Bowden, complaining that, as my brakes had never been satisfactory, would they send a man down specially to see what could be done with them, and offering payment for same. They wrote me a courteous letter, saying they were *too* busy to do this, and that, though they supplied the goods to manufacturers, they in no way held themselves responsible for the manner in which they were fitted. I wrote them again, when they replied that a man would call next day, but he never did, and I have never heard from them since, as far as I can remember. Now I was going on a foreign tour, and it was of all importance to me that I should have some safeguard against possible danger, and I do think Messrs. Bowden were wrong in not complying with my request, seeing that I offered to pay them.

I cannot see why Mr. Nisbet should object to the wording of the judges' report on their system, or why the judges should qualify their statement, which is made, after all, in the public interest. The system was criticised in just the same impartial way that any other defect of construction would be, and they have no concern as to who "fitted them." Mr. Nisbet's slur on the "lamentable lack of knowledge in engineering circles" does not justify him or the system he controls in the slightest.—Yours truly,

Owen Joseph.

To the Editor of *The Motor-Car Journal.*

Sir,—I was much surprised at the condemnation of these by the Judges in the small car trials. I have during the past twelve months or more added several refinements to my car and found myself in possession of a clumsy mass of quadrant plates, rods, and bell crank levers with double eyes and spindles.

The whole arrangement was very inconvenient, and continually in the way when I wanted to get at anything.

I have "scrapped" the whole lot and substituted Bowden levers, which I find most satisfactory.

The wires very seldom require removal, as they can be pushed on one side if so required; it can be effected in a few seconds, and fine adjustment is readily made by the stops.

One precaution is needed, the inner wire should be oiled before being passed into the outer casing.—Yours truly,

J. I.

THE SMALL CAR TRIALS.

To the Editor of *The Motor-Car Journal.*

Sir,—Many of our customers have called our attention to the table in the Judges' report, which shows the petrol consumption of the new 7½-h.p. double-cylinder Humberette to be 16·9 miles to the gallon. This is very misleading. The very heavy apparent consumption was brought about by a leakage on one of the runs, caused by the petrol pipe union coming loose from the tank, whereby at least six gallons of petrol were lost on this run. Moreover, each car was debited with every tin of petrol obtained from the stores, whether used or not, and this would account for at least another five or six gallons. Since the trials a test has been made on the car which competed, and we find that it will accomplish well over fifty miles on a two-gallon tin of Pratt's A petrol.—Yours truly,

Humber, Limited.

RECKLESS DRIVING.

To the Editor of *The Motor-Car Journal.*

Sir,—In your issue of the 24th ult. you rightly draw attention to the increasing animus against motor-cars, which is now spreading all over the country, and which, if not checked, will undoubtedly result in such drastic regulations being passed against all motor drivers that the industry will be either severely checked or entirely swamped. The reason for this outcry is easy to understand by anyone who uses the road to any extent outside the suburban districts. They have only to take one walk, ride, or cycle journey, to experience the discomforts of travelling for miles on roads in which even the light of heaven is obscured by the intolerable clouds of dust raised by the passage of monster cars driven by well-dressed Hooligans accompanied by their female partners. These individuals seem to take the keenest delight in driving to the annoyance of every other user of the road; they know perfectly well that they are simply blinding and choking thousands of other users of H.M. highways, just for the sake of being able to brag to their friends about the pace at which they have covered a certain distance, although, as their time is absolutely valueless either to themselves or anyone else on earth, there is no particular reason why they should be so anxious to save it.

To appeal to their sense of the wrongs they are inflicting on other more reasonable users of the highways is simply useless, nothing but punishment of a severe nature will do them any good, and the only course open to the sport at large is to combine and prosecute these vermin with the utmost severity possible. Personally, I intend to begin on my own, and have ordered three speed indicators, which I am going to affix to three motor-cycles, and as I believe every member of our local police rides a cycle, I shall have no trouble in getting a couple of companions for Saturday and Sunday runs, and if we do not have some sport I shall be astonished, and I trust to be able to run to earth two or three well-known scorchers whom I have already got my eye on.

Dog eating dog is not a pleasant spectacle, but in self-preservation something has got to be done, or we shall be back to regulations worse than the old twelve mile an hour limit.—Yours truly,

B. Y. 193.

TYRES.

To the Editor of *The Motor-Car Journal.*

Sir,—In reply to "John Ansonia's" letter *re* tyres, it seems almost incredible that he should have worn out his Clincher-Michelin tyres in 600 miles' running. I should suggest that his clutch must be pretty severe, deserving a frequent dose of castor oil, as I have driven a 16-h.p. De Dietrich with a heavy body, weighing in all 24 cwt., for nearly 4,000 miles without even a puncture. Certainly the hind tyres are protected with Samson bands, but the front ones show very few cuts, speaking well, I think, for the quality of the rubber used in the manufacture of Clincher-Michelin tyres.

I may say that I am in no way interested in the firm, but think "John Ansonia" should look for the cause and put that right, then it should not be "a matter of luck" unless the roads over which he is accustomed to travel are particularly bad.—Yours truly,

H. A. Taylor.

To the Editor of *The Motor-Car Journal.*

Sir,—In reply to "John Ansonia," I also purchased an 8-h.p. Darracq this summer. I have run it about 1,200 miles and the car has not required any repair or a nut tightened. The tyres are Michelin 750 by 85. They do not show any wear, only a number of very fine cuts like marks of the fingernail.

I think "J. A." must have been travelling on top speed all the time with the accelerator pressed down, causing the wheels to slip on the roads, so grinding away the tyres, and he has made a mistake in the distance covered. I only go out about three hours twice a week, as a rule, but I have run over 1,200 miles in four months.—Yours truly,

T. A. Rogers.

To the Editor of *The Motor-Car Journal.*

Sir,—I can sympathise with "John Ansonia" in his tyre troubles. I have driven Darracq cars for the past two years and found they nearly all had the same fault—a great tendency for the clutch to become fierce. On starting, this caused the back wheels to spin round, greatly to the detriment of the tyres. If "John Ansonia" will squirt a little paraffin oil on the clutch before starting on a run he will do away with this trouble and prolong the life of his tyres. The clutch will probably slip to a certain extent for the first mile or two, but after that will be all right.—Yours truly,

M. 470.

To the Editor of *The Motor-Car Journal.*

Sir,—In answer to "Player's" query *re* See fluid, in the *Journal* of the 3rd inst., I have used the fluid for emergency tyre repairs, and find it more or less satisfactory for wayside use, but would recommend "Player" to have his punctures thoroughly vulcanised by a good rubber company. The puncture thus treated renders the tube as good as a new one. I am not quite sure whether the See fluid has a bad effect upon rubber or not. At any rate, I am not altogether satisfied with it.—Yours truly,

H. Hughes.

To the Editor of *The Motor-Car Journal.*

Sir,—Noticing "John Ansonia's" letter in last issue of the *Journal* remarks *re* tyres on a Darracq car, I see he mentions the back tyres only, so I should be inclined to think that, as he is evidently an amateur, he has

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been using the clutch roughly. In a new Darracq the clutch is always very fierce, and unless treated very gently will cut the tyres to ribbons. I should advise him to put plenty of good castor oil on the leather, and in starting, changing speed, etc., let the clutch in very gently. I have known a new 24-h.p. Darracq want new back covers once a month till the clutch was seen to, and the driver got used to being gentle with it. I don't think any roads in England would have the effect he described. Hoping this will be of some use to users of Darracqs, and wishing "J. Ansonia" better luck in the future.—Yours truly,

CHAUFFEUR.

WANTED, A CAR.

To the Editor of *The Motor-Car Journal*.

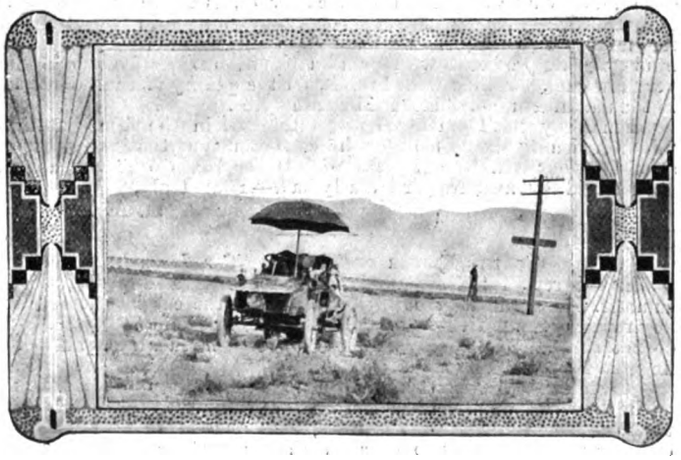
SIR,—Can anyone tell me if there is a car made embodying the following points, as I want a reliable car to go fifteen to twenty miles an hour, that does not require an expenditure of £50 to £100 a year in renewing tyres, covers, gears, chains, etc., the petrol bill being a negligible quantity? Possibly some motor car makers may have more sense than to sacrifice everything to racing, and to think of the requirements of the ordinary man:—1, no gear box; 2, no pneumatic tyres, but something better than solids; 3, no ball or roller bearings; 4, no driving chain; 5, no live axle; 6, no noise; 7, no smell.—Yours truly,

T. T.

A TREMBLER QUERY.

To the Editor of *The Motor-Car Journal*.

SIR,—I am the owner of an 8-h.p. De Dion car, and when on the road it frequently drags, as if something was holding it back, and then it will plunge forward, and continues to drag and plunge for a short distance, till it goes off splendidly for about a quarter of a mile or so, and then starts dragging and plunging again, and so on. The spark is not very reliable, and I think it causes the trouble by misfiring, and then picking up, and misfiring again. I have been recommended to get a trembler coil fitted, as I am told the trouble will then cease. I had the



Alone in an American Desert.

accumulator charged a few days ago, and it is correct, but the trouble arises at the sparking plug. Would any of your readers kindly give me their opinion on the matter, and if they think that by fitting a trembler coil and commutator the trouble will cease?—Yours truly,

PETROL.

OVERHEATING TROUBLES.

To the Editor of *The Motor-Car Journal*.

SIR,—I have a small double-cylinder car with which I have two slight troubles. The first is the water circulation, which, after running well perhaps for days, will stop, and the engine overheat. I then have to wait ten minutes or so on the road to cool down, when, without anything having been touched, the pump starts work and I have no more trouble for perhaps two or three spins. The pump is gear-driven, and is composed of two cog-wheels in mesh.

My second trouble is caused by occasional alarming explosions in the exhaust box, when I switch engine on and off at corners, &c. I should feel obliged if any of your readers could suggest a remedy for both or either of these troubles.—Yours truly,

ENQUIRER.

THROTTLE VALVES AND EXTRA AIR INLETS.

To the Editor of *The Motor-Car Journal*.

SIR,—I should be much obliged if you, or any reader of the *Journal*, could give me information on the following points:—What is the advantage of having the throttle close up to the inlet valves on an engine with automatic inlet valves, as I notice that makers (the Humber) are now fitting them there? Will a butterfly throttle act as well in that position as any other? In fitting an extra air inlet valve to an engine governed by throttle next to the inlets, where should it be fixed on the induction pipe, next to the throttle or to the carburettor?

If the throttle is next to the carburettor, in which position should the extra air inlet valve be fixed then? How often should the springs or automatic inlet valves need stretching out, as I find that on a 12-h.p. car it improves it to give them a pull out now and again.—Yours truly,

S. S. BOUDLEN.

[The idea of fitting the throttle valve close to the inlet valve is simply a matter of convenience, or the most suitable position in the construction. A butterfly valve would work equally well close to the valve as in any other position, but in any case it is necessary for the valve to be well fitted. In the fitting of an extra air valve it is necessary to place this between the throttle and the inlet valve, to prevent the engine from causing a vacuum in the inlet pipe].

OVER-LUBRICATION.

To the Editor of *The Motor-Car Journal*.

SIR,—I should be glad if you or any reader of the *Journal* can assist me in discovering the trouble with my 3½-h.p. De Dion car. It began to smoke very thick, and now it has stopped altogether. The sparking plug and contact seem all right, and the petrol goes through the carburettor.—Yours truly,

H. S.

[The trouble of H. S. is evidently one of over-lubricating, and we would advise a thorough wash out of the engine with paraffin, and a proper charge of lubricating oil. If this is not the cause, it may be that too rich a mixture is being used, which can be remedied by opening the airway of the carburettor.]

A DE DION ENGINE QUERY.

To the Editor of *The Motor-Car Journal*.

SIR,—I have been running a 6-h.p. voiturette (De Dion engine) for about eight weeks, and a noise developed about six weeks since of a clicking, rattling nature, which at a distance has a slight ringing sound. This only occurs when on top speed and immediately upon altering from second to top speed. The sound emanates apparently near or at the contact breaker. It does not affect the run of car in the least as to speed; but, fearing that some part may be taking harm, I should like your opinion, or that of one or more of the numerous readers of the *Journal*, as to probable cause.

I may say that the centre shaft has been examined by the engineer who looks to my repairs, and he says the cause is not there, and appears to treat the matter lightly.

It detracts, however, considerably from my pleasure in driving, and, if possible, I wish to remedy it.—Yours truly,

TRENTHAM.

DARRACQ TROUBLES.

To the Editor of *The Motor-Car Journal*.

SIR,—I have a 12-h.p. Darracq which goes very well when running at a regular pace, but if one has to suddenly throttle down, and especially when running down hill, it misfires badly, which is very startling to horses that may be passing at the time.

If you or any readers of the *Journal* can help me by suggesting a remedy I shall be very much obliged.—Yours truly,

IGNITION.

STEAM CARS.

To the Editor of *The Motor-Car Journal*.

SIR,—I am pleased to see a stand made against the abuse levelled at the Locomobile. It does not deserve abuse; it is a most useful and reliable little car, and, used with common sense, gives no trouble. I have used one for more than three years and am as pleased with it now as when I bought it. My petrol car, by one of the best makers, costs ten times more for repairs and renewals than any steam car.

I do not think "Mechanical Engineer" has ever used a Locomobile. The boilers are not given to leaking; the shell and tubes being of copper, the expansion is equal. It is a most powerful little boiler, with about forty-five square feet of heating surface, and will supply steam enough to average eighteen to twenty miles an hour; the car will climb any hill and will carry a couple of people fifteen to eighteen miles for 1s. The water supply will last forty miles. As to paraffin burners, the makers do not fit these, neither do they recommend them.—Yours truly,

A. H. 59.

To the Editor of *The Motor-Car Journal*.

SIR,—I notice in the *Journal* of the 24th ult. a letter from "Doubtful" asking for the experience of users of steam cars. I am the owner of a Miesse car which I bought second-hand last January, and took over with no instruction, beyond watching a man drive me some 50 miles and going over the engine with the manager of the works where the cars are built. The troubles I have had—mainly due to my own ignorance—are singularly few; practically I have only been stopped on the road for more than fifteen minutes once, when I broke a chain (which was much worn and in bad condition when bought), and recently, when I had some trouble

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with the burner due to using bad paraffin. The actual engine has given absolutely no trouble whatever, and the burner when fairly treated will give none. The water pump has been repacked once, the air pump has never been touched.

There appears to be no special part liable to break down like the electrical part of petrol cars, and the only part that requires looking after is the nozzle of the burner, which should be cleaned daily (a ten minutes' job). Mine is the old pattern 6-h.p. car, and it will carry four passengers up any hill in the neighbourhood. Of the quietness and small cost of running of the Miesse car I need not speak, for of course paraffin can be obtained at half the cost of petrol. If I were to buy a new car to-day, I should purchase one of the same type without hesitation, and that is the best testimony I can give.—Yours truly,

E. H. O. SANKEY.

HORSE-POWER OF MOTOR.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—I have recently purchased a new car, the engine of which has three cylinders 3¾ inch bore and 4 inch stroke and runs about 800 revolutions per minute. It is a very bad hill-climber; on coming to a slight rise it loses its power immediately. It is called by the makers a 10-12-h-p. What horse-power, in your opinion, should this size of cylinders develop, and could you suggest any way by which I could increase the number of revolutions, so as to increase the power?—Yours truly,

N. D.

[An engine with three cylinders 3¾ inch bore by 4 inch stroke should develop fully 12-h.p. running at a speed of 800 revolutions. If the engine does not develop this power there is something wrong either with the construction or with the working. Without knowing the make of the engine it is difficult to give definite information, but we should feel inclined in the first place to see that the compression is good, and if found so we should increase the speed—this by making the contact breaker to still further advance, also by strengthening the springs on the governors.]

SOME MOTOR TROUBLES.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—Nowadays, when a really serviceable and reliable motor-vehicle is procurable, most failures can be put down to the inexperience of the owners. That a large number of people drive cars who know practically nothing about their working is very evident. The owner tinkers unsuccessfully for hours and hours and then sends for a competent man to rectify the trouble, which he does in a few moments. The owner with only a smattering of knowledge is sometimes worse off than those who know nothing at all. We all know this man well; a nut drops out from the bottom of the base chamber and he discovers the fact, and thinks his compression gone. It is quite true that De Dion tremblers are rather difficult to adjust, but it is a much better plan to see that the cells are fully charged, first, than to screw and unscrew the platinum-tipped screw for an indefinite period of time, and then to discover the cells are low. Yet this is quite a common occurrence. Then, perhaps, we know the other man with a smattering of knowledge, who in an evil hour takes his engine down when there is nothing wrong with it, and puts it together and finds it absolutely refuses to start. Result, expert arrives and explains that all four-cycle engines usually work better with the exhaust valve correctly set, and not by chance! High-tension wires, too, have their correct places, and if not in their correct places the engine will exhibit rooted objections to starting, much to the alarm of the "man with the smattering," who in the end will seek the inevitable expert. This list could doubtless be prolonged, but it is sufficient to show how some of the motor failures we hear of, and with good cars too, can be accounted for.—Yours truly,

M. C. E.

THREE OR FOUR SPEEDS.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—In some of the most recent and up-to-date automobiles three speeds have been provided instead of the more usual four. The question as to whether four speeds are necessary is an interesting one, so I will give my views in the hope that other readers of the *Journal* will give theirs. A three-speed car should be so geared that it will climb practically everything on its third speed. Now this will make the car perform a good average, as, although it may not be so fast as a four-speed car downhill, and perhaps on some long level stretches, it will certainly score uphill. When one considers the matter, it will be allowed that there are considerably more hills which one can rush up than rush down. Now the fourth speed on a four-speed car is only really seen to advantage on a downhill stretch or else a fairly long piece of level road, but the three-speed car will always be seen to advantage, as, its engine always having the preference, so to speak, it will always "get away" quickly. It may safely be said that a three-speed car will do as good an average as a four-speed unless the road chosen is absolutely flat or downhill the whole way.—Yours truly,

EXCELSIOR.

THE HORSE-POWER OF PETROL MOTORS.

TO THE EDITOR OF *The Motor-Car Journal*.

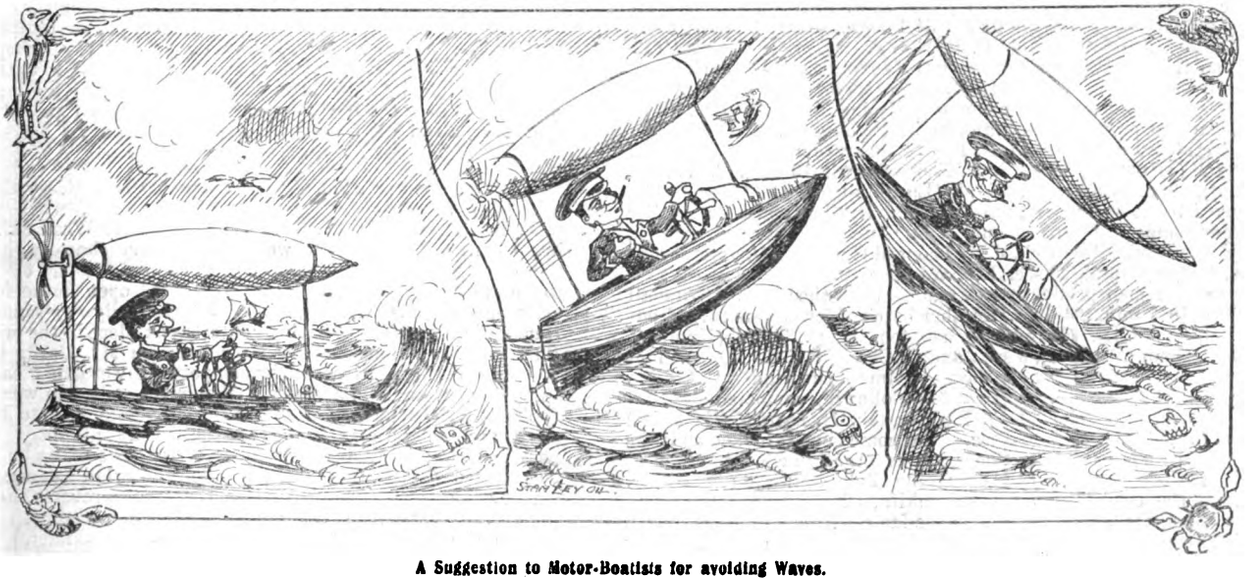
SIR,—The question of the rating or overrating petrol motors seems to be a burning one, and some active body could do the automobile movement a great service by organising a series of brake tests. The services of several competent independent engineers could be engaged, and suitable testing apparatus installed at a nominal outlay, and the results should prove highly instructive, not only to prospective purchasers, but to the technical men of the industry as well. Such tests would counteract the present perverse tendency of overrating motors, and if, as might be expected, some of the firms would not enter for the tests, private owners could be induced to lend their cars for the purpose. The tests should not only bear upon the maximum power obtainable at any speed, but also upon the power at different speeds below that of maximum power, and in the report of the results a minute description of the engine should be given, and dimensions of its various essential parts, such as valves, compression space, &c., so as to prevent the possibility of misjudging the results.

If the tests were properly carried out the results would undoubtedly be given the greatest publicity in the Press, and the manufacturers who rate their machines conservatively would benefit accordingly. Such tests were carried out in France some four years ago, and proved very successful.—Yours truly,

A. F. GLOVER.

PUNCTURE PROOF BANDS.—"Irish" writes:—"Will some of your readers kindly tell me if "puncture-proof" bands will prevent punctures, and also can a car travel at a quicker rate if these bands are attached to the back wheels? If reply is in affirmative, then whose make is considered the most efficient?"

CLARK'S EJECTOR COOLER.—Replying to several correspondents, full particulars of Clark's Ejector cooler for air cooled motor-cycles, illustrated in the last issue of the *Journal*, can be obtained from Mr. F. L. Anderson, 1, Furnival Street, London, E.C.



A Suggestion to Motor-Boatists for avoiding Waves.

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MOTOR-CYCLE RACING AT THE CRYSTAL PALACE.

THE annual race meeting of the Auto-Cycle Club took place at the Crystal Palace on Saturday in dull and showery weather. A large crowd gathered together on the bank on the north side of the track. The first event of the day was a one-hour scratch race for the "Motor-Cycle" Cup, limited to motor-bicycles with engines having a total capacity in which the diameter in mm., multiplied by the diameter in mm., multiplied by the stroke in mm., does not exceed 343,000, that is 70 by 70, such machines not to exceed 114 lbs. in weight. Of the ten entries for this event seven faced the starter, including J. F. Crundall, the holder of the cup. Unfortunately the race was marred by a serious accident. Chase, on a Chase, and Bennett, on a Kerry, were riding close together when the latter appeared to wobble, and, touching the wheel of Chase's machine, fell. Bent, on a Minerva, was close on behind, and, in endeavouring to miss Bennett, ran wide and collided with the rails at the banking. He was hurled off his machine and badly cut about the head and body. The ambulance corps, which was on the ground, was quickly on the spot, and the injured man was rapidly conveyed to Norwood Hospital. Chase, after riding 22 2-3 miles in 34 min. 9 1-5 sec., retired. Crundall was easily first on his Humber, and maintained his lead to the end, the result being J. F. Crundall (Humber), 42 miles 1,390 yards, first; C. Collier (Matchless), 39 miles 1,056 yards, second; B. Yates (Humber), 38 miles 80 yards, third.

The five miles handicap for the *Motor-Car Journal* cup brought out the largest number of entries. The event, which was open to motor-bicycles with engines having a total capacity in which the dimeter in mm., multiplied by the diameter in mm., multipled by the stroke in mm., does not exceed 440,000, machines not to exceed 170 lbs. in weight, was run off in five heats and a final, in which the fastest loser was allowed to compete. The cup was won last year by J. J. Leonard, who on a Humber covered the five miles in 6 min. 54 4-5 sec.. Heat 1 brought out S. C. Holloway (Minerva) scratch, C. E. E. Smith (Humber) 5 sec., C. B. Franklin, an Irish rider of some promise (F.N.), 5 sec., D. R. Clark (New Centaur), 10 sec., and J. Haslam (Lily), 15 sec. The latter only covered about 200 yards when his belt came off, forcing him to retire. The winner of the heat proved to be Franklin, his time being 7 min. 16 4-5 sec. Heat 2 brought out five more riders, F. E. Barker (Chater Lea), scratch, R. W. Ayton (Triumph), 5 sec., S. A. East (Shaw), 10 sec., E. Varney (Crownfield), 10 sec., and H. A. Dipple (Lurquin-Coudert), 15 sec. The latter proved to be the victor, finishing first in 6 min. 58 4-5 sec. For Heat 3 four competitors turned out, J. F. Crundall (Humber), scratch, J. Perkins (Crownfield) scratch, J. J. Leonard (Lurquin-Coudert) 5 sec., and A. A. Chase (Chase), 20 sec. Leonard gave up at the end of the first lap; the scratch men gradually overhauled the other riders, Crundall finishing first in 7 min. 2 4-5 sec. Another batch of four riders turned out for Heat 4, C. Collier (Matchless), scratch, H. C. Tyler (Humber), 5 sec., W. W. Genn (Minerva), 5 sec., and C. Chapple (F.N.), 10 sec. This heat proved to be the fastest of the day, the time of the winner, C. Collier, being only 6 min. 37 2-5 sec. In Heat 5 the following competed:—F. W. (Chase), scratch, A. Tyler (J. A. P.), scratch, H. Martin (Excelsior) 8 sec., and B. Yates (Humber), 5 sec. For some time it looked as if the event would prove a victory for Chase, but eventually he had to retire, as did also Yates, the winner of the heat being Tyler; time 6 min. 44 sec. In the final the competitors were Franklin, Dipple, Crundall, Collier, Tyler and Genn, the latter starting as the fastest loser. The race proved a tussle between Collier and Crundall, the former gradually drawing away and winning by 80 yards. The result being:—C. Collier, scratch, first; J. F. Crundall, scratch, second; C. B. Franklin, 5 sec. start, third. Time, 7 min. 3 2-5 sec. The *Motor-Car Journal* Cup is thus now secured by Mr. G. Collier, who rode a "Matchless" machine made by Messrs. Collier and Sons, of Plumstead, the engine being a De Dion. The third event of the programme consisted of a series of mile time trials with a flying start for the "Automotor Journal" cup, open to motor-bicycles with engines having a total capacity in which the diameter in mm., multiplied by the diameter in mm., multiplied by the stroke in mm., does not exceed 440,000, that is 76 by 76. Machines not to exceed 170 lb. in weight. Out of the nineteen entries fourteen competed, the result being C. Collier (Matchless), 1 min. 15 sec., first; W. W. Genn (Minerva), 1 min. 16 3-5 sec., second; H. Martin (Excelsior), 1 min. 17 3-5 sec., third. The times were taken by Mr. A. V. Ebblewhite, while Prof. C. V. Boys and Mr. J. Lyons Sampson acted as technical judges.



Photo by] The Auto-Cycle Club's Meeting.—The Start of the Hour Race. *[Russell and Sons.*

CLUBS AND ASSOCIATIONS.

NOTTINGHAM.

LEAVING Nottingham at eight o'clock on Sunday morning, Mr. Ross-Browne made an effort to win the gold medal offered by the club for the longest non-stop run. He put up a total of 257 miles against Mr. C. Hardy's 153. Proceeding *via* Newark he ran on to Lincoln and back to Newark. Thence up to Doncaster, returning through Worksop and Mansfield to Nottingham. Then on to Newark once more and about eight miles out on the Lincoln road; then back again and up to Doncaster, finally stopping his engine upon reaching Nottingham again late at night. On returning to Nottingham the first time one of the exhaust valves broke. Mr. Browne's mechanician sought to repair it, but was obliged to give it up. Thereupon Mr. Browne himself tackled it. The bonnet was removed and held in the car by the official observer (Mr. Charles Perry), and Mr. Browne, sitting on the radiators, successfully overcame the trouble. The road wheels of the car were kept running all the time, and it took one hour and forty minutes to cover the twenty-one miles between Nottingham and Newark. When running on towards Lincoln the cap of the valve separated, and was repaired by the aid of tyre lever, a nut and a bolt—all clamped together.

LINCOLNSHIRE.

THE last competition of the season in connection with the Lincolnshire Club took place on Thursday of last week, when the members were invited by Mr. W. Garfit, M.P., to visit West Skirbeck House, his seat near Boston. The weather was very showery, and instead of there being sixty cars, as was expected, only about twenty ventured to put in an appearance. Mr. Garfit held open house for the entertainment of his visitors, and he personally welcomed all comers. During the afternoon a driving contest took place in the private grounds. This was for a handsome motor clock which Mr. Garfit offered to the winner. The conditions of the competition were that each car should carry one passenger in addition to the driver, and a run was made through the park and back; on the way the park gate had to be opened and shut, and as the cars had to be pulled up abruptly to allow the passenger to alight, it proved an effectual test of brake power. The last stages of the journey were along a winding course into Mr. Garfit's stable-yard, where it was necessary to reverse the engines and back the cars into a coach-house. The competitor doing all this in the quickest time was declared the winner. Owing to the difficult turns, the smaller cars had a much better chance than those

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with a large wheel base. When the times had been analysed it transpired that Mr. C. Holland on his Baby Peugeot, and Mr. H. C. Tryon on his Buckboard had tied, each having covered the distance in 2 min. 39sec. The latter, however, did not quite comply with the conditions, and Mr. Holland consequently took the prize. Mr. Garfit, however, awarded a special prize to Mr. Tryon for his performance. The other competitors were Mr. George Linnell (Market Deeping), 10-h.p. Wolseley; Dr. South (Boston), Baby Peugeot; Mr. A. W. Holloway (Boston), Baby Peugeot; Dr. F. Husband (Crowland), 9-h.p. Wolseley; and Dr. Crompton (Benington), Baby Peugeot. Amongst those present were Major Goddard (Lincoln), Mr. H. T. Pilley, Dr. Reginald Tuxford, Mr. and Mrs. F. P. Curtis, Dr. E. H. Cragg (the Club Sec.), Mr. Chaderton-Johnson (Boston), Mr. and Mrs. Geo. Godson (Asgarby), Dr. and Mrs. Miller (Wrangle), Mr. and Mrs. T. W. Mays and party (Bourne), Dr. and Mrs. Gilpin (Bourne), Dr. and Mrs. de Beauvais (Ancaster), Mr. and Mrs. C. W. Pennell (Lincoln), Dr. G. Lewes (Lincoln), Mr. and Mrs. A. W. Holloway (Boston), Dr. Husband (Crowland). The last meet of the season will take place to-day (Saturday) at Revesby.

WOLVERHAMPTON.

ON Saturday last the Wolverhampton Automobile Club held a hill climbing competition at Gatacre Hill, Bridgnorth, the Trials Organisation Committee consisting of Messrs. T. Cureton, Geo. Evans, Wm. Owen, Trevor F. Young, and the Hon. Sec., Mr. S. R. Rhodes.

There was a good attendance of members and their friends, the times in the club handicap being given below. The first prize was a trophy of the value of £25, presented by the Star Engineering Company, to be retained by the winner until the first day of September, 1905. The trophy in the open handicap was presented by the Wolf Motor Company.

In the open handicap the times were:—

Name of Owner.	Make of Car.	H.P.	No. of Cylinders.	Time Ascent M.	S.
Meakin, Nelson ...	Mobile	8·10	2	2	24⅕
Cook, J. M.... ...	Argyll	10	2	2	6⅘
Sangster, Chas. ...	Ariel	20	4	1	16⅘
Bayliss, F. W. ...	Wolseley	20	4	1	14⅘
Dumbell, J. B. ...	Turner Miesse	10	3	1	12⅕
Turner Motor Manufacturing Co., Ltd.	Turner Miesse	10	3	1	26⅕
Cobb, R. A.... ...	Star...	12	4	1	44⅖
Evans, G. H. ...	Wolseley	10	2	1	38⅗
Evans, J. O.... ...	Wolseley	10	2	2	13⅗
Evans, W. H. ...	Wolseley	10	2	2	37
Owen, Henry ...	Turner Miesse	10	3	1	16⅕
Shelton, R. M. ...	Lanchester ...	12	2	1	54
Wolseley Tool and Motor Car Co., Ltd.	Wolseley	24	4	1	22⅘
Wolseley Tool and Motor Car Co., Ltd.	Wolseley	6	1	2	9

In the Club Handicap the times were:—

Cureton, Thos. ...	Sunbeam	10-12	4	2	6
Dumbell, J. Burns...	Turner Miesse	10	3	1	21⅗
Sangster, Chas. ...	Ariel	20	4	1	11⅘
Payne, S. B. ...	De Dion	4½	1	2	40⅖
Bayliss, F. W. ...	Wolseley	20	4	1	17⅕
Bishop, F. C. ...	Star...	7	2	2	29⅕
Bath, H. J.	James and Browne	9	2	2	47⅕
Lisle, J.	Star	7	2	2	11
Mills, T. T.	Sunbeam	10-12	4	2	6⅕
Bayliss, P. S. ...	Panhard	8	3	2	21
Bayliss, Edwin ...	Panhard	7	2	2	23⅖
Mills, Arnold ...	Sunbeam	12	4	1	55⅕
Gatis, T. G.... ...	Enfield	10	2	2	59⅘
Evans, G. H. ...	Wolseley	10	2	1	37⅗
Evans, J. O.... ...	Wolseley	10	2	2	17⅕
Evans, W. H. ...	Wolseley	10	2	2	43
Marston, John ...	Sunbeam	16-18	6	1	34⅖
Marston, John ...	Sunbeam	16	4	2	1⅗
Davis, J. W. ...	Wolesley	7½	2	2	55⅗
Corker, F. B. ...	Sunbeam	12	4	3	2⅗
Pratt, E. C.	Mobile	6	1	3	23

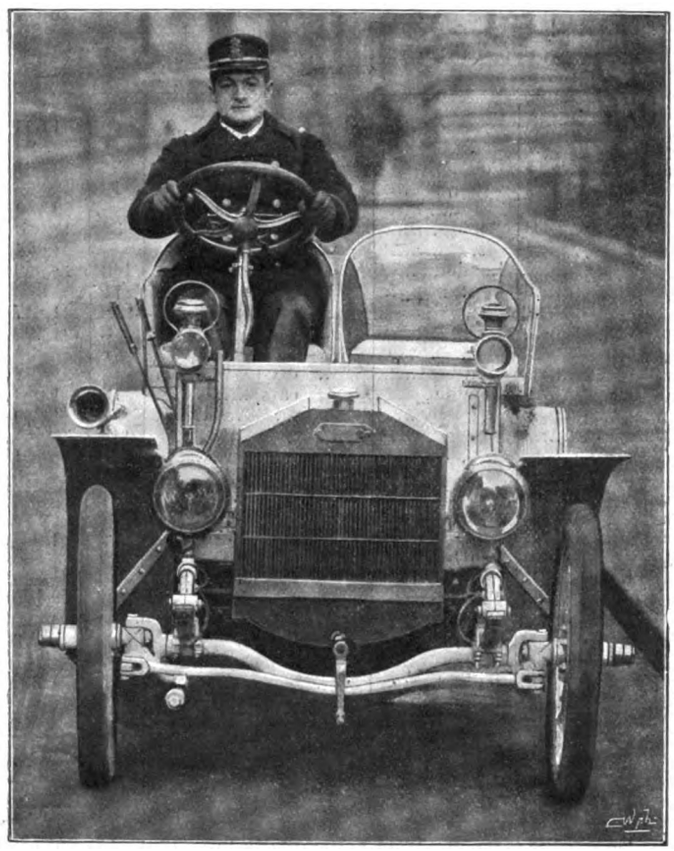
To prevent dust, the course, which was 800 yards long, with a total rise of 139 feet, was treated with a solution of chloride of calcium supplied by the United Alkali Company, Liverpool.

HERTFORDSHIRE.

THE Committee of the Hertfordshire Automobile Club held a meeting on Thursday, last week, for the purpose of passing the official times of the open hill-climbing competition held by the Club on Aston Hill, Tring, on the 10th ult. In consequence of steam and petrol cars being run together in the one class, the handicaps required very careful checking, with the following result:—

Car.	Entered by	Time on Hill. min.	sec.
10-h.p. White ...	F. Coleman	2	31 1-5
10-h.p. White ...	Capt. Fulton, R.A. ...	2	50 2-5
10-h.p. White ...	F. Gardner	3	3 4-5
10-h.p. White ...	B. Rhodes	3	11 4-5
24-h-p. Leon Bollée...	A. J. Dew	1	42 2-5
20-h.p. Napier ...	S. F. Edge	1	27 3-5
10-h.p. White ...	C. Stent	3	10 4-5
12-h.p. Wolseley ...	O. Thompson	3	32 2-5
16-20-h.p. Martini ...	Capt. Deasy	2	22 3-5
6-h.p. Speedwell ...	J. Dew	3	23 3-5
12-h.p. Pipe	C. Watney	3	26 4-5
12-h.p. Wolseley ...	O. Thompson	3	54 4-5
7-h.p. Alldays ...	Alldays and Onions ...	4	11
10-h.p. White ...	J. W. Hunt	4	41 1-5
8-h.p. M.M.C. ...	R. A. Cooper	5	29
7-h.p. Swift	E. de Wilton	5	9 1-5
7-h.p. Alldays ...	A. Pemsel	5	28 4-5
8-h.p. Crypto ...	A. Hudden	6	50 4-5

At the conclusion of the proceedings the Committee unanimously passed a hearty vote of thanks to the Hon. Secretary, Mr. W. Whittall,



Count Thun-Hohenstein on his 8-h.p. Wyner Car. The Count commands one of the warships of the Austrian Navy, and carries the vehicle on board, so that he may use it at ports of call.

[*Allgemeine Automobil Zeitung.*

for the excellent manner in which he carried out the organisation and arrangement of the event.

On Saturday last the club held a very successful meet at Hatfield. In spite of the unpromising weather outlook some twenty members and friends turned up at the rendezvous, the Red Lion Hotel, where an excellent tea was served.

POLICE TRAPS.

AT Norman Cross the police are again timing motorists.

POLICE traps have lately been reported in the Colchester, Chelmsford and Maldon districts of Essex.

THE Portsmouth road at Kingston is being carefully watched by the police for speedy motorists.

NEAR Cowfold, on the road from the Metropolis to Brighton, motorists should be on the alert for a trap.

AT Selby (Yorks) the police have a measured quarter of a mile prepared for the capture of unsuspecting motorists. Castleford, too, is a dangerous district.

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IMPORTS OF AUTOMOBILES.

BELOW we publish our monthly official list of the imports of motor-cars, motor-cycles, and the parts thereof, into the United Kingdom during the month of June, 1904:—

BELGIUM.

Shipped from	To	Description.	No.	Value. £
Antwerp	Harwich	Motor-cars	11	1,649
„	„	„ cycle	1	22
„	„	„ car parts	—	288
„	„	„ cycle „	—	1,036
„	Leith	„ car	1	400
„	London	„ cycles	2	122
Brussels	„	„ cars	3	792
„	„	„ cycles	13	325
„	„	„ car parts	—	418
Ostend	Dover	„ „ „	—	29
„	London	„ cars	40	18,604
„	„	„ cycles	30	772
„	„	„ car parts	—	995
„	„	„ cycle „	—	583

Total value of imports from Belgium in June, 1904 ... £26,035
Total value of imports from Belgium, Jan.–June, 1904 ... £137,698

FRANCE.

				£
Bordeaux	London	Motor-cars	3	1,095
„	„	„ cycle	1	80
Boulogne	Folkestone	„ cars	73	30,094
„	„	„ cycles	10	306
„	„	„ car parts	—	9.149
„	Goole	„ cars	38	17,920
„	„	„ car parts	—	1,087
„	London	„ cars „	143	55,360
„	„	„ cycles	11	332
„	„	„ car parts	—	1,217
Calais	Dover	„ cars	3	1,390
„	„	„ cycle	1	39
„	„	„ car parts	—	297
„	London	„ cars	13	1,048
Dieppe	Grimsby	„ „	5	1,310
„	Newhaven	„ „	145	76,455
„	„	„ cycles	8	264
„	„	„ car parts	—	10,945
Dunkirk	Hull	„ car	1	260
„	Leith	„ cars	2	820
Havre	Liverpool	„ „	2	1,030
„	Southampton	„ „	2	400
Honfleur	„	„ car parts	—	410
Marseilles	London	„ car	1	500
Rouen	Glasgow	„ cars	4	1,420
„	„	„ cycles	2	70
„	„	„ car parts	—	109
„	Hull	„ car	1	320
„	London	„ „	1	400
„	Manchester	„ „	1	500
Treport	Leith	„ car parts	—	17,817
„	London	„ cars	25	6,299
„	Manchester	„ car	1	200

Total value of imports from France in June 1904 ... £238,934
Total value of imports from France, Jan.–June, 1904 £997,588

GERMANY.

Bremen	Hull	Motor-cycles	2	66
„	London	„ cars	9	5,810
„	„	„ cycles	2	66
„	„	„ car parts	—	20
Hamburg	Harwich	„ „ „	—	12
„	„	„ cycles	—	15
„	London	„ car parts	—	178

Total value of imports from Germany in June, 1904 ... £6,167
Total value of imports from Germany, Jan.–June, 1904 ... £34,929

HOLLAND.

				£
Amsterdam	Goole	Motor-cars	2	933
„	London	„ „	2	600
Flushing	Queenboro'	Motor-car parts	—	28
Rotterdam	Harwich	„ „	—	208
„	London	„ cars „	3	2,150
„	„	„ cycles	12	150
„	„	„ car parts	—	384

Total value of imports from Holland in June, 1904 ... £4.453
Total value of imports from Holland, Jan.–June, 1904 ... £23,186

UNITED STATES.

				£
Boston	Liverpool	Motor-cars	5	1,075
„	London	„ „	2	649
New York	Liverpool	„ „	4	2,450
„	„	„ car parts	—	10
„	London	„ cars	24	8,034
„	Southampton	„ „	10	1,266
„	„	„ car parts	—	167
Philadelphia	Manchester	„ „ „	—	1,250

Total value of imports from the United States in June, 1904 £14,835
Total value of imports from the United States, Jan.–June, 1904 £79,971

CASES DISMISSED.

AT Norman Cross, Huntingdonshire, James Garrett, driver to Mr. J. G. Robinson, of Cragdale, Settle, was summoned for driving a motor-car on the highway at a speed exceeding twenty miles an hour. Mr. V. G. Stapleton, of Stamford, appeared for the defendant. Two constables gave evidence for the prosecution, and admitted that when they took the measurement they were in a by-lane 600 yards away. After taking their time they walked down the lane into the main road in time to see the motorist finish the measured distance. Both witnesses stated in cross-examination that no notice was given to the driver that they intended to prosecute him. Mr. Stapleton thereupon raised an objection under Section 9, Sub-section 2, of the Motor Act against the prosecution, because no notice of intended prosecution had been given at the time. The magistrates, after considering in private, decided in favour of Mr. Stapleton's objection, and dismissed the case.

AT Hatfield Police Court, Dr. John Potter, defended by Mr. Firth, was summoned on the 26th ult. for driving his motor-car at Hatfield on the 28th August last furiously, so as to endanger the lives and limbs of the passengers on the highway. From the evidence it appeared that Dr. Potter, accompanied by Dr. Dow and Mr. McDougall, were driving through Hatfield to London in the evening, and when outside Hatfield they came into collision with a wagonette containing six people, including the driver. The bench dismissed the case.

A DRIVER'S NEGLIGENCE—EMPLOYER'S LIABILITY.

A POINT of interest to motorists was raised in a case which came before Judge Stonor, on Monday, at Marylebone County Court. The plaintiff, James Murphy, 34, Winchester Street, King's Cross, W., sought to recover £25 from Mr. A. M. Abrahams, 16, Upper Hamilton Place, Kilburn, N.W., the claim being in respect of personal injuries said to have been sustained owing to negligence on the part of defendant's chauffeur.

From the evidence it appeared that as the plaintiff was driving a cab along the Mall, S.W., the defendant's chauffeur, driving his master's motor-car on the wrong side of the road, dashed into the cab, seriously injuring the plaintiff. This happened at about a quarter to nine in the evening. The defendant stated that he left his chauffeur at about half-past six that evening, and that the man should then have taken the car to the stable close by. It appeared, however, that the chauffeur kept the car out all the evening without permission, and after bringing the car back to the stable, disappeared.

Counsel for the plaintiff submitted that the defendant was liable in respect of the chauffeur's negligence which caused the accident, even though the man was not at the time acting in accordance with his instructions. Several cases were referred to in support of the submission.

Counsel for the defendant contended that as the chauffeur, at the time of the accident, was not engaged in the ordinary course of his employment, the defendant could not be held liable for the man's negligence.

His Honour agreed with this contention, and gave judgment for the defendant, but allowed no costs.

CASES AGAINST MOTORISTS.

Place.	Summoned for	Fine.
Lewes	Failing to produce his motor driver's licence within reasonable time for purposes of endorsement	14s., etc.
„	Driving motor-car without being licensed	20s., etc.
Kingston	Driving furiously at (1) Esher, and (2) at Cobham on the 17th ult.	£16 8s. 6d.
St. Neots	(1) Driving to common danger and (2) refusing to stop	(1) £6, (2) £8.
„	Seven cases of driving to common danger	£10 each.
Thorpe (Norwich)	Driving negligently	£6, etc.
Eastbourne	Driving dangerously	£1, etc.
Bristol	Furiously driving a car	£10. etc.
Lymm	Furious driving	£2 2s.
Hythe	Driving without licence	2s. 6d., etc.

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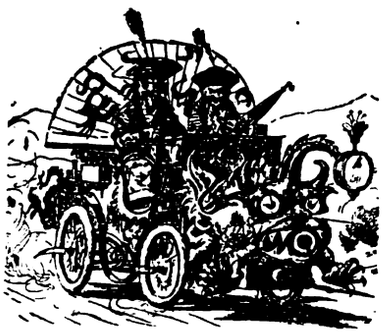
THE

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COMMENTS.



SEVEN hours have been occupied by the Local Government Board Inspector in an inquiry at Kingston having reference to an application by the Town Council of that place to restrict the speed of motor-cars in the borough to ten miles an hour, and to prohibit motorists from using Bank Lane, a roadway leading to the river. Major Macaulay, the borough surveyor of Kingston, dealing with the roads giving approach to the town, said that the centre of Kingston was only 16 ft. 9 in. In one part the main road to the borough from Richmond was only 18 ft. 8 in., while the Coombe Road entrance to Kingston from Malden was 18 ft. 8 in. wide at one point. The Richmond Park entrance to Kingston was 22 ft. 5 in. wide and the Cambridge Road entrance to the borough was 15 ft. 7 in. At Thames Street, opposite Bishop's Hall, the width of the roadway was but 16 ft. 10 in., and the Church Street entrance to the market-place was 17 ft. 10 in. As to Bank Lane, that was a road 193 yards long leading to the river which had no footpaths, its width varying from 16 ft. to 13 ft. 2 in. At present two vehicles were just able to pass each other, and the road was quite unfit for motor traffic. Altogether during the past twelve years the Corporation had spent between £30,000 and £60,000 in road widenings and improvements. The figures given by Major Macaulay with reference to the width of the streets in Kingston should be enough, we feel, to compel the council to be more liberal in widening its streets.

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Traffic in the Town.

SUB-DIVISIONAL Inspector Brice, who is in charge of the police at Kingston, said that on Sunday, August 10th, at three different points in the borough, which caught all the traffic, observation was kept on the vehicles. From 10 a.m. to 10 p.m. 472 motor-vehicles, 7,216 cycles, and 1,249 other conveyances passed through the town. That, too, was rather below the usual average for a Sunday, during which there was but little local traffic. The number of motor prosecutions in the borough during 1903 was eleven, and this year up to the present there had been nine cases, and there were six others still pending. During the present year thirty accidents and collisions in which motor-cars were concerned occurred in the borough. Included in the number was one fatal accident, and eleven persons were injured. And yet, despite that state of things, he had never had occasion to report to the Commissioner that the present powers under the Act were inadequate to deal with motor-car traffic in the borough

Why Restrict to 10 miles an hour?

SUCH was all the evidence that could be brought in favour of the application. On the other hand, Mr. E. K. Purchase did not consider Bank Lane a dangerous spot; Mr. G. T. Langridge pointed out that the imposition of a ten mile limit would lead to a congestion of traffic; Dr. W. Finny, an ex-Mayor of the Borough, thought such a limit was not desirable; Dr. O. Coleman, the senior medical practitioner in the district, who uses a motor-car in his daily practice, objected to the general application of such a rule; Colonel Fairtlough and Mr. R. W. Buttemer voiced the opposition of the West Surrey Automobile Club, and Messrs. T. Jays, P. Willis and R. H. Horsman having given evidence against the application, Mr. Rees Jeffreys said that in his opinion the Corporation should erect warning boards at dangerous corners and places instead of asking for the speed limit to be restricted. The decision of the Inspector in the case of Kingston, as well as in that of the City of London, is anxiously awaited.

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Travel in London.

THE London County Council are evidently fully alive to the changes that are coming along in street locomotion in the metropolis. At Tuesday's meeting Mr. Allen Baker, replying to questions from members, said the experience of several provincial counties did not lead him to believe that the motor-omnibuses which will shortly be seen in London streets would offer any serious opposition to the Councils tramways. In the event, however, of such omnibuses being put on the Council's horsed tramway routes, steps would be taken to see whether motors could not be used on the horsed tramcars, so as to compete with the opposition. All this rivalry will tend to the acceleration of speed in London, with consequent economy of time to business people.

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The Blackpool Races.

COLONEL MARK MAYHEW has been visiting Blackpool to inspect the track for the proposed races on the 14th and 15th inst. He has returned very favourably impressed with the course that is proposed for the events, and there will be a really representative entry of English automobiles. It is recognised that the proposed meeting is an added attraction at the end of the season for Blackpool, and apparently some little jealousy has been aroused in Southport in connection with the matter; but it must be remembered that motorists cannot be expected always to go to the same place, and, whilst the number of racing men is necessarily somewhat limited, the real chance of success for these seaside meetings is to hold them at different places. Thus those participating are given some variety of scenery. After all, the excitement of a motor-car race does not last long, and were it not for the opportunities for social intercourse that are created by such meetings, we do not think motorists would be so keen about them.

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The Programme of the Meet.

THE meeting will take place under the auspices of the Automobile Club, and the trials will be timed by their official timekeepers, but the whole of the organisation is being carried out by a local committee. The promenade shown in the photograph is undoubtedly a fine racing track, as it is quite straight, absolutely flat, and with a magnificent surface. The programme consists of races over a standing mile, and also over a flying kilometre; in the case of the latter a very great length, in which the cars will be able to get up speed, will be provided. There are promises already of a considerable number of the big racing cars, and the local committee trust that they will receive good support in the way of entries for all classes. The sections for the touring cars are for touring cars pure and simple—that is to say, for cars which have been built for touring vehicles, not got up specially for the occasion with racing bodies or similar equipment, and they must be provided with lamps and mud-guards, representing, in fact, the car as used upon the road. By having the classes arranged for both the standing mile and the flying kilometre, an advantage is being offered to many drivers in that they will be able to have a second run with a flying start and not be knocked out at once by their inability, perhaps, or by their misfortune to get away their car quickly from the start.



The Blackpool Speed Trials. View of the Promenade on which the competition will be held.

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Some Entries.

THE entries are thoroughly representative, and will include at least two racing Darracqs, a De Dietrich, the Hon. C. S. Rolls' 100-h.p. Mors; the six-cylindered and other Napier cars, a 90-h.p. Mercedes and several "Sixties" of the same type, a 40-h.p. Bollee to say nothing of the Crossley, Daimler, Wolseley, Speedwell, Gardner-Serpollet and other vehicles in which the public interest is keen. In fact, it would appear that the forthcoming event will be a battle of the giants, and some record times should be chronicled. Mr. E. Shrapnell Smith will act as starter.

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Haulage by Road.

AT the Dairy Show at the Agricultural Hall, London, the "Jones" Haulage Syndicate have been showing the Londonderry steam wagon which made a non-stop run from Seaham Harbour to London, as recorded in the *Journal* of July 2nd last. For this vehicle the Syndicate have secured the agency for the Midlands as well as for Ireland and Wales, and they are also using it in their work as road carriers and haulage contractors. A 7-h.p. petrol-driven lorry, fitted with Dougill's friction drive and capable of carrying 30 cwt. at a speed of ten to fifteen miles an hour, has also been on their stand. They are now organising a system of haulage by road on regular routes, of which runs from Birmingham to Bristol, Manchester to Birmingham, and Birmingham to London are already in operation. Possessing facilities for the prompt handling of produce, they have only the innate prejudice of the farmer to wear down to ensure much agricultural traffic. The transport of goods for many other trades is already secured.

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Tyres for Motor Vehicles.

THAT the last word has not yet been said with regard to tyres for motor vehicles is evident from the many letters we receive from motorists expressing dissatisfaction with the existing forms. Many automobilists have been so unfortunate in their experiences with pneumatic tyres that they have abandoned them in favour of solid rubber until such times as a tyre shall be produced possessing all the advantages of the pneumatic tyre with none of its drawbacks. Many minds are at work on the knotty problem, and it is reasonable to assume that sooner or later the labour of at least some of these experimentalists should bring forth a successful solution. Among those who are devoting attention to the subject is Mr. W. Meadows, of Brixton, who has produced a pneumatic tyre claimed to give all the resiliency of the usual form, with the additional advantage of being non-puncturable.

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A New Idea in Tyres.

WE had an opportunity the other day of inspecting the specimen tyre which Mr. Meadows has had made, and it may first be mentioned that the rim is somewhat wider than usual in order to accommodate two inner tubes arranged side by side, he preferring to have his air cushion formed by two small tubes instead of one large one. No rubber outer cover is used to protect the inner tubes, or as a tread, its place being taken by a series of segments. The inner face of the segments is provided with two semicircular grooves separated by a ridge, so that they lie close on the two air tubes; the segments may be of thin steel or of wood with a steel tread, and are held in position by means of a long central bolt which passes between the two air tubes and through the wooden felloe of the wheel, being held in

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place by nuts. The treads, of which there are usually twelve to each wheel, are so arranged that there is normally a space of about a quarter of an inch between each, the gap being filled by a rubber insertion, this arrangement being adopted to allow the necessary movement to the treads, which, as will be readily understood, are forced slightly inwards as they come in contact with the ground, the bolts being of slightly less diameter than the holes in the felloe to allow of this. The treads extend over the edges of the rim, so entirely shielding the air tubes from puncture, while, in order to protect the latter from the effects of wet and mud, they are enclosed in a stout waterproof casing, provided with small holes through which the bolts are inserted. The outer faces of the treads can be of any desired form, either flat or resembling that of a twin solid tyre; the latter is the form recommended by the inventor, as it is one which considerably reduces the liability to side slip. The new tyre, which is more especially intended for use on public-service and commercial vehicles, is certainly of simple construction, and should not be very costly to manufacture, while the treads can be easily and cheaply renewed in case of wear. Altogether the idea is one which strikes us favourably, and we look forward with interest to an actual test of the tyre on a motor vehicle.

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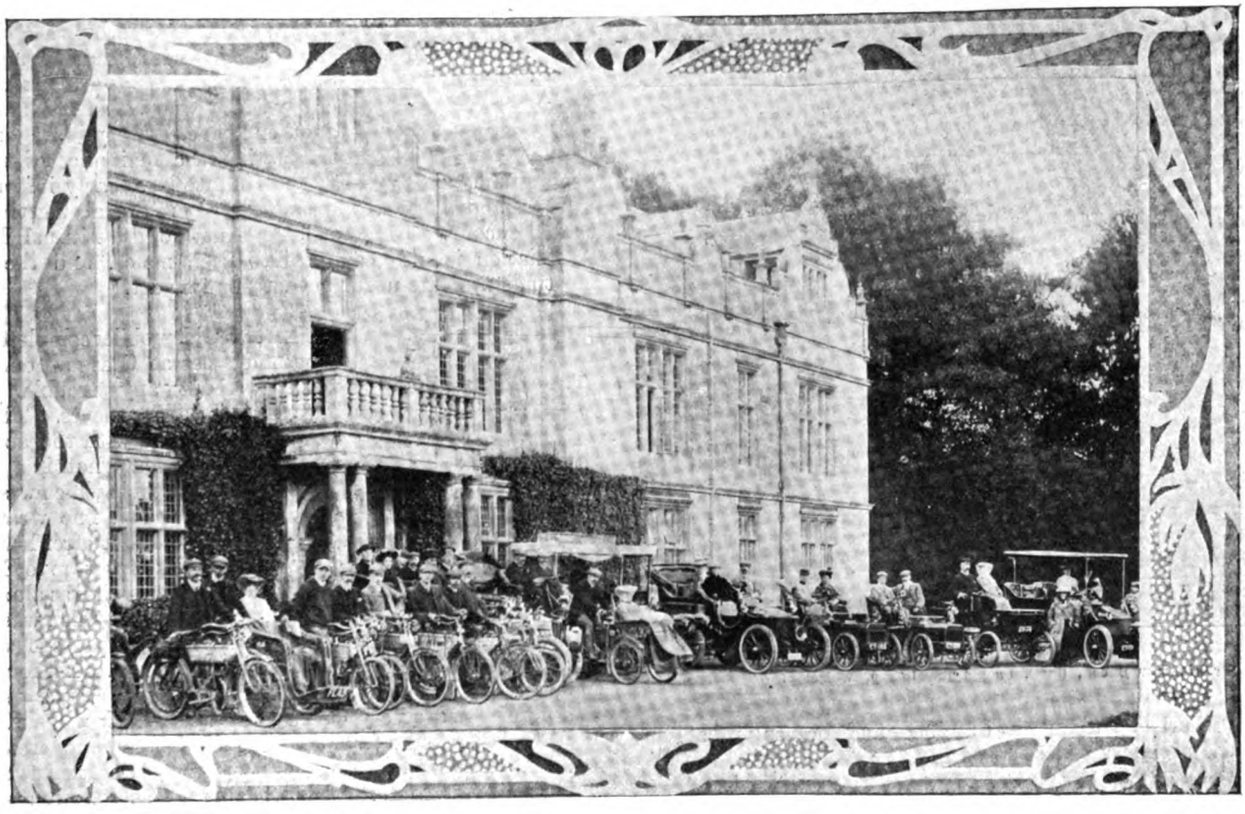
Non-Stop Motor Record.

SHORTLY before half-past ten on Saturday night a travel-stained automobile was driven into the London Hippodrome by Mr. Archibald Ford. On the 23rd ult. the driver started on a long journey, and during the course of slightly less than 204 hours covered a distance of 2,391 miles without stopping the engines of his 15-h.p. Darracq car, thus beating the previous British record of 2,017 miles, accomplished by Mr. D. M. Weigel. The world's record of 2,350 miles, made by Laroche in America, also went by the board. A flashlight photograph was taken of the scene at the Hippodrome, which we are able to reproduce, and in commemoration Mr. Ford received the present of a car similar in pattern to the one on which he established the fresh record. Mr. Ford arrived in London from the north, on Saturday morning, and at once started for Brighton, but he found the southern roads dangerously slippery. Shortly before reaching Brighton the car skidded upon the greasy surface, and, colliding with some strong iron railings, the front mudguard was badly damaged, while the basket containing supplies was carried right away. Everything was quickly put to rights, however, and this proved really the only accident that took place during the long trip. Mr. Ford occupied a much longer time than Mr. Weigel, and rested for several hours during the trial, the machine, of course, running throughout.

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The Darracq.

THE run was not without its exciting incidents. When descending Bolney Hill, during a particularly dark night, Mr. Ford's engineer took a wrong turn, and found the car within a few feet of a sheer drop of 200 or 300 feet; needless to say, he stopped in record time. On another occasion, in coming through Moseley Street, Newcastle, owing to the treacherous nature of the roads, the car skidded right round, mounted the pavement and stopped with the tonneau a few inches from a jeweller's window, much to the evident disappointment of the passers-by. The Scottish roads were several inches under water and the nights were frightfully co'd and foggy. During the entire journey the car gave absolutely no trouble, and beyond filling the tanks with petrol, water and oil, the only adjustment necessary was the cleaning and screwing up of the ignition tremblers. The tyres used were flat-tread Michelins, and the only troubles arising from these were through faulty fitting, which occasioned three nips, no punctures occurring during the whole of the long run. Mr. Ford showed remarkable confidence in the car which he selected for his record breaking journey, as that used was a standard vehicle, taken out of stock, the only addition being a secondary petrol supply to the carburettor, to allow of taking down and cleaning the gauze filter, which is fitted above the float chamber, though this was found unnecessary,



The Meet of the Northamptonshire Club at Apethorpe Hall, the Seat of the Hon. H. L. Brassey.

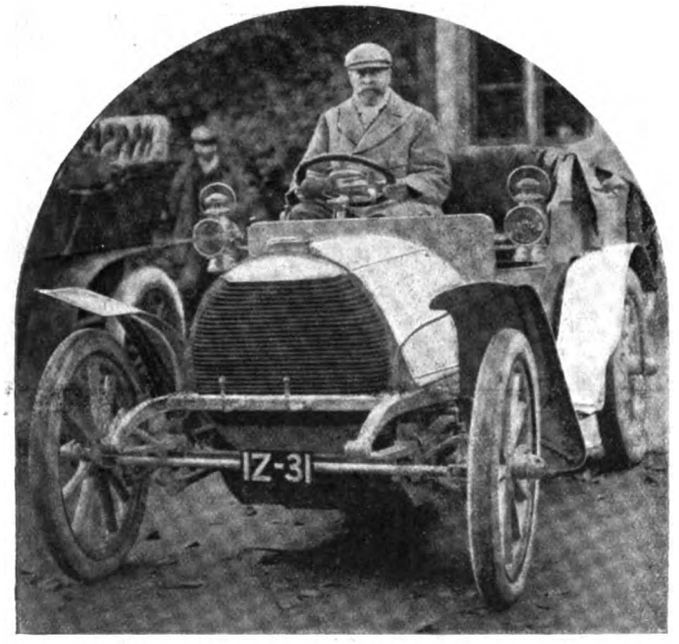
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owing to the careful manner in which the petrol tank was filled through a specially constructed funnel.

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A Dublin Case.

AMONG the owners of automobiles who have lately been fined at Dublin—and there have been a great number—was Mr. A. D. Pratt, the American Consul in Dublin, who was fined for driving his motor-bicycle at an excessive speed. His solicitor said he was an American citizen, but he would not raise the point. The magistrate said that the technical point might apply to an ambassador, but hardly to a consul. Anyhow we are glad to see that he, recognising that he was in the wrong, paid his fine and went his way without raising all the pother that an official in the British service in the United States thought well to do in somewhat similar circumstances. Defendants in such cases should not seek to rely upon any technical objections which would not be allowed to prevail in the event of ordinary mortals being concerned. The attitude of the American Consul



Sir Hickman Bacon, Bart., on his new 18-h.p. Wolseley.

in the police court at Dublin was dignified, and he has probably recognised the necessity of less speed in the city.

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Fire and Explosion.

ON Thursday of last week a fire broke out in the motor-car shed of the Great Western Railway Company, at Helston. Repairs were being effected to the motor-mail-'bus; standing beside this vehicle was another, constructed on the Jersey principle. A jet of gas was burning at the lower end of the building, about five feet from the head of the 'bus and about five feet from the petrol tank. The driver had repaired the sparking plugs and was unscrewing the plug of the petrol tank to remove water that had accumulated there, when an explosion occurred—it is supposed through the petrol fumes being blown underneath the car to the naked gaslight. He was below the car, and as soon as the explosion occurred was covered with burning petrol. A fellow driver named Sanders went to his assistance and hurried him from the building. Sanders went back to try and save the cars, but found the body of the 'bus in flames. He then tried to get the other car out, but failed through the sliding door having become immovable. The building then took fire and other structures in the vicinity were threatened.

The Service really Suspended.

WHILST the fire was at its highest, an explosion occurred. Without the slightest warning there was a loud report, the petrol tank having been blown from its fixture on the car. It penetrated the white hot galvanised iron of the building immediately beside the permanent way, and was hurled across the roadway used by passengers and into a field opposite Weighing nearly a half-hundredweight, the tank was thrown about 200 yards, and it is fortunate that no injury attended its flight. The scene after the fire was an impressive one. The cars were complete wrecks. Everything that could be burnt was consumed in the conflagration, and all that remained were the *chassis* of both cars, twisted into fantastic shapes. Nothing except the iron fittings of the cars were left, and even these have been ruined by the intense heat. These were the vehicles that the Great Western Railway Company had used in the service between Helston and the Lizard, which they had decided was to be suspended on Saturday last, owing to the refusal of the local District Council to steam roll the roads which the cars traversed.

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Clubs and Associations.

MANY of the provincial clubs concluded their series of outings and trips on Saturday last, as will be gathered from our "Clubs and Associations" news on another page. They are now contemplating the beginning of the winter programme, and we shall be glad to have early information of lectures and papers to be read at any provincial meetings during the forthcoming season. The Automobile Mutual Protection Association is also coming into prominence, and the monthly meetings indicate useful act vity on its part.

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The Oldsmobile in Ireland.

THE two Oldsmobiles completed the first thousand miles at Glasgow on Saturday week without any trouble whatever, beyond slight adjustments. The big car had a little trouble with the accumulator running down, but nothing to delay them. The cars have run up to the time table which was arranged for them right from the first day. They had fine weather until they got to Leeds and Newcastle-on-Tyne, but after leaving Newcastle it was pouring with rain all the way right up to Edinburgh, and from Edinburgh to Glasgow. On Saturday it was almost impossible to drive owing to the rain, hail and sleet, which was anything but pleasant. Neither of the cars has up to the present had a puncture, nor any trouble at all with their engines. Although having had such terrible weather the last two or three days, the drivers and observers are very fit. The run this week will end at Holyhead to-day. They take the boat on Sunday, and cross over to Dublin. The Irish route was not definitely settled at the time of going to press, but it will probably be as follows :—1st day : Dublin to Belfast. 2nd day : Belfast to Dublin. 3rd day : Dublin to Waterford. 4th day : Waterford to Cork. This gives a total distance of 412 miles for the four days. They should finish at Cork on Thursday next, and will then cross over from Cork on Friday night, arriving at Milford Haven on Saturday.

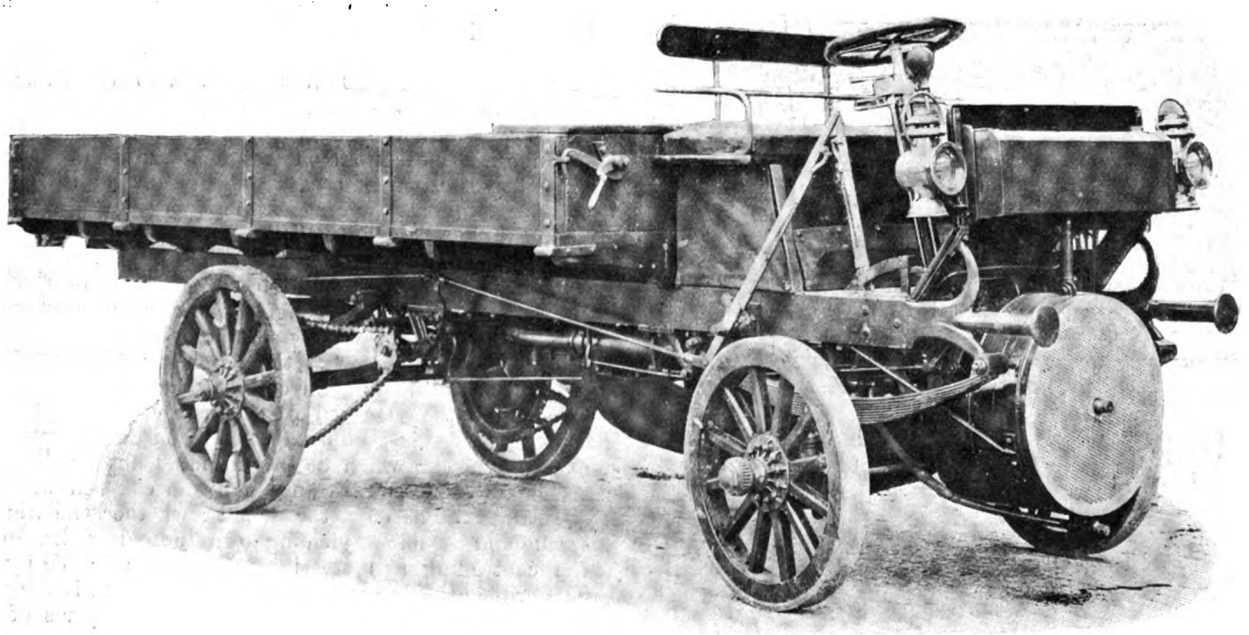
FROM Messrs. Michelin and Company, the well-known French tyre manufacturers, comes one of the most interesting books we have received for a long time past. It is entitled "The Pneumatic Tyre and the Motor Car 1894-1904," and gives a history of the development of the pneumatic tyre for motor-cars from 1894 onward. One of the illustrations shows the first pneumatic-tyred motor-car, a very crude machine with large wheels all fitted with Michelin tyres. This car started first in the Paris-Bordeaux race of 1895 and arrived ninth. The subsequent development of the tyre and its success on motor vehicles is fully described, the text being accompanied by illustrations which render the book of considerable interest and historic value. We understand that copies of the book will be sent on application to M. Wolff, 44, Bedford Row, London, W.C.

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THE BEAUFORT PETROL MOTOR LORRY.

THE Beaufort Motor Company, in addition to their pleasure cars, are now entering the field of commercial vehicles, and the other day we had an opportunity of making a trial run on the heavy petrol lorry they are introducing, and of which an illustration is given herewith. The lorry is designed to carry a load of three tons; the main frame is constructed of steel of a large channel section, supported on the axles by long springs. The motive power is supplied by a twin-cylinder vertical engine, developing 12–16-h.p. The cylinders, which are 125 mm. bore by 150 mm. stroke, are in one casting. The normal speed of the engine is about 700 revolutions per minute, but can be varied between very wide limits, we ourselves having timed the engine to make as low as 100 revolutions per minute. The water circulation is maintained by a pump driven off the half-speed shaft by means of a spring device and a circular honeycomb radiator, behind which is a fan to induce a current of air through the cooler. A new departure is found in the ignition, both magneto, and the ordinary high tension with coil and battery, being provided. The magneto is of a new type, the current generated by it being passed through the coil and giving a high-tension current, utilised in the ordinary type of sparking plug, the make and break device usually required with magnetos being thus dispensed with. We are not able to give full particulars at the moment of the new magneto, but it may be mentioned that it is of a simple type, having only one winding, this being, however, of a special form; it is driven off the engine by enclosed spur gearing. The contact maker and governor are mounted on the same vertical spindle, driven by bevel gear off the half-time shaft, and are in an accessible position. The governor is adapted to act on the admission; all the valves are mechanically actuated off one cam shaft, and are so arranged that they can be removed with a minimum of trouble. A large inspection door is provided on one side of the motor, enabling the valve cams and the big ends of the connecting rods to be inspected.

Passing now to the transmission mechanism, the power is conveyed to the gear-box through a large metal-to-metal clutch, controlled by a pedal in the usual way. The gear-box is adapted to give three forward speeds of respectively 3, 7, and 10 to 12 miles per hour and a reverse, the latter being actuated by a separate foot lever. The change-speed gear is of the usual sliding pinion type, with direct drive on the top speed, a noticeable feature being the unusual width of the pinions. The main shaft, which passes through the gear-box, is also provided with very ample bearing surfaces, there being two separate ball bearings and a thrust bearing at each end. From the gear-box the power is transmitted through bevel gearing to a differential countershaft and hence by side chains to the rear road wheels. The countershaft runs on ball bearings, and provision is made for adjusting the mesh of the bevel gears without disturbing the gear-box. Radius rods are provided between the countershaft and rear axle. The latter is of the round, solid type, while the front axle is of tubular steel construction. Ample brake power is provided, a pedal controlling two band brakes on the countershaft and a pull-up hand lever, a further pair acting on the hubs of the rear road wheels, all the brakes being of the internally expanding type, entirely enclosed and so protected from dust and dirt. As a further protection against running back on hills, two sprags are supported on the rear axle. The road wheels are of a strong artillery type with wide steel tyres, although solid rubber tyres can be fitted if desired. The steering gear is of the rack and pinion type, of a construction sufficiently strong to withstand the shocks that vehicles of this type are subjected to. A sight-feet lubricator, operated by the pressure of the exhaust gases, is mounted on the dashboard, the pipes to the various bearings each being provided with a feed-regulating screw. The vehicle has a wheel-base of approximately 10 ft., and the track is 4 ft. 9 in.; the lorry platform measures 11 ft. by 6 ft. A somewhat novel departure is the provision of spring buffers to the front ends of the frame, these being clearly discernible in the illustration. The engine is located under the driver's seat, so that it occupies a minimum amount of the useful length of the frame; the seat is so made that it can quickly be lifted off to give access to the motor. Behind it is a double compartment chest, in one half of which is a most complete set of tools and spare parts, and in the other a cylindrical petrol tank having a capacity of 20 gallons, and fitted with a non-explosive device described in a recent issue of the *Journal*.

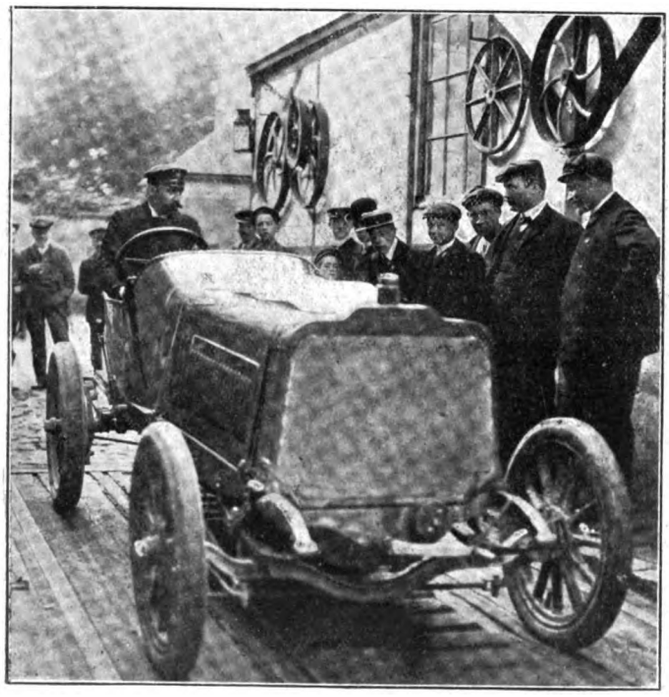


The motor, whose flexibility has already been referred to, runs very quietly, this being partially obtained by the use of a special expansion chamber for the exhaust gases, in addition to the silencer proper. The lorry, which is designed to carry its full load up gradients as steep as 1 in 6, has successfully mounted the well-known Netherall Gardens with a load of one ton. Altogether, the details of the new Beaufort lorry appear to have been most carefully thought out, and we anticipate seeing a good many of them in use at no distant date.

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THE DOURDAN SPEED TRIALS.

THE mile and kilometre speed trials organised by the "Velo" were run off on the road at Dourdan on Monday last in fine weather, although the course was not in the best of condition. When the list was closed it was found that altogether fifty entries were received. The weighing-in operation took place at the works of Messrs. Gautreau, at Dourdan, on Sunday. As was mentioned in a former issue, it was decided to allow the competitors two separate trials, the mile from a standing start, and the flying kilometre, and not to have a general classification. The mile trials were run off first, the tourists leading the way, followed by the racers. Marevrelle on a Creanche was first in the under £160 class, time 2 min. 13 sec.; Gabreau on a Boyer headed the £160 to £320 section in 1 min. 57⅘ sec. Amand on a 10-h.p. Gardner-Serpollet made the best time in the £320 to £480 class (1 min. 35⅕ sec.) A Gardner-Serpollet, driven by Pelser, won the £480 to £720 category (1 min. 38⅕ sec.), while the victor in the £720 to £960 class was Gasté, who, on a Radia, covered the mile in 1 min. 21⅖ sec. Florio in the over £1,200 class did the mile on his Mercedes in 1 min. 16⅗ sec.



Baras Weighing in his Darracq Racer at Dourdan.

The best flying kilometre in the touring section was made by Gasté on the Radia (38⅕ sec.), Florio being 1⅗ sec. slower.

Coming now to the racers, the best time for the mile in the heavy car class was made by Baras on a Darracq (time, 52⅕ sec.). Dufaux on the Dufaux racer built for the 1904 Gordon Bennett race, being second in 1 min. 3⅖ sec.

In the light car class there were only two competitors, the fastest time being made by Emery on a Darracq (59⅕ sec.)

In the under fifty kilogramme motor-bicycle section Lanfranchi on a Peugeot proved to be the winner, he covering the mile in 57⅘ sec., this being a new world's record. Olieslagers on a Minerva was second in 1 min. 2⅗ sec.

The best times in the various categories in the flying kilometre trials are given below :—

Class.	Rider.	Machine.	Time. Sec.
Light Motor-bicycles	Lanfranchi	Peugeot	29⅘
Voiturettes	De la Touloubre	Darracq	36⅕
Light Cars	Emery	Darracq	29⅖
Heavy Cars	Baras	Darracq	25⅘

The times for the cars are relatively slow, being far from approaching, not to speak of lowering, the record. On the other hand Lanfranchi on his Peugeot motor-bicycle succeeded in setting up new times both for the standing mile and the flying kilometre.

HOW TO SELECT A MOTOR-CAR.

ALMOST daily we are asked by some correspondent to specify which is the best motor-car on the market. To such a question it is difficult to give a categorical answer, since personal tastes and prejudices enter so largely into the matter. As the French say, *chacun a son gout*, which means nearly the same thing as the old Latin *de gustibus non disputandum*. Still, so numerous are the various types of motor-cars now in common use, that one who has but a superficial knowledge of mechanics scarcely knows which form to select for his own purposes.

Yet there are several plain considerations which are bound to govern the most inexperienced layman in the choice of a motor-car. The use to which the vehicle will be put is a question of paramount importance. It should be determined in advance whether the car is to be employed for long-distance travelling or for town driving. The question of price comes next. The automobile industry at present is in very much the same state as was the bicycle industry in 1899. At that time a good machine was worth about £30. Now a bicycle, better constructed and more durable, can be bought for a third of the money. As in those days, it is better to purchase a car from one of the large manufacturers. The prospective automobile buyer should not hesitate to pay £20 or £30 more for a car that will perform all the services which he may expect it to do. When the amateur visits the various depots and compares different models, he should not allow himself to be wholly influenced by the exterior of the car or by the more or less happy arrangement of parts; for external appearance has little to do with mechanical construction, and can be made to suit the taste of the purchaser. What is of greater moment is the motor and co-acting mechanism. The motor constitutes the essential part of the car; everything else is largely of secondary importance. The purchaser should carefully examine the car which he has in mind and ascertain whether its motor and power-transmitting mechanism are good and adapted to the needs of the vehicle; whether the framework is strong and capable of yielding to strains and shocks, and whether the controlling and steering mechanisms are easily operated. The prime consideration, it must be repeated, is a good motor, simple in construction and operation, all the parts of which are readily accessible and easily controlled.

Light cars, of which there are several types in general use, have the advantage of being cheaper than the larger automobiles. These are eminently serviceable, not only in towns but also for long-distance travelling and touring. An important point on which the purchaser of a motor-car for country use should satisfy himself is the hill-climbing power of the vehicle submitted to him. It is not necessary that the car should take its full load up a steep hill, but it is essential for satisfactory touring that ordinary hills should be taken at a fairly good speed, and without having to shed any of its passengers. Many automobiles are so under-powered—that is, the weight of the car body and load is too great for the power of the motor—that on a hill of any length or height they cannot pull their load at a speed of more than four miles an hour. The buyer should insist on a hill-climbing test in his presence. After this purchasers would do well to take the time over a mile on the flat, to see that the car as geared for hill-climbing will also make good time on the level.

THE "General Motor Car Co., Limited," has changed its name to the "Metropolitan Engineering and General Motor Car Co., Limited." The factory is at Commonside East, Mitcham, Surrey, and the show rooms at Norbury; another depot is being opened in Royal Parade Croydon.

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CONTINENTAL NOTES.

Mercedes Cars in 1905.

It is announced that an important syndicate has acquired the whole of the output of the Daimler Motoren Gesellschaft of Mercedes cars for 1905, and that they handed over immediately the whole of the production to different agencies; for instance, the German agency is given to Messrs. Flinsch and Co., of Frankfurt-am-Main; the Austrian agency to Messrs. Arnold Spitz, of Vienna; France, England and America to Mr. Charley, of Paris, who has sublet the American agency to Messrs. Allen, Halle and Co., of New York, and the British agency to Mr. Harvey du Cros, Jun. It is further reported that the 1905 output will consist of only two types, 28-32-h.p. and 35-40-h.p.

A Public Service in Roumania.

The prefectural authorities at Ilfore, Roumania, propose to organise a public motor-car service between Bucharest and Oltenitza, and are calling for offers for two vehicles; tenders are to be sent in by the 25th inst.

Public Services in Switzerland.

A company has just been formed in Zurich with the title "Mobil" Gesellschaft fur Motorwagenverkehr, to start a motor goods transport service between Zurich, Glarus, Lucerne, Aarau, and Schaffhausen. It is stated that the company has secured a number of contracts for the conveyance of goods between the places named, and that orders have been placed for four "Orion" petrol lorries, which are to be delivered in December and January next.

The Herkomer Cup for Touring Cars.

On Sunday, the 18th ult., the Bavarian Automobile Club took a drive to Landsberg on the Lech, in Upper Bavaria, in order to pay a visit to Professor Hubert von Herkomer, who, as is well known, has offered a cup for an international competition for touring cars. The cup is to be worked in silver and enamel by the great artist himself, and will not only have a high material worth but will also be a valuable piece of art. The prize cannot be competed for more than five times. Those winners who may loose the Cup in subsequent years are to receive special prizes, one valued at £100 having already been offered by Dr. Magin, of Paris, for the winner of the 1905 competition, which will take place in Munich. Further, during the meeting at Landsberg Professor von Herkomer promised to paint the portrait of each winner in the competition.

The Improvement of Hotels.

In connection with the forthcoming *Salon*, which, by the way, promises to eclipse all previous exhibitions, the French Automobile Club is organising a competitive exhibition of hotel bedrooms as they should be from the standpoint of sanitation, comfort, furniture, and fittings. There will be three grades of model rooms of first and second class hotels and country inns. Five gold medals will be awarded in this connection and £450 will be offered in prizes.

The 1905 Gordon Bennett Race.

It is possible that Italy will next year have to hold an eliminating contest to select the Italian team for the Gordon Bennett race. Three firms have notified the I.A.C. of their intention to build special racers, viz., the F.I.A.T. Company, Messrs. Matteo Ceirano and Company, and Messrs. Giovanni Cierano and Company.

Another Motor-Boat for England.

Like the Richard-Brasier "Trefle-a-Quatre" another well-known motor-boat is to fly the British flag in future, M. Vedrine's "Mercedes IV.," which won the Calais-Dover motor-boat race, having been acquired by Mr. A. L. Guinness.

The Chateau-Thierry Hill Climb.

The hill-climbing competition for touring vehicles which the "Auto" is organising for the 23rd inst. comprises the following sections:—(1) motor-bicycles the engines of which have a maximum cylinder capacity of one-third litre (·333 cubic centimetres); (2) cars costing less than £160); (3) ditto under £350; (4) ditto under £480; (5) ditto under £720; (6) ditto under £1,000; (7) ditto under £1,400; and (8) ditto over £1,400. Except in Sections 1 and 2 there will be two classes—one for open and one for closed vehicles. The competition will take place over a mile course at Chateau-Thierry, from a standing start. All the vehicles must be in touring trim, equipped with cushions, mudguards, steps and silencers, and except in Classes 1 and 2 must carry four persons. Entries should be sent to the "Auto," the fee per vehicle up to the 21st inst. being 20 francs.



Photo by] The End of Mr. A. Ford's 2390-Mile Non-Stop at the London Hippodrome. *[Campbell-Gray.*

The A.C.F. Industrial Vehicle Competition.

The French Automobile Club has decided to postpone its industrial vehicle competition from the present month to the end of May, 1905. A wheel and tyre test is to be included in the trial.

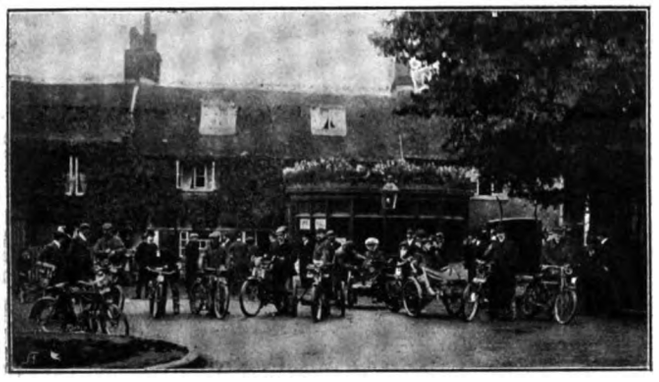
Hill Climbing in Switzerland.

The Swiss Automobile Club held its annual hill-climbing competition on Sunday last on the road between Trelex and Saint-Cergues. The course measured six miles and included many turns, with a 5.3 per cent. grade. In the heavy car class the best time was made by M. de Ville on a 16-h.p. Rochet-Schneider, time, 17 min. 40 sec. In the light car class the fastest time was made by M. Padey on a 16-h.p. Berliot (14 min. 1 sec.). The fastest time of the day was made by M. A. Benoit on a ZL motor-bicycle, time, 12 min. 21 sec.

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A MOTOR-CYCLE CONSUMPTION TEST.

THE Auto-Cycle Club's consumption trial on Saturday last was somewhat of a fiasco. The event consisted of a run from Thames Ditton, where the petrol tanks were officially filled, to Milford, *via* Ripley, Guildford and Godalming, and back; the distance out and home being 50 miles. Although only a dozen of the 28 entries put in an appearance at the start, the number must be considered satisfactory, having regard to the muddy state of the roads, due to the heavy rain of the morning



The Competitors ready to Start from the Angel at Ditton.

and of the previous day. Some time elapsed in filling up the petrol tanks, but eventually a start was made at 2.45 p.m., the competitors having to keep within sight of the official car, which set the pace. All went well until Godalming was reached on the return trip, when the car broke down, and the competitors were left to make their way back to Ditton alone. The well-known hostelry was reached just as darkness came on by all but one of the competitors, the missing rider being Mr. E. Palmer on a 3-h.p. Singer tri-car. A long weary wait ensued for the officials to arrive and refill the tanks to see how much petrol had been consumed. An hour went by, and although it was generally felt by the shivering waiting ones that the officials had had sufficient time to get back by train, no officials came. Two competitors—Mr. C. A. Smith, 2¼-h.p. Ariel tricycle, and Mr. H. Reeves, 2½-h.p. R. and P.—gave them up as a bad job, and just as others were preparing to do the same a telegram arrived, stating that they could not get back, and authorising Messrs. Lyons Sampson and Perman to make the necessary measurements. A graduated vessel and a supply of petrol being obtained, this was done, the tanks being filled right up. As, however, there was a doubt as to whether the tanks had been equally fully filled at the start or only to within a certain distance of the top, the following figures may require slight revision:—

Competitor.	Machine.	Carburettor.	Petrol consumed on 50-mile run.
H. P. Rose	2¾-h.p. Roc	Spray	42 oz.
S. Harris	1¾-h.p. F. N.-Whippet	,,	44 ,,
E. Perman	2-h.p. Seventy	,,	52 ,,
H. Martin	3-h.p. Excelsior	Surface	60 ,,
J. J. Leonard	2¾-h.p. Lurquin-Coudert	Spray	74 ,,
H. J. Densham	2½-h.p. Anglian	,,	79 ,,
H. Rignold	4½-h.p. Lagonda	,,	86 ,,
F. W. Applebee	3½-h.p. Rex	Surface	93 ,,
J. Van Hooydonk	3½-h.p. Trimo*	Spray	120 ,,

20 fluid oz. equal 1 pint. * Two-seated.

The lowest consumption was equal to about 190 miles per gallon of petrol, while the average of the single machines works out at 120 miles. Good as this is, better results would have been obtained had the roads not been in such a shocking condition. As already mentioned, two of the competitors had left before the measurements were taken, and they are consequently not included in the table.

SOME USEFUL NOTES.

THE question of changing gears is one that calls for consideration on the part of the novice. When one is able to handle the car well on the low gear, one may safely change into the next. Before changing gear the motor should be accelerated a little, the clutch withdrawn, and the gear lever moved smartly to the second speed notch. Be careful, however, not to get past the notch. If there is a "latch" on the change speed lever, it will, of course, have to be first raised before the lever can be moved. It will facilitate changing gear to raise the latch and then move the lever until the latch clears the notch, when it may be released. The latch will then be in contact with the quadrant and ready to drop into the second speed notch when the lever reaches that position. The latch, by dropping into the notch, tells when the gears are in mesh. This method of changing is much easier than when one lifts the latch and holds it clear of the quadrant until the gears are thought to be meshed and then releases the latch, which may not find its notch until the lever is moved backwards and forwards one or more times.

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IN cars having the "gridiron" or Mercedes type of quadrant, care must be taken that the change gear lever is not moved into the wrong slot. In going "up," if a gear is skipped, say from first to third, it will not do so much damage as if a gear is skipped in changing from a high speed to a low, say, from fourth to second. In the latter case a great strain is imposed on the clutch and transmission, as the momentum of the car is utilised in turning the motor over at an extremely high speed, and may result in breaking a gear or twisting a shaft.

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THE beginner should practice changing gear until this can be accomplished without looking at the quadrant, as this takes his attention from the road in front. After a little practice he will be able to change gear as well in the dark as in daylight, "feeling" by the position of the lever the speed he is on.

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THE following suggestion as to the proper way to hold the starting handle may be of interest to novices. Never push down, as shown in Fig. 1, when attempting to start the motor, because a "back-kick" when pushing down will generally result



Fig. 1.



Fig 2.

in a broken or sprained arm. The correct way is shown in Fig. 2. Partly grasp the handle with the four fingers of the right hand, according to the direction the engine turns, so that the crank lays across them midway between the palm and finger tips, and then pull up. If the motor should "kick," the handle will be merely pulled or slid from the fingers, and will not hurt in the least. Stand in such a position that in case of a back-kick the free end of the starting crank will not strike the legs.

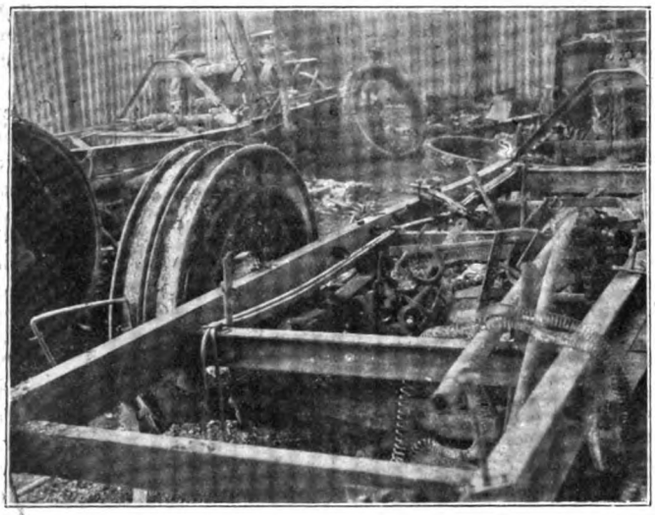
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HERE AND THERE.

SIX cars are in use by the Bray and co. Wicklow Motor-car Company.

ON the New Road, Ashford, Messrs. Brenchley and Co. have an establishment for the repair of automobiles.

CLOCK dials, such as are in use at many railway termini, are being adopted in connection with the motor-'bus service at Eastbourne.



The Fire at the G.W.R. Motor Shed at Helston. (See page 656).
Photo by] [A. H. Hawks.

IN future Continental motor tyres will be sold as before exclusively by the Clipper Tyre Co., and the Clipper Tyre Co. has agreed not to fix the selling prices of the motor tyres of the Continental Caoutchouc and Guttapercha Co. higher than those of the leading rival firms.

THE first automobile road race held in Western Canada was run off on Monday, the 5th ult., when five cars competed in a race from Winnipeg to Stonewall and back, a distance of forty miles. The event was won by Mr. J. K. McCulloch on a 12-h.p. Ford in 1 hour 40 minutes.

MUCH interest is taken in Egypt and the Soudan in the expected arrival at Khartoum of motor-cars for passenger service in the desert. The difficulty has been to find vehicles which are capable of travelling over the sand, but it is hoped that an early solution of this problem will be found. The Sirdar, Sir F. Wingate, was recently making experiments in this direction on the sands at a Scottish seaside resort.

ANOTHER trial of postal motor-vans is to be made in Melbourne. A private firm has consented to lend the Postmaster-General a light motor-van, capable of being used for the speedy collection of letters at the various city pillar boxes. The van will be tried for a month, and if found suitable will be the means of paving the way to the official adoption of motor vehicles for postal purposes in Victoria. A similar trial is about to be made in Perth and other big cities in Australia.

FOLLOWING up the interesting results attained by the railway coach propelled by a 100-h.p. petrol motor which is in use by the North-Eastern Railway Company, the Wolseley Company, designers of this vehicle, have produced a tram-car driven in a similar manner. The car weighs ten tons, and will carry thirty passengers and about one ton of luggage at speeds up to twenty miles an hour. It is fitted with a change-speed gear similar to a motor-car. All four wheels are driven, as in locomotive practice, to ensure sufficient grip. The motor, which is of standard Wolseley type, nominally developing 20-h.p., is expected to consume two gallons of petrol per hour when working under full load. The development of the petrol motor tram-car will be carefully watched to see how it compares with the expense of constructing, maintaining, and running electric tramways.

A GARAGE, with inspection pit, etc., has been erected in connection with the Swan Hotel, Petworth.

MR. C. LOCK, whose premises are at Stockwell Gate, Mansfield, is a practical repairer of motor-cars.

MESSRS. COURSE AND SON have a garage in Hassett Street, Bedford, from which they are letting motor-cars on hire.

MESSRS. LETZER AND JORDAN, of London Road, Kingston-on-Thames, have been appointed district agents for the Beaufort cars.

A MOTOR-'BUS service is, we learn, being suggested for Pudsey, a Yorkshire town that is asking for Parliamentary powers to start a tramway.

THE Napier team for the 1905 British eliminating race for the Gordon Bennett Cup will consist of Messrs. Cecil Edge, J. W. Stocks, and A. E. Macdonald.

MR. W. E. TAYLOR has resigned the post of general manager of the Birmingham Motor Express Co., Limited, which has just opened another route to Harborne.

THE Morley Automobile Club held their initial run to Wakefield. Unfortunately mishaps to a couple of motor-cyclist members marred the pleasure of the outing.

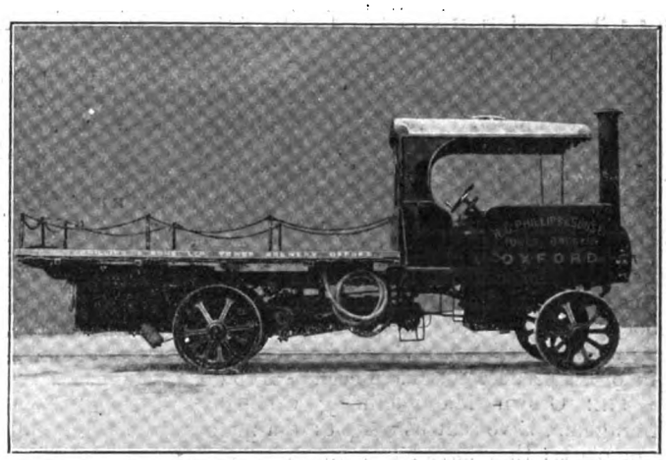
MESSRS. S. F. EDGE, LIMITED, have acquired the premises of the Regent Street Garage, Limited, which will therefore be discontinued by their present proprietary after the 1st prox.

ONCE a motorist always a motorist. No one who has tasted the independence of the self-moving car and the deep diversity of pleasures it procures, turns his back on this form of locomotion.

BEFORE the official receiver, some debtors, who lately carried on business as saddlers and harness-makers at 12, Tower-hill, London, E., have attributed their failure to decline in trade, owing to the increase of motor traffic and to other causes.

THE first successful automobile race meeting in Canada was held at the Exhibition Park, Toronto, a month ago, under the auspices of the Toronto Automobile Club. The feature of the day was the exhibition riding of Barney Oldfield, who covered three miles on the half-mile track in 3 min. 57 2-5 sec.

FOR the first time in the history of the Paris Municipal pawn-shop, a motor-car was pawned with it the other day. The proprietor drove his car slowly into the courtyard, and, after satisfying the official that the machine was really his own property, he was allowed an advance on it.



The Four |Ton Steam Lorry recently supplied by the Wantage Engineering Co. to Messrs. W. G. Phillips & Sons, Ltd.

WE had a short run on a 1905 pattern two-speed Rexette the other day, and amongst other detail improvements we noticed was the fitting of elongated springs under the front seat. This made the riding very comfortable and is certainly a great improvement. The engine is very powerful and is cooled on the thermo-syphon system. An ordinary steering wheel is fitted, and ample brake power is provided. The car can climb hills of a fairly good gradient on the top speed, and can get up practically any hill on the second.

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NOTICE boards, as suggested by the Motor Car Act, are to be erected at many cross roads in Perthshire.

WOULD-BE motorists are reminded that the fastest car is not the one that goes farthest in an hour, but the one that is stalled least in a year.

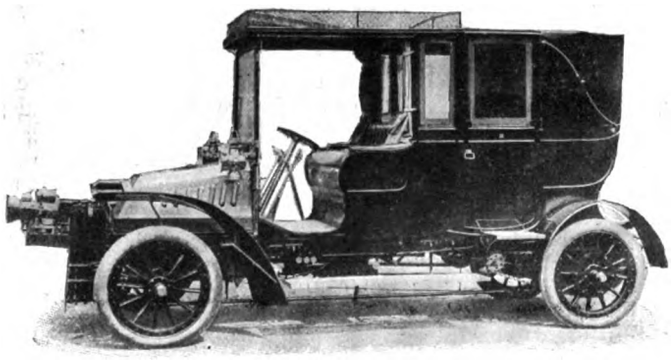
IT is reported that experiments are to be made in Simla with regard to employing electric motors to replace coolie labour for propelling jinrickshaws.

A MOTORIST has been aiding the police at Lowestoft by going to the station and bringing up reinforcements to the help of a couple of constables struggling with a violent prisoner.

THE Kensington Motor Company, Limited, are removing at the end of this month to new premises in Avonmore Road, Kensington, W. There they will have garage accommodation for about 100 cars.

THE LACRE MOTOR CAR COMPANY, LIMITED, have just issued a special circular relating to their device for turning any type of motor-car into a serviceable and elegant brougham. In view of the approach of the winter season, the appearance of the circular is timely.

ISSUED by the Droitwich Ratepayers' Association and the Corporation of Worcester, a new guide to the towns named and the Lower Severn Valley comes to hand, its capital illustrations and the excellent letterpress giving it an alluring power, and should do much to attract visitors to the district with which it deals.



The accompanying illustration depicts a 16-h.p. Turner-Miesse Steam Car with landau body recently built for an invalid gentleman. The vehicle is of a most comfortable and easy-running character and reflects much credit both on the constructors of the chassis—Turner's Motor Manufacturing Co., Ltd., and the body builders, Messrs. Hooper and Co.

THE Tramways Committee of the Wolverhampton Corporation are, we learn, prepared to receive particulars and approximate prices of steam and petrol motor-omnibuses suitable for service in town and suburban districts. The vehicles are to be capable of seating from thirty-two to thirty-six passengers.

PROFESSOR BAILEY, of San Francisco, an expert on metallurgy, has started on an automobile prospecting trip for Death Valley, California, where it is generally supposed there are rich mineral deposits. The district is famed as a death-trap owing to the intense heat and the absence of water. The valley has never been properly examined for gold or silver, but Professor Bailey believes that, with the assistance of his motor-car, he will accomplish what none of his predecessors have been able to do.

THE Crown Manufacturing Company, of Small Heath, Birmingham, have sent us samples of a motor repair band and a motor plaster they have lately introduced. They are designed to be used for temporarily repairing burst motor tyres on the road. After the air tube has been patched, the inside plaster, which is made of stout three-ply duck cloth, vulcanized together, is placed between the tube and cover of the tyre; it withstands the air-pressure, and prevents the cover from bulging. The outside band, which is neatly moulded with tapered edges, is then laid on the tyre cover, and the flaps are tucked inside to hold the band in position. The makers claim that the band and plaster enable a very satisfactory temporary repair to be made to any make of tyre, and as their cost is low, they form a useful addition to the tyre repair kit.

THE Chicago police have adopted a system of flash light signals with which to time motorists at night.

THE Kent County Council has purchased a Richard-Brasier car for the use of the County Surveyor.

THE North Eastern Railway Company have built a petrol motor parcel-van at their works at Gateshead.

DURING the recent manœuvres in Essex 1,500 gallons of petrol were used by the members of the Motor Volunteer Corps.

THE Bristol Wagon and Carriage Works Company, Limited, has facilities for the repair of motor-cars at their showroom in Victoria Street, Bristol.

THE Kensington Rubber Company, Limited, has been registered with a capital of £1,000 to carry on the business of manufacturers of and dealers in indiarubber goods for motor-cars, etc.

THE Doherty Motor Accessories Company, Limited, Coventry, send us a circular descriptive of a set of fittings, comprising radiator and water tank, bonnet, hollowed metal dashboard, lubricating and petrol tanks, silencer and wings, they have standardised for cars of from 6 to 10-h.p.

AN appeal has been heard at the Naas Quarter Sessions in which John Tyrrell, Eadestown, appealed from the decision of the Naas magistrates at Petty Sessions, at which he was fined £2 and costs for throwing a stone at Dr. Lane-Joynt, who was in his motor-car near Kilcullen on the 28th May. The conviction was affirmed.

MESSRS. LOWE BEVAN AND CO.'S latest production in the way of hood fittings for motor-cars is a special "Facile" set for side-entrance vehicles. These fittings are made with patent oval tubes for receiving hoop sticks, and are supplied in polished steel, brass, nickel, or silver-plated; they can be also supplied fitted up complete with hoop sticks and water-proof cover, with or without curtains, to suit any shape or size of car body.

MESSRS. MATTHEW WELLS AND CO., of Manchester, have sent us a trial sample of the lubricating oil they have put on the market for petrol engines. It is known as "Wellsaline," and is made for both air and water-cooled motors and supplied either in bulk or in the usual gallon tins. They are also catering for the lubricating oil requirements of steam vehicle users and also manufacture oils and grease suitable for the gear boxes and differentials of automobiles.

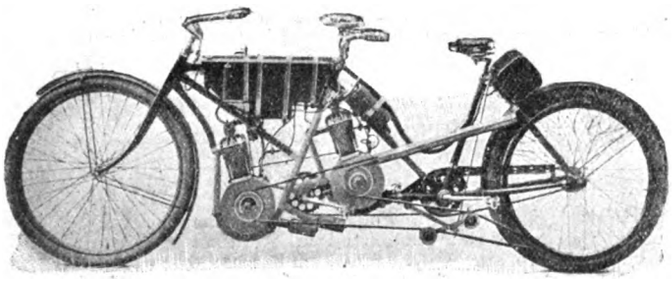
CALLING in at the extensive depot of Messrs. Friswell, Limited, at Albany Street, N.W., the other day, we had an opportunity of inspecting a handsome 12-h.p. Peugeot limousine which has lately been built for Lady Beatrice Rawson. The vehicle, which is painted in red, with black lines, is upholstered in red leather. The limousine is of the detachable type, enabling the car to be readily converted into an open side entrance vehicle when desired. The little Baby Peugeot is apparently losing none of its popularity, for we noticed quite a number of them being got ready for despatch to clients in different parts of the country.

THAT the 1904 season is approaching its end is indicated by the appearance of the 1905 models of cars. Among the first of these is the 10-h.p. Motobloc, the agents for which in this country are Messrs. Montague Hawnt and Co. We had a short trip on the new vehicle the other day in company with Mr. Hawnt, in the course of which we had ample evidence that not only is it speedy on the level, but that it tackles hills with ease. So far as the engine and transmission gear is concerned the new model shows but little change, the system having given excellent results. It is in the details that improvements have been effected; the throttle, air and ignition levers are now mounted on the steering wheel, while the clutch and brake pedals are of the push forward type. The frame has been slightly lengthened, as have also the front springs. The steering bar is now located behind instead of in front of the axle; the steering pivots of the front wheels are provided with a ball bearing; the brake drums are now attached to the hubs of the rear wheels and not to the spokes of the latter, thus relieving them of strain, while another minor but useful improvement is the provision of oil holes to all the springs. The changes which have been effected are the result of experience during the past twelve months, and we look forward to the "Motobloc" giving a good account of itself during next season.

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MOTOR CYCLING NEWS.

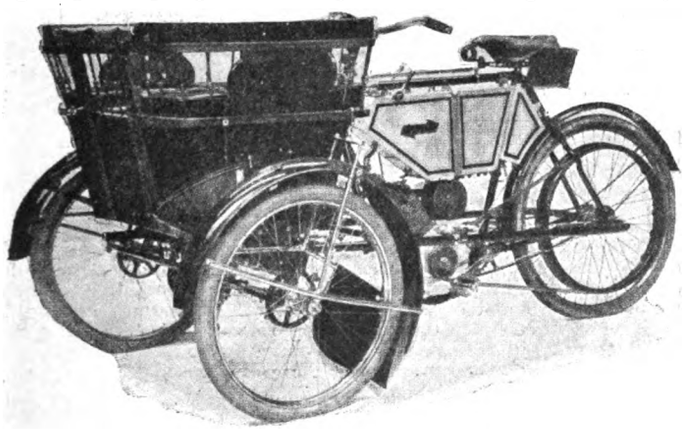
THE accompanying illustration shows a new motor-tandem recently brought out by the Wagner Cycle Company, of St. Paul, Minn., U.S.A. This tandem is equipped with two 2½-h.p. motors, With the Wagner extra seat attachment it makes a fine triplet. The petrol tank holds five quarts, sufficient for seventy-five miles running. The machine will run at speeds of from four to thirty miles per hour. Both engines are controlled by the front driver by means of a single lever, but the engines can be operated



separately, if desired. Belts are tightened simultaneously. The machine has separate carburettors, batteries, coils, silencers, etc., but the two belts for driving pass over a common pulley on the rear wheel, and are tightened by a common device. When desirable one motor can be used for propelling and the other can remain idle, or in case of one being disabled the other will always take the rider home. Pedals are provided for both riders, so that either rider can pedal when starting the motor

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MESSRS. MILLS AND FULFORD, of Coventry, who have for some time devoted special attention to the construction of trailing, fore and side cars for motor-cycles, have recently introduced the novel fore-car shown in the accompanying illustration. It is known as the "Governess," and has a seating capacity for two adults or four children, and as the seats are arranged one each side of the body, the driver has a clear view of the road in front of him. The illustration shows the car fitted to a motor-cycle. The body is of wood, painted and varnished, and comfortably upholstered, with a door in front and a fastener exactly on the same lines as in a horse-drawn governess car, except that entry is from the front instead of the back. It is mounted each side on long elliptical springs. The mudguards have strong tubular stays



on each side of the steering wheels, and are extended above the guards to form lamp brackets. The frame of the car is arranged so that it can be coupled up to any type of motor-cycle. All that it is necessary to do is to detach the front forks, and slide the head over the steering column of the frame. The extended members of the frame clip on to the back forks, and are provided with bushes for that purpose, which enable the members to grip either round, D or oval fork sides

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THE Brighton Cyclist Club held a motor-cycle hill climb on Thursday of last week on the north side of Clayton Hill, which was in every way a perfect success. There were thirteen entries, and, though the hill was thronged with people, the only drawback was the number of vehicles. The competitors were sent up the hill singly, all being got off within half an hour. The handicap was drawn up by Mr. F. Straight, of the Auto-Cycle Club. The following was the result of the handicap :—

	Start. Sec.	Actual Time. Min. sec.	Net Time. Min. sec.
1 F. H. Parsons	35	1 31	— 56
2 J. Mellison	20	1 19	— 59
3 J. Holloway	10	1 22	1 12
4 F. Thorogood	10	1 23	1 13
5 E. Le Couteur	20	1 34	1 14
6 W. Cowderoy	scratch	1 18	1 18
7 J. Best	40	2 10	1 30
8 E. W. Carter	10	1 44	1 34
9 T. Treacher	15	1 54	1 39
10 A. J. Crawford	10	1 52	1 42

F. W. Fowles, H. J. Funnell, and J. Feldwicke, 25 sec., did not start.

Cowderoy, who rode a 3½-h.p. "Cowderoy Minerva," did the fastest time, *i.e.*, 1 min. 18 sec.; Mellison, 2¾-h.p. "Bat," being next with 1 min. 19 sec., and Holloway, 3-h.p. "Holloway," third, with 1 min. 22 sec. The following assisted as officials :— Judges, Messrs. C. Dumbrell (captain) and A. W. F. Varley; starter, Mr. J. Feldwicke (president); timekeepers, Messrs. Brown and Ward; umpires, Messrs. W. Trussler, H. Butler, T. Mepham, D. A. Friend, J. Jones, H. Jarrett, and W. Shaw.



Mr. H. Rignold on his 4½-h.p. Lagonda on which he competed in the International Cup Race.

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THE Bristol Bicycle and Motor Club have held a hill climbing contest over a mile course with a total rise of 350 ft. Gold medals were won by Messrs. C. R. Edbrooke (3-h.p. Leader) and F. G. Tricks (3-h.p. Crabbe) for the fastest time and most meritorious performance respectively.

ALTHOUGH not yet absolutely completed, the large new works of Messrs. Clement Talbot, Limited, are open for inspection by anyone interested. A card of admission can be obtained on application in writing to the company. The huge gas engines built by Messrs. Willans and Robinson, Limited, of Rugby, which will supply the power for the new factory, were started for the first time last week, and were found satisfactory.

THE Cannstatt Mercedes, Limited, has been registered with a capital of £100, to carry on the business of manufacturers of and dealers in motors of all kinds, cycles, velocipedes, carts, wagons, vehicles, ships, boats, launches, flying machines, engines, mechanically-propelled vehicles and carriages of all kinds, engineers, machinists, &c. There will be no initial public issue, and the company has been registered without articles of association.

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CORRESPONDENCE.

THE NECESSITY OF WITNESSES.

To the Editor of *The Motor-Car Journal.*

Sir,—I was driving along King Street, Hammersmith, the other day, when I noticed straight in front a woman appear from behind a tram car. She had her back towards me. I blew the horn, she at once jumped, and rushed to get out of the way of the terrible automobile, which she of course thought was travelling at sixty miles an hour and more, stumbled, and trod upon her dress and fell down upon her face. Of course great shouts and screams went up in the busy street. However, after she had cleared away her debris, I let in my clutch and drove gently away, smiling to myself.

When about fifty yards away, I heard shouts for me to stop, and a policeman came running after me, saying, "You have knocked a woman down and you must come back." I was rather amused at this, so reversed. Arriving at the great crowd that had collected, I stopped my engine, and pulled out my pocket-book to obtain witnesses' names and addresses. One gentleman came forward at once, giving me his name and address, saying "it was nothing whatever to do with me, you never struck the woman, and stopped the car short of her by about fifteen yards; in fact, it was entirely her own fault, and such persons ought not to be allowed to walk about such busy thoroughfares as Hammersmith."

Getting further into the crowd I heard a woman say, "I hate motor-cars, but I won't see them blamed for that they don't do," so I at once took this sporting lady's name and address, she saying exactly the same as the first witness. Finally the officer who stopped me came up, and apologised most humbly for having stopped me, saying he did not see the affair happen himself, but was informed by someone that I had knocked a woman down.—Yours truly,

J. Russell Sharp.

THE RULE OF THE ROAD.

To the Editor of *The Motor-Car Journal.*

Sir,—The recent smashing up of a motor-car by being wedged between two electric tram-cars again calls attention to the growing neglect of the ordinary rules of the road, either through carelessness or ignorance. With regard to passing tram-cars, there is only one side on which to pass a tram, and that is on the inside. The tram rails are laid in the centre of the road solely with the intention of allowing a convenient space on the near sides of the road for other traffic. It would be very awkward if the lines were laid on the extreme near sides of the road, leaving the centre of the road clear for other traffic. How would traffic wishing to turn into side roads, or turning out from side-roads into trammed roads, fare?

The trams, running on rails which are laid in the centre of the road, cannot deviate from their course, and in the case of a vehicle overtaking a tram, the only safe and logical course for it is to pass the tram on the inside. Should the vehicle attempt to pass on the off-side, it is immediately confronted by the traffic coming in the opposite direction, and is on its wrong side immediately it goes over beyond the centre of the road. In the event of such a vehicle running into, or being run into, by another vehicle, it is entirely to blame, being the cause of the accident through being on its wrong side of the road. The practice of passing trams on the off-side is so very common that it is a wonder more accidents do not occur. It is so very obviously wrong, even from a common-sense point of view, that it makes it even more difficult to understand why people will run such risks of accident. In the case of roads having electric standards in the centre of the road, the danger is greatly multiplied.

I write this in the interests of road users generally, as I observe that cyclists besides motorists are very great sinners in this respect.—Yours truly,

Motor Cyclist.

WHERE ARE REPAIR SHOPS WANTED.

To the Editor of *The Motor-Car Journal.*

Sir,—As a subscriber to your *Journal* I am writing to ask you if any of your readers can tell me where a repairing shop for motor-cars is required. I am thinking of starting a small business of that sort. I thought if I could get on a much-frequented main road just outside a large town there might be a chance of success for an efficient man.—Yours truly,

D. H.

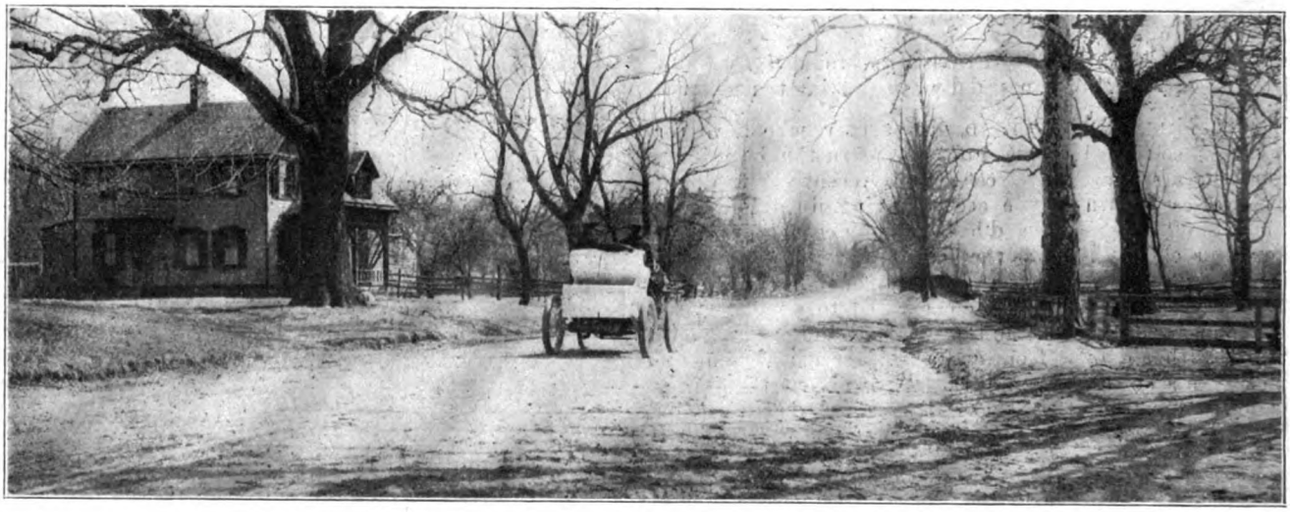
A PETROL MOTOR QUERY.

To the Editor of *The Motor-Car Journal.*

Sir,—When my car has been running for a short time the engine will not stop when the ignition current is cut off, but continues to explode six or eight times, and often finishes with a loud report in the silencer. Can any of your readers tell me how I can stop this trouble? The engine is an 8-h.p. single cylinder which has run about 1,200 miles, and the sparking plug keeps clean.—Yours truly,

T. A. R.

[This trouble is without doubt due to the cylinder being foul, and could be remedied by taking it off and cleaning thoroughly; the firing is caused by the deposit in the cylinder head becoming incandescent and so firing the charge. This will continue until the heat diminishes, the engine generally coming to a stop with a back-fire.]



The Vanderbilt Cup Course.—A View near Jericho, Long Island, U.S.A.

A DE DION ENGINE QUERY.

To the Editor of *The Motor-Car Journal.*

Sir,—It is impossible to say with certainty without inspection what causes the noise which "Trentham" complains of in the last issue of the *Journal*, but I think that if he gives his engine a little more gas when he throws the top speed clutch in the noise will not occur. He will, of course, give the engine more air as the speed increases after changing.—Yours truly,

T. Marshall.

To the Editor of *The Motor-Car Journal.*

Sir,—Replying to "Trentham's" letter in the last issue of the *Journal*, I should be inclined to put the noise down to the click of the valve when closing, as invariably all engines of this type cause this clicking, especially after being run a short time. This is usually due to the wear on the gear-wheels, which practically becomes equal on either side of the teeth, especially at the point where the cam engages. If this should prove to be the trouble, it is almost unavoidable.—Yours truly,

Colin.

ARE MOTOR-CAR WHEELS STRONG ENOUGH LATERALLY.

To the Editor of *The Motor-Car Journal.*

Sir,—Referring to the letter from Mr. J. T. Ward in the *Journal* of the 24th ult., on the subject of motor-car wheels, we are much interested therein, and we note Mr. Ward has pointed out the exact

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direction in which an improvement in the construction of the artillery wheels can be made. As we confine our attention to the manufacture of these wheels, and have studied the matter very closely, we some time ago came to the conclusion that what was required was a wheel which would withstand the enormous lateral strain to which it is liable to be subjected when in use on a motor-car.

Having this in view, we designed our "Twin-Spoke" artillery wheel, and, after the most exhaustive tests, we now claim to be able to supply a wheel which will withstand any ordinary strain to which it can be subjected on a car, and will also stand up in most cases—such as collisions, etc.—when an ordinary wheel would give way. We quite admit that the best hickory is an excellent material of which to construct the spokes of an artillery wheel, but at the same time we have found in practice that, if the best seasoned timber is used, the point which is of most importance is the construction of the wheel.—Yours truly,

THE ARTILLERY WHEEL WORKS, LIMITED.

TYRES.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—Referring to "John Ansonia's" letter *re* tyres in the *Journal* of the 24th ult., I may say that I came to the conclusion some time ago that life is too short for pneumatic tyres. No doubt such are necessary for racing and high speeds, but for any speed under twenty-five miles an hour good solids are far and away better. The car, of course, requires to be built for them, and should have a long wheel base and good springs, and I think further that the chain drive and plain bearings for the wheels are advisable. With these conditions observed there is no difference as to vibration between solid tyres and pneumatics, and there is no doubt that solids raise far less dust and have far less tendency to side slip, while they are better hill-climbers.

Several motor makers now build for solid tyres, such as Wolseley, Albion, etc., and there is no doubt that the public would take to motors still more rapidly than they are doing if it were generally known that solids are comfortable and good. My car is a James and Browne fitted with Sirdar buffer solid tyres, and, after considerable experience over all kinds of roads, I am thoroughly satisfied in every way.—Yours truly,

ULOOLA.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—Referring to your correspondent "M. B.'s" inquiry with regard to solid tyres for hill-climbing, it will interest him to know that a solid rubber tyre, properly constructed, has been proved over and over again to be a better hill-climber than a pneumatic tyre, because of the back-lash in the pneumatic tyre at a pressure at which it is inflated in the ordinary way; but, of course, this does not apply to pneumatic tyres which are pumped much harder than solid tyres for racing purposes.

Take, for example, the hill-climbing contest of the Dorset Automobile Club held this month. A 6-h.p. De Dion, fitted with Royal Sirdar-Buffer tyres, climbed the hill in 3 min. 1 sec. A similar car, fitted with pneumatic tyres, climbed the hill in 3 min. 7 sec. A 6-h.p. Siddeley fitted with pneumatics climbed it in 3 min. 4 sec. Three 8-h.p. cars, fitted with pneumatics, took from 44 to 131 seconds longer than the car tyred with these solids.—Yours truly,

J. M. MACLULICH.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—In answer to "Perplexed's" letter in the *Journal* of the 3rd ult., I run a 20-h.p. car weighing between 18 and 19 cwts.; the Roi des Belges body will seat two in front and three behind. The size of my tyres is 870 mm. by 90 mm. When I purchased the car (in May) the two driving wheels were fitted with Dunlop tyres, which were nearly new. I had not run more than a hundred miles before one of the tyres burst just over the rim of the wheel. I put on my new spare tyre of the same make, which burst exactly in the same place as the first one within the next two hundred miles. I have now put on a Clincher-Michelin tyre with a Michelin inner tube; this I have never had the slightest cause to remove, and I have run the car I should think twice the distance of the two other tyres together. In the meantime the Dunlop of the other wheel has burst in the same place as the first two. I have put on this wheel a Clincher-Michelin tyre on which is a Pneu Herault non-skidding cover. I think the tyre bill by far the most expensive item in motoring, especially on a heavy car.

With regard to the Pneu Herault non-skidding cover I should be glad to hear of any experiences of this new device. It certainly prevents punctures and cuts of any kind whatever, but as to its non-skid powers I find that it is worse than the bare tyre. On granite sets the wheel spins round when starting the car, and when I put the slightest pressure on the brake it stops altogether and skids.—Yours truly,

TYRES.

BUTCHER BOYS.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—I am writing respecting the dangerous way in which butchers' boys generally drive their carts, on the wrong side of the road, and swinging round the corners without regard to other traffic. There has been a serious accident in Erdington from such conduct. A gentleman coming from Glasgow along the Chester road had a collision with a butcher's cart which smashed the front of his car. Some of the occupants where seriously injured. The horse had to be shot. The boy was not hurt. This is not an isolated case. Young lads ought not to be allowed to drive such vehicles, and the sooner local authorities apply an age limit to drivers of horse-drawn vehicles the better.—Yours truly,

DANGEROUS DRIVING.

DARRACQ TROUBLES.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—In answer to "Ignition's" letter, in the last issue of the *Journal*, *re* misfiring, I had precisely the same trouble with a 24-h.p. car. This was remedied by adjusting the throttle. Upon examining this I found that the governors entirely closed the throttle, thereby stopping all supply of mixture from going into the engine, but by adjusting this to admit a very small quantity of mixture the misfiring ceased. Trusting this may aid in overcoming "Ignition's" trouble.—Yours truly,

24-H.P. DARRACQ.

A TREMBLER QUERY AND OVERHEATING TROUBLES.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—I should advise "Petrol" to see that his trembler is adjusted correctly to give the greatest number of revolutions without misfiring; if this is right, then examine the sparking plugs and see if they leak electrically, which will cause intermittent firing.

If "Enquirer" will shut off his throttle or governor when turning corners or slowing down, instead of switching off, he will have no explosions in the exhaust box, which is caused by passing unfired charges of gas into the silencer, which are fired in one loud explosion on switching on again.—Yours truly,

B. U. 7.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—In reply to "Enquirer's" letter in the last issue of the *Journal*, his overheating is no doubt due to the cylinders being foul, also to slight corrosion in the water jacket. I would strongly advise the taking down of the cylinders and thoroughly cleaning the same, especially the cylinder head, which will undoubtedly be found thickly covered with black deposit. With regard to his other trouble, this can easily be remedied by omitting to switch off on going round corners. This switching off is unnecessary in driving a car, and is very seldom done, the throttle being a substitute, together with the clutch. This is also likely to put unnecessary work on the gears, as it depends entirely on the momentum of the car to again start the engine.—Yours truly,

BRIXTONIAN.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—Referring to "Petrol's" letter in the last issue of the *Journal*, I myself would feel inclined to advise him to have his coil tested by the makers, as there seems no doubt that he has a short in the same. A high-speed trembler coil would greatly improve the running; it could be fitted to existing contact breaker and would in all probability overcome the trouble.—Yours truly,

H. J.

STEAM CARS.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—I have read with great interest the correspondence in your excellent *Journal* on the vexed question of steam cars, and having just completed a fortnight's holiday on my own steam car, I have ventured to offer to the general discussion a few brief remarks on my experiences.

My car is a Locomobile touring car, having a framework and running gear of great strength. The engines are "Mason" of 10-h.p., and are fitted with the Pony-Rochester automatic lubricator. The boiler is of the usual vertical fire-tube type, with superheater; it was originally fitted with a petrol burner, but I soon became convinced that petrol as a fuel was too dangerous for comfort, so had my burner adapted to burn paraffin on the Morriss system, and by this arrangement I find that I not only eliminate danger, but also get a most efficient and economical fire, one gallon of ordinary Russian paraffin sufficing for twelve miles of travelling.

My journey consisted of a run from my home in North London to Stratford-on-Avon, a stay of one day there, then a run to Chester, where I stayed for several days, during which I made trips into the surrounding country, including two into the Welsh hills. On the return journey I drove through the Vale of Llangollen to Shrewsbury,



A Non-Stop Run.

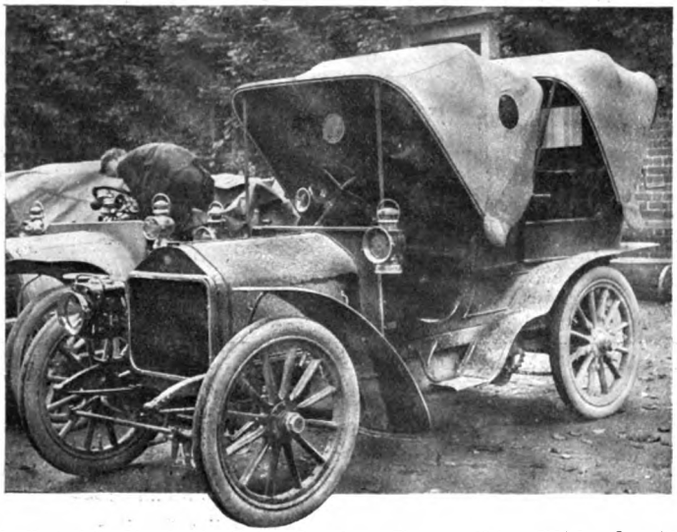
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thence, *via* Bridgnorth, Kidderminster, Worcester, Evesham, Broadway, Moreton-in-Marsh, Bicester, Aylesbury, Tring and Watford, home. In all, my car covered over 500 miles. I had very bad weather on two days, on the first of which I ran through a gale of wind and rain, and was held up for a considerable time by a tree which had been blown across the road. On the second I encountered heavy rain, and had to tackle roads which were dangerously greasy; indeed, on several hills my sprag (an appliance which, by the way, I think should be fitted to all cars) saved me from disaster.

The only trouble I had with the car was a burst back tyre on the second of the wet days—the continual skidding having proved fatal to a tyre which, from the commencement, I was afraid would not last out. I had no trouble with my engines, saving the shaking off of a dust-cap on a connecting rod, the giving way of an india-rubber hose connection on the bye-pass water pipe, and the leakage of one of the gland packings towards the end of my journey—all of which defects I was easily able to put right.

The boiler steamed excellently, and I was able to deal with the big hills, and anyone who knows the country through which I passed will admit that for some of the hills the epithet "big" is but a mild one, without fear, and with invariable success. I was my own driver and mechanician throughout—my sole passenger being my wife.

I may say that I am an absolute amateur at engineering, my profession being that of medicine. I always run my car with rather a full boiler, and I find this the best course to adopt, as the superheater practically does away with any trouble from priming, should one chance to be too liberal in the allowance of water, and one is prepared for any sudden change of gradient. I cannot see why the "scorched boiler" bogey should be the popular terror that it seems to be—in my opinion it is



The Meet of the Lincolnshire Club at Revesby. The new 18-h.p. Siddeley Car with Double Hood. **(*See page* 669.)**

best avoided by (1) blowing down the boiler frequently, especially if hard water is used; (2) by regularly testing the water-gauge connections to see that they are clear; and (3) in all cases where the water level shows marked signs of falling too far, by shutting down the fire at once, and investigating the whole water system in order from the storage tank to the boiler.

I would advise the would-be purchaser of a steam car, before he buys, to acquire a simple but sound knowledge of the principles of the steam-engine, and then, having got his car, to thoroughly master its entire anatomy before he attempts to drive it. To those who suffer from acute mechanical ineptitude, I would say—"Unless you can afford to keep an engineer in your employ, leave motor-cars of all kinds alone." I must apologise for trespassing on so much of your valuable space, pleading as my excuse the hope that a little practical experience on the part of an amateur may prove of interest to those who, like myself, have a decided leaning towards the steam car.—Yours truly,

J. H.

To the Editor of *The Motor-Car Journal*.

Sir,—The question of steam versus petrol cars appears to be very properly engaging the attention of motorists, and as I have driven a steam car for about two years and also a petrol car, perhaps my experience will be of some benefit to those who are hesitating between the two.

"Faber," in your *Journal* of the 17th ult., speaks of the time that it takes to get under weigh. It certainly takes about ten to fifteen minutes to get the car under full steam pressure starting from "all cold," but in the case mentioned by your correspondent it appears that this particular car is required several times a day; in that case it certainly would not take more than three or four minutes to get up a full head of steam, and in the event of the car being required within an hour or two after it came in it would be advisable to keep the pilot light burning. The pilot light consumes no appreciable amount of petrol, and then it is possible to get steam up in from two or three minutes; I do not, therefore, consider this is a factor worth serious consideration by users of steam cars.

The various criticisms on "Wiser Man's" letter in your issue of the 24th ult. are very much to the point, but they err on the side of being too lenient, as there is no doubt that certain cars that were put on the market a few years ago have done a great deal towards ruining the steam car industry in this country. There are two or three makes of steam cars which are absolutely reliable, and it is a great pity that the strictures passed upon the steam car mentioned in your *Journal* should be held to apply to those which are so. It is not necessary to go to the heavy expense of a "White," "Miesse," or a "Serpollet" car, as there are much lower-priced reliable steam cars on the market, and there is no doubt that the mechanism of the steam car is infinitely more simple and more easily understood and repaired by the man of moderate means, who is not an engineer, than the complicated mechanism of most petrol cars.

The boiler appears to be the principal trouble, but with ordinary care there should be no difficulty on this score, especially with the semi-flash boiler, the tubes of which are not liable to be burnt out, as are those in the ordinary tubular boiler. In some steam cars, in addition to the automatic water pump and hand pump, which latter should rarely or never be used, there is a small steam pump which can be actuated quite independently of the other two, and renders the liability of the boiler to run short of water practically impossible.

I have had very little trouble with my tyres, although the roads in my neighbourhood are made of sharp flints extracted from the chalk, and in some parts of Hertfordshire the roads are "terrors." I have recently had my car altered to burn petroleum, and I find that the cost of running is less than half what it was with petrol. It is not necessary to go to the heavy expense of a complete new burner for this apparatus, but an appliance can be fitted to the existing burner, and the petroleum being injected by a jet of steam prevents the accumulation of free carbon on the boiler pipes and also prevents the clogging of the burner and the various orifices through which the petroleum passes. In addition to that, a much greater heat can be generated in the boiler, the steam jet adding hydrogen to the hydro-carbon gases evolved from the petroleum.

I can run my car easily from fifteen to twenty miles an hour; a single charge of water will take me about twenty-five miles, and with a hose and the steam jet the tank can be refilled in about three minutes from any of the public drinking troughs, a river, or a pond. The petroleum tanks are sufficient for seventy to eighty miles, quite long enough for an ordinary day's run.

So far as "Mechanical Engineer's" letter is concerned, it is simply absurd; such a boiler as he describes is only fit for a locomotive or a steam wagon and would be perfectly impossible on an automobile. The only sentence in his long letter that I agree with is the last one, "A steam carriage of any (good) design, well and strongly made throughout, is the best on the road."—Yours truly,

Henry J. Rogers.

A WIRING QUERY.

To the Editor of *The Motor-Car Journal*.

Sir,—In the majority of descriptions of the wiring of two-cylinder engines I notice the current is made to run from the plus pole of the accumulator to one of the terminals of the double coil. On my Decauville car the wire runs from the plus pole direct to a bolt on the gear-box, while the negative wire is taken to the switch. Can you or any readers of the *Journal* inform me which is the most advantageous arrangement?—Yours truly,

W. A. W.

[It is usual when wiring an engine to run a wire from the plus or positive pole of the accumulator through a switch to the coil and earth the negative wire. This method has at times been reversed, but a wire from the positive pole to the coil generally proves the most advantageous.]

BELT TRANSMISSION.

To the Editor of *The Motor-Car Journal*.

Sir,—As several letters have appeared under this heading, some further remarks on the subject may not be out of place. The position is briefly this. There are a number of people who want a very cheap two-seated car (about £100), and who do not want to be bothered with gears and clutches. Now belt transmission as used in motor-cars some years ago was often very unsatisfactory, the usual trouble being continual slipping of the belts, or breaking of them altogether. These troubles were undoubtedly caused by want of proper protection of the belts, and also by using belts far to small to transmit the power. If these two details were attended to, there is no reason why a satisfactory small car should not be made and sold at a price within the reach of all. We must, however, look at the question from the manufacturers' point of view. Is the demand for such a car, as above described, sufficient to justify say a hundred or so of them being made? Most emphatically not. The people who ask for this type of car are, in most cases, people who have been brought up, so to speak, on

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belt-driven cars, and have never been on a good gear-driven car, but have been frightened off them by exaggerated stories of faulty clutches and stripped gear wheels. Then there is another point. People who buy little cars want three speeds and a reverse. Now to work in three speeds and a reverse with belts is not so very easy and takes up a good deal of room, sun and planet gearing being generally used for the slow speed and the reverse (about the most wasteful type of gearing known). In my opinion the belt-driven car is dead, and any attempt to resurrect it will prove abortive.—Yours truly,

ASSAM.

RECKLESS DRIVING.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—While driving my car the other day I had a very bad second or so. The roads were dusty, and I had just surmounted a hog-backed bridge to find the road swerve sharply to the right and ascend a slight hill. I had just time to tuck my car close in to the side of the road when a big car, coming down the hill towards me, attempted to take the curve at the bottom at something like twenty-five miles an hour. Needless to say it wheeled round nearly broadside-on, and by the greatest good luck —for me—just missed my car. I have not the slightest objection to this particular motorist immolating himself and his car, and there is much to be said for such a happy consummation; but I do think all fair-minded men will agree with me that he should do it decently by himself and refrain from making a holocaust of the occasion. The man was either mad or had not learnt the very elements of driving, and in either case the sport would be better without him. It is such folly as this that embitters road users and brings forward the opposition to motor-cars of which we hear so much.—Yours truly,

DUNCHURCH.

STEAM CARS.—"Mechanical Engineer" writes:—"In my letter in the *Journal* of September 24th, respecting a boiler for a steam car, I stated that the tubes should not be closer together at any point than 9-32 of an inch. This is a mistake, it should be 9-16 of an inch."

A WHEEL CAP was picked up in Wake Green Road, Birmingham, by the Heron Motor Co., of 89, John Bright St., Birmingham, who will be pleased to return it to the owner.

STORING PETROL WITHOUT A LICENCE.

Last week, at the Doncaster Borough Police Court, Messrs. W. E. Clark and Company, cycle agents, Station Road, were summoned for keeping petroleum on their premises without a licence. The Town Clerk (Mr. R. H. Tovey) appeared to prosecute on behalf of the Corporation, and Mr. G. W. Andrews defended. Defendants have a licence for their other premises. On Friday night Mr. Hanson, the inspector, went to the defendants' premises in Station Road and found 68 two-gallon tins of petrol spirit in a harness room on the premises. Mr. Clark said he thought that his licence for Benithorpe would cover the other premises. Witness went to Benithorpe and found 196 gallons. Defendants' licence covered 200 gallons. The value of the petrol on Station Road premises was £20. The defence was that the late inspector saw the premises and knew that the firm stored petrol there. They were under the impression that their licence covered both premises.

The Chairman (Mr. R. E. Clark) said that the magistrates considered there had been a gross violation of the Act of Parliament and that the defence advanced was by no means satisfactory. They attached no importance whatever to the evidence given respecting a man who was deceased, and which evidence could not be rebutted. They took into consideration the fact that this was the first prosecution of the kind in the borough, and fined defendants £5 and costs. They ordered the petrol to be forfeited.

THE "Badminton Magazine" for October contains a well-illustrated article on the Gordon Bennett race, which, although rather late, is somewhat interesting. It is written by Mr. H. Coutts, who seems to have taken advantage of the occasion for an interesting Continental tour as well as an opportunity to see an exciting event.

THE Gilburt Motor-car Company, Limited, has been registered with a capital of £10,000, to acquire the business of a motor-car manufacturer, carried on by Mr. E. A. Gilburt at 26a, Gopshall Street, Hoxton. The first directors are Councillor W. Watts, J.P. (chairman), J. Metcalfe, E. A. Gilburt, S. S. McNicol, A. R. E. Burton, and H. Horne.

IT will not be long now before fur coats, gloves and caps and similar sartorial adornments will be the rule, and anti-freezing mixtures the subject of discussion. Frozen and cracked water pipes and jackets will, unless care be taken, appear on the scene, and closed cars will become a favourite topic with motorists. As everything has its compensations, dust will disappear for a season, even although mud does take its place.

THE ABATEMENT OF THE DUST NUISANCE.

AT the German Automobile Congress recently held at Breslau a paper on "The Abatement of the Dust Nuisance" was read by Herr L. Van Westman, the inventor of Westrumite, from which we take the following:—

So much has been said and written on the dust problem that I shall confine myself to briefly discussing the harmful effects of road dust in a general manner. I believe that if it were possible to make streets entirely dustless the lives of millions of unfortunate consumptives might be saved. The material damage caused by dust to furniture, machinery, provisions, etc., is impossible to estimate.

Furthermore, real estate located on roads with much traffic depreciates in value in the course of time on account of the dust nuisance. The dust produced by the increasing traffic deprives many otherwise fine resorts of the advantage of a pure atmosphere. On the Riviera, for instance, it may be observed that trees and plants far into the gardens are entirely covered with a grey coat of dust. The pleasure drives, which were formerly so popular, have been almost entirely discontinued, because it is no pleasure to drive in a dense cloud of dust. As the dust is largely a portion of the street material and the latter is reduced by its removal, it follows that any process for binding the dust will tend to preserve the road surface. When this fact is once thoroughly understood by the authorities, we may hope to see the dust disappear from the streets within a definite time. Too much cannot be said against the practice of sprinkling streets with water, quite common everywhere, because water spraying loosens and destroys particularly macadamised streets, and produces a soft mud which may prove very dangerous to automobiles and horse riders, and the removal of which is expensive.

The widespread impression that dust is produced only through the wear of the surface layer of the street is entirely wrong. By far the greater portion is due to the fact that the pressure of traffic forces the heavy stones down into the road and allows the lighter material, sand pulverised to dust, to rise, from which result the holes in the street surface which are a source of expensive repairs. The abatement of the dust nuisance may practically be divided into two parts, viz.: (1) the suppression of dust on the surface; (2) binding the paving material either during construction or during repairs. The first operation consists in sprinkling the streets with suitable fluids. We need, however, not delude ourselves that the nuisance will be obviated by this means to any extent, because only the cities which dispose of large appropriations for street watering purposes are able to take up this problem, they spending a great deal of money in keeping the streets sprinkled, and by using suitable dust-binding fluids they might save sufficiently on wages that the introduction of the improved method would only occasion a very slight increase in the annual expense account. And yet, I am sorry to state, large cities which, after extended tests with a certain process expressed themselves entirely satisfied with the results, declared that this year they did not dispose of the necessary funds to introduce the process. The cause of this condition of affairs is that, as a rule, contracts for sprinkling are made with different establishments, and these contracts must be carried out. The funds available for sprinkling purposes are usually fairly well exhausted by these contracts, and it is therefore hardly possible to introduce any new processes while these contracts are in force.

I now arrive at the second question, which will be of much more interest to automobilists: How can country roads be rendered free from dust? Theoretically this end may be accomplished by the same means by which city streets are kept dustless, but practically these means are inapplicable, because the provincial authorities concerned can hardly be expected to make the necessary appropriations. The only way of accomplishing any beneficial results is to improve the methods of road construction. With the present method of building highways, which consists in compressing stone and sand with water by means of steam rollers, there can be no possibility of binding these materials together. Traffic will in time pulverise the sand and force it to the surface, with the result that the road is not only very dusty, but also in need of repairs. In America attempts have repeatedly been made to saturate the whole road with crude oil, but not much success has been attained, for the reason that it is very difficult to effect an intimate combination of the stones and the sand with oil. To overcome this difficulty, attempts have been made in England to heat oil and tar to a high temperature, and also the stones used in the construction of the road. Very good results have been obtained in this manner, but it is doubtful whether the process is of practical application because of the great cost and complication. Most of the experiments that have been made in this direction have always been on a small scale, the trial stretch being at the most 1,200 to 1,500 feet in length, and the engineers who conducted these experiments became convinced that the application of the processes on a large scale would be attended with many difficulties. Even leaving aside the question of cost, a process of this kind requires a complicated apparatus of heating tanks, etc., skilful employees, and an extended period of dry weather. As in practice it is impossible to foretell an extended rainless period, even in summer, little is to be expected from this method. This applies particularly in the case of a recently much-talked-of process for producing a compact elastic mass from a combination of tar and oil. If rain sets in during the time the work is in progress a thin mud is formed which requires weeks to dry, and during this period the road is practically impassable for traffic. This could be noticed in the Lenne-

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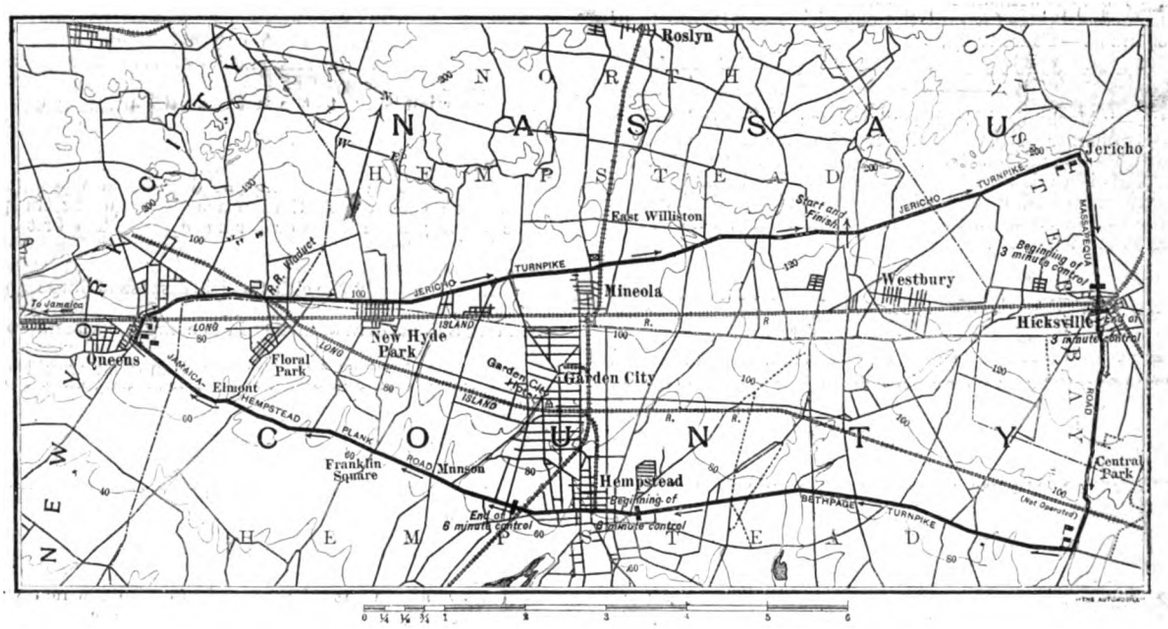
strasse, at Dresden, at the time of the Building Construction Exhibition. On that occasion such a mud was produced that the city authorities found it necessary to have whole loads of sand dumped on the street to absorb the oily mud, and this sand had, of course, to be removed again. In addition, the streets became muddy every time it rained.

It will hardly be possible to use other materials than oil and tar for binding dust, for the simple reason that there are no other materials of equivalent effectiveness which are to be had as cheaply as crude oil and tar. All the experiments have shown that oil and tar have a very powerful binding effect, if it is only possible to completely saturate the sand and stones with them. The methods just described are, as stated, too bothersome, expensive and dependent on weather conditions, and require that streets treated must be closed to traffic for long periods. There is, however, a very simple method of securing the full benefit of the properties of tarry and oily substances, and avoiding their disadvantages, and this method consists in making these substances soluble in water, in which case they will be eagerly absorbed and strongly bind the street paving material into an elastically compact mass. The solutions may be spread on the roads by an ordinary sprinkling wagon, and if the work is done at night, the streets need not be closed to traffic. Care must, of course, be used that the oil or the tarry emulsion becomes insoluble after the evaporation of the water, because otherwise it would be dissolved and washed away by the next rain. The insolubility must, however, not be so complete that the substance is entirely incapable of absorbing water, but it must always retain the property of taking up enough rain water to bind any new-formed dust. This is the only means of preventing the production of mud, as the rain not absorbed will quickly run off, and the rest form an emulsion and bind the dust.

Practice has proved that roads thus treated dry much quicker after a rain than ordinary roads, and that there is no formation of mud, as in case of water-sprinkling or after a heavy rain. Now, if in the construction of a new road, either macadam or stone pavement, all the sand employed is saturated with this emulsion, it is bound together so effectively that it is impossible for the pressure of traffic to force it to the surface, and this already results in a considerable reduction of dust, as the production of dust by the wear of the upper surface, especially from automobile traffic, is very small. The development of dust through automobiles does not result from the wear of the stones contacted—the tyres being entirely too soft to produce any wear on stones—but results from the vacuum formed behind the contact of the wheel with the road surface, which sucks the sand from between the stones, no matter whether it is a macadam or stone-paved road. If, with the increasing automobile traffic, especially on the country roads, no efforts are made to provide an efficient binding material, it may be predicted with assurance that in future the life of the roads will be greatly reduced, because the extraction of the filling material, sand, from between the stones will naturally ruin a road much quicker than the surface wear from horse hoofs and iron tyres.

There is at present certainly no longer the least doubt regarding the rapid introduction of automobiles on a large scale, consequently the authorities entrusted with the care of the roads must get used to the idea that they have to count with motor-cars as a factor entitled to the use of the roads. The latter exist for traffic purposes, and in case the means of traffic are changed, the roads must be made to conform to the new requirements. Many rural and urban authorities have already begun to replace the otherwise very satisfactory macadam pavement with stone pavement, because it is more resistant to heavy traffic. But from the standpoint of the public this is very much to be deplored, because the stone pavement has not only the disadvantage that it disables horses in short order, but also causes much annoyance to everyone using the road or living near it, owing to the great noise produced. Besides, it is not exactly a pleasure to drive over such a pavement, whether with an automobile, bicycle, or horse-drawn vehicle, in case it is not absolutely uniform. This much to be desired uniformity will, however, hardly ever be secured on a country road. Automobilists are, therefore, much interested in the retention of macadamized roads; only they should be made dust-free and durable, because the dust and the many holes are the great disadvantages of a pavement which otherwise combines all desirable qualities, being almost noiseless, and much more uniform than stone pavement.

I hold that it is absolutely impossible to make a road absolutely dustless all at once for a period of years. I presume I may be allowed an opinion on this matter, as thousands of kilometres of roads have already been treated according to my method, and I have intently and persistently observed many roads. In case a road is saturated with oil from the beginning, the fine dust produced by wear will be absorbed by this oil. The case is somewhat different, however, with dust of earthy substances not in the pulverised condition, which are blown on to the road, ashes lost from wagons, etc. Even if the streets were covered with steel plates, as is now being tried in southern France, it would be impossible to make them entirely dustless. If the road surface is made too oily-



Complete Distance of Course, 30.24 Miles. Distance from New York City Hall to Village of Queens, 14 Miles.

Length of Hicksville Control, .40 Miles. Length of Hempstead Control, 1.40 Miles. Flag and Control Signs are Those Used on the A. A. A. Official Map.

Contours are Fine Curved Lines with Figures Showing Elevation Above Mean Sea Level. Arrows Along Course Show Direction of Race

Map of Course of the Vanderbilt Cup Race.

elastic, so that the oil or tarry substance will bind the dust on to the road into coarse grains, it will also stick to the shoes of pedestrians, rubber tyres, etc., and a lively agitation in opposition to roads thus treated might be expected.

It must not be forgotten that the authorities have to count with the public, who are only too much inclined to raise objections against such innovations. I have considerable experience in this line myself. While there have been no objections raised in America against the odour of crude oil, which is certainly very strong, and no complaints in over 100 cities where my method has been applied—the odour being naturally considerably reduced by the dilution of the oil—in Wiesbaden a number of persons pronounced the odour infernal, and stated that they would rather swallow the dust than have dustless roads and stand the smell. Lately, however, it has been possible to almost entirely obviate the odour.

As it has frequently been claimed that Westrumite has an injurious effect on the varnish of carriages, I would like to present an opinion from the noted chemist Dr. C. Bischoff, of Berlin. In connection with this opinion, I would remark that it is, of course, to be recommended to drive slowly over a road only recently treated. This is a matter of little moment, as the drying requires only a few hours, so that there can be no question of traffic delay. Fears have also been expressed that Westrumite might be harmful to rubber tyres. I have before me a letter from Herr Tischbein, of the Continental Caoutchouc and Gutta Percha Company, which is to the effect that these fears are unfounded. The Cyclist Touring Club in Holland has made extended experiments at its own expense in different cities, and sent a report to the Mayor of Nymegen

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which was entirely favourable to the use of the emulsion. According to these several statements, it is shown that: (1) Westrumite binds the dust, and does not occasion too great expense as compared with water sprinkling; (2) no mud is formed during rain; (3) it does not injure the varnish of vehicles; (4) it has no injurious effect on rubber tyres, but, on the contrary, preserves them; (5) it has an appreciable saving and preserving effect on roads; (6) it kills weeds, but has no bad influence on trees, bushes, or other plants.

CLUBS AND ASSOCIATIONS.

YORKSHIRE.

ANNUAL SPEED TRIALS.

ON Saturday the second annual hill-climbing competition of the Yorkshire Automobile Club was held in Earl Fitzwilliam's park, at Wentworth Woodhouse, Rotherham. The course was exactly the same as that of the first trials—a measured half-mile along the drive in the lower part of the park. On the outward journey there was the benefit of a gentle fall in the ground. Therefore it was very necessary in arriving at the capabilities of a car that a run in the reverse direction should be made, the average of the two being taken, with flying start and finish prescribed. The fastest car in each class was adjudged the winner, and certificates will be issued in due course to the first and second in each event. Only members of the Yorkshire Automobile Club were eligible, and the cars were required to be privately-owned vehicles.

The results were as follows:—

Class I.—Cars with single cylinders up to and including 6-h.p.:—

	Outward. M. S.	Return. M. S.
A. Masser, Leeds, 6-h.p. De Dion	58 4-5	1.33 1-5
G. F. Whitworth, Bradford, 6-h.p. Prunel	1.13 3-5	1.58

Class II.—Single cylinder cars up to and including 10-h.p.:—

W. Booth, Bradford, 8-h.p. De Dion ...	1.0 4-5	1.16 1-5
— Bottomley, Leeds, 9-h.p. Renault ...	1.4	1.42 2-5
H. Martin, Huddersfield, 8-h.p. Renault	1.7 4-5	1.57 1-5

Class III.—Cars with double cylinders up to and including 12-h.p.:—

— Underwood, 10-h.p. Argyll	46 1-5	1.16 2-5
F. Churchill, Sheffield, 10-h.p. Hallamshire	1.2 1-5	1.17
W. Drew, Sheffield, 7½-h.p. Wolseley ...	1.2 2-5	1.48 4-5

Class IV.—Cars with any number of cylinders up to and including 16-h.p. (Mr. R. Winn's Cup):—

N. Baylis, Tattenhall, 14-h.p. Renault ...	39 3-5	58 4-5
Dr. J. Crossley Wright, Halifax, 15-h.p. Darracq	42 2-5	1.5 1-5
W. H. Jessop, Huddersfield, 15-h.p. Darracq	43 1-5	1.1 3-5
E. H. Watson, Leeds, 16-h.p. Argyll ...	44 2-5	1.2 1-5
W. W. Rycroft, Bradford, 15-h.p. Panhard	40 1-5	1.4 4-5
Bernard Bagshaw, Chapel Allerton, 15-h.p. Napier	44 3-5	1.21 2-5
F. Churchill, Sheffield, 14-h.p. Hallamshire	47 2-5	1.17
E. Faiers, Bradford, 12-h.p. Clement ...	47 2-5	1.18 4-5
— Mitchell, 15-h.p. Panhard	45 3-5	1.21 4-5
A. S. Fawcett, Dore, Sheffield, 15-h.p. Darracq	44 4-5	55
Dr. H. W. Williams, Holmfirth, 15-h.p. Darracq	44 3-5	57 2-5
Talbot-Hassell, 16-h.p. De Dietrich ...	50 3-5	1.36 1-5

Class 5.—Cars with any number of cylinders up to and including 30-h.p. (Mr. H. R. Kirk's trophy):—

A. Farnell, Bradford, 28-h.p. Daimler ...	35 2-5	46 1-5
S. Dixon, Bradford, 24-h.p. Fiat	37 1-5	55 2-5
R. S. Kirk, Headingley, 24-h.p. De Dietrich	38 1-5	60 2-5
W. Jackson, Bradford, 20-h.p. Brush ...	36 4-5	55
K. Neuman, Leeds, 30-h.p. R. and P. ...	48 3-5	———

Class 6.—Cars 30-h.p. and over:—

H. R. Kirk, Leeds, 60-h.p. Mercedes ...	30	31 2-5

Class 7.—Motor-Cycles up to and including 2¾-h.p.:—

G. H. Martin, Leeds, 2¾-h.p. Bat	55 3-5	———

Class 8.—Motor-Cycles 3-h.p. and over:—

— Parker, 3½-h.p. Griffon	40 2-5	54 3-5
Owen Brookes, 4½-h.p. De Dion	44 4-5	1.11

Among those present were Messrs. H. R. Kirk, Leeds, R. Winn, Leeds, H. A. Jones, Bradford, A. Moser, Leeds, A. Exley, Leeds, J. H. Pickford, Rotherham, W. N. Drew, Sheffield, Armitage, Wakefield, Dr. H. C. Barr, and Mr. A. W. Dougill, Hon. Sec.

AUTOMOBILE PROTECTION ASSOCIATION.

THE usual monthly meeting of the Council of the Automobile Mutual Protection Association was held at Cecil Chambers, Strand, W.C., on Friday of last week, when the Earl of Shrewsbury, President of the Society, took the chair. Seven firms were submitted for election and admitted to membership, whilst four members were added to the Council, viz.:—Messrs. Jesse Ellis (Maidstone), W. E. Rowcliffe (Manchester), A. Pereno (Farman Automobile Company), and W. R. McTaggart (Dublin).

It was decided to appoint a sub-committee for the commercial vehicle and heavy transport section of the society, and the following were appointed:—Messrs. Wm. Deighton (Yorkshire Wagon Company, Leeds), Jesse Ellis (Maidstone), Jno. H. Toulmin (T. Coulthard and Company, Preston), J. Donovan (Londonderry Works, Seaham Harbour), W. H. Maudslay (Maudslay Motor Company, Coventry), John T. Savage (King's Lynn), and Henry Spurrier, Jun. (Lancashire Steam Motor Company, Leyland).

The finance report showed available funds amounting to £2,044 5s. 10d. after providing for all liabilities.

There were present at the meeting (in addition to Lord Shrewsbury) Messrs. Albert Brown (Brown Brothers, Limited), Lieut.-Colonel Elton-Burroughs (Hewetson's, Limited), Charles Friswell, E. Lisle (Star Engineering Company), W. Lloyd McBride (Roadway Autocar Company), W. H. Maudslay (Coventry), A. Rawlinson (A. Darracq and Company), J. D. Siddeley (Siddeley Autocar Company), Henry Spurrier, Jun. (Lancashire Steam Motor Company), and D. M. Weigel (British Automobile Commercial Syndicate).

The new members admitted, being Nos. 167 to 173 on the register, were Messrs. A. Pereno (the Farman Automobile Company, Limited), E. Lamberjack (Société Franco-American), Albert Turner (Turner, Atherton and Company, Denton), F. Leslie Spencer (the N.A.G. Automobile Company of Great Britain and Ireland), John H. Toulmin (T. Coulthard and Company, Limited, Preston), and Messrs. A. Clement and A. R. Lucas (directors of Clement-Talbot, Ltd., London).

LINCOLNSHIRE.

ONCE more favoured with fine weather, though it rained hard up to mid-day, the last run of the Lincolnshire A.C. for the season, held on Saturday, was very successful. Saturday's meet was at Revesby, a very pretty spot in a lovely district between Boston and Horncastle,



The Yorkshire Club's Hill Climb—at the Start.

Photo by [*Owen Brookes.*

on the edge of Tennyson's country, the rendezvous being at the Red Lion Inn.

A meeting of the committee was held earlier in the afternoon, the members having previously lunched at the inn. The club members began to arrive at about 2.30, and there were several cars assembled in the open space before the house. Perhaps the one which attracted most attention was the new 18-h.p. Wolseley, belonging to Sir Hickman Bacon. The new 18-h.p. Siddeley driven down from town by Mr. J. D. Siddeley, and which has a new double hood, was much noticed. The 12-16-h.p. Clement of Mr. H. Marshall, Gainsborough, a member of the great engineering firm of Marshalls, also attracted attention. After a welcome tea, the party separated. Among those present at the meet were Sir H. B. Bacon, Bart., Gainsborough, and Sir H. Robinson, Dublin; Captain J. A. Cole, J.P., Roxholme (chairman) and Mr. E. Cragg, hon. sec., Billingborough; Mr. C. W. Pennell, Mr. W. R. Pennell, Lincoln; Mr. and Mrs. A. A. Padley, Market Rasen; Mr. W. and Mr. C. H. Gilbert, Mr. C. Nelson, Lincoln, Major Goddard, Lincoln; Major H. H. Williams, Woodhall Spa; Rev. and Mrs. Simpson, East Keal; Mr. and Mrs. Herbert Marshall, Mr. Anderson Pelham, Gainsborough; Mr. and Mrs. Tomlinson, Sleaford; Dr. de Beauvais, Ancaster; Mr. Lyttleton Rogers, Grantham; Mr. and Mrs. J. R. Richardson, Lincoln; Dr. Reckitt, Boston; Mr. W. S. Foster, Mr. J. Brown and Mr. R. M. Wright, Lincoln.

NORTHAMPTONSHIRE.

UNDER extremely pleasant weather conditions the members of the Northamptonshire Automobile Club had a most delightful outing on Thursday week, when the Hon. H. L. Brassey, one of the vice-presidents of the club, invited them over to Apethorpe Hall, his charming seat between Peterborough and Stamford. Between twenty and thirty cars

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and motor-cycles started from the Club's headquarters—the Great Northern Hotel, Peterborough—shortly before 3 o'clock, and an extremely pretty ride along an undulating country through the villages of Thorpe, Castor, Wansford, and Nassington, was taken—Apethorpe being reached soon after half-past three. Here the motorists were welcomed by Mr. Brassey, and full permission was given them to roam about his beautiful grounds. Since Mr. Brassey acquired the estate from the Earl of Westmorland, extensive alterations and improvements have been in course of progress, and the Hall, a fine old mansion, from which lovely views are obtained across the park, is still in the hands of the workmen. Mr. Brassey is an ardent motorist, and two of his cars—a 15-h.p. Panhard and a 15-h.p. Charron—were on "parade." The others lined up on the east side of the hall to enable a photograph to be taken. Refreshments were provided for the motorists in the alcoves on the south side of the house. Successful arrangements were made for the outing by the club secretary—Mr. E. H. M. Wood. Amongst those present were the Hon. H. L. Brassey, 15-h.p. Panhard; Dr. and Mrs. Benson, 6½-h.p. Humberette; Mr. and Miss Adams, 12-h.p. Sunbeam; Mr. and Mrs. T. W. Mays and Miss Duckett, 12-h.p. Wolseley; Mr. and Mrs. R. Winfrey, 12-h.p. Beaufort; Mr. and Mrs. Cooke (Yaxley), 10-h.p. Locomobile; Mr. J. Rowe and Mr. J. Montgomery, 6½-h.p. Humberette; Mr. and Mrs. G. Linnell, 10-h.p. Wolseley; and the following on motor-cycles:—Mr. and Mrs. T. Rickman, 2¾-h.p. Royal Enfield with trailer; Mr. W. T. Southwell, 3½-h.p. Bat; Mr. O. Rowe and Mr. C. G. Hodgkinson, 3-h.p. Humber tri-car; Mr. A. Redhead, 3-h.p. Minerva; Mr. E. H. M. Wood (the Club Secretary), 2-h.p. Quadrant; Mr. T. Pearson, 3-h.p. Royal Enfield; Mr. T. Woodman, 2-h.p. Minerva; Mr. R. S. Parris, 2-h.p. Minerva; Mr. F. Redhead, 2-h.p. Quadrant; Mr. and Mrs. G. Guest, 3-h.p. Minerva tri-car, Mr. H. Ruff, 2-h.p. Minerva; and Mr. A. Redhead, 3-h.p. Minerva.

SHEFFIELD.

MEMBERS of the Sheffield and District Automobile Club, to the number of about 20, with their friends, met on Saturday afternoon on the village green at Castleton. The Fox House road rises at one point to an altitude of 800 feet, but the modern motor-car makes light of even the Derbyshire hills. The following mustered at the rendezvous:—Mr. J. Ellis, 6-h.p. M.M.C.; Mr. E. W. Hatfield, 6-h.p. Regal; Mr. J. F. Pickering, 10-h.p. Norfolk; Mr. T. G. Revill, 18-h.p. Darracq; Mr. James Barber, 7-h.p. Belsize; Mr. T. Bookless, 12-h.p. Gladiator; Mr. T. Chatterton, 6-h.p. De Dion; Mr. Hudson Lygo, 10-h.p. Cavendish; the hon. secretary, Mr. F. B. Cawood, was with Mr. Revill, and Messrs. F. W. Oates and W. James were in Mr. Ellis's car.

IRISH AUTOMOBILE CLUB.

THE annual hill climb, confined to members of the Irish Automobile Club, took place on Saturday, on a hill eight miles from Dublin, with a gradient of 1 in 11, as an average, while in some parts as much as 1 in 8. The distance of the allotted span from start to finish was seven-eighths of a mile. The contest was divided into four classes. Twelve competitors took part, and the fastest time returned was that made by Mr. W. G. D. Goff on his 20-h.p. four-cylinder Clement car, on which he recently drove H.R.H. the Duke of Connaught during the Army Manœuvres, and on which he returned to Waterford at the conclusion of the contest. Mr. F. V. Westby, on his 16-20 h.p. Argyll was successful in Class C, doing 3.22, the second fastest in the trials. Class A was won in a canter by Mrs. Mecredy, the only lady taking part in the competition, who drove her 6-h.p. De Dion. Messrs. Colman O'Connell and R. A. Eaton, club secretary, officiated as timekeepers. Mr. E. White, hon. secretary, and his committee deserve every credit for the manner in which they carried out the details.

Class A.—Touring cars, costing £200 or under.

				Min.	Sec.	
Mrs. Mecredy	6-h.p.	De Dion		4	37	1
J. H. Chancellor	6-h.p.	Siddeley		5	26	2
Colonel Thomas	7-h.p.	Swift		5	43	3
J. T. Cantwell	6-h.p.	Humberette		5	47	4

Class B.—Touring cars, costing £400 or under.

D. J. Mooney	10-12-h.p.	Argyll	6	10	
T. Talbot Power	10-h.p.	Wolseley	Retired.		
J. B. Dunlop, jun.	10-12-h.p.	Argyll	Not timed		

Class C.—Touring cars, costing £600 or under.

F. V. Westby	16-20-h.p.	Argyll	3	22	1
W. Sexton	10-12-h.p.	Peugeot	5	45	2
L. J. O. Higgins	10-12-h.p.	Gladiator	5	48	3

Class D.—Unlimited as to price.

W. G. D. Goff	20-h.p.	Clement	3	15	

WALES.

THE Welsh Automobile Club, one of the youngest of automobile organisations, has now a membership of over sixty, and intends to actively interest itself in motor boating.

POLICE TRAPS.

AT the bottom of the long hill at Cowfold, on the Brighton road, the police have a trap.

IN the village of Minskip, near Boroughbridge (Yorks), the police have a measured quarter of a mile on a road 60 feet wide.

CASES AGAINST MOTORISTS.

Place.	Summoned for	Fine.
Abergele	Driving recklessly	£10, etc.
Bridgwater	No rear light	2s. 6d.
Woking	Dangerous speed	Dismissed.
Horsham	Eleven cases of exceeding the legal limit	Fines ranging from £2 to £10 imposed.
Bradford	No identification mark at the rear	Dismissed on payment of costs, 5s. 6d.
Eastbourne	Driving to public danger	Dismissed.
Lewes	Driving motor-car without light.	40s., etc.
Croydon	(1) Driving dangerously; (2) failing to stop when called upon	(1) £5; (2) 40s.
Knaresborough	Driving dangerously	£5, etc.
Bristol	Driving dangerously	Dismissed.
Birmingham	Driving without rear light	10s., etc.
Kingston	Exceeding the ten mile limit in Richmond Park	40s., etc.
Dublin	Dangerous speed in city	£10, etc.
Kingston	Excessive speed	£2 10s.
City of London	Driving to common danger	5s.
Gloucester	Driving to common danger	£2, etc.
Ely	Dangerous driving	£3, etc.
Nottingham	Driving recklessly	40s., etc.
North London	(1) Furious driving; (2) without a licence; and (3) fraudulently using a licence issued to another person	(1) Dismissed; (2) Dismissed on payment of costs; (3) 40s. and costs.
Greenock	Failing to produce licence	£5, etc.
Altrincham	Driving furiously	£5, etc.
Dublin	(1) Not producing licence; (2) not stopping when requested to by a policeman	(1) 20s. 6d.; (2) £5.*
Carmarthen	Reckless driving	£1, etc.
Castleford	Furious driving	40s., etc.
Selby	Two miles above legal limit	10s., etc.
Lancaster	Driving unregistered car	5s., etc.
Folkestone	Driving to common danger	£2, etc.
Andover	Driving to common danger	£3, etc.
Chester	Beyond legal limit	10s., etc.
Guildford	Driving at dangerous speed	Dismissed.
York	Failing to stop motor-car when required	40s, etc.
Norman Cross	Exceeding legal limit	£5.*
Congleton	Speed dangerous to the public	£3.

* Notice of appeal given.

THE VANDERBILT CUP RACE.

THE following is the complete list of entries for the Vanderbilt Cup race, which is to take place on Long Island, U.S.A., to-day (Saturday):—

Entrant.	Car.	Driver.
UNITED STATES.		
Pope Motor-Car Co.	60-h.p. Pope-Toledo	A. C. Webb
"	24-h.p. Pope-Toledo	H. H. Lyttle
C. A. Duerr	40-h.p. Royal Tourist	J. Tracy
Packard Motor-Car Co.	30-h.p. Packard	C. Schmidt
Frank Crocker	75-h.p. Simplex	——
ITALY.		
W. Wallace	90-h.p. Fiat	W. Wallace
A. G. Vanderbilt	90-h.p. Fiat	P. Sartori
FRANCE.		
M. Clement, Paris	80-h.p. Clement-Bayard	A. Clement
W. G. Brokaw	60-h.p. Renault	M. G. Bernin
R. E. Jarrige	90-h.p. De Dietrich	L. Regan
Panhard and Levassor	90-h.p. Panhard	G. Heath
Panhard and Levassor	90-h.p. Panhard	Teste
Panhard and Levassor	90-h.p. Panhard	Tart
GERMANY.		
S. B. Stevens	60-h.p. Mercedes	S. B. Stevens
C. G. Dinsmore	60-h.p. Mercedes	——
Isadore Wormser	60-h.p. Mercedes	——
E. R. Thomas	60-h.p. Mercedes	E. E. Hawley
George Arents, jun.	60-h.p. Mercedes	Carl Mensel

Two White steam cars had been entered for the American team, but the cars could not be completed in time. The route map on another page shows the location and salient features of the course. The exact distance to be covered on each circuit is 30·24 miles. Nine circuits will be made, starting and finishing in the village of Westbury. The cars will be sent off at three-minute intervals, so that it is almost certain that one or more cars will finish their first lap before all the others have been started. This appears to promise complications, but elaborate precautions have been taken to prevent accidents.

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COMMENTS.

S.A.C.

AT a meeting of the General Council of the Scottish Automobile Club, held on Monday, a memorandum with regard to the lighting of vehicles in Scotland, prepared by the Secretary, was submitted. It was agreed to adopt the recommendations, and that communications should be opened with the County Councils Association with a view to inducing them to recommend the adoption of the suggested bye-law by the various county councils in the country. The memorandum is summarised on another page. On the suggestion of Sir R. J. Waldie Griffith, it was agreed to issue to the members of the club a cardboard placard for exhibition in motor-houses with regard to "Courtesies of the Road," summarised from and based on the club's recent circular with regard to inconsiderate driving and like matters.

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Oil on Roads.

ON another page we give the report of the Committee of the Western Section of the Scottish Club anent the oiling experiments they have recently undertaken by the permission of the Renfrewshire County Council. These have the value of being authoritative, and Mr. Robert Drummond, the road surveyor, was good enough to give every facility and assist in the preparation of the report. Apparently crude oil has given very great satisfaction from the point of view of economy, although the Westrumite is evidently cleaner to handle. Briefly summarised, the committee have come to the conclusion that for long stretches of road the cost of application is too great to bring it into general use, but in villages and residential districts the local authorities might do well to consider the laying of dust as being something that would be appreciated by the residents, at the same time enhancing the value of the property within their area; or, at least, if it does not enhance the value, would prevent the depreciation which, according to some agents, has followed the coming of the motor-car, so far as some main roads are concerned, for residential purposes.

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A New Ignition.

TWO of the cars—Mr. A. L. Guinness' 90-h.p. Darracq and Mr. C. Cordingley's 60-h.p. Mercedes—competing in the Blackpool speed trials this week was fitted with a new and interesting form of ignition which promises to become a serious rival to the magneto. Without drawings it is somewhat difficult to explain the system, but it may be briefly described as a cross between the jump spark of the high-tension ignition with coil and accumulators and the make and break of the magneto. An accumulator is used as usual, but in place of the ordinary induction coil a small cylindrical low-tension electro-magnet is employed and is attached direct to the plug, which, while of a special type, is provided with the same screw thread as the usual plug, so that it can be fitted without necessitating any alteration to the cylinder head. There is no high tension wire, the only wires being a short one from the battery to the magnet and another from the other terminal of the accumulator to the contact maker. The circuit includes two breaks, one of which is externally provided by the contact maker and is normally open, and the other, normally closed, is at the inner end of the plug. When contact is made externally, as the cam shaft of the engine rotates, current flows and energises the magnet, when by means of the consequent attraction, against a spring, of a soft iron armature attached to one of the contact pieces of the internal break, the latter is opened, and a spark—or rather a series of sparks, forming a continuous flame, due to the so-called extra-current of the induction circuit—is produced. The size and power of the spark, which has to be seen to be realised, is such that the complete charge in the cylinder is fired much quicker than usual, resulting in a more rapid explosion; while apart from this, one of the great advantages of the system is its ability to furnish a series of sparks at low as well as at high engine speeds. Altogether, we are much impressed with the new ignition, which we hope to illustrate and describe more fully in an early issue.

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£24 for One Offence.

A CASE which, on the face of it, appears to savour more of a persecution than a prosecution has just been heard at Woolwich. It was really one offence, but was divided into sections, with the result that a quartette of fines aggregating £24 have been imposed upon a working man in Woolwich Arsenal who happens to be fortunate or unfortunate enough to own a small motor-car. It appears he allowed his son to drive the automobile on a certain day recently, which of course he should not have done, seeing that the son had not got a licence. We should have thought that common sense would have dictated a summons against the son and there the matter to have ended; but instead of that, the father was summoned for (1) allowing another person to use his licence, and (2) with aiding and abetting that person to drive without a licence. The person who thus drove was then charged with driving without a licence, and, in various ways, the one offence was magnified until the sum of £24 was extracted from the two motorists for their indiscretion. Apparently this is the law, but then the law has been described as a "hass."

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In Ireland.

THE recent series of prosecutions of motorists which have taken place in Dublin led to the convening of a special meeting of the Irish Automobile Club to consider the position. The Right Hon. Sir Horace Plunkett presided, and amongst those present were Sir Ernest Cochrane, Bart., General Wolseley, Capt. Burnside, Dr. Joynt, and many other well-known Irish motorists. Mr. White, the Hon. Secretary of the Club, pointed out that the meeting was to consider recent judicial announcements of a very drastic character as to the speed of motorists generally, particularly in Dublin city. It appears that certain measurements have been made in Dublin, and that the slowest cab has been found to exceed over nine miles an hour, while other vehicles have gone even more rapidly through the streets, hence the feeling among motorists that they have been harshly dealt with is pretty general. At the end of a long and really excellent discussion, Sir Horace Plunkett proposed a resolution expressing the feeling that the action of automobilists as a body

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had been much misrepresented, but as proceedings were pending in which these matters were still sub judice, the Club should content itself with re-affirming its readiness to co-operate with the police.

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On Tour.

THE two Oldsmobiles now on tour have been running to the time-table which was laid down for them at the commencement of the run. They had a terrible experience coming over Shap Fell; there was quite a gale blowing, accompanied by rain and hail, and the drivers never had a worse journey; in fact, the wind was blowing such a hurricane that they could not hear their engines working. They saw a lady blown right off her bicycle, and the driver of the small car went to her assistance. At Manchester a large crowd gathered on the morning of the 5th inst. to see them start off for Shrewsbury; from Shrewsbury they went to Cheltenham, from Cheltenham to Newcastle-under Lyme, and arrived last Saturday at Holyhead, when they completed 1,617 miles, being just over half the distance. They then took the boat for Dublin, which they reached in the early hours of Sunday morning, resting there till Monday morning, when they started on the Irish route, as follows:—Monday, Dublin to Belfast; Tuesday, Belfast to Dublin; Wednesday, Dublin to Waterford; Thursday, Waterford to Cork; making a total of 412 miles in Ireland. From Cork they crossed over to



The Two Oldsmobiles at Kendal.

Milford Haven, and are due to arrive there some time to-day (Saturday). From Milford Haven they go to Cardiff, from Cardiff to Gloucester, from Gloucester to Taunton, Taunton to Bodmin, Bodmin to Truro, and Truro to Exeter.

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Another Non-stop Run.

UNFORTUNATELY, indisposition prevented Mr. D. M. Weigel from carrying out his proposal to drive an 8-h.p. four-seated Talbot car without stopping over the routes of the A.C.G.B.I. trials in Herefordshire. He therefore started a car on Monday from the new works at Ladbrooke Grove to make journeys to various points on the outskirts of the Metropolis. The first day's trip was to Guildford, St. Albans, Crawley, Welwyn, and Maidenhead. On Tuesday, Tring and Welwyn were among the places visited, repeat journeys being made to each place. The engine was running continuously from the start, and up to eleven o'clock on Tuesday night 620 miles had been covered by the car.

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Motor-Car Imports and Exports.

THERE was again a falling off in the number of foreign motor-cars imported into this country during the past month, although the value of the imports showed a marked increase. The number of cars imported in September is returned at 386, of a value of £169,472. Parts were responsible for £33,863, bringing up the total for last month to £203,335, as against £160,279 in September, 1903. So far this year, that is to say, for the first nine months, the imports stand at £2,037,161, or approximately £380,000 more than in the same period of last year. Passing now to the exports of British automobile productions, the returns continue somewhat disappointing, only seventy-one vehicles being shipped last month, these with the "parts" being valued at £31,749, while for the nine months ending with September the exports are returned at £217,772, or about £17,000 below the total recorded for the corresponding nine months of last year.

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More Motor-Omnibus Services.

THE officials of the Great Western Railway Company in the Reading and Bristol districts have had a trial trip with two motor-omnibuses between Marlborough and Calne preparatory to the opening of a regular service. This will link up the two Wiltshire towns, which are only about thirteen miles apart, but at present are divided by a circuitous railway journey of something like forty miles. The cars will travel through a most interesting tract of country, and will serve not only the collegiate town of Marlborough and the famous bacon-curing centre at Calne, but also a succession of villages rich in historical and antiquarian interest. The journey will occupy about an hour, and there will be three sets of cars running each way daily at small fares. The vehicles are of 20-h.p., with two compartments, accommodating about twenty passengers.

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A Spin thro' Surrey on a Spyker.

THE other day we accepted a long-standing invitation to a run on one of the latest 20-h.p. Spyker cars, and, with Mr. A. E. Perman at the wheel, started off for what proved a most enjoyable cross country spin through Surrey. A somewhat unusual way out of London was chosen in order to test the hill-climbing qualities of the car on a little known but steep hill in Wimbledon Park. This being ascended without the least difficulty, we were soon on the main road to Kingston through Raynes Park, and as the open country was reached the throttle was opened a little more to give us an idea of the speed qualities of the vehicle. The main road through Kingston to the Angel at Ditton was given a wide berth, Mr. Perman having discovered a route to the last-named hostelry which, albeit somewhat tortuous and bumpy, avoids the watchful policemen of the ancient borough and their traps for motorists. Again on the high road and on the top speed, we flew along to Esher, past Sandown Park, where hippomobile races were in progress. Esher Common, and along the Fair Mile to Cobham, and then a sharp turn to the left to Church Cobham, where a brief halt was made to ascertain the way to Ockham, the finger-post being eventually discovered away up on the roof of a building, near the chimney-pots! The road is one which is apparently little known to motorists, or even cyclists, as we had it practically to ourselves, and in a few minutes found ourselves at the Hautboy at Ockham, where a stop was made for a welcome cup of tea.

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Home in the Dark.

THE return trip was made by a cross-country route, taking in Ripley, Send, Woking, Weybridge, Walton, Molesey, Hampton Court, and back again to town *via* Kingston and Wimbledon, and without a single falter on the part of the car or the engine. The latter is fed by an automatic carburettor, which renders it exceedingly flexible, enabling most of the running to be done on the top direct gear. The suspension of the vehicle, too, is all that can be desired in the way of rendering it easy riding, while a point which struck us favourably was the neat arrangement of the ignition and throttle levers. Altogether, the run convinced us that the modern Spyker car is an excellent specimen of automobile construction which reflects much credit on its designers and builders.

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Refuse Collecting by Motor-Van.

At a meeting of the Cardiff Health Committee the superintendent (Mr. Woosey) announced that, in accordance with the instructions of the committee, he was now ready to dispose of a number of horses which had been worked in the collection of refuse, they having become unnecessary since the introduction of the motor-wagons. Councillor James Robinson asked how many more motor-wagons would be required to enable them to dispense altogether with horses, and the superintendent expressed the opinion that six would be sufficient. The experience of this progressive Welsh town is evidently conclusive as to the value of the motor-van, while the decreased number of horses will be an advantage from the sanitary point of view.

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Technical Education.

Very significant is the development of technical education in London during the last few years, and the curriculum at most polytechnics and similar institutions will this season include classes in automobile work. Those at Battersea have already become famous, and at the Borough Polytechnic, too, developments in a similar direction are in progress. The Polytechnic School of Carriage and Motor Body Building commenced operations last week, and from the syllabus which Mr. Lewis J. Butler, the headmaster, has sent us, it would appear that a thoroughly practical course of work has been devised. Motor construction is also a subject among the practical trade classes at that old institution, and it is proof of the hold which the motor-car industry has obtained on the public mind that these technical schools are recognising the necessity of including the motor car as a subject of serious study.

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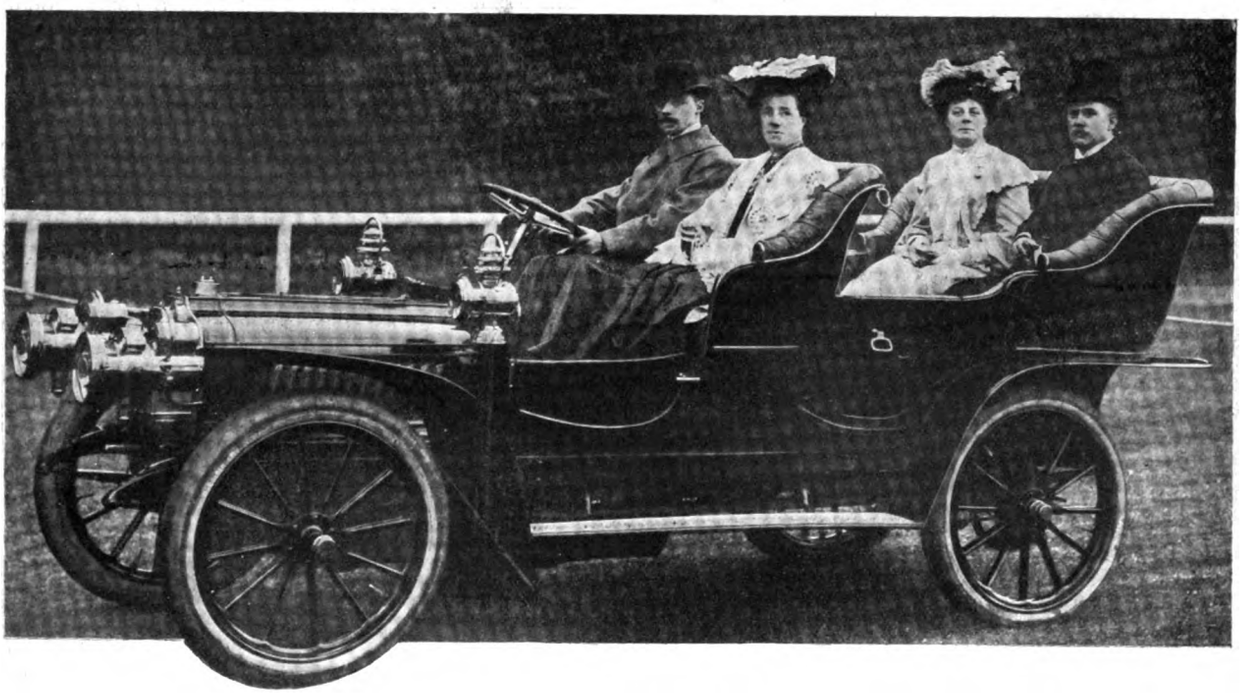
At Clerkenwell.

Lectures, drawing office work, laboratory work and workshop practice are included in the instruction which is now being provided at the Northampton Institute, Clerkenwell, E.C., in connection with Mr. C. E. Larard's classes for automobile work. These have been introduced in view of the rapidly growing importance of the industry, and the necessity of thorough technical instruction for those engaged therein. Those who are able to devote the necessary time to it are recommended to take the whole course, entry to which, however, will be confined to those actually engaged in the automobile engineering work. For the convenience of those who are unable to attend all sections of the work, separate fees are quoted for the different sections, and each application to enter any of these without taking the full course will be considered on its merits. In no case, however, will students be admitted to workshop practice without taking some other section of the full course. The number of students enrolled will be restricted to the available accommodation, and entries will close when this limit has been reached.

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A Practical Course.

The lectures, which commenced on the 13th inst., will be fifteen in number. The drawing office work will consist of a course of practical design. In the laboratory, students will receive practical instruction in the testing and running of oil and petrol motors. Two or three types of petrol motors will be fixed down in the engineering laboratories for testing, brakes and explosion recorders will be applied, and the power measured at different speeds. The various mechanical details of petrol motors will receive special attention, and the students will gain practical experience in the correct setting of the different parts. Instruction will be given in the workshop in the machining and fitting together of the various detailed parts of petrol motors to be used for motor-car work, and, if the time allows, the gearing and other structural work for the complete erection of motor-cycles or motor-cars will be fully dealt with; but the work actually done by individual students will depend upon their previous practical experience. The workshop accommodation is limited to twenty-five students, and preference will be given during enrolment to those who propose to take the complete course.



Mr. W. Foster, a well-known Member of the Nottingham Club, on his 24-h.p. Richard-Brasier Car.

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The L.C.C. and Cars.

At the meeting of the London County Council on Tuesday, Mr. Sanders moved that it be referred to the Parks and Open Spaces Committee to consider and report as to amending the bye-laws so as to prohibit the entrance into parks under the Council's control of motor-cars which emitted offensive odour. He said the emission of petrol vapour from these cars detracted from both the usefulness and healthfulness of the London parks. Mr. Beachcroft said the law was that every locomotive

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using the highway should consume its own smoke, and he presumed it should consume its own smell as well. Mr. D. S. Waterlow did not think the Council should treat the motion too seriously. No doubt a badly smelling motor-car was extremely objectionable, but the majority did not smell offensively. The motion was rejected by a large majority, which was not a matter of wonderment, seeing the large revenue which the Council draws from automobilists.

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Cars in London

THE registration of automobiles still continues, and in the three months ending September 24th no less than 567 motor cars and 305 motor cycles were registered by the London County Council, so that in the first nine months of the present year no fewer than 4,471 motor-cars, and 3,078 motor-cycles were registered within the London area, a total of over 7,500 automobiles, which proves how popular the mechanical vehicle has become within a remarkably short space of time. As many as 10,902 licences to drive motor vehicles have been issued, and 287 general identification marks have been issued to dealers during the same nine months. Facts such as these should make the local authorities careful in seeking to impose restrictions upon a body of people so rapidly growing both in influence and in numbers.

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Mrs. Charles Jarrott in an 8-h.p. De Dion-Bouton Landaulet.

The Blackpool Meet.

ON Wednesday morning entries of more than fifty cars were received for the Blackpool meet, and the names of competitors to be added to the list, on page 684, include Miss Hampson, Messrs. H. Sturmey, Keele, G. Higginbotham, Elsworth, Cook, Coddington, Higgins, Hammond, Whittaker, Lord, Metcalf, Howell, Garner, Womersley, Goddard, Lumb, Whatcoat, Anderson, Rignold, Austin, Marston, Kennedy, Richmond, Birtwistle, Guinness, Winton Carriage Co., the Fiat Co., and the London Motor Garage Co.

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International Cup for Motor-Boats.

MR. BASIL JOY sends us the rules for the British International Cup for motor-boats for 1905, as amended by the International Commission. An important alteration has been made in Rule 6, which now provides that the start shall be a flying one, all competitors starting together by a signal, thus preventing any possibility of such a mishap as occurred this year at Ryde, when Napier Minor was robbed of her victory. Rule 4 lengthens the course from between six and twelve knots to between thirty and thirty-five knots, thus giving a chance of a better type of boat being evolved. Another important alteration in connection with the course is that it must now be arranged so as to avoid all angles of less than 120 degrees, the length of each round to be not less than five nautical miles. Other minor alterations have been made, but the foregoing are the more important in connection with an event that is likely to become of increasing interest and importance as time goes on.

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In the West Riding.

IN the West Riding of Yorkshire several of the county magistrates have been wagging their heads together because, it appears, some of them have observed motor-cars going at quite rapid rates of speed along country lanes which have been regarded for generations as sacred to the lumbering market van or the slow moving agricultural wagon. Some of them have become quite alarmed at the rapidity of the motor-car, and are beginning to worry the District Councils to see whether these modern engines cannot be stopped altogether. After much serious discussion, they have gravely adopted a resolution advising the police throughout the West Riding to place their various stations in telephonic communication one with another. We can imagine with what relief these worthy wiseacres, having seriously discussed the problem for several hours, rose to go to their luncheon. After adopting such a course, doubtless they will expect that motorists will either go at a snail's pace or keep out of the West Riding altogether. We shall see.

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Cotton Motor Tyres.

THE first meeting of Hyatt's, Limited, was held on Tuesday, when it was stated that the company was formed to work an American machine, and had taken a mill in Lancashire, which was being rapidly equipped. The products of the company were machinery belting made from cotton on the principle of cotton wicks for lamps. This has been so far developed that a machine has been constructed which will produce a motor-car tyre continuous and endless, and of the form and shape of the wheels, to which it would be fitted without any labour further than what was necessary to drive the machinery, and would have a bursting strain greater, it is claimed, than any fibre which had yet been put into the motor tyre. It was estimated that the bursting strain of the tyre would be 6,000 lb. per square inch, and that one tyre could be made in the machine in thirty minutes.

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Progress in Ceylon.

MOTOR-CARS are advancing rapidly in Ceylon, and their popularity has been growing to such an extent that an automobile association for the island has been proposed. Mr. Harold North, of Bellongalla Estate, Kadungannawa, suggested the idea and is trying to carry it through. He has already received the names of fifty likely members. The notion of a motor mail service from Colombo to Puttalam is being advocated in many quarters. This and the formation of an automobile association indicate great advance.

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Local Antipathy.

LOCAL authorities continue to discuss the speed of motor-cars, and at the Dunfermline District Committee Lord Elgin has reported that the surveyor has prepared a list of dangerous hills, turnings and cross roads in the West Fife district, at which danger boards are to be erected at a cost of £1 per piece. The Yorkshire County Council has informed the Scarborough Rural District Council that at a dozen places within its area similar posts will be erected, and elsewhere the question of the erection of sign boards has cropped up. Some, however, have gone even further, and the Parish Council of Clayton, which is somewhere in Sussex, has passed a resolution urging the Roads and Bridges Committee of the County Council to see whether motor-cars cannot be altogether prohibited from certain of its roads.

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LIGHTS AFTER DARK.

THE POSITION IN SCOTLAND.

MR. R. J. Smith, the Secretary of the Scottish Automobile Club, has drawn up the following memorandum with regard to the lighting of vehicles after dark in Scotland. By section 50 of the Burgh Police (Scotland) Act, 1903, which came into force on May 15th last, it is provided:—"That every vehicle drawn by animal power and driven upon any street during the period between one hour after sunset and one hour before sunrise shall carry a lamp or lamps exhibiting a white light in the direction in which the vehicle is proceeding, provided that where one lamp only is carried it shall be, or where more than one lamp is so carried, one shall be attached to the extreme off or right side of the vehicle: and that any carriage used for the purpose of carrying timber or any other load which projects more than six feet beyond the rear shall in addition exhibit a red light visible to the rear, showing the extent to which the load projects behind the vehicle."

This provision is applicable to every burgh in Scotland with the exception of Edinburgh, Glasgow, Aberdeen, Dundee and Greenock, by whom its adoption is permissive. In none of these cases has this section been adopted. In Edinburgh, every carriage or van requires to carry lighted lamps on each side between half-an-hour after sunset and half-an-hour before sunrise. In Glasgow there are no provisions for the lighting of horse drawn vehicles after dark with the exception of the regulations relating to hackney and stage carriages, which are required to keep lamps clean and lighted between sunset and sunrise except from 1st May to 15th August. In Aberdeen, hackney carriages only are required to carry lights, the months of May, June and July being excluded. In Dundee all carriages and vehicles proceeding at a greater than walking pace are required to carry lights. In Greenock there are no regulations whatever.

In terms of the Local Government Board (Scotland) Act, 1889, and of Section 104 of the Roads and Bridges (Scotland) Act, 1878, County Councils may from time to time, it is assumed, make, with respect to the highways within their jurisdiction, bye-laws requiring vehicles to carry lights at night. In twenty-seven counties such bye-laws are in force and in six there are none.

In the majority of cases the following are the terms of the principal bye-law:—A. During the period between one hour after sunset and one hour before sunrise every person driving or being in charge of a vehicle placed upon springs shall carry and exhibit, attached to each side of the said vehicle, a lighted lamp so constructed and placed as to exhibit a light in the direction in which the vehicle is proceeding.

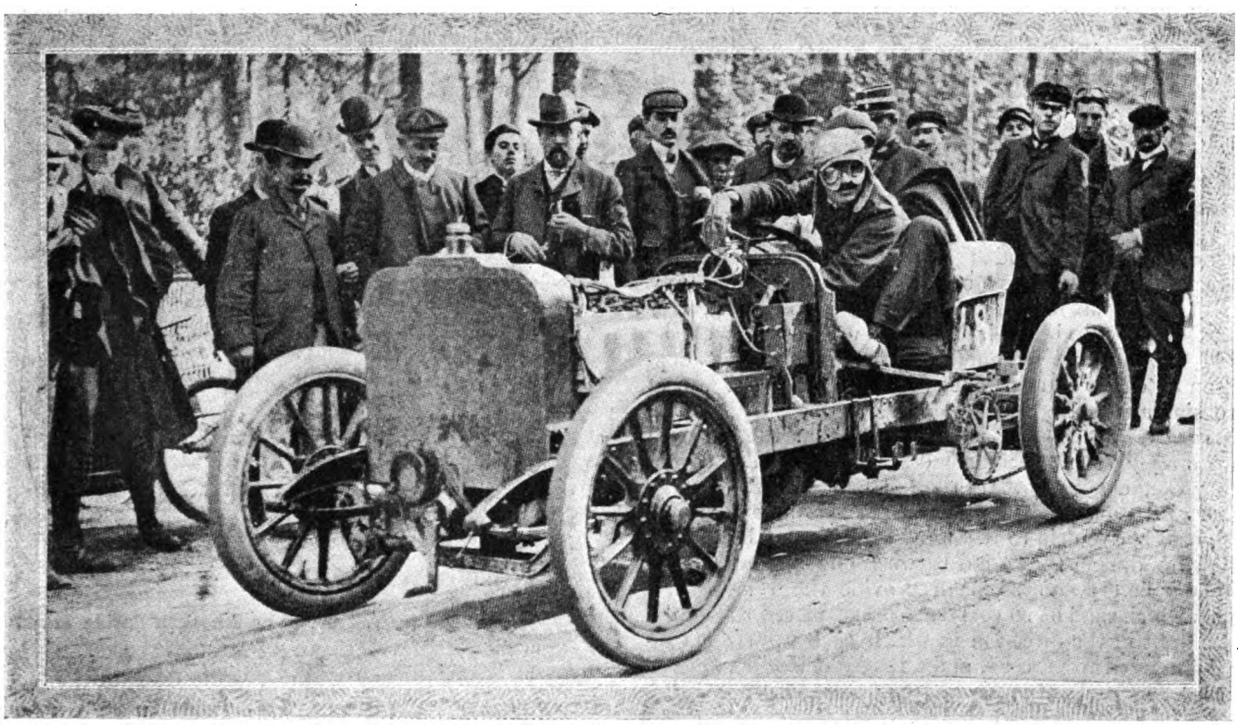
This applies to the following counties:—Aberdeen, Argyll, Ayr, Banff, Berwick, Clackmannan, Dumfries, Dumbarton, Fife, Forfar, Kincardine, Kinross, Kirkcudbright, Lanark, Linlithgow, Orkney, Peebles, Perth, Roxburgh, Selkirk, Stirling and Wigtown.

In several instances a similar bye-law, somewhat wider in its terms, is in existence:—B. During the period between one hour after sunset and one hour before sunrise every person driving or in charge of any vehicle drawn by animal power which is going faster than a walking pace, shall carry and exhibit attached to each side of said vehicle a lighted lamp so constructed and placed as to exhibit a light in the direction in which the vehicle is proceeding. This is in effect applicable to the counties of Bute, Fife, Haddington, Kinross and Midlothian.

The following supplementary bye-law is commonly adopted:—C. During said period every person driving or in charge of a cart or carts loaded with wood of any description, or iron bars, shall carry and exhibit a lighted lamp attached in such a way as to show the furthest out projection on each side of the cart and so constructed and placed as to exhibit two efficient clear lights in the direction in which the cart is proceeding. This is adopted by the counties of Ayr, Berwick, Dumfries, Kirkcudbright, Orkney, Peebles, Perth and Roxburgh.

Slow traffic is provided for by the following clause:—D. Vehicles not on springs shall proceed only at a walking pace. This is applicable to the counties of Ayr, Banff, Berwick, Dumfries, Dumbarton, Kirkcudbright, Lanark, Orkney, Peebles, Perth, Roxburgh and Shetland.

E. During the summer months, May, June and July, exiist ing bye-laws are suspended in the counties of Aberdeen, Banff,



The Dourdan Speed Trials.—Dufaux on the Dufaux Eight-cylinder Racer.

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Dumfries, Shetland, and Wigtown, in the county of Berwick during the period from 20th May to 20th July, and in the county of Orkney from 15th April to 15th August, while in the county of Kirkcudbright as regards May, June and July the words "one hour after sunset and one hour before sunrise" read "two hours" in each case.

F. No regulations are in force in the following counties:—Caithness, Elgin, Inverness, Nairn, Ross and Cromarty, and Sutherland.

G. The county of Renfrew has a special bye-law requiring lights, or one light on the off side, to be carried by all two-wheeled vehicles on springs, and by every vehicle having four wheels.

H. The county of Midlothian furnishes the only instance of a rear light being required. The regulation is as follows:—"During the period between one hour after sunset and one hour before sunrise every person driving or being in charge of any wagon, cart, or other carriage loaded with timber, trees, or other material, projecting five feet or more in rear of such wagon, cart, or carriage, shall carry and exhibit a lighted lamp attached at the back in such a way as to show the furthest out point in such projection."

The County Councils Association have remitted to a sub-committee to prepare a model set of bye-laws, which, if approved by the Association, will be recommended for general adoption, and they have expressed a desire to receive the report of the Council of the Scottish Automobile Club, and willingness to consider their views before they frame their recommendations.

With respect to burghs no action appears called for. It has been made obligatory by the Statute that lights be carried, and while no rear lights are provided for, the necessity for these within the limits of burghs is not great, and to obtain any amendment to the recent law would be in the meantime exceedingly difficult. It would be desirable, however, to approach the authorities of Glasgow and Greenock with a view to their adoption of Section 50 of the Burgh Police (Scotland) Act, 1903, or of a bye-law to similar effect.

In the case of counties it is suggested that the General Council should approve and recommend for the general adoption of the County Councils in Scotland the following set of bye-laws:—"(1) Every person who shall cause or permit any carriage, cart, wagon, or other vehicle to be driven or ridden or be on any street or highway during the period between one hour after sunset and one hour before sunrise, shall provide the same with a lamp or lamps which shall be so constructed and placed as to exhibit a white light in the direction in which such vehicle is proceeding or is intended to proceed, and a red light behind, and so lighted and kept lighted as to afford adequate means of signalling the approach or position of the carriage, cart, wagon, or other vehicle; providing that, where one light is shown in each direction, the lamp exhibiting it shall be attached to the extreme off or right side of the carriage, cart, wagon, or other vehicle. In case of the load carried by said vehicle projecting beyond the sides thereof, the light or lights shall be so placed as to show the furthest out projecting.

"(2) Such person shall also, if the vehicle is used for the purpose of carrying timber or any load projecting more than six feet to the rear, provide an additional lamp or lamps, so constructed and capable of being so attached to the end of the projecting load as when lighted to show to the rear a red light, visible within a reasonable distance to persons overtaking the vehicle, and to show the extent to which such timber or other load projects behind the vehicle."

"(3) Every person driving or being in charge of such vehicle as aforesaid in any street or highway during such period as aforesaid shall keep such lamp or lamps properly trimmed, lighted and attached."

The question of lighting flocks of sheep, droves of cattle and the like is not without importance, but it would appear to be meantime premature to deal with it.

A MOTOR mail service is about to be inaugurated between Tonneins and Caneon (Lot et Garonne), France.

CONTINENTAL NOTES.

An American Invasion.

One of the features of the French motor industry at the present time is the great attention that is being given to America, which is proving an important market for French automobiles. Quite a number of manufacturers are represented at the St. Louis Exhibition, while the race meeting during the next few months, of which a number are promised, are likely to witness the appearance of several well-known French *chauffeurs*. Messrs. Gabriel, Teste, Tart, Heath, and Clement, jun., recently went over to the United States, an intrepid group which is now to be joined by Thery and Caillois, who sailed from Havre on the "Lorraine" last week. The former has with him the Richard-Brasier on which he won the 1904 Gordon Bennett race, while the latter will drive the light car which won the Chateau-Thierry and Ventoux hill climbs in 1903.

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Public Services in Germany.

A company has just been formed at Schonach, Germany, to organise a public service of motor vehicles between that town and Torberg. A service is also to be started between Halle and Dolau, while one is projected between Santomischel and Schroda.

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Taking a Corner on an American Racing Track.

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The French Military Motor Vehicle Competition.

Only three vehicles out of the seven entered presented themselves to take part in the military motor-wagon contest organised under the auspices of the French Minister of War, which was to have started on Monday of last week. These were a Cottereau vehicle, one by Mathian Frères, and one by M. Latil. After going through the weighing formalities, they were sent off on their first day's journey by the authorities, and later on two Aries wagons arrived. The Commission then held a meeting, and after a long discussion decided to postpone the competition *sine die*, they considering that the vehicles did not conform to the requirements specified in the conditions. The decision came as a surprise to the competitors, who, naturally, were anything but pleased with the announcement. Messrs. Cottereau, for instance, had gone to great trouble and expense in building a special vehicle, having kept their men working almost night and day to get the car finished in time.

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1905 Models.

It is reported that Messrs. Renault Freres are at work on a new model, fitted with a 20-28-h.p. motor, which will make its appearance at the *Salon* in December. This car, except for the size of the motor, and that it is fitted with a pressed steel frame, will be similar to the present 14-h.p. Renault, and will have the new type of radiator, which has proved very successful in practice. As already mentioned, the 1905 models of

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Mercedes will be confined to two sizes, 28-32-h.p. and 35-40-h.p. These will be on very similar lines to this year's cars, but will be made in various lengths of *chassis*—7 ft. 3 in. for tonneaux, 8 ft. for side-entrance bodies, and 8 ft. 6 in. for coupés and six-seated bodies. It is also reported that a 8-14-h.p. three cylinder Mercedes is to be introduced. It will probably be almost a year before it is ready, so that to all intents and purposes it may be regarded as a 1906 rather than a 1905 model.

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The French Carburettor Competition.

The results of the Carburettor Competition held during the past season by the French Automobile Club have just been announced. In Class A, for carburettors for a special motor, no award is made. In class B, for carburettors using ordinary paraffin, Madame Vve. Longuemare and Messrs. Gautreau both receive silver medals. Class C, for carburettors for any motor using any type of fuel, Madame Vve. Longuemare, gold medal; J. Saint-Denis, silver gilt medal; Messrs. Hannon and Co. (Constantini carburettor), Messrs. Michaux and Co. (Gallia carburettor), and F. Chalon (Automatisme carburettor), all silver medals.

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Motor Traffic Regulations in Italy.

The Special Commission, consisting of various Senators and Deputies, of the Mayor of Rome, several officials, and some experienced automobilists, which was appointed by the Italian Minister of Public Works to inquire into the question of regulating the speed of motor vehicles, has presented a report, which will soon be laid before the Cabinet. The main recommendations of the Commission are two. The first, which applies to all vehicles, prescribes that they should always keep to the right-hand side of the road; but, in order not to break with ancient customs, mayors of towns of more than twenty thousand inhabitants may issue orders permitting carriages and motors to drive on the left. The second recommendation, which applies specially to motor-cars, will, if adopted by the Cabinet, reduce their speed in towns and villages from fifteen to twelve kilometres an hour, but will abolish the speed limit in the open country altogether. It is further proposed that every automobile, in addition to the plate with the name of its place of origin and its number, which is fixed behind, shall also have one in front.

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One-third Litre Motor-Cycle Criterium.

SIXTY-THREE entries in all were received for the "Criterium du Tiers de Litre" organised by the "Auto." The weighing and cylinder measuring took place on Tuesday last week and the racing commenced on Wednesday, when the first two "series" of ten competitors each took their turn—one set in the morning the other in the afternoon—on the Parc des Princes track, in Paris, over a distance of 100 kilometres. The four other series followed on Thursday and Friday, two each day. The final should have taken place on Saturday, but, owing to rain, it was postponed until Sunday. The final includes the first two machines in each of the series. In each case it is the machines which are qualified to take part, it being permissible to change the riders. An extra prize in the form of a challenge cup was offered to constructors who elect to run machines in sets of three, as designated beforehand. The best performances of these groups determine the winner of this trophy for regularity of running and reliability. The following twelve competitors qualified for the final:—

Rider.	Machine.	Motor.	Bore and stroke mm.	Transmission.
Anzani ...	Alcyon ...	Buchet ...	76 by 73 ...	Belt
Bac ...	Magali ...	Deckert ...	76 by 73 ...	Chain
Lanfranchi ...	Peugeot ...	Peugeot ...	70 by 86 ...	Belt
Champoiseau	Griffon ...	Z.L. ...	72 by 80 ...	„
Griet ...	Alcyon ...	Buchet ...	76 by 73 ...	„
Georgis ...	Buchet ...	Buchet ...	76 by 73 ...	„
Collomb ...	Magali ...	Deckert ...	76 by 73 ...	Chain
Cissac ...	Peugeot ...	Peugeot ...	70 by 86 ...	Belt
Hibon ...	Lurquin-Coudert	L. and C. ...	74 by 76 ...	„
Meline ...	Stimula ...	Stimula ...	75 by 65 ...	„
Champoiseau	Griffon ...	Z.L. ...	72 by 80 ...	„
Cissac ...	Peugeot ...	Peugeot ...	70 by 86 ...	„

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The Result of the Final.

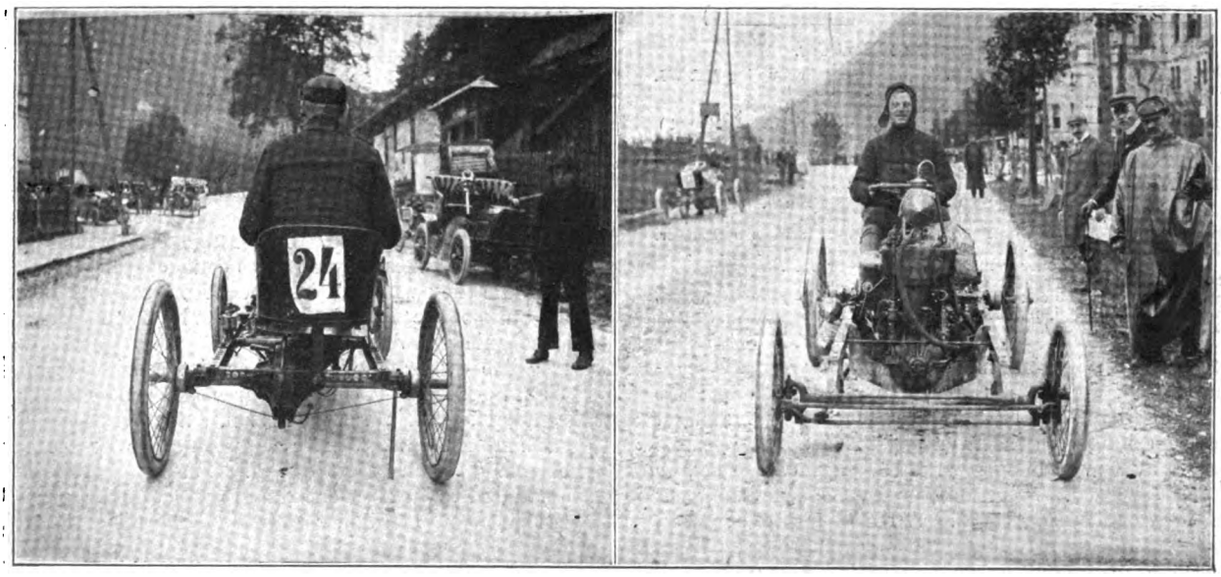
All the twelve riders who competed in the final on Sunday succeeded in completing the 100 kilometres. The event proved a victory for Anzani, who on an Alcyon machine with Buchet 76 by 73 mm. engine completed the distance in 1 hr. 18 min. 37 sec., Giorgis on a Buchet being second in 1 hr. 19 min. 58 sec., and Melin on a Stimula third in 1 hr. 24 min. 48 sec.

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The Gordon Bennett Race.

It is reported that Messrs. Turcat Mery and Company, of Marseilles, are already at work on their racer for the eliminating trials for the French team for the 1905 Gordon Bennett race. It will, it is stated, be of about 100-h.p., and is expected not to weigh more than 800 kilogrammes complete.

MESSRS. SALSBURY AND SON, LIMITED, have just introduced a simple arrangement, controlled from the dashboard, by means of which the light on their acetylene head lamps may be raised or lowered at will.

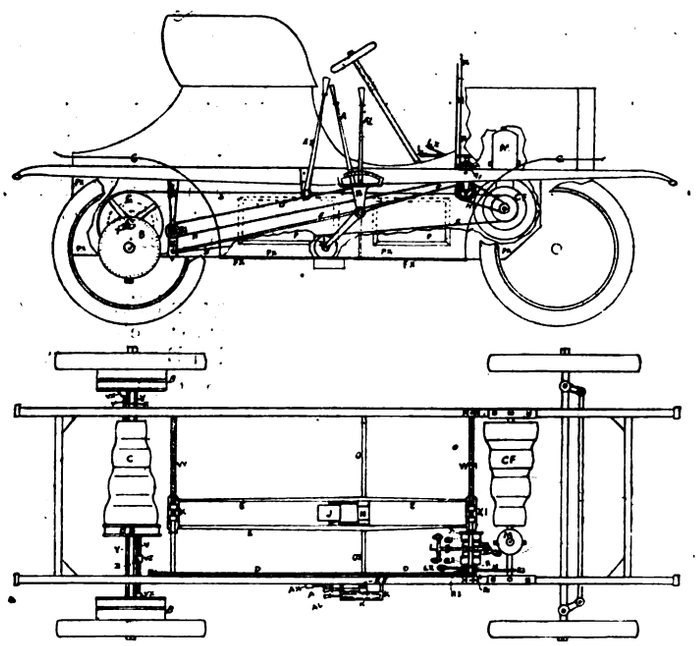


Back and front Views of the Spitz Light Racer driven by Hieronymous in the recent Hill-climbing Competition at Semmering, Austria.
[*Allgemeine Automobil Zeitung.*

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THE DENT BELT RACE CONE TRANSMISSION SYSTEM.

WHEN the question of transmission first occupied the attention of car designers, they turned instinctively to the belt as affording the most suitable medium to bridge the gap between the ever-changing relative positions of the motor and road wheels, and although many cars were thus constructed, and indeed are still on the road, the difficulties of having so many pulleys and belts, the annoyance of stoppages for adjustment, the slipping, wear of belts, and so on, soon made themselves apparent, and this otherwise ideal drive was discarded. Messrs. Dent and Son, of Tamworth, however, claim to have entirely overcome these drawbacks with their belt race cone system, and, moreover, dispense with side chains, live axles, cardans, and bevel drives, as well as speed gear-boxes, by simply using two specially constructed light weight cones and a single belt, the latter being controlled by a combined power-driven belt striker and sliding ball-bearing jockey. The belt is moved either way into the various speeds by a pedal which actuates ball-bearing roller forks by worm-threaded rods driven by either of the miniature clutches. The makers state that the tensioning spring-connected lever requires very little pressure to give a gear-like grip, and a



Figs. 1 and 2.—Plan and Elevation of Dent Car.

Front End.
CF—Front cone.
M—Motor.
R3—Chain wheels driving Q3
Q3—Sliding part of clutches.
H—Chain.
Q1, Q2—Clutch shells.
R1—Chain wheels for reducing speed.
TT—Toothed wheels for raising speed.
L—Pedal operating either speed.
XI—Worm-threaded block roller frame.
WI—Worm-threaded rod.
LX—Pedal to CB.
IX—Speed indicator.
Rear End.
C—Cone with balance gear.
Y—Cranked axle.
B—Brake drums internally toothed.
Z—Cone and balance gear shaft.
XZ—Driving pinions.
V—Rods for sliding to reverse or free.
X—Worm-threaded block roller frame.
W—Worm-threaded rod on brackets EX.
R1—Chain wheels connected by
D—Chain coupling W & WI.
CB—Cone brake.
Centre.
E—Rods X to XI engaging J
J—Jockey by its sleeve N.
O—Square rod for rocking jockey.
A—Belt-tension lever through.
XS—Belt-tension spring.
AX—Road wheel brake lever.
AL—Reverse lever to V.
K—Bracket.
S—Belt.
PX—Belt-casing opened to show gear.
P—Panels in same.

nice adjustment is thereby obtained. The cones are made principally of aluminium, weighing from ten to twenty pounds; the back one is mounted on the balance-gear shaft over a cranked axle, its pinions meshing with the internally-toothed brake drums. The front cone may serve the purpose of the engine flywheel, or a clutch can be interposed, three, four, or five speeds being the usual number provided by the cones. A recent improvement in the system consists in the introduction of a power friction-driven belt striker instead of a hand wheel. Two miniature clutches now automatically move the belt on depressing the pedal, the four points of the attachment being coupled by small cycle chain. The striker will be best understood by reference to the illustrations. The pedal is depressed and one or other of the clutches immediately revolves the screwed rods, the indicator showing the speed obtained. By means of this pedal the car can be slowed or accelerated in traffic to a nicety. At the same time, as the belt is being carried over by the ball-bearing roller forks, the jockey follows it. The latter is connected by a tension spring on the end of its sliding rod to the tension lever, and "take up" is thus automatically accomplished when setting the lever in the desired notch. The belt is of such a construction that a gear-like grip is obtained with very little tension, and on ordinary roads it will drive slack. The splice is nearly invisible, and it can be quickly shortened; the latter, however, is never necessary on the road, by reason of the margin allowed by the jockey and the non-stretching qualities of the belt. We have not had an opportunity of trying a car fitted with the transmission ourselves, but Messrs. Dent inform us that they have experimented with a heavy solid-tyred car over a hilly route in Wales, and that with eight passengers the cost of petrol and paraffin for the single-cylinder engine works out at 5d. for thirty miles. They also inform us that no shortening of the belt was required, and that the speed-changing and starting is notable for the easy wave-like motion imparted to the car. Extreme simplicity, ease of operation, small upkeep, silence, flexibility, and efficiency, and correctness are among the claims made for the system.

THE VALUE OF THE MOTOR-CAR.

MR. T. L. JOHNSON, the Mayor of Cleveland, U.S.A., is one the recent converts to motoring, and in an American contemporary has given expression to his views on the modern means of travel. "In the beginning," says Mr. Johnson, "I looked upon the motor-car as a toy, but my admiration for this means of locomotion grew with the development of the art. It is now a part of my daily life, and I have given up horses entirely, not only using the motor-car for business, but for recreation as well. High speed does not appeal to me, and I think scorching, both in the country and city, is to be frowned upon, for it annoys a great many people who ought to be friendly to the motor-car.

"It is my belief, however, that this evil will disappear, and harsh legislation against it will be found unnecessary, as was the case with cycling.

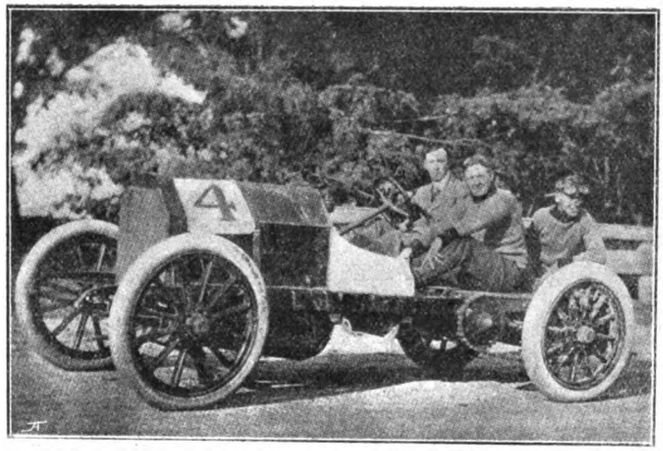
"So far the development of automobilism has been largely along the line of the touring car, but a greater field of utility will be found in commercial work; and a still broader one when its development reaches a degree of perfection and economy of construction that will permit its use by farmers, for a simple and low-priced wagon will be greatly desired by the rural community. This will overcome the prejudice of farmers and gain their influence for better roads. The side-door touring car is taking the place of the one with the awkward rear entrance. The need for high-grade carriage construction is now being so rapidly supplied that all further excuse or necessity for closed vehicles, drawn by horses, will disappear. The motor-car, properly handled, is now safer and more convenient than animal power, even at double the speed. The range of distance for pleasure driving is five times as great as we could ever hope for with horses, and, while they will not disappear from the city or the farm, a great bulk of the work hitherto done by them will be performed by mechanical power.

"The owner who is not himself the driver of a touring car loses nine-tenths of the pleasure that is to be derived from an automobile, and, for this reason, manufacturers should aim at great simplicity, as the more complicated the control, the greater the demand for an expert driver. The complaint that motor-cars are handled by inexperienced and reckless drivers arises from an evil that will, I think, cure itself. The risk that owners take when motor-cars are badly handled of having damage bills to pay will secure to the general public a high grade of skill in driving, and it seems to me unnecessary to attempt by regulation, examination, and licence to overcome this difficulty."

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The Vanderbilt Cup Race.

THE first race for the cup presented by Mr. W. K. Vanderbilt, jun., was run off on Saturday last on Long Island, U.S.A., and was unfortunately attended with a fatal accident. The course over which the race was held is 30·2 miles long, and had to be covered ten times; in shape it is an elongated triangle, the base lying to the eastward between Plain Edge and Jericho and the apex of the triangle being at Queens. The starting point was at Westbury, on the north side of the triangle, toward the base. There were two "controls" on the course, one of three minutes and one of six minutes, at Hicksville and Hempstead, respectively. The start took place at 6 a.m. in the presence of a large number of spectators, for the more favoured of whom a grand stand had been erected. Eighteen entries were in all received, and these all appeared at the post, being despatched at intervals of two minutes, in the following ord



Mr. E. R. Thomas at the Wheel of his 60-h.p. Mercedes. At his side is Mr. E. E. Hawley, who drove the Car in the Race.

No.	Driver.	—	Car.	Country represented.
1	Campbell Muir	60 h.p.	Mercédès	Germany.
2	Gabriel	90 h.p.	De Diétrich	France.
3	Tracy	40 h.p.	Royal	America.
4	Webb	60 h.p.	Toledo	America.
5	Arents	60 h.p.	Mercédès ...	Germany.
6	Lytte	24 h.p.	Toledo	America.
7	Heath	90 h.p.	Panhard	France.
8	Hawley	60 h.p.	Mercédès	Germany.
9	Werner	60 h.p.	Mercédès	Germany.
10	Sartori	90 h.p.	Fiat	Italy.
11	Bernier	90 h.p.	Renault	France.
12	A. Clement ...	80 h.p.	Bayard-Clément ...	France.
14	Tart	90 h.p.	Panhard	France.
15	Teste	90 h.p.	Panhard...	France.
16	Schmidt... ...	30 h.p.	Packard	America.
17	Croker	75 h.p.	Simplex	America.
18	Wormser ...	60 h.p.	Mercédès	Germany.
19	Wallace	90 h.p.	Fiat	Italy.

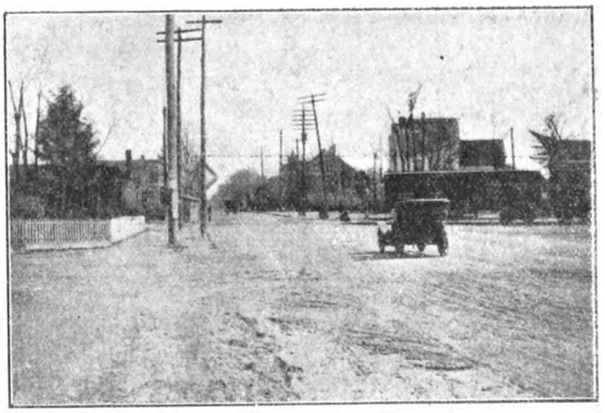
Owing to the superstition attaching to the number 13, it was purposely omitted in the allotting of the numbers to the competing cars. Sartori, on Mr. Vanderbilt's 90-h.p. Fiat, was the only one who failed to start in his proper order. Early in the morning his clutch had gone wrong, involving two hours delay in repairing. Contrary to rules, on reaching the post he made a flying start, but was stopped at Hicksville and disqualified. Gabriel was the first to complete the first round, he being followed by Teste, Werner, and Tart. Tracy, on the Royal, broke a shaft at Queens; he replaced it and re-started, but had not gone far when a cylinder went wrong, and he had to retire. Wallace, on the Fiat, No. 19, also withdrew in this round, owing to an accident to his mechanician, Dondier. The latter was leaping into the car at the Hicksville control, and fell, the wheel passing over his legs. He was removed to hospital, where he was found to be not gravely injured.

The second round saw the finish of Werner, owing to tyre troubles, while the Renault driven by Bernier broke a cardan joint when passing over a level crossing, and had to withdraw. It was in the third round that the most serious accident of the day occurred. The catastrophe happened to the 60-h.p. Mercedes driven by Arents. One of the tyres collapsed, and when the brakes were applied the car fell on its side, throwing Mr. Arents and his mechanician, Menzel, on the road. Menzel's head was cut open, and he was so badly hurt otherwise that he died before he could be given proper medical attention. Mr. Arents was also very badly injured, and now lies in the hospital in a precarious condition suffering from a fractured skull. Gabriel, too, had a narrow escape from a railway train at a level crossing at Mineola, the officials signalling the train first to stop and then to go on. Both the car and the train went on, Gabriel whizzing by first with only a few yards to spare. Teste (Panhard), who had made the best time during the first lap, passed the starting line first on the second and third rounds, but had to abandon shortly after for tyre and other troubles, details of which are not yet available.

Heath had now run into first place, followed by Clement, Gabriel, and Tart. The fourth circuit was made without accident and without change in position, but in the fifth round Hawley (Mercédès), withdrew near the grand stand owing to a broken front spring, the car having swerved off the road while



Near Hicksville.

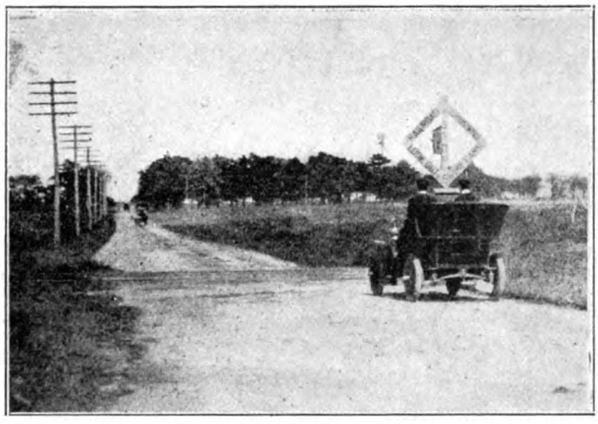


The Railway Crossing at Hicksville.

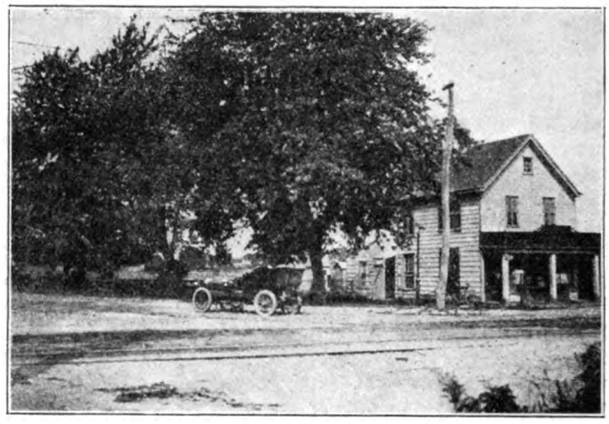
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taking an abrupt turn. Croker (Simplex), who had lost nearly an hour in the first lap owing to tyre troubles, also abandoned after completing five circuits. Heath (Panhard) led at the end of the fifth round, his time for the distance of 151 miles being 3 hours 1 min. 5 sec. The only change in the sixth round was that Tart gave way to Lyttle for the fourth place, 43 minutes separating the latter from Heath, the first man. Gabriel had bad luck in the seventh round, he having the misfortune to break his crank shaft, while Wormser (Mercedes), who had tyre troubles from the outset, withdrew in this circuit. Tart (Panhard) fell out in the eighth circuit.

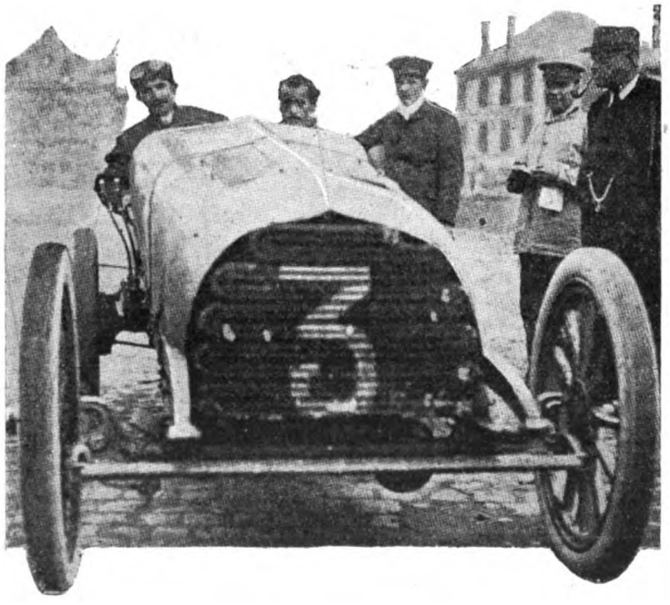
The race had now become a struggle between Heath (Panhard) and Clement (Clement-Bayard), and to the surprise of all the latter was the first to finish the ninth round, Heath being delayed by tyre troubles. He quickly got going again, however, and made the last circuit at a speed of about 72 miles per hour, running into first place with but 1 min. 28 sec. to spare, Clement being second and Lyttle third.



The Railway Crossing at Mineola, where Gabriel narrowly escaped colliding with a train.



A Sharp Turn near Elmont.



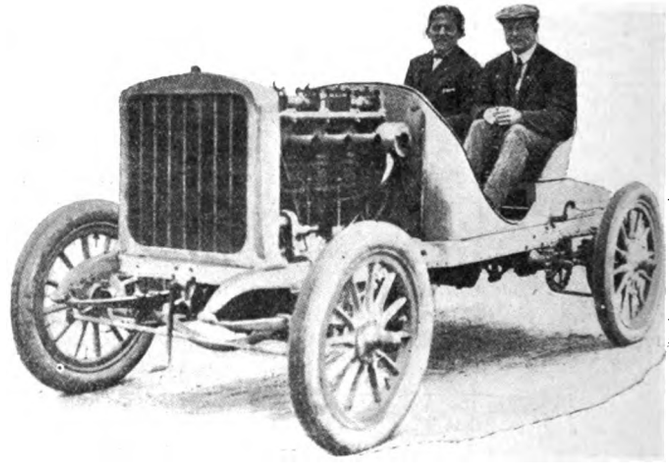
M. Clement, jun., on the Clement-Bayard which secured second place.

After these three cars finished the race was stopped owing to the spectators crowding on the course, the cars still in the running at that time being Campbell Muir (Mercedes), eighth circuit, Schmidt (Panhard), eighth circuit, and Webb (Toledo), fifth circuit. The net times of the three who finished were :—

1.	Heath	90-h.p. Panhard	5h. 26min. 40sec.
2.	Clement ...	80-h.p. Clement Bayard	5h. 28min. 15sec.
3.	Lyttle	24-h.p. Toledo	6h. 20min. [illegible]

Clement protested against the decision of the judges, asserting that 1 min. 40 sec. had been deducted from his running time without warrant while he was repairing a broken petrol tank. He claimed that he had therefore won the race by 12 sec. The judges, however, overruled his objection. Heath's average speed was 51·13 miles an hour, and Clement's 51·08. The weather was warm, but a refreshing north-westerly breeze was blowing during the greater part of the day. Despite the threats made by irate farmers, no attempt was made to block the roads or spoil the race, but several competitors complained of tyres being punctured through nails and broken glass, which, it is believed, were maliciously scattered on the course. The level crossings proved a source of danger and trouble throughout the race.

The result of the contest was full of surprises. Of the eighteen competitors no less than twelve retired. Not one of the five Mercedes nor either of the Fiats completed the ten laps, while out of five American entries only one was classified. The honours of the day fell to France, the contest proving a battle of giants between Panhard and Clement, only a matter of 88 sec. separating them at the finish.



Mr. A. C. Webb's 60-h.p. Toledo Racer.

A GARAGE and show rooms could be formed of some premises in Oxford Street, extending to the rear in Tenterden Street, which Messrs. Beal and Myrtle have to let.

THE Lion de Beau Sejour Brewery Company at Nyon, Switzerland, is in the market for a motor-lorry capable of carrying a load of six tons at speeds up to seven and a half miles per hour.

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OILING THE ROADS.

THE Secretary of the Chamber of Commerce of Los Angeles, Cal., has recently made an interesting communication on the subject of the use of oil on roads for the purpose of overcoming the dust nuisance. In the course of the report he states:—

"For the past four or five years the use of oil on our roadways has been increasing rapidly, and is now considered the best method for laying the dust, as well as of making a serviceable roadway. It has been taken up by the different boards of supervisors in the surrounding counties, as well as by the superintendent of streets in Los Angeles, and we have now in the neighbourhood 300 or 400 miles of oiled roads within a radius of 60 miles of the city. It has been found, when properly applied and the necessary attention is given to it, that it forms a smooth, durable surface; and in one case of a road with a 6 per cent. grade treated with oil, it was found after a heavy rainstorm the road had not cut or washed, but on a road in the same neighbourhood under the same conditions not treated with oil it became impassable.

"The process of preparation varies considerably according to the opinions and experience of the different workers, as well as with the different material of which the roadbed is composed. Some officials have claimed that a very sandy road would not be benefited with oil, but by repeated experiment it has been found that by putting on a very heavy coat of oil the loose sand has taken it up, and by continual application a very fair roadbed has been made out of what was almost impassable sand. In some instances sandy roads have been first crowned up with a heavier soil or with clay, making a firm foundation, and then treated with oil, thus making as good a road as in other sections where the land is heavier. In some localities, where oil has been used for some time and careful attention given to repairs and renewal, the roads have become as smooth and hard as asphalt pavements and without the disadvantage of dust. In preparing an ordinary road, in some instances the surface has been loosened by a machine carrying something in the nature of a rake, for the purpose of being able thereby to mix the oil with the surface dirt. In others, where the soil is heavy and packed hard, it has been covered with oil and then a thin coating of light sand is sprinkled over this, which causes the whole to cement together, forming a hard surface. For roads of this nature, that is with a hard surface, it has been found preferable in many cases to use a light gravity oil, which is absorbed readily by the earth. In cases of light or sandy soil, it is contended by many that the heavier oils carrying more asphalt in their composition are more desirable and more effectual for the purpose.

"It is a hard matter to give any definite figures as to the cost of treating roads, for the reason that conditions differ and prices of material very in the different localities; but from the figures given by some of our supervisors it seems that it takes from 75 to 250 barrels of oil per mile for the first treatment, according to the character of the soil. About one-third of the original amount is sufficient for the second year, and thereafter in constantly decreasing amounts. It is stated that the average cost, taking the first application and the later attention, should not exceed £20 per year per mile. It is authoritatively claimed that treatment by oil is much less expensive, even at the outset, than the use of water in laying the dust, and at the same time is enduring."

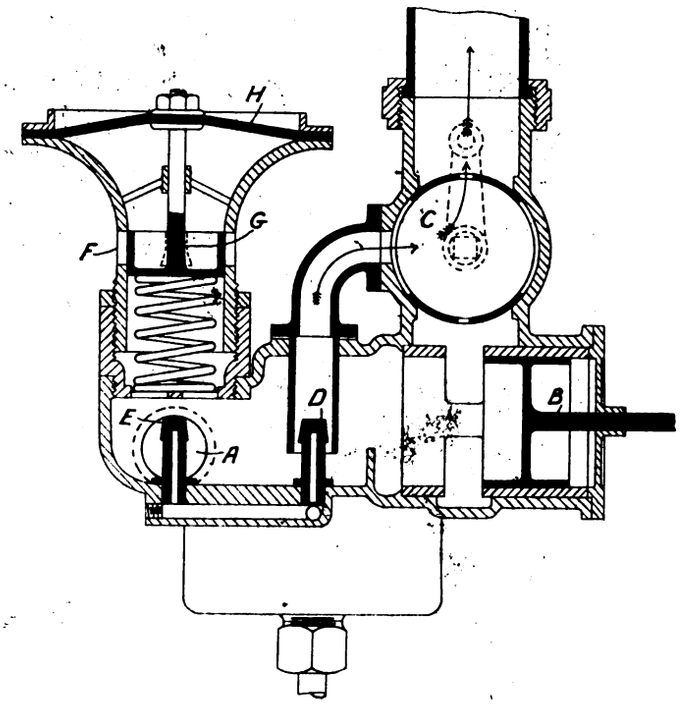
MR. C. BADDELEY has been appointed manager of the Midland Motor Co., whose works in the Ladywood Road, Birmingham, have been re-organised.

THE covers and tubes now being offered by the Acre Rubber Company are renovated ones; the word "renovated" having been inadvertently omitted from their advertisement on page xx. of last week's issue.

THE Belper Rural District Council have advised the county authorities for Derbyshire to ask for a restriction of the speed of cars in their area; but the County Council has declined to take action.

THE BROOKE AUTOMATIC CARBURETTOR.

THE accompanying drawing gives a sectional view of a new automatic carburettor which Messrs. J. W. Brooke and Co., Ltd., are now fitting to their 15–20-h.p. cars. It will be seen that the carburettor is fitted with two jets and an ordinary float chamber, with the exception that the level of the petrol in the chamber is adjustable. The piston rod and piston B are worked from the governor, which normally cuts out at an engine speed of about 900 revolutions per minute, any speed above this being obtained by means of the foot accelerator. C is the hand throttle, which is shown in the cut off position at which the engine will run at its very slowest, the throttle being adjusted to effect this when the motor is on the testing stool. When the engine is running with the hand throttle in this position only one jet, the one marked D, is in operation, the gases passing in the direction of the arrows. A is the inlet for the hot air, which passes over the jet E, and in the ordinary course of things passes by the second jet D, and through the other opening of the hand throttle. The auxiliary air is admitted by means of the holes F, the aperture of which is regulated by



the piston G working on a flexible rubber band H, and is controlled by the suction set up by the engine. With the new carburettor Messrs. Brooke claim that they can run the engine from as low a speed as 97 revolutions per minute when standing or when pulling, to about 1,500 revolutions, this giving, of course, great flexibility to the motor and at the same time very quiet running.

A BATTERSEA motorist has been fined 3s. and costs for taking water from the Mount Pond, Clapham Common, for his motor-car.

WHEN the North-Eastern Railway Company suspends its service of motor-'buses from Ripon to Studley Royal, a short service of three stages is to be instituted.

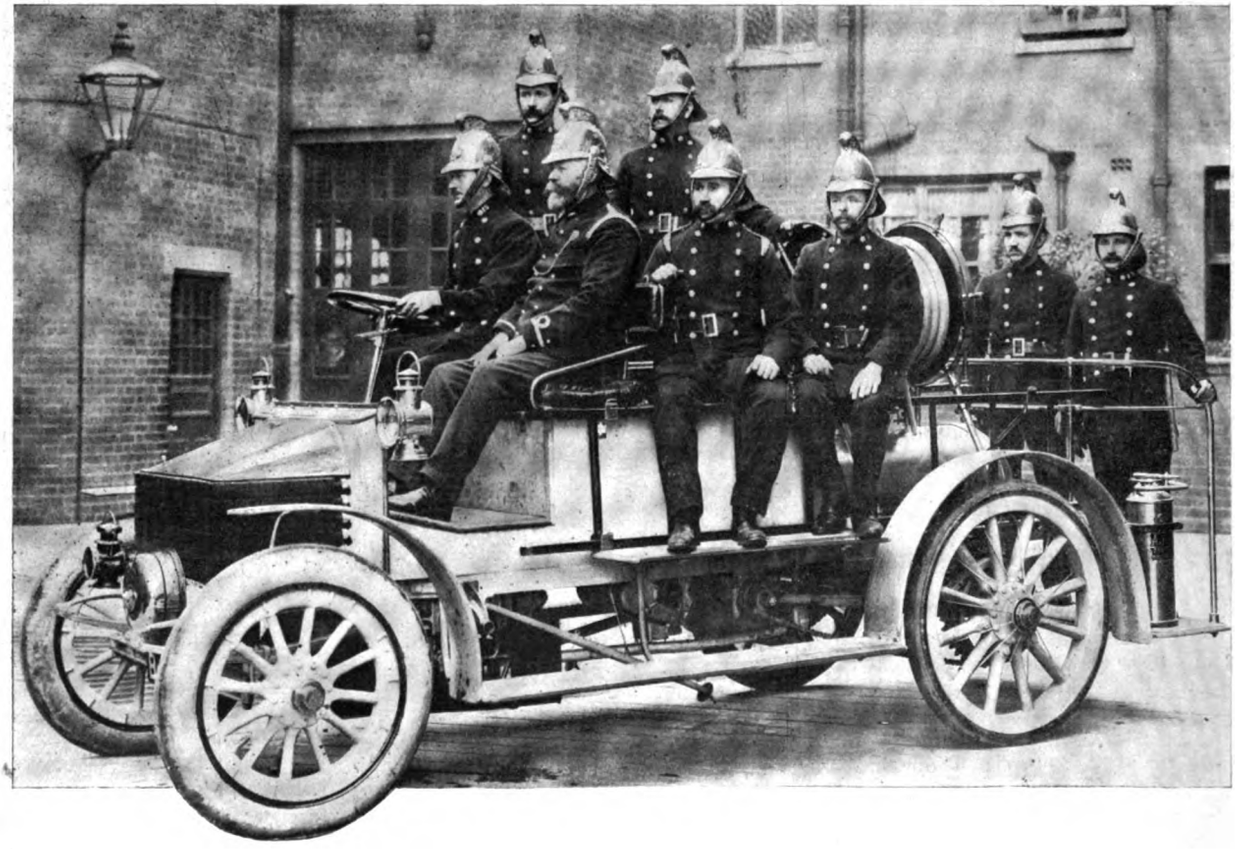
AT the Crown Stables on the South Cliff Esplanade at Scarborough, Messrs. T. and J. W. Rines have accommodation for motor-cars. There is "an inspection pit and shoeing forge in the yard."

MR. R. WOODHEAD has opened a garage in the centre of Southport, at 35, Nevill Street. Spare parts will be stocked, and on receipt of message engineers can be sent by motor-cars to any part of the district either day or night.

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THE LEICESTER MOTOR FIRE ENGINE.

WE are now able to give an illustration of the 24-h.p. chemical fire engine which the Wolseley Tool and Motor Car Company, Limited, have lately completed for the Leicester Corporation Fire Brigade Committee. The vehicle has been constructed to comply with the requirements of Superintendent Ely, the chief officer of the fire brigade at Leicester, who is seen seated by the driver. The vehicle has a specially built *chassis* with a 9 ft. 6 in. wheel base, and 4 ft. 9 in. track. The employment of the standard Wolseley horizontal type of engine renders a very large proportion of the *chassis* available for the fixture of the various fire brigade appliances. The wheels are of artillery pattern, the rear ones being 40 in. diameter and shod with Sirdar solid tyres, and the front 36 in. diameter and fitted with 5 in. Colliers. The rear wheels are specially reinforced with wire spokes to withstand very severe strains. The *chassis* is fitted with a 24-h.p. horizontal petrol motor running at a speed of 750 revs. per minute. The cooling is on the usual "Wolseley" lines with the addition of a fan fixed inside the radiator. The engine is geared to speeds up to twenty-five miles per hour, the transmission mechanism being in accordance with the standard "Wolseley" practice. The rear part of the vehicle is fitted with a 50-gallon chemical cylinder, with hose-reel mounted above it. Besides other first-aid appliances, the vehicle carries two 9-feet ladders and two hand extincteurs. There is accommodation for eight firemen, including the driver.



The Wolseley Chemical Fire Engine built for the Leicester Fire Brigade.

During the trial runs at Leicester the vehicle proved very satisfactory, and several deputations from other towns who attended expressed themselves very favourably in regard to its easy control, and the celerity with which it could be got from point to point. When the deputation from Glasgow was travelling on the car, the chairman of the Glasgow Fire Committee unfortunately came into contact with a horse's head as the engine was going by a cart, and was thrown into the roadway, breaking his leg. This unfortunate occurrence was due entirely to the negligence of the man in charge of the horse and cart, it being admitted by those on the vehicle that it was only owing to the smart way in which the fire engine was handled that a bad smash-up was avoided.

SOME USEFUL NOTES.

BECAUSE of the small opening through which petrol must pass on its way from the tank of a motor-car through the carburettor, it is important that it be kept as free as possible from all foreign matter. An extremely small quantity of petrol is used per cycle, and its flow is controlled by admitting it through a very contracted opening, especially when the engine is running slowly under throttle; therefore, the flow, if not stopped altogether, will be unduly retarded and made irregular by a very small obstruction. Thus the proper proportion of petrol vapour and air in the explosive mixture, which is the very life of a petrol engine, will be disturbed, and the motor will either fail to develop the proper power or it may stop altogether. Some carburettors are quite sensitive to water, and a little of it in the petrol has been known to cause untold trouble.

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IT is therefore of prime importance that all petrol be carefully filtered when it is put into the tank, and as this is quickly and easily done, there is no excuse for neglecting this most reasonable precaution. A little care while in the peace and quiet of the motor house may save a serious *panne* either in the city surrounded by the inevitable crowd, or off in the country, miles from anywhere. Taking a clogged carburettor apart, cleaning it and putting it together again on the road, even under the most favourable circumstances, is an experience one is not likely to forget or care to repeat. Some troubles cannot be guarded against, but dirty petrol is something which need never cause inconvenience. Therefore, let it be repeated, petrol should

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always be carefully filtered, ever bearing in remembrance the trite little proverb about the comparative value of a small amount of prevention and a much larger quantity of cure.

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FINE wire gauze, cloth and chamois are used for filtering petrol, and probably all three materials do the work fairly well, but acting on the principle that whatever is worth doing is worth doing well, it seems best to use chamois for this purpose; it is certain that neither water nor dirt will go through chamois, though petrol flows through it with surprising freedom. A common method of using chamois is to spread it over a funnel and then pour the petrol through it, but this way is open to objections; the leather lies against the funnel and hinders the free flow of the spirit, and this occasions a waste of time and also of petrol through evaporation. The next time the filter is used the dirt strained from the petrol the last time it was used will be washed into the tank, unless care is taken to always use the right side of the filter. At any rate, both funnel and chamois are liable to be dirty, unless they are put away and kept more carefully than is commonly done.

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A GOOD funnel and filter combined is made by taking a tin can or pail of suitable size and provided with a shut-over cover, and suspending a circular piece of chamois in it by sewing it to a wire ring fitting the inside of the can and held near the top by three little tin lugs soldered to the inside of the can; a spout soldered into the bottom at the corner and provided with a cap completes the device. The chamois should bag down, but not quite touch the bottom of the can. The cover keeps the filter clean, and to a considerable extent prevents the evaporation of the petrol which is left in the leather, and the cap on the spout contributes to the same end. This filter works very rapidly, as there is a large area to the filtering medium, and it all hangs clear of any obstruction, besides having considerable pressure on the lower part when the filter is kept nearly full.

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THIS filter is convenient to carry if one is travelling beyond the capacity of the tank. Of all times, one should be most careful not to get dirt or water into the tank while away from home, and it is not only less trouble to have one's own filter-funnel always at hand, ready to use, but it is also far safer to use it when taking in petrol at all sorts of places, in preference to the dealer's funnel, which may be both wet and dirty. A can four inches in diameter and four or five inches deep is, remarks a writer in the "Horseless Age," a good size to use, and, of course, is less bulky to carry than a larger one.

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A METAL pipe, if broken off, can be temporarily repaired by connecting the broken ends with rubber tubing or hose of the right size and binding the ends tightly with wire or twine. A small leak may be stopped with tape and a large one with a piece of patching rubber held down by tape. In making use of rubber cement, patching rubber, tyre tape, rubber tubing, or anything made of or containing rubber in any form, it should be borne in mind that rubber is soluble in petrol and will not hold it long.

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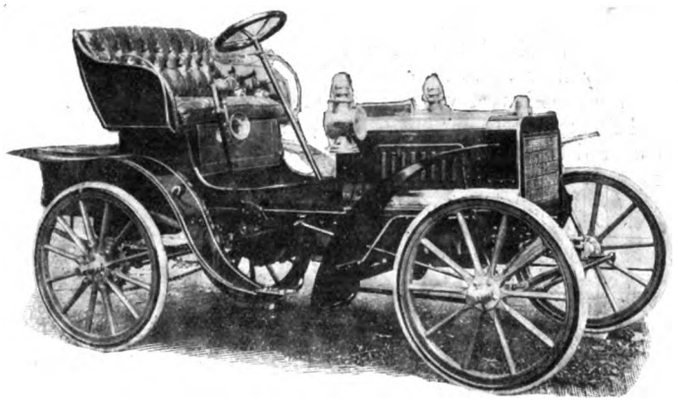
IF one is not sure as to the direction the ignition lever moves to advance or retard the ignition, it can be found as follows:—Turn the starting handle slowly in the direction which the motor will run when in operation, and note the way the make and break disc runs. When the blade is moved in the same direction as the disc turns, ignition is retarded, and when moved in the opposite direction, it is advanced.

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THE question of foot-warmers is a burning one with motorists at this season of the year, and an efficient arrangement to this end adds much to the comfort of driving. Many automobilists have fitted arrangements whereby a branch from the cylinder cooling water circulation is made to pass round the floor of the vehicle. Where an ordinary foot warmer is employed its efficiency may be much increased by using acetate of soda for filling it instead of water. The crystals contain about 40 per cent. of water, and if a sufficient quantity of them to fill the warmer is heated with half a pint or so of additional water, till they melt in their own water of crystallisation, the solution will boil at nearly 250 deg. F., and will remain hot much longer than plain water. The solution crystallises on cooling, and the warmer must be reheated by placing it on the kitchen range; hence the pattern with flat base and aperture at the top is most suitable. Though an old method for railway foot-warmers, this may be new to some readers.

THE THOR PETROL CAR.

A NEW addition to the list of popular-priced two-seated cars is the Thor, of which an illustration is given herewith. The vehicle, which is being manufactured by the Thor Motor Car Company, comprises a number of special features, chief amongst which is the method of suspending the frame to enable the use of solid tyres in place of pneumatics. The frame, which is of channel steel construction, is suspended at three points, there being two double elliptic side springs at the rear and a transverse semi-elliptic spring at the forward end, this being connected by links to the front axle. The motive power is supplied by a vertical double-cylinder engine developing from 6-h p. to 8-h.p.; the ignition is of the usual high-tension type with trembler coil, while the mixture is furnished by a Rover automatic carburettor. The water circulation is maintained by a gear-driven rotary pump and a special ribbed pipe radiator set in a frame which forms the tank; the system is so arranged that,



should the pump fail, the circulation of the water will still be maintained by gravity. The inlet valves, which are of the suction type, are located on the top of the cylinder heads, and are fitted in such a way that they can quickly be removed when necessary. The control levers for the ignition and throttle—which latter acts directly on the carburettor—are grouped on the steering column, the connections being by light chains instead of the usual wires.

Passing to the transmission, the power is conveyed through a leather-faced internal cone clutch to a gear box giving three speeds forward and a reverse, all controlled by one lever with direct drive on top speed. From the differential countershaft side chains convey the power to the rear road wheels. The steering is of the worm and nut type, actuated by an inclined hand wheel; while as to brakes, a pedal controls one of the contracting band type on the differential shaft and a hand lever shoe brakes acting on the rear wheel tyres. The road wheels are 30 in. in diameter, shod with 1½ inch Clincher solid-rubber tyres. The vehicle complete weighs about 11 cwt. and can attain a speed up to twenty-five miles per hour. The seat is wide, while the footboard affords plenty of leg room; a large tool box is provided at the rear. The car appears to be well constructed throughout, a detail to which attention may be drawn being that the nuts are either pinned or provided with lock nuts. The Thor Company are also introducing a double purpose car on the same *chassis*, it being provided with a 5 cwt. van body in addition to the two-seated passenger body, so that either can be readily substituted for the other.

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THE BLACKPOOL MEET.

WITH the approach of the day of the motor meet at Blackpool, interest in the event increases, and, given bright autumnal weather, nothing seems likely to occur to mar the complete success of the trials. The local arrangements are complete, and caution boards have been placed along the main thoroughfares of the town to assure absolute freedom from accidents. Since Sunday the track has been open from 6 a.m. to 8 a.m. for trial runs, and several of the competitors have taken advantage of this, afterwards speaking in glowing terms of the suitability of the course.

Blackpool boasts of a promenade over three and a half miles in length, from which three magnificient piers—the North, Central and Victoria—jut out into the sea. The course lies between the Victoria pier, which is at the extreme south of the promenade, and the Central Pier, a distance of about a mile and a half separating the two. Two years ago the stupendous work of widening the whole of the promenade was begun, and it is upon the completed section that the trials will take place. Twelve months since such an event in Blackpool would have been almost an impossibility. The track, which is constructed of asphalt on a concrete bed, is in perfect condition, having only been in use during the past summer. The surface is perfectly even, and the course being practically straight, some record speeds should be accomplished. At the finishing point, which is near the Manchester Hotel, a little south of the Central Pier, a grand stand is being erected to seat over 1,000 persons, and already a large number of applications for reserve seats have been received, the Manchester Automobile Club having written for fifty seats to be set aside for them.

The event is receiving a large amount of local support and a good financial backing has been forthcoming in the town itself. The committee have secured many well-known public men as guarantors in sums ranging from £20 to £5. Ald. J. Duckworth (of Rochdale), the Liberal candidate for Blackpool, is amongst the guarantors for £20. The leading cup, which is a very handsome one, is being given by the Mayor of Blackpool, several ex-mayors, and town councillors; and this will be offered for competition in the class for the large racing cars corresponding to those that compete in the Gordon Bennett cup races. Mrs. Wilfred Ashley, the wife of the Conservative candidate for the town, Messrs. Bass, Ratcliffe, and Gretton, the Blackpool Tower Company, the Blackpool Winter Gardens, the Hotel Metropole, the Imperial Hydro, Messrs. Magee, Marshall and Co., Mr. T. Sergenson (of the Grand Theatre), Messrs. Worthington and Co., and Mr. Humphrey Walker, who is taking an active part in the local arrangements, also figure amongst the donors of other cups, varying in value from twenty to fifty guineas each. The appointment of Colonel Holden and Mr. Mervyn O'Gorman as judges has been noted with much local satisfaction.

Now that the season at the popular northern seaside resort has practically come to an end, the automobilists' visit is the talk of the town, for the event comes as a novelty in a place where, within a twelvemonth, nearly every conceivable form of sport, amusement and recreation may be witnessed.

Local authorities fully anticipate that the trials will attract a large number of visitors, apart from motorists, from all parts of the country, but particularly from the industrial towns of Lancashire and Yorkshire, the inhabitants of which will be specially catered for by the Lancashire and Yorkshire Railway. It is an open secret that the Blackpool Corporation look to the event to do something to establish an autumn season, towards which their efforts have been directed for several years past. It may be taken for granted, therefore, that everything will be done for the comfort and convenience, not only of those taking part in the trials, but of motorists in general, and of the ordinary visitor, to whom the possession of a motor-car is as yet a dream of the future. Arrangements are being made for the accommodation of a large number of cars, and in the town will be found at least one fully equipped garage, capable of dealing with any emergency that may arise, while the Central Garage will be found to have ample facilities for storing vehicles.

To those motorists who elect to stay over Sunday, a variety of day trips will present themselves. A popular run is to Lancaster, a distance of about thirty miles. Farther afield is the pretty little town of Kirkby Lonsdale, whilst Windermere, and the natural attractions of the Lake District generally, will no doubt be irresistible to the more ardent spirits.

The boisterous westerly gales which have swept the Lancashire coast during the past few weeks have now given place to conditions more favourable to high speed tests, so that there is every prospect of a most successful meet, both from the practical and social point of view.

The entries received up to the time of going to press were as follow:—

Classes A and 2.—Cycles up to 170 lbs.—W. Andrew, Fleet motor-cycle; E. T. Jones, Humber motor cycle; Bat Motor Manufacturing Company, Bat motor-cycle.

Class B.—Cycles unrestricted as to weight.—E. T. Jones, Humber motor-cycle.

Classes C and S.—Cars costing £250 or under.—Speedwell Motor Company, 10-h.p. light car; Anglo-American Motor-car Company, 8¼-h.p. Cadillac; W. G. Crombie, 8-h.p. G.M.C.C.; E. W. Lewis, 8-h.p. Rover; H. Belcher, 8½-h.p. Humber; R. Lord, 10-h.p. Vulcan; W. Bottomley, Ribble voiturette; Star Engineering Company, 7-h.p. Star.

Classes D. and T.—Cars costing £500 or under.—A. Huntley Walker, 15-h.p. Darracq; W. Crombie, 24 h.p. G.M.C.C.; J. R. Richmond, 15-h.p. Darracq; H. Belcher, 20-h.p. Humber; London Motor Garage Company, 12-h.p. Pipe; Vauxhall Iron Works Company, 12–14-h.p. Vauxhall; A. W. Walton, 15-h.p. Darracq; Star Engineering Company 12-h.p. Star; M. Hawnt, 10-12-h.p. Motobloc.

Classes E. and V.—Cars costing £750 or under.—A. Huntley Walker, 30-h.p. Darracq; T. Thornycroft, 24-h.p. Thornycroft; London Motor Garage Company, 20-h.p. Pipe; E. H. Lancaster, 20-h.p. Clement; Beaufort Motor Company, 24-h.p. Beaufort; C. E. Oliver, 15-h.p. G.C.V.

Classes F. and W.—Cars costing up to £1,200.—Speedwell Motor Company, 24-28-h.p. Leon Bollee; Orrell Wren, 35-h.p. Napier; Leon Bollee Syndicate, 40-h.p. Leon Bollee; J. R. Freme, 18-22-h.p. Mercedes; R. St. J. Willans, 24-h.p. Rochet Schneider; London Motor Garage Company, 25 h.p. C.G.V.; Miss Dorothy Levitt, 20-h.p Napier; J. E. Baxter, 50 h.p. Wolseley.

Classes G. and X.—Cars irrespective of cost.—Speedwell Motor Company, 28-h.p. Leon Bollee; Speedwell Motor Company, 45-h.p. Leon Bollee; C. Cordingley, 60-h.p. Mercedes; Andrew Fletcher, 60-h.p. Mercedes; L. Williamson, 60-h.p. Mercedes; R. St. J. Willans, 24-h.p. Rochet Schneider; Cecil Edge, 65-h.p. Napier.

Classes L. and F.—Racing cars weighing less than 1,000 kilos.—C. Jarrott, 45-h.p. De Dietrich; A. Fletcher, 90-h.p. Mercedes: Clifford Earp, 80-h.p. Napier.

THE Malton Agricultural Club has passed a resolution deploring the speed of motor-cars on Yorkshire highways.

A MOTOR-CAR service is being suggested from the Finchley Road railway station to Hampstead Heath by way of Frognal.

THE Australian customs authorities have given a decision to the effect "that motor-car chains not accompanying motors" are to be classified as "chains n.e.i." and admitted free of import duty.

ALWAYS look at both sides of a punctured inner tube, to ascertain whether the puncturing object has penetrated the under as well as the upper portion of the tube, and thus perhaps save a second dismantling of the tyre.

WHEN a punctured inner tube is removed for repair, pass the hand round inside the cover in order to feel whether the puncturing object remains imbedded in it. If it can be found, it serves at once as a guide to the position of the hole in the inner tube, and by removing it the risk of the same object inflicting a second puncture at or near the former place is avoided.

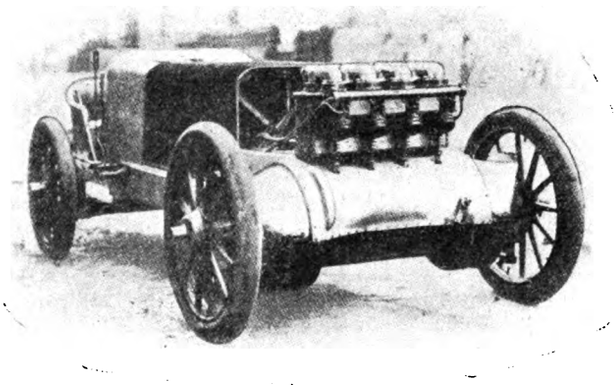
THE admission and exhaust valves should work freely, and need very little attention. Through too free oiling or too rich a mixture they may become clogged with soot, when the valve should be removed and washed in paraffin or petrol. The spring should be freed, and the valve turned several times on its seat by means of a screwdriver, adding a drop of paraffin. Should the seating of the valve show a bright ring all round its circumference, the valve and seat may be replaced, but if this bright ring does not show, the valve must be ground in with the finest emery flour and oil, and the whole carefully wiped clean and replaced.

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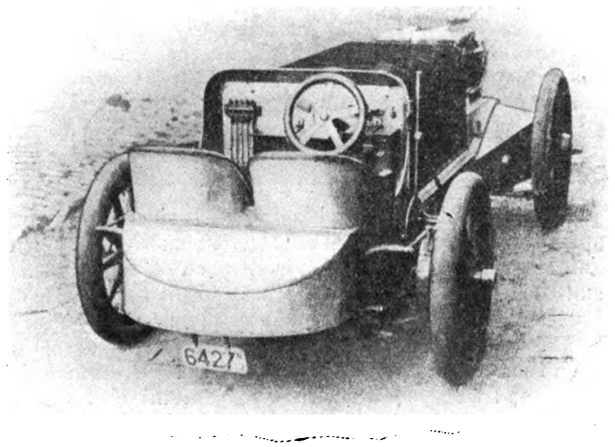
HERE AND THERE.

THE Hon. James Hozier, M.P., has joined the Western Section of the Scottish Automobile Club.

A SOMEWHAT novel racing car has just been completed in New York to the designs of Mr. Walter Christie. The feature of the vehicle, two views of which are given herewith, is found in the fact that no front axle is used, its place being taken by the four-cylinder motor, which is geared direct on to the front wheels,



Front View of Christie Racer.

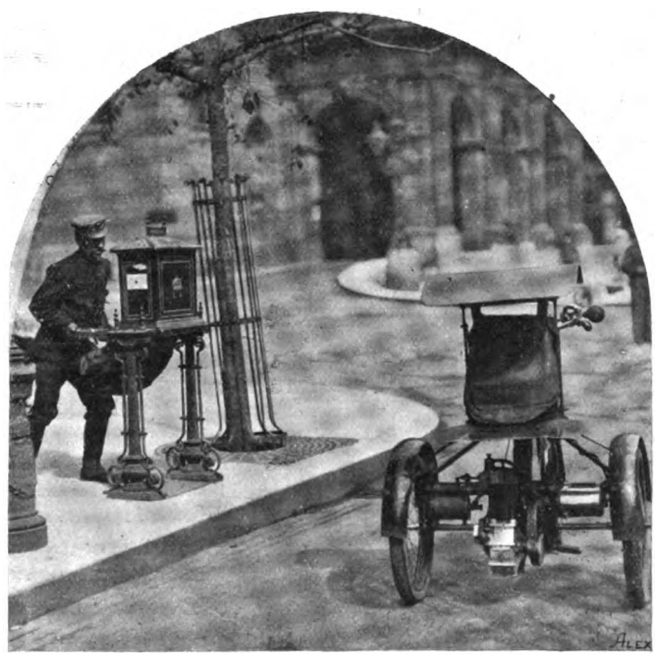


Rear View of Christie Racer.

which thus act both as drivers and steerers. The engine, whose cylinders are 6¼ in. bore by 6½ in. stroke, has a flywheel at each end fitted with taper clutches directly engaging the motor to the wheels. The motor and transmission is supported on spiral springs, the frame of the car being attached to projections cast on the engine crank case. The driver's seat is located behind the rear axle; the car has a wheel base of 8 ft. and weighs complete 1,800 pounds.

MESSRS. BROWN BROS., LIMITED, have sent us a sample section of the "Duco" puncture-proof non-skidding band for the tyres of motor-cars and cycles they have lately introduced. The band, which has steel studs inserted in the double tread, is made of specially prepared chrome leather with the sides pared down to enable the band to fit snugly around the tyre. Heat, cold, or damp are claimed to have no effect on the bands, which are vulcanised on to the outer cover; they are made in all sizes from 50 mm. by 650 mm. up to 90 mm. by 1,360 mm.

RECENTLY we had the pleasure of looking over the Victoria Garage of Messrs. Mann and Overton's, Limited, at 7a, Lower Belgrave Street, S.W. The premises, which are open day and night and are quite close to Victoria Station, can accommodate about 60 cars, and have every convenience for washing, etc. An inspection pit and accumulator charging plant are installed, while a large supply of petrol and accessories is kept on hand. Since our last visit a repairs department has been added, this being equipped with machine tools to enable all classes of repairs to be carried out.



Collecting the Mails by Motor-Cycle in Budapest.

The Hungarian Postal Authorities have lately introduced motor-cycles for the collection of the mails in the capital. A special form of letter box has been adopted to facilitate the rapid emptying of the same, while the machines are provided with a covered platform on which the mail bags are carried.

THE Central Motor Works have been opened at Greengate, Keighley.

THE Bleriot lamps and generators were awarded a gold medal at the St. Louis International Exhibition.

MESSRS. HARVEY FROST AND COMPANY, the makers of the H.F. Vulcaniser, have received several orders from Australia, South America, Germany, and other continental countries.

HUBBARDS MOTOR AND ENGINEERING COMPANY, LIMITED, have established plant at their works at Much Park Street, Coventry, which enables them to undertake motor-car repairs of all classes.

THE Grand Duke William Ernst of Saxony recently visited the Dixi motor-car factory at Eisenach, Germany, travelling from his summer residence, Wilhelmsthal Castle, in a 12-15-h.p. Dixi car. After passing through the various departments of the motor-car section, where all parts of the cars with the exception of the tyres are turned out, the Grand Duke with his suite drove to the shooting range, where one of the company's quick-firing field guns was tested.

CALLING in at the works of Messrs. Dennis Bros., Limited, at Guildford the other day, we had an opportunity of inspecting one of their 20-h.p. cars with Roi des Belges body and canopy, built to the order of Sir Alfred Watkin. A similar car is also being built for Sir A. Conan Doyle. Messrs. Dennis are now building their own engines for the 20-h.p. cars. Notwithstanding the large addition to their works only recently completed they are shortly opening another factory.

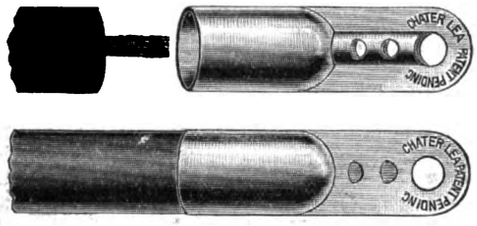
A LIQUID to which the name of Petsen has been given has just been introduced by Messrs. Moore and Co., Savage Gardens, London, E.C., for scenting motor spirit. It is an agent which, added to petrol in the proportion of a tablespoonful to the gallon, is claimed to entirely remove the objectionable odour both from the spirit itself and from the exhaust gases. The makers lay special stress on the fact that the addition of Petsen to the spirit has not the slightest effect on its composition.

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LORD FITZWILLIAM has, we learn, just acquired a 12-h.p. Georges Richard car.

MESSRS. A. J. BARKER AND COMPANY, engineers, have taken over the Bush Engineering Works, 5, 7, 9, 11, Bulwer Street, Shepherd's Bush, W., and have opened them as a motor works and garage.

THE Chater Lea Manufacturing Company, Limited, have sent us a sample of a new terminal for ignition wires they have



lately introduced, of which an illustration is given herewith. One advantage of the new terminal is that it can be fixed without the use of solder. The insulation is stripped off for about half an inch and the wire inserted in the groove formed for it, which is then flattened in the vice or with a hammer. This holds the wire quite securely, and as the tubular portion slips over the insulation a thoroughly neat terminal, which prevents any loose end getting to the frame, is the result. These terminals are made for high and low tension wires, and their low price should commend their use to a large number of motorists.

MESSRS. J. T. WILLIAMS AND COMPANY, of the Star Lamp Works, Birmingham, send us a circular descriptive of a system of acetylene lighting they have lately introduced specially designed for use on public service motor vehicles. The system has already been adopted on a number of the motor-'buses in Birmingham, and appears to be meeting with success.

MESSRS. DE DION-BOUTON, LIMITED, have just appointed the Bombay Cycle Agency, of Hornby Road, Fort, Bombay, their Indian agents for Bombay and district, and Mr. W. Newton Gill, c/o Planters Store, Calcutta, agent for the Calcutta and Madras districts.

THE American National Association of Automobile Manufacturers is about to consider the proposition of an agreement among its members regarding standard equipment. At present practice in this respect is widely divergent. Manufacturers of the cheaper cars usually include in their equipment only the most necessary articles, while those of high-priced cars make it a point to furnish a very complete outfit.

AN AMERICAN firm—the Fahnestock Transmitter Company, New York—have introduced a novel but simple form of terminal clip for ignition wiring. The device consists of a flat piece



of steel spring slotted in a longitudinal direction, and drilled at both ends. A portion of the slotted strip is bent up to pass through the clearance space formed by bending the terminal loop fashion. The end of the wire is simply passed through the eye of the narrow strip, and is held taut by the recoil action of the loop. The holes at the end of the clip are provided for attaching it to the battery or plug terminal intended. To connect or disconnect the wire it is only necessary to exert a slight pressure on the free end of the loop, when the wire may be readily withdrawn from the eye of the narrow strip. There is thus no screwing or unscrewing of screws, while the wire can be put in or taken out in one-tenth the time it takes to fix a screw, and there is no possibility of the wire being broken off.

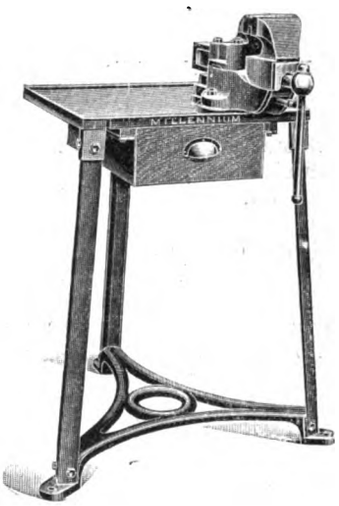
THE Drill Hall at Blackpool is at the disposal of motorists attending the races there, having been taken over for the week by Mr. Riley, of the Central Motor Garage in that town.

IT is reported that the directors of the Suez Canal Company have decided on the establishment of a motor-car service between Ismaila and Station No. 6, where the hospital for their employees is situated.

ONE of the latest departures of Messrs. Friswell, Limited, at their depot in Albany Street, N.W., is the installation of an additional gas engine and dynamo to enable them to undertake the charging of the batteries of electrical vehicles.

SOME time ago the Bowring Petroleum Company, Limited, sent us a sample of their "All's Well" motor lubricating oil. It is a pure hydro-carbon, having a very high flash-point, while it is dark red in colour and heavy and viscid in body, the result being an oil which can be relied upon at all periods of the year. We have given the lubricant a thorough trial on an 8-h.p. car, and are able to report that, owing to its freedom from acids and impurities, it gives rise to no troublesome deposits on the valves.

THE accompanying illustration shows the Millenium vice stand lately introduced by Messrs. Lake and Elliott, of Brain-



tree. As will be seen, it is furnished with a drawer for tools, and provides a work table which should be found useful in many a motorist's private garage.

THE other day we had an opportunity of going over the extensive new premises at 110, High Street, Marylebone, W., which are about to be opened as a motor-car depot and garage by the Britannia Motor Garage, Limited, a new concern which has lately been organised by two well-known members of the trade—Mr. T. Underwood, late of the Motor Manufacturing Company, Limited, and Mr. J. H. Adams. The building comprises no less than six large floors, including the basement, access to each of which will be served by a large hydraulic lift, at present in course of installation. The extensive ground floor is to be utilised as a showroom for the sale of two new types of cars, of which particulars cannot at present be given. Some idea of the extent of the premises will be gained from the fact that garage accommodation will be available for no less than 250 cars. Plant is being installed for the carrying out of repairs of all kinds, while it is also intended to establish body building and painting departments. Needless to say, a large stock of motor accessories and petrol will be kept on hand, and that facilities for the charging of accumulators will be available. At the time of our visit the premises were still in the hands of the decorators, but business operations are expected to be commenced during the course of the coming week. When the various plans the company have in hand have fully materialised, the Britannia Motor Garage should rank among the largest and best equipped in the metropolis.

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MOTOR CYCLING NEWS.

On Saturday the 100 miles non-stop run competition of the Birmingham Motor Cycle Club, for the cup presented by Mr. H. Austin, was continued. It took the form of a run to Shrewsbury and back, for the purpose of further eliminating the remaining competitors. The men left in from the previous week were Messrs. F. R. Gould, 2½-h.p. W. A. Lloyd's; E. H. Humphries, 3-h.p. Smith's; C. E. Simms, 2½-h.p. Alldays; and R. Tingey, 3-h.p. Smith's. All of these were ready for the signal to start on Saturday at 2 p.m. at the Royal Oak Hotel, Chester Road, near Erdington. The procedure of checking the men by the competitors riding together was adopted, and the officials, the hon. secretary of the club, Mr. J. R. Bedford, as judge and time-keeper, and Messrs. L. C. Davis and E. W. Winckle (observers) following behind in a 12-h.p. Wolseley car, which the president (Mr. H. Austin) had been good enough to place at the disposal of the committee. On the outward journey Mr. F. R. Gould was unfortunate enough to find that the terminal of his sparking plug had broken off, and he therefore fell out, but had effected a repair in a few minutes, caught the competitors up near Shifnal, and ran through the remainder of the journey as an observer. The remaining three were turned at the Monument, Shrewsbury, and, although the last forty miles was ridden in the dark, no more trouble was recorded till the Royal Oak was reached. A rule of the competition is that the legal limit—viz., twenty miles an hour—shall be strictly adhered to, not exceeding ten miles an hour through towns and villages, and this has been enforced. The committee have now the task before them of devising some means by which the competition may be brought to a close and the prizes awarded without running it over again, as, judging by the present condition of the machines, the competition will last indefinitely.

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The Motor Cycle Union of Ireland held the concluding competition of the season on Saturday last, when a one hundred miles trial took place from Dublin to Maryborough and back, for motor-cycles built for and carrying two riders. One hundred marks were allotted to each competitor, and for each stop on the road one mark was deducted. The pace was limited to a maximum of twenty miles an hour, and a minimum of fifteen, any excess of these limits entailing disqualification. The weather was very favourable, and of the twelve riders who took part eight completed the journey; the result being as follows:—

	Marks.
C. J. Lewis, F.N. fore-car	100 (max.)
T. W. Murphy, Singer with trailer	do.
H. A Evans, Singer tandem tricycle...	do.
C. B. Franklin, F.N. fore-car	do.
E. Oakes, F.N. fore car	99
Capt. Wheeler, F.N. fore-car	99
A. J. "Fenton," Peugeot fore-car	99
L. R. Oswald Sealy, Brown fore-car	95

◆ ◆ ◆

The Motor Cycle Club of Rheims has just held a petrol consumption trial exclusively reserved to motor-bicycles, over a distance of sixty kilometres—37½ miles. The conditions required that the pedalling chains should be removed, and no exhaust was allowed to impinge directly on the ground. For starting each competitor was allowed one starter to push him off a mark. Before departure the petrol tanks were emptied in the presence of the judges, and each competitor was given three litres—equal to 5·28 pints of petrol spirit. The tanks were then closed and sealed. A minimum speed of twelve and a half miles an hour had to be kept up. Nine riders competed in the test, of whom seven finished. The results were as follows:—

Rider.	Machine.	Petrol consumed for 37½ miles run.
Peron.	3-h.p. Werner.	39¾ oz.
Souplet.	2-h.p. F.N.	42¼ ,,
Roger.	2-h.p. Werner.	52 ¼ ,,
Hammling.	2-h.p. Minerva.	54½ ,,
Dieudonne.	3-h.p Griffon.	61½ ,,
Leblanc.	2-h.p. Leblanc.	79½ ,,

20 fluid oz. = 1 pint.

The result of the Rheims trial should be interesting to those riders who took part in the Auto-Cycle Club contest on the 1st inst. On that occasion the lowest consumption was equal to about 190 miles per gallon, while at Rheims the best performance was 150 miles.



The International Motor Cycle Cup, won by Demester on a Griffon. [*Le Chauffeur.*

◆ ◆ ◆

The Auto-Cycle Club is organising a 100 miles non-stop run on Saturday, November 5th, for fore-carriage machines. Starting and stopping tests on hills will be included. The route is to be in the north of London, probably starting from Barnet. The event is an open one, and further particulars can be had of the Secretary, 16, Down Street, Piccadilly, W.

◆ ◆ ◆

Apparently a morning coat is not the correct attire when motor-cycling. The Birmingham magistrates have ordered William Whitely to pay the costs for permitting the tails of his garment to obscure his identification number. Another motor-cyclist was fined for carrying a parcel by which his number was partly obscured.

◆ ◆ ◆

The committee of the Auto-Cycle Club at its meeting last week considered the question of awarding the prizes in the recent fifty-mile consumption test, and decided that, as the small allowances which should have been made had the official car not been delayed would not have made any difference in the order the event should not be cancelled. Mr. S. Harris, who rode the 1¼-h.p. F. N. Whippet, was disqualified owing to not keeping up to the official pace on the outward journey. No attempt was made to discover which was relatively the most meritorious performance, the first three with the lowest consumption being awarded prizes of equal value. These are: Rose (2½-h.p. Roc), 42 ozs.; Perman (2½-h.p. Seventy), 52 ozs.; and H. Martin (3-h.p. Excelsior), 60 ozs. Another consumption trial is to be organised early next year on altogether more scientific lines.

A 9-h.p. two-cylinder Gladiator has just gone over the course of the Automobile Club's small car reliability trial, making a non-stop run from start to finish, taking 35½ hours to do the trip. Mr. Sidgreaves drove the whole of the way

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CORRESPONDENCE.

THE DUST PROBLEM.

To the Editor of *The Motor-Car Journal.*

Sir,—I was much interested in the report of Herr Westrum's paper on the abatement of the dust nuisance given in the last issue of the *Journal.* The treatment of road surfaces for the suppression of dust is of as much interest to those living along much-frequented highways as it is to motorists themselves. As concerning residents in such districts the problem may possibly be solved by the aid of some of the oiling and tarring processes now being perfected; but as it concerns automobilists the problem as such must be attacked differently if substantial results are to be obtained. There are several causes for the raising of dust by fast moving vehicles. In the first place, any irregularity in the under surface of the cars causes air currents to impinge against the road surface as the car moves along, thus stirring up the dust. An instant later a vacuum is formed by the back of the car, over the spot where the dust has thus been raised from the road surface, and the dust cloud is carried upward behind the car to fill this vacuum. This effect is particularly pronounced in cars having tool boxes, etc., projecting below the frame of the car at the rear, leaving a very small road clearance, as is the case in some large touring cars. These parts not only strongly deflect the air underneath the vehicle against the road surface, but add to the extent of the rear surface of the car, thus increasing the vacuum formed. One method of preventing dust from rising at the rear of the car is to create a strong backward blast underneath the car, preferably at the rear. The silencer discharge serves this purpose well, especially in a four-cylinder motor. If the discharge is made at the rear of the car, is inclined slightly downward, and is divided into a number of streams, it will be very effective in preventing dust from rising above the back seat and annoying the occupants.—Yours truly,

Dust Trouble.

BOWDEN WIRE.

To the Editor of *The Motor-Car Journal.*

Sir,—I regret that absence has prevented me dealing earlier with the letter signed "Owen Joseph" in your issue of the 1st inst. The writer amply confirms my contention, viz.:—That the Bowden Syndicate suffer from the lack of understanding of the principles of the mechanism on the part of manufacturers. You may remember that my whole argument was that if the comment of the judges in the Small Car Trials had been qualified by the words "as fitted" I would have had nothing to say on the subject. "Owen Joseph," however, touches quite another matter when he charges my firm with neglect, and I may assure him that it is being rigorously inquired into. It would, however, assist the investigations if he would communicate to me the date and the address from which he wrote, so that any correspondence might be more readily referred to. It is an agreeable set off to find another correspondent in the same issue commenting in the most favourable manner upon the Bowden system as fitted to his car, and I beg of you to permit me to thank that gentleman for his kindly and unsolicited support.—Yours truly,

James R. Nisbet.

SUPPLYING SPARE PARTS.

To the Editor of *The Motor-Car Journal.*

Sir,—Recently I have read several complaints from motorists regarding the neglect of manufacturers to supply spare parts. As the names of these firms were not given, it may keep would-be-motorists from going in for cars, under the impression that all makers are alike dilatory in supplying parts for renewal. I have quite another story to tell. My De Dion car met with an accident a week or two ago. I wrote to the firm in London for the parts I required, and though they could not possibly have received my letter before Saturday morning, yet the parts were delivered to me on Monday morning. If this be not a record for expeditious delivery, it is at least good enough for me.—Yours truly,

A Satisfied De Dionite.



The International Motor-Bicycle Race—Inghibert at the Dourdan Control.

[*La France Automobile.*

CLEANING THE HANDS.

To the Editor of *The Motor-Car Journal.*

Sir,—I would like to draw the attention of fellow motorists to the following tip for removing grease, etc., from the hands:—

Obtain a good lather with any household or other soap, and taking a handful of coffee grounds, proceed to work it well into the hands. After a minute or so the hands, when rinsed free of the gritty mixture, will be found to be beautifully soft, fresh and clean. No need for special motor soap where coffee grounds abound.—Yours truly,

J. Stuart Shaw.

BELT TRANSMISSION.

To the Editor of *The Motor-Car Journal.*

Sir,—I agree with "Assam" in his statements to the effect that a number of people are requiring a reliable car at a reasonable price, and that although belt systems so far have been faulty, if these faults are removed a vehicle could be produced "within reach of all," but do not see how he can hold that this should deter manufacturers from producing such,

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Surely it is in the interests of all concerned that manufacturers should be able to make a car within the reach of the man of moderate means suitable for the business man and the novice.

I cannot follow the rest of his arguments, maintaining that those who want belt drives have been brought up with such transmission and have never been on a good geared car. I should imagine anyone brought up on belt-driven vehicles as at present existing would not cling to them even if they had not driven the costly-geared systems of the day, but rather that they appreciate the flexibility, sweetness, silence, and simplicity of the belt in contrast with gears, and hope to see the former perfected. Your correspondent also states that three speeds and reverse are difficult to get in without sun and planet gear, but this no longer holds good, we can get in five speeds and reverse if needed with a single belt that never slips or requires shortening, using only two pulleys, weighing about 20 lbs., and this without gear box, live axle, level drive, cardan, side chains, etc.; it needs no attention or lubrication save replenishing grease cups every week or so. We have had a single cylinder car on this system tested by running a public service for some time now, sometimes with thirteen up; moreover, although the speed changing is easier than any existing methods, we are working out a system in connection therewith that will change speed of itself to suit the road and further render the use of the brakes almost unnecessary, practically bringing the whole control to the spark or throttle. We therefore maintain that the belt is not dead.—Yours truly,

C. Dent.

A TREMBLER QUERY.

To the Editor of *The Motor-Car Journal*.

Sir,—I have for a short time had the same trouble with my car as your correspondent "Petrol" complains of in the *Journal* of the 1st inst. It was observed to commence after I had increased the inlet valve movement. I therefore imagined the cylinder corresponding was starved, and by a turn of the nut on the carburettor float increased the feed. The trouble promptly ceased and misfiring no longer occurred. I advise him to try the same remedy.—Yours truly,

F. M. Burnett.

QUERIES RE PETROL CARS.

To the Editor of *The Motor-Car Journal*.

Sir,—Will any of your readers kindly inform me what they think is wrong with my car? I can get a very good spark on the plug, but only a very feeble explosion, although on advancing the sparking I can get a fairly good backfire. I have varied the mixture, but it only answers with the lever in one place. The accumulators are fully charged and ignition seems all right. I use Pratt's motor-spirit. I have tried two or three different plugs with the same results in each case.—Yours truly,

F. W. R.

[We fancy "F.W.R.'s" trouble is due to bad compression, which would cause a feeble explosion, or failing this there may be a gauze in the inlet pipe which has become choked, thereby causing a throttle on the inlet. The trouble is evidently not due to the sparking.]

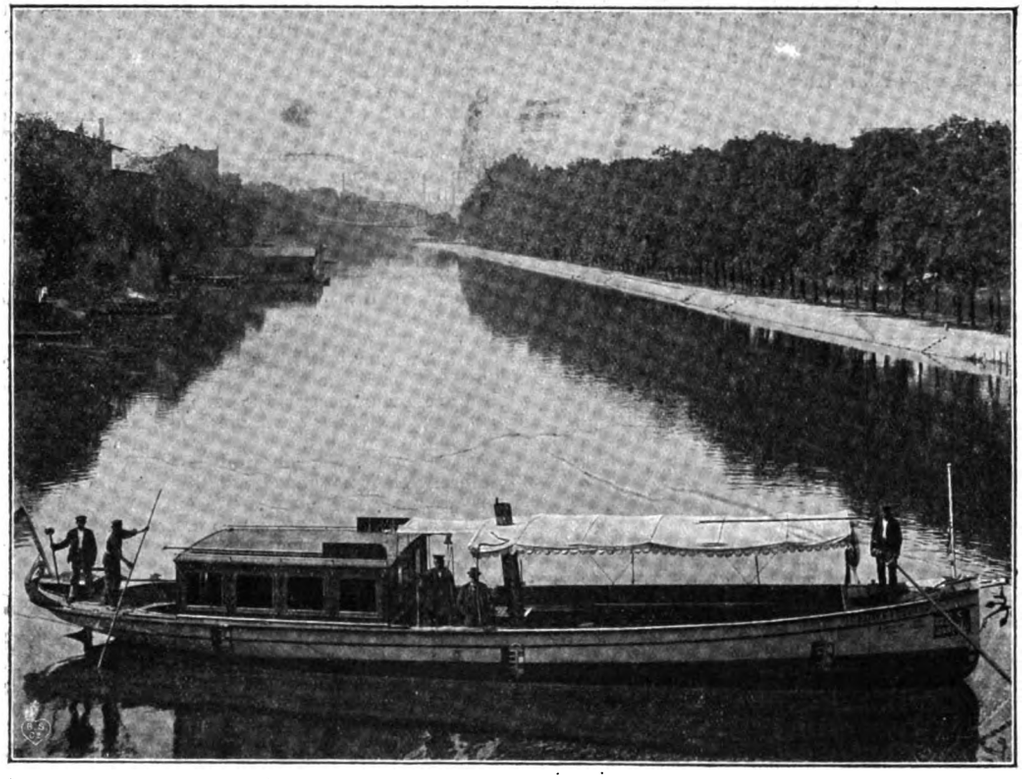
HOW TO SELECT A MOTOR-CAR.

To the Editor of *The Motor-Car Journal*.

Sir,—I read with interest your article "How to Select a Motor-car," and as I am one of those who are anxious to buy a car, I shall be glad of a little further advice. I notice you say the motor is the most important part of the whole thing, and ought to be carefully examined; but what is the good of a novice examining a motor when he knows absolutely nothing about it? I myself have found the greatest difficulty in getting anyone connected with the trade to give me information about a car. Indeed, when last year in London I asked a well-known firm to give me a modest ten mile trial trip; they refused. Consequently I left without purchasing, being told no one in London would do such a thing. The question is, then, what am I to do? I have no experience, and apparently I am not going to have any until I decide to purchase and take everything that is told me as being correct.

The first question is, which is the most suitable car to meet my requirements? I live in South Devon, where hills are steep, long, and badly kept, gradients often one in six. I want a car to take the place of a good useful horse; that is to say, a car that I can run about town in, take a turn in the country (always hilly), or go on tour for a few weeks two or three times a year. I do not want to go flying about at twenty-five or forty miles an hour, or to run a hundred miles a day, but would be content with forty at most. I want a car with as few complications as possible and thoroughly reliable, one that will take the hills without shedding its load, and with brake power that will stop and hold the car at all times. I think I have stated my wants fully. I may say that I am limited to about £250.—Yours truly,

A Would-be Motorist.



The above illustration shows the Petrol Motor-Boat which the Cudell Company, of Aix-la-Chapelle, have lately completed for a public service on the river Saale, at Halle. The vessel, which can carry 120 passengers, is propelled by means of a 24-h.p. four-cylinder engine.

RECKLESS DRIVING.

To the Editor of *The Motor-Car Journal*.

Sir,—I entirely agree with "B. Y. 193" in his remarks under the above heading in the *Journal* of the 1st inst., the cars almost daily tearing down the Avenue here, at Southampton, which is about a mile above the town, covering everyone with clouds of dust. These cars are almost

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invariably A———. Surley they might have the decency to slow down a little when on the outskirts of a town. There is no doubt the feeling of animosity against motorists is increasing in this neighbourhood, entirely owing to the utter selfishness of these drivers, and the result will be that, instead of having the present restrictions in any way relaxed at the expiration of the present Act, we shall be more handicapped than ever.—Yours truly,

WILLIAM F. ARCHDALE.

TYRES.

TO THE EDITOR OF *The Motor-Car Journal.*

SIR,—In reply to the letter signed "John Ansonia" in the *Journal* of September 24th regarding the collapse of his 800 by 85 mm. Michelin tyres on a 12-h.p. Darracq car after only 600 miles running, I think that the real cause of the trouble is that the tyres are too small for the weight and h.p. of the car, accentuated by a fierce clutch. According to the Michelin Company's practice the tyres in question should not carry more than 480 lbs. per wheel, and I presume that the 12-h.p. Darracq weighs 16 cwt. without passengers, and I suppose that would be about 690 lbs. per wheel with four passengers, which of course is far too much for such light tyres. I think if "John Ansonia" will have Michelin 810 by 90 (32 inch by 3½ inch) tyres fitted, at any rate to his rear wheels, he will have no further trouble, these tyres being intended to carry 950 lbs. per wheel; "John Ansonia's" letter seems to especially bear out what Mr. Filson Young remarks upon so strongly in his delightful book just published, viz., the growing practice amongst many makers or agents of sending out cars under-tyred in order to pocket a few shillings (or pounds).—Yours truly,

ATRETON.

WHERE REPAIR SHOPS ARE WANTED.

TO THE EDITOR OF *The Motor-Car Journal.*

SIR,—In reply to the enquiry by "D. H." in your issue of the 8th inst., I think Coronation Road, Bristol, would be a good position for a repairing shop, as motor-cars from the West of England for the North and Midlands would pass along here, and there is no repairer that I know of at present.—Yours truly,

H. D.

TO THE EDITOR OF *The Motor-Car Journal.*

SIR,—In answer to query by "D. H.," I should advise him to start one at Ramsgate. I have lately been staying there and there are many motor-cars in the town and district, but I did not find a repairer capable of doing workmanlike repairs.—Yours truly,

ERNEST A. EBSWORTH.

ENGINE REPAIRS.

TO THE EDITOR OF *The Motor-Car Journal.*

SIR,—I have a four-cylinder foreign-made car which I bought in January last, and I have driven it about 8,000 miles. I have been motoring now for two to three years, and generally do ordinary adjustments and little jobs myself. I think the crank, gudgeon, and other bearings in the engine and gear box require attention, but I do not feel sufficiently experienced to take the responsibility of these adjustments. I live in the country near a medium-sized town where there are only the so-called experts, and from my experience of this class of repairer I could do the job better and with more care than they give; they are at present picking up their experience at the expense of motorists, and half doing jobs.

I can take down the engine and gear; I quite understand its workings, and shall feel more satisfied if I see what is done and that all is put right. Would you or some of your readers advise me which is the best of the following courses to adopt—(a) Get a mechanic from an engineer's shop in the town near, who will only be used to gas engines and like work; (b) get one from one of the motor manufactories; (c) or send the parts to a motor factory to have the bushes and bearings set. Some bearings may—and do, I believe—require new brasses and bushes. With regard to the engine, there is decided play in both the connecting rod crank bearings and also at the gudgeons. As to the connecting rod bearings on the cranks, I understand these can be filled up with metal or reduced to take up the wear. Which is the proper plan, and if they can be reduced before adopting the filling, how much is the maximum play that should be so taken up? Should ordinary engineers' mechanics understand the filling process? I am well equipped with tools, and am having a pit made. Lathe work can be done near.

I want to be able to judge that the work is being done right, and I should be glad of any hints as to the adjustments of bearings. My car has proved a complete success, and I am anxious to give it every attention during the winter in the way of taking up wear in order that I may commence next season with every confidence of it doing another 8,000 or 10,000 miles as well as hitherto.—Yours truly,

X. Y. Z.



[*Kossuth.*

MECHANICALLY OPERATED INLET VALVES.

TO THE EDITOR OF *The Motor-Car Journal.*

SIR,—The mechanically operated inlet valve has been subjected to considerable criticism at one time or another, and now that motorists have had a fairly lengthy experience of it, the time seems opportune to ask whether they have found it in practice to show advantages over the ordinary type of valve. The atmospheric valve is certainly the simpler, while being cheaper to manufacture, and, be it mentioned, particularly favorable to efficient carburation; but, on the other hand, it opens after a certain definite pressure has been reached, and is slack in closing. It also possesses the objectionable propensity of sticking, and, moreover, depends on the perfect adjustment of the spring. In a multi-cylinder motor this adjustment of the spring should be identical in each cylinder, since if the tension of the spring prove insufficient the valve will obviously not close rapidly enough, thus permitting the gases to escape on the compression stroke. If, on the other hand, the tension of the spring be too great, it resists the inrush of mixture, and, consequently, impairs the power of the motor. So considerable is the effect of the tension on the spring that certain constructors have in the past profitably turned it to advantage for governing the engine. Moreover the inertia of the valve becomes more pronounced as the speed of the motor increases, to the detriment of the volume of the intake, whilst the metallic noise of the valve is particularly objectionable.

Let us now look into why the automatic valve lends itself particularly to efficient carburation. The valve leaves its seat as soon as the vacuum in the cylinder exceeds the tension of the spring; its lift is, consequently, sudden, permitting a considerable inrush of mixture, when after closing it repeats this operation several times in rapid succession during the suction stroke. The demand on the carburettor is, therefore, pulsative, or intermittent, but the speed of the mixture emitted from the carburettor is always relatively high. The mechanically operated valve, on the other hand, only permits of a more protracted intake of mixture, the flow of which is for the time continuous, and consequently the demands on the carburettor are more exhausting, rendering the question of satisfactory carburation far more difficult of solution.

From the above it seems fair to infer that the mechanically operated valve is excellent in operation, provided its demands are satiated by a carburettor adapted to its peculiar needs; the power developed is directly proportionate to the speed of the motor; it is precise in operation, seeing that it opens and closes at the psychological moments; it can be made interchangeable with the exhaust valve; it does not stick; and the trivial mechanical complication which it entails (since it is merely a repetition of the construction necessary for the exhaust) is after all scarcely worthy of mention.—Yours truly,

NOGENTAIS.

STEAM CARS.

TO THE EDITOR OF *The Motor-Car Journal.*

SIR,—I have read with much interest the letter from "J. H." in your last issue, as I have what appears to be a similar car, and have had a very different experience to his. I have had, on a small tour in Devonshire, broken balls in the main engine bearing, water supply from boiler furred up, though the boiler was blown off every day or so, the water pump connection broken clean off, and for no apparent reason, the crank pin broken off, the piston seized, and finally the engine came completely away from the trunnions, and I finished up the journey with the engine resting on the brake rod. I write this letter in the hope that "J. H." may allow me to view his car, as I might get some useful information and so save these continual breakdowns.—Yours truly,

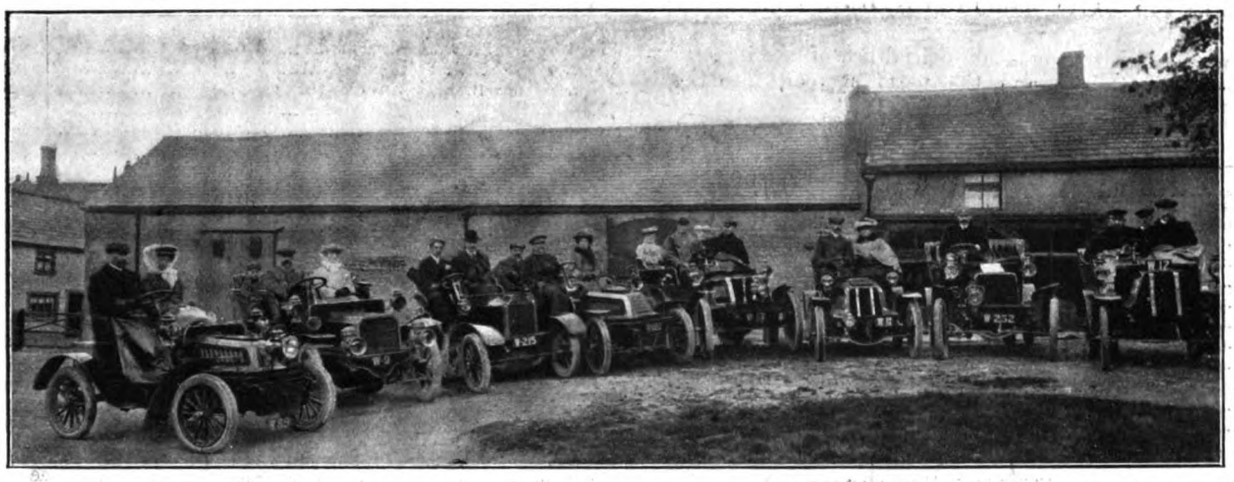
E. T. P.

MESSRS. J. W. BROOKE AND CO., Limited, are building a 15-20-h.p. four-cylinder car for Sir Saville Crossley.

THE Tramways Committee of the Wolverhampton Corporation are about to establish a motor-'bus service.

MESSRS. THOS. TILLING, LIMITED, have lately put a 20-h.p. Milnes-Daimler double-deck 'bus on the Peckham-Oxford Street service.

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The Sheffield Automobile Club at Castleton. (*See last issue.*)

CLAIM AGAINST A MOTORIST.

A CASE was tried by Judge Emden at the Lambeth County Court recently arising out of a very serious accident which happened in Whitehall on the 25th July last. Mr. W. Glass, of Croydon, was driving his motor-car down Whitehall, when a collision took place between his motor-car and a hansom cab, the horse of which had its off fore leg broken and it had to be destroyed. Both parties claimed damages against the other for the injury done, but Mr. Glass was the first to commence proceedings, and the owner of the hansom cab entered a counterclaim for the sum of £50. Mr. Staplee Firth appeared for Mr. W. Glass, and Mr. A. Lincoln Reed for the owner of the hansom cab.

A large number of witnesses were called on behalf of the owner of the hansom cab, who stated that the motor-car was being driven at a furious speed and dashed in and out of the traffic, and also that it ran into the hansom cab. Mr. Glass' version, on the other hand, was that when passing the Horse Guards Parade at a moderate speed a hansom cab was driven out of a side turning and went into the side of his motor-car. This testimony was borne out by Mr. Lee, who was on the car with him, and one other witness. In the result, his Honour gave judgment for Mr. Glass upon his claim against the owner of the hansom cab, and also dismissed the counterclaim for damages for the loss of the horse, with costs.

DUST ABATEMENT.

THE SCOTTISH AUTOMOBILE CLUB (Western Section), recently undertook some oiling experiments with a view to dust prevention. Following a paper read before the Club on February 1st last by Mr. Robert Drummond, C.E., F.S.A. (Scot.), Road Surveyor to the County of Renfrew, the permission of the First, or Upper, District Committee of the Renfrewshire County Council was obtained to the experiments being conducted on their roads at Anniesland and Giffnock by the Club. These were carried out under the sight and to the satisfaction of the County Road Surveyors. Mr. Drummond was associated with the Club Committee in the matter, and, in addition to the visits from time to time of members of the Committee, has made special observations for the past three months on the results of the test, which form the conclusions in this report.

Experiments with Westrumite were made on the Anniesland road at Scotstounhill, and on the Kilmarnock road near Giffnock. Half a ton of Westrumite was used in each case, and at each place about half a mile of road was treated. These stretches of road comprise metalling at three stages of wear. Previous to the first application the road was thoroughly cleaned and swept, and a ten per cent. solution applied by means of ordinary watering-carts. Three days thereafter another ten per cent. solution was applied, but within a very few hours of this second application torrential rain fell over the district, which washed away a considerable portion of the mixture. Consequently, a third ten per cent. mixture was applied instead of, as was originally intended, two successive applications of five per cent.

Crude oil, supplied by the Glengarnock Chemical Company, Limited, was applied over a stretch of road comprising metalling at two stages of wear. In these cases the road surface was swept clean, and the oil poured on by means of cans, and brushed over so as to saturate the surface uniformly. In about twelve hours thereafter the road surface was dry enough to take the traffic, and not a single complaint of damage done to the paint of any vehicle thereby has been made. These experiments, comprising nearly one and a half miles of roads of fair average width, cost the club £30 8s. 11d., or an approximate cost of £20 per mile, which may be accepted as a fair average cost of this method of road dressing. The cost would necessarily be varied by differences in width of road. The various applications took place between 31st May and 23rd June last.

In the case of Westrumite, for a very considerable time after the application there was absolutely no dust raised by vehicles of any description passing over the road, and even yet, three months after the application, there is none to speak of, while the fact of the application having taken place over metalling of various stages of wear has demonstrated that on the older portions the tendency to dust is greater, as it is there that it has begun to show most.

On the Kilmarnock road the surface became glazed and somewhat slippery, and some complaints were made regarding this. On the Anniesland road there was not the slightest tendency to this whatever. Mr. Drummond states that in his opinion the hard metal used on the Anniesland road is more suitable than that used on the Kilmarnock road. He also observes that specially good results were got on newly metalled surface where the material taken from the old surface was used for binding, and that this observation is applicable to the results from both of the oils experimented with.

In the case of the crude oil the results obtained from the different stages of wear of road surface are not so noticeable. This material is most effective, but for the first week or ten days after its application, especially if wet weather prevails, it is not so clean as the Westrumite; neither is it so easily applied, nor so clean to handle. There is one point in its favour, viz., that one application suffices for a season. With the Westrumite several applications are necessary, at intervals varying according to the nature of the weather and the condition of the road.

The experiments have been so far successful, and have demonstrated the efficiency of the materials used for the purposes of dust prevention. For long stretches of road in the country the cost of the application might make its general use prohibitive, but in villages or populous places, or residential districts, the complete absence of dust in dry weather would be appreciated, and would be well worth an expenditure at the rate indicated above.

CASES AGAINST MOTORISTS.

Place.	Summoned for	Fine.
Matlock	Reckless driving	£20, etc.
Mansfield	Driving to public danger	£3, etc.
Rugby	Five cases of exceeding the legal limit	Fines amounting to £55 in all.
Settle	No rear light	2s. 6d., etc.
Birmingham	Excessive speed	£1, etc.
Hythe	No light on motor-bicycle	5s., etc.
Huddersfield	Dangerous driving	£5, etc.
Nottingham	No number	£3 3s.
Coventry	,, ,,	10s., etc.
Bradford	Undistinguishable number	Payment of costs, 5s. 6d.
Newport, Mon.	Driving to public danger	Dismissed.
Preston	Dangerous driving	£5, etc.
Barmouth	Furious driving	£10, etc.
Redditch	Driving recklessly	Dismissed.
Galashiels	No light	2s. 6d., etc.
Selby	Exceeding legal limit	Dismissed.
Axbridge (Somerset)	Reckless driving	£5, etc.
Croydon	Beyond legal limit	40s. etc *

* Notice of appeal given.

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IMPORTS OF AUTOMOBILES.

BELOW we publish our monthly official list of the imports of motor-cars, motor-cycles, and the parts thereof, into the United Kingdom during the month of July, 1904:—

BELGIUM.

Shipped from	To	Description.	No.	Value. £
Antwerp	Grimsby	Motor-car	1	580
,,	Harwich	,, cycles	20	753
,,	,,	,, car parts	—	584
,,	,,	,, cycle ,,	—	317
,,	London	,, cycle	1	30
Brussels	,,	,, car	1	320
,,	,,	,, cycles	12	384
,,	,,	,, car parts	—	324
Ostend	Dover	,, ,, ,,	—	152
,,	London	,, cars	35	15,515
,,	,,	,, cycles	9	214
,,	,,	,, car parts	—	516

Total value of imports from Belgium in July, 1904 ... £19,589
Total value of imports from Belgium, Jan.–July, 1904 ... £157,287

CANADA.

				£
Montreal	Liverpool	Motor-car	1	320
,,	London	,, ,,	8	995

Total value of imports from Canada in July, 1904... ... £1,315
Total value of imports from Canada, Jan.–July, 1904 ... £1,435

FRANCE.

				£
Bordeaux	London	Motor-cars	2	560
,,	,,	,, car parts	—	5
Boulogne	Folkestone	,, cars	50	26,145
,,	,,	,, cycles	3	176
,,	,,	,, car parts	—	8,549
,,	Goole	,, cars	31	14,250
,,	,,	,, cycle	1	38
,,	,,	,, car parts	—	1,110
,,	London	,, cars ,,	198	93,658
,,	,,	,, car parts	—	2,581
Calais	Dover	,, ,,	—	375
,,	Leith	,, car	1	700
,,	London	,, ,,	19	2,317
,,	,,	,, car parts	—	14
Dieppe	Grimsby	,, cars	5	1,340
,,	,,	,, car parts	—	512
,,	Newhaven	,, cars	127	69,978
,,	,,	,, cycles	6	224
,,	,,	,, car parts	—	9,008
Dunkirk	Hull	,, cars	2	560
,,	Leith	,, ,,	4	1,900
Havre	Southampton	,, ,,	3	1,050
,,	,,	,, cycle	1	50
Nantes	London	,, ,,	1	20
Rouen	Glasgow	,, cars	3	945
,,	,,	,, cycles	2	70
Treport	Leith	,, car parts	—	1,255
,,	London	,, cars	35	9,585
,,	,,	,, car parts	—	188
,,	Manchester	,, car	1	285

Total value of imports from France in July, 1904 ... £247,448
Total value of imports from France, Jan.–July, 1904 £1,245,036

GERMANY.

				£
Bremen	London	Motor-cars	8	3,286
,,	,,	,, car parts	—	225
Hamburg	Germany	,, car	1	350
,,	Harwich	,, car parts	—	10

Total value of imports from Germany in July, 1904 ... £3,871
Total value of imports from Germany, Jan.–July, 1904 ... £38,800

HOLLAND.

				£
Amsterdam	Goole	Motor-car	1	490
,,	,,	Motor-car parts	—	356
,,	London	,, cars	4	1,800
Rotterdam	Harwich	,, car parts	—	47
,,	,,	,, cycle ,,	—	112
,,	London	,, cycles	15	327

Total value of imports from Holland in July, 1904 ... ... £3,132
Total value of imports from Holland, Jan.–July, 1904 ... £26,318

UNITED STATES.

				£
Boston	Liverpool	Motor-cars	4	498
,,	London	,, ,,	2	160
,,	Manchester	,, ,,	1	124
New York	Glasgow	,, ,,	1	250
,,	Hull	,, car parts	—	30
,,	Liverpool	,, cars	27	5,615
,,	,,	,, car parts	—	27
,,	London	,, cars	29	5,136
,,	,,	,, car parts	—	576
,,	Southampton	,, cars	30	5,560
,,	,,	,, car parts	—	173

Total value of imports from the United States in July, 1904 £18,169
Total value of imports from the United States, Jan.–July, 1904 £98,140

CLUBS AND ASSOCIATIONS.

HULL.

IT was decided to close the season's fixture list of the Hull and District Automobile Club by having a non-stop run to York and back to Hull on Thursday of last week. Twelve competitors faced the time-keeper at noon. Tool bags having been sealed up, a start was made for York, which was reached by Mr. Nicholson at 2.5. The others followed in quick succession. York was left at 3.5 and Hull reached at 5.10, Mr. Nicholson being again the first to arrive.

The winners of prizes are Messrs. Nicholson, Freeman, Hugestadt and Philipson. Messrs. Parker, Dunn, Lowery, Straker, Hamlyn, Hancock, Donovan, and Whiteley also took part in the event.

Dr. W. H. Coates, Chairman of the Executive Committee, acted as timekeeper at Hull, the Hon. Sec., Mr. G. M. Heard, at York, Messrs. Kemp and Donoworth as observers on the road, and Messrs. Entwistle, Strong and Strong, jun., took charge of control stations. After the event a dinner was held at the headquarters of the club, the Imperial Hotel, Dr. W. H. Coates presiding.

LEICESTERSHIRE.

THE results of the hill-climbing tests in connection with the Leicestershire Automobile Club held at Ab Kettleby were as follow:—

Mr. J. M. Bennett, 12-h.p. Darracq, 5 mins. 10 secs.
Mr. A. H. Faulkner, 10-h.p. Gladiator, 5 mins. 34 secs.
Mr. S. R. Brooks, 24-h.p. Richard-Brasier, 2 mins. 26 2-5 secs.
Mr. T. Peberdy, 8-h.p. Peberdy and Earp, 6 mins. 17 3-5 secs.
Mr. T. Corcoran, 5-h.p. Locomobile, 5 mins. 43 4-5 secs.
Mr. H. R. Harding, 8-h.p. Parr, 7 mins. 4 1-5 secs.
Mr. J. H. Wait, 10-h.p. Clyde, 4 mins. 7 secs.
Mr. A. McAlpin, 8 h.p. Parr, 6 mins. 7 secs.
Mr. T. C. King, 16-h.p. King, 4 mins. 34 secs.
Mr. J. Whitby, 5-h.p. Baby Peugeot, 6 mins. 43 2-5 secs.
Colonel L. L. Powell, 6-h.p. Argyll Voiturette, 7 mins. 45 2-5 secs.
Mr. R. S. Clifford, 12-h.p. Richard-Brasier, 5 mins. 31 2-5 secs.
Mr. H. E. Barron, 10-h.p. Peugeot, 5 mins. 13 2-5 secs.
Mr. E. G. Mawby, 15-h.p. Darracq, 3 mins. 10 2-5 secs.
Mr. H. Binns, 12-h.p. King, 4 mins. 44 secs.
Mr. E. H. Herbert, 6½-h.p. Cadillac, 7 mins. 41 secs.

In the tests of the two 5-h.p. Quadrant tricycles driven by Mr. J. H. Doran the trial with one passenger resulted in the time being given as 4 mins. 35 2-5 secs.; with two passengers the time was 5 mins. 19 4-5 secs.

FATAL MOTORING ACCIDENT.

AT the Bromley (Kent) Police-court, on Monday, Frederic Wilfred Baily was charged with the manslaughter of William Henry Norton, of Anerley. Mr. C. G. Lysett appeared for the accused and pleaded not guilty. Sub-divisional Inspector Sly said that on Sunday he made inquiries into a collision which occurred in Elmers End Road, Beckenham, on Sunday morning, between a motor-car driven by the accused and a bicycle ridden by Norton, by which the latter was killed. As a result of his inquiries he arrested Mr. Baily at his residence. The collision occurred at 12.40 p.m. and Mr. Norton died before three o'clock the same afternoon. On the application of the police a remand was granted for a week. Mr. Lysett asked for bail, and the Bench fixed it at accused in £100 and two sureties in £50 each.

The inquest on the body of William Norton was held at Penge on Tuesday. After an inquiry lasting five hours, during which much contradictory evidence was heard, the jury returned a verdict of "Death from Misadventure," and exonerated Mr. F. W. Baily from all blame.

POLICE TRAPS.

HARROGATE is becoming notorous among Yorkshire motorists by reason of police activity.

ON the London road, near Dunchurch, the police have a measured quarter of a mile.

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THE

Motor-Car Journal.

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COMMENTS.



THE following rules governing club competitions have been adopted by the Lincolnshire Automobile Club, and may be of service to other organisations arranging meets. Competitions shall be of two classes, private and open. All private club competitors shall be subject to the following rules, unless the committee shall specially alter the same. 1.—Cars may be entered by members of the L.A.C. only, must be registered as and be the *bona-fide* property of the member making such entry. Competing cars must be driven by the *bona-fide* owner or his servant. No car "for sale" or for hire shall be eligible to compete. 2.—Vehicles entered must be ordinary touring cars, and fitted with recognised touring bodies, and be solely used as private vehicles. The club committee shall be the sole judges as to what constitutes a touring body, or with respect to any other question raised in connection with the competition. 3.—The event shall be purely a club and sporting one, and competitors shall not use the results for advertising purposes. 4.—No certificates will be issued, and the committee will announce the results in such manner as they see fit. 5.—The committee will appoint judges, timekeepers, and stewards, and the decision of the judges in any dispute shall be final. 6.—The members of the committee present at any competition shall be a quorum to decide any question arising out of the competition, unless a special committee be appointed for the purpose of the competition. 7.—Open competitions shall be conducted under the rules issued from time to time by the A.C.G.B.I.

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Workmen and Motors.

WHILST bucolic Councils and rural wiseacres have been given to airing their views on the rapid speeds of motor-cars with considerable vehemence, only a few utterances from the working classes have found publicity in the Press, and it is rather remarkable to learn that the Preston Trades Council has been devoting some time to the question of the driving of automobiles through the cobble laid streets of that town. In fact, they have gone so far as to ask the Corporation to apply for a restriction order such as is now in force in the town of Beverley, and for which the Kingston, London and other authorities have made application.

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Racing on the East Coast.

THE Lincolnshire Automobile Club have under their consideration a scheme for holding a series of speed trials at Skegness next summer. The Earl of Scarborough has taken the initiative, and his agent has been in communication with Dr. F. H. Cragg, of Billingborough (the hon. secretary to the Club), respecting the project. Already the matter has been discussed by the Club committee, and two influential members—Sir Hickman Bacon, of Gainsborough (the president), and Mr. C. W. Pennell, J.P., of Lincoln—have been deputed to inspect the proposed course and report. It is understood that the residents of Skegness will do what they can to further the movement, and it is expected that a valuable silver cup will be offered for competition. The sands at this popular watering-place are said to be as fine and as smooth as any on the east coast, and are consequently admirably adapted for motor racing. If a meeting is arranged, as it most likely will be, the fixture will be one of the most important motoring events of next season.

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Obstructions on the Highway.

AT the last meeting of the Driffield Urban District Council, a letter was read from the secretary of the Hull and East Yorkshire Automobile Club pointing out that recently a member of the club, after dark, ran over a quantity of loose stones laid on the street at Driffield, and injured his machine, there being no warning lamp there at the time. The letter stated that should any further accident take place through the neglect of the Council to give warning of any danger on the road the club would take action to recover damages. The roadway, it was said, was under repair at the time, and an animated discussion took place on the whole method of road repair and the working of the steam roller, and ultimately it was agreed that in future red lamps should be placed in situations where there was any danger to traffic. This is a reasonable attitude to assume, for, if in addition to unlighted vehicles similarly unilluminated obstructions are to be allowed on the roadway the lives and limbs of all who use the highways after dark will be placed in jeopardy. We commend the action of the Hull Club and also of the Driffield Council, and trust it will be widely followed.

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Motor-'Buses in Surrey.

WE hear that many of the inhabitants of Surrey are signing a petition to the London and South Western Railway Company, asking them to establish a motor-omnibus service between Farnham and Hazlemere. Mr. St. John Broderick, M.P. for the division, is among the signatories, and there is no doubt that such a development would do much to revive prosperity in the intervening villages between these two places. It would be well if all Surrey motorists having any local acquaintance with or influence in the places named would use it in the direction of securing such a public boon from the railway company, for it could be secured without at all adversely affecting the railway traffic. In fact, it would act as a substantial feeder to the railway lines.

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A Speed Limit at Night.

THE Holland County Council of Lincolnshire, having made application for the closing of one road at night and for a speed limit of ten miles an hour at night for another road, the Local Government Board is to hold an inquiry. Both these roads run on embankments for about two and a half miles each. The one where the prohibition is asked for is the road from Deeping and Crowland, the other, where the speed limit comes in, is that from Spalding to Crowland, running on to Peterborough *via* Thorney. The embankments are very ancient, dating from the Roman invasion, and are used to hold the flood

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waters up. The former road is somewhat narrow in places, and there are gates across to keep the stock from straying, but the other road is on a lower bank and is as wide as any ordinary road. It is declared that if the present "Lights on Vehicles" bye-law in the county was amended, and all vehicles included, and the summer months not excluded, there would be no danger at night on these roads from vehicles (motors) that are better lighted than any other. The Lincolnshire Automobile Club has lodged an objection to the proposal.

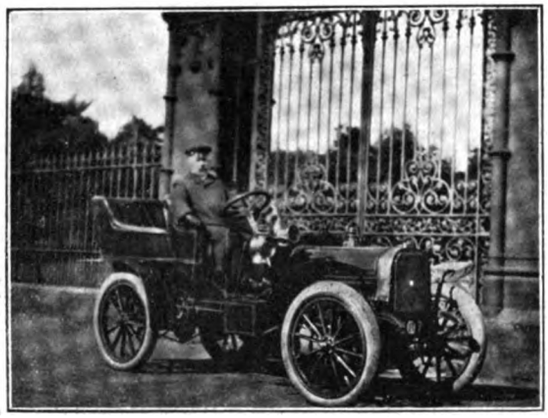
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Traffic Accidents.

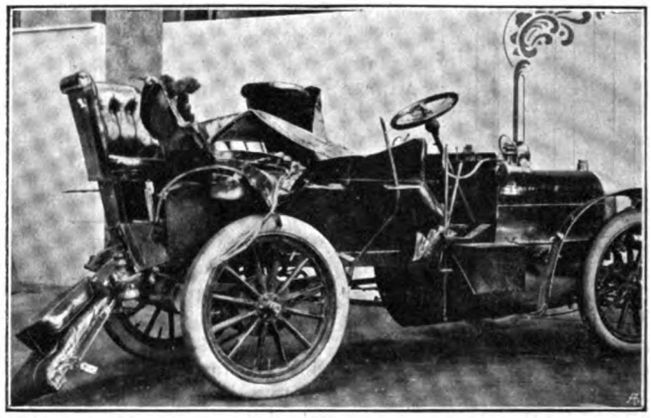
In our correspondence columns the Rev. H. George Morgan, an active member of the Herefordshire Automobile Club, draws attention to some official figures which have been published concerning the number of persons injured in traffic accidents in London during the last twelve months. From these it would appear that the proportion of accidents caused by horse-drawn and motor-propelled vehicles was 95½ and 3½ respectively. Seeing that as yet the great bulk of traffic in the metropolis is horse-drawn, it is very clear that the proportion of automobile accidents is extremely small, and even this is largely augmented by the mishaps occurring to motor-cars for which motorists can in no way be held responsible.

What is necessary.

Now that the unlighted cart has claimed a Royal victim, the Roads Improvement Association is pressing the following action upon the authorities:—(1.) That the Home Office should amend its model by-law so as to provide that all vehicles shall carry after dark a white light in front and a red light in the rear. (2.) That the Home Office in England and Wales, and the Secretary for Scotland in Scotland, bring pressure to bear upon the authorities to adopt the model by-law. (3.) That on the occasion of the passing through Parliament of a measure affecting local government a clause be inserted making it a statutory obligation for all vehicles to carry lamps after dark, so as to show a white light in the direction in which they are proceeding and a red light in the contrary direction—a provision, in short, similar to that which has already been enacted for motor-cars.



The 12-h.p. Argyll before the Collision.



The Car after the Accident.

THE ACCIDENT TO THE DUKE OF CONNAUGHT.

The Duke of Connaught's Accident.

The accident to the Duke of Connaught is a case in point. It is very clear that this was entirely due to the presence on the road of an unlighted cart. By a curious coincidence, only last week we drew attention to the seriousness of this matter, so far as Scotland is concerned, and in publishing the memorandum on Lights after Dark, prepared for the Scottish Club, showed how much improvements are desired north of the Tweed as well as in the southern country. Motor-cars are compelled to carry both front and rear lights, and it does seem a senseless anomaly that so many lumbersome vehicles should be allowed out after sunset without any lights to give warning of their approach. There is no doubt that the automobile has opened up a new series of problems for our legislators, and the sooner they deal with these points the safer will the road be for all users of the highway.

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England and Scotland.

In England and Wales it is within the powers of the county councils and the borough councils to make lighting by-laws subject to the sanction of the Home Office. In Scotland, a statutory enactment came into force in May of this year, affecting the boroughs but not the counties. The result is that in some counties in Great Britain horse-drawn vehicles must carry lights, and in others they are under no obligation to do so. Still more amazing is the fact that in certain counties which have adopted a lighting by-law, agricultural wagons and slow-moving carts—the most dangerous vehicles on the road—are exempt from its operation.

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Universal Lights.

The accident to the Duke of Connaught has aroused considerable sympathy with the Royal sufferer, whose enthusiasm for motoring has been most marked. Certainly he has done much to further automobilism, both in Society circles and in military matters, and all will wish him safely back to his public work. Until Parliament enacts uniformity in the provision of lights local motorists can perform a useful service to the community by impressing upon all owners of horse-drawn vehicles the advisability of providing lights for use after dark. Such things are necessary in the case of the motorist and the cyclist, and they should be equally compulsory with horse-drawn vehicles—especially those lumbersome lorries with projecting timbers—and other road dangers.

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Reports of Accidents Wanted.

Provincial clubs can render valuable help in the campaign for the compulsory lighting of all vehicles by maintaining local agitations. In Lincolnshire efforts have lately been made to secure the adoption of a by-law to insist on lights on all vehicles. These were not very successful, although we believe the county has agreed to have the present exemptions as regards seasonal lighting removed, and some uniformity secured

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throughout the year. Such efforts must be generally adopted, and it would also assist the agitation if readers of the *Journal* would keep us informed of any accidents resulting from unlighted vehicles, so that the dangers of the present position may not escape public attention.

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Coroners and Cars.

A FEW months ago we recorded the view of a coroner in the county of Kent, to the effect that he had been somewhat surprised that he should have been called upon to attend no inquests on the bodies of persons killed in motor-car accidents. Now Dr. John Harrison, the coroner for north-east Essex, has given an even better testimonial to the motor-car. On Monday he held three inquests—not, be it noted, on automobile victims—in three different districts, necessitating a journey of over 100 miles in his motor-car. The first at Braintree, the second at Brightlingsea, and the third at Maldon. The cross-country journeys between the first and second places and the second and third, respectively, are each 26 miles, and railway communication is by no means so up-to-date as on most parts of the Great Eastern Railway system. The coroner was able to return to Braintree before evening, thus giving a practical demonstration of the value of the motor-car to those in official positions.

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Motor Vehicles in Agriculture.

AN important experiment was begun in the neighbourhood of York last week by the North-Eastern Railway Company with a view of testing the possibilities of a service of steam motor-lorries for the collection and distribution of heavy traffic in remote agricultural districts. The idea is that the lorries should serve the same purpose as that for which many light railways have been promoted. Should success attend the venture, it is proposed to extend the service to other parts of the system. A steam lorry of five tons burden, with a trailer having a carrying capacity of two and a half tons, will run between Tollerton Station, on the main line north, and the village of Brandsby, situate between Easingwold and Malton. On the outward journey it will carry limestone, feeding stuff, &c., for delivery at the various farms in the district, and the return journey will be made with produce to be forwarded by rail. Besides facilitating transport and putting the farmers in closer touch with the markets, it is expected that the service will prove a considerable saving to them in the matter of haulage.

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Schoolboys and Motor-cars.

WE notice that at the meeting of the Huddersfield Centre of the Yorkshire Automobile Club quite a serious talk took place on the way in which local motorists have been subject to annoyance by small boys forming up into line in front of advancing cars, and also indulging in the old trick of throwing their caps beneath the wheel. The Huddersfield motorists came to the conclusion that the matter is becoming not only a nuisance, but a very serious hindrance to their progress in the town, and the secretary of the Centre has been instructed to write to the head masters of all the schools in the district, asking them to impress upon their scholars the dangers lurking in such a childish practice. Unfortunately, the British schoolboy is not always amenable to good advice; but, failing any more conclusive proposal, the course taken by the Hudderfield folks is, perhaps, the most impressive that can at present be adopted.

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Dustless Road Experiments at Wandsworth.

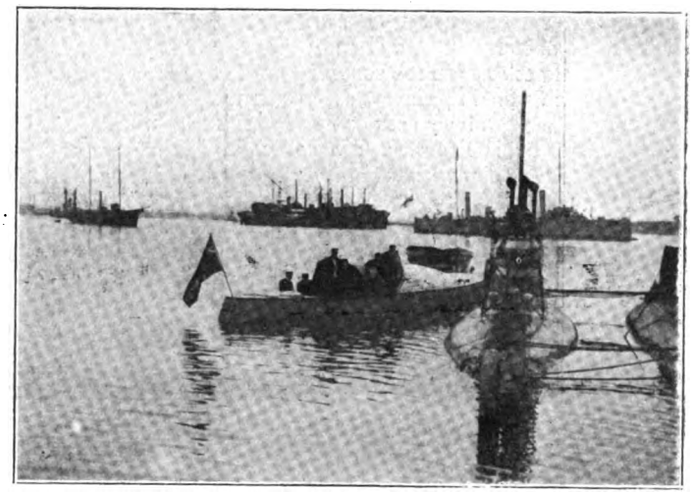
THE experimental paving with tar macadam at Wandsworth Common, between North Side and Trinity Road, is reported to be a success, so far as the question of cost is concerned. The sum of £667 was spent on laying the strip of road with the macadam, and the cost of maintenance, including scavenging, watering, and repairs for the year since it was put down, has been £42. The expense of scavenging, watering and repairs of a similar area of granite macadam in North Side for a year is £74, or £32 in excess of the tar macadam, and Mr. P. Dodd, the surveyor for the western district of Wandsworth, estimates that, taking the saving in scavenging into consideration, the cost of a tar macadam road in nine years would not exceed for the same period that of a granite road. The Highways Committee of the Borough Council have now given instructions for the testing of the patent paving known as "tar mac." This is to be used on the carriage-way in Huguenot Place, between the eastern side of Woodwell Road and the crossing at East Hill.

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The Use of the Dealer's Mark.

AT the meeting of the Cardiff Cabs' Committee, it has leaked out that some of the motor-car agents in the town are reported to have been in the habit of letting cars out on hire without the same being properly registered. We are afraid that lack of knowledge of the stringent provisions of the Motor Car Act is responsible for some errors of this kind in other places besides Cardiff, and it would be well for those in charge of garages and similar establishments of automobile resort to understand that the issue of the dealer's licence and mark only carries with it the right to use a motor-car, first for trial, or secondly to take out the intending purchaser, in order to test it. It is very clear, therefore, that the use of a car bearing a dealer's mark when a purchaser or a likely purchaser is not upon the vehicle is contrary to the spirit of the Act, and likely to lead the delinquent to the local police court.

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The Motor Boat "Napier Minor" alongside one of the most recent British Submarines. A couple of Officers from the Submarine Department, who were trying her through various evolutions, are on board.

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Proposed Restrictions in Ayrshire.

A MEETING of Ayrshire motorists has been held in Ayr, to consider the proposal of the Ayrshire County Council to apply to the Secretary for Scotland for authority to close certain highways in the county to motor-car traffic, and to restrict the speed of motor-cars to ten miles an hour in towns and villages, and on bridges in the county. The meeting was called to oppose the County Council proposals. Commander Hunter-Blair, of Blairquhan presided. Mr. Smith, Secretary to the Scottish Automobile Club, made a statement as to the results of similar applications in other parts of Scotland. Sir James Bell said the County Council were the chosen representatives of the people of the county, and, of course, it was desirable that they should take every precaution to protect the public, but at the same time there was another side to the question, and he thought automobilists might with confidence place their view before the Council. If the county wished to take parental care of them, there were a great many bridges and bad turns on roads where they ought to put up danger notices, which would be

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useful not only to motorists, but to users of the roads generally. He did not know on what basis the County Council had included all those bridges and villages; but it looked as if they had gone on the principle of asking a great deal in order to get a little more than they expected or were entitled to. He did not think at all that their application to the Secretary for Scotland would be granted to the extent they proposed; but he should wish the County Council to feel that they as motorists were wishful to help in conserving the safety of the public, while they were also as firm, as users of the public road, to get all they were entitled to. He thought the Motor Car Act was as drastic as it could be, and the County Council ought to know that motorists thought the Act was stringent enough, and that further restrictions were unnecessary. After some further discussion the meeting unanimously resolved to represent to the Secretary for Scotland their disapproval of the application of the County Council for the prohibition of motor-car traffic on certain roads and the further restriction of the speed of motor-cars.

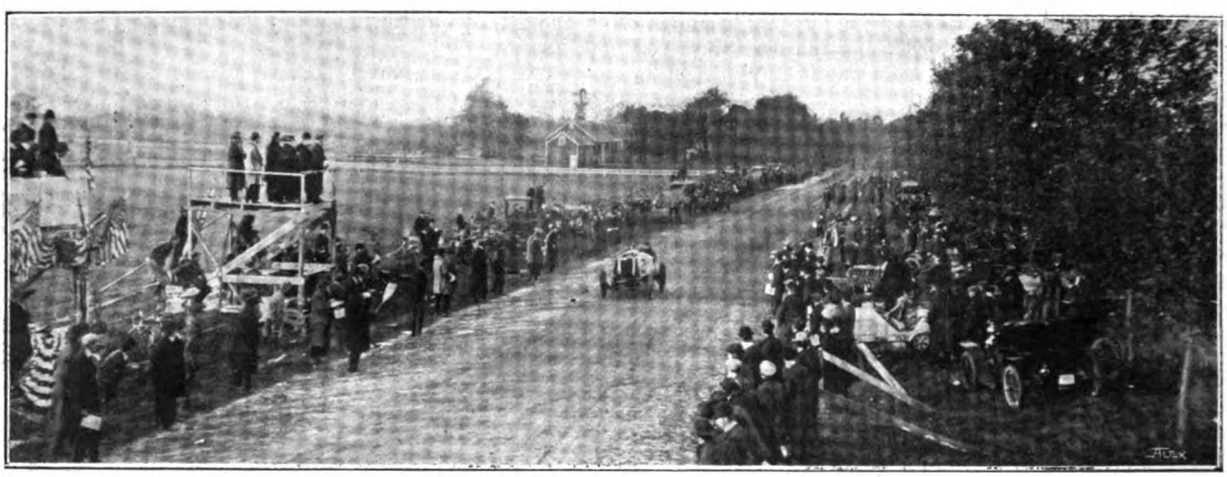
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Duty-free Alcohol.

AT a meeting of the Council of the Birmingham Chamber of Commerce the General Purposes Committee have recently presented a report dealing with the use of duty-free spirit for industrial purposes. The question is of great importance to many industries carried on in Birmingham and district, and the committee thought that steps should be taken to collect evidence to be placed before the committee. Complaint had been made to the Committee as to the utter inadequacy of Section 8 of the Finance Act, 1902, owing to the excessive restrictions sought to be imposed by the Inland Revenue Commissioners, and, even when those were partially removed, to the very small quantity of spirit which manufacturers were allowed to use duty free. In other words, the section referred to was rendered almost inoperative. It had been pointed out to the committee that in other countries, Germany for instance, manufacturers were given every facility for the use of commercial spirit duty free, and that that placed the foreign manufacturer in a superior position to the English. With the view of obtaining information to place before the committee which had been appointed, the committee recommended that a circular be addressed to manufacturers and users of spirit for industrial purposes, asking them to reply to certain questions. The Chairman, in moving the adoption of the report, stated that several representations had been made to the Chamber, and he understood that pure spirit could be made for 9d. per gallon. On proof spirit, the potable drink, the duty was 15s. a gallon, but for industrial purposes the spirit was required to be 64 over proof. In Germany there was a duty on potable spirits, but the Inland Revenue Department of that country knew how to deal with it so as not to interfere with industrial progress.

Petrol v. Alcohol.

A CORRESPONDENCE having arisen with regard to the comparative merits of alcohol and petrol for automobiles, Messrs. J. Crossfield and Sons, Limited, who have made a special study of the matter, point out that it is true that petrol contains more available heat energy than alcohol, but they say that the efficiency of the alcohol engine is higher than that of the petrol engine, the result being that volume for volume petrol is about one-eighth more efficient than 90 per cent. denatured alcohol containing only 2 per cent. of benzine. Having regard to the fact that the alcohol thus compared contains 10 per cent. of water, the difference in this respect is so small as not to be worth very serious discussion. Up to quite recently a water-white alcohol of about 97 per cent. strength could be bought at about 9d. per gallon in Germany. Possibly in the course of the last few weeks, owing to the very grave shortage of the potato crop, this price may have risen somewhat. The actual price paid by motor-car owners in Germany for denatured alcohol suitable for their purpose is about 9d. per gallon delivered at the nearest railway station, and at this price it is obvious that alcohol can compete with petrol at 10d. It is not significant that none of the recent Gordon Bennett cars were run on alcohol. The machinery for the distribution of alcohol is by no means so efficient as that for the distribution of petrol, nor is the former fuel yet obtainable in many of the countries where petrol can be had, and consequently there is not any temptation for automobile builders to design engines specially fitted to run on this, as yet, comparatively seldom-used fuel. It is only by greatly extending the utilisation of alcohol that it will pay to manufacture it in a form fitted for industrial purposes. It can be proved that the home-manufactured product is practically equal to the imported one as a power producer, and that, in addition, the possibility of utilising cheap alcohol in other industrial directions would mean the starting of new industries and the encouragement of old ones.



The Scene at the Start of the Vanderbilt Cup Race.

A RACE between one of the Calais-Dover mail steamers and a powerful motor-boat is, we hear, on the *tapis*.

LAST week we gave the route of the two Oldsmobiles on tour in Ireland. The cars reached Cork on the 13th inst. As there was no boat leaving Cork on Thursday, the cars were shipped on Friday night, arrived at Milford Haven Saturday morning, reaching Cardiff Saturday evening, and on Monday of this week commenced the following route:—Cardiff to Gloucester; Tuesday, Gloucester to Taunton; Wednesday, Taunton to Bodmin; Thursday, Bodmin to Truro; Friday, Truro to Exeter; to-day (Saturday), Exeter to Bath. While at Cork the 7-h.p. car climbed the steep St. Patrick's Hill, which has only been ascended on one or two occasions by an automobile.

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The Blackpool Speed Trials.

THE Blackpool motor meet is now an event of the past, and must be written down as a brilliant success. The arrival of motorists commenced early in the week, and by Thursday the toot-toot of motor-horns was to be heard at every corner of the popular resort. Local residents were not long in discovering that some fine sport was to be seen in the early morning, the competitors taking full advantage of the permission to use the course for trial spins between the hours of 6 a.m. and 8 a.m. Not only were the big racers being exercised; touring cars of all classes, and fully laden, were vieing with one another in twos and threes. Indeed, the spectacle presented was considered by many to be far more exciting than the races proper, in that the cars followed at intervals of seconds in place of minutes, several teams being always in view simultaneously. All the week the Corporation officials were busily engaged in preparing the course and erecting a grand stand at the finishing point. The whole of the promenade, from the commencement at the South Shore to the Central Pier, a distance of about a mile and a quarter, was barricaded off to form what is undoubtedly the finest racing track in the country. The course has a slight curve in it at about 300 yards from the start, but it is not sufficient to prevent top speed being maintained all the way. Not only so, but the surface is ideal, consisting as it does of newly-laid asphalt. It is wide enough, moreover, to enable two cars to race abreast with perfect safety, while several motor-bicycles can compete at one time. Beyond the finishing point a long line of tramcars was drawn up, and served to form a huge stand. Several of the hotels and boarding houses on the course had also put up stands, and although Friday was cold and the morning's crowd not very thick, in the afternoon every seat was occupied, and the barricades were lined with a crowd estimated at from 40,000 to 50,000.



Photo by] A Group of Officials on the Finishing Line. [*R. W. Lord.*

The Blackpool councillors postponed municipal business because it was the day of the motor trials, and tradesmen closed their shops in the afternoon for the sufficient reason that there were no signs of customers in any of the streets. The piers were empty, and those people on "the front" walked only in one direction—towards South Shore. Policemen were stationed at every few yards on the course, and the Blackpool Nursing Association sent out several squads of ambulance men with the necessary equipment, who took up positions at different points in case of accident, but fortunately their services were not required. Except in the case of the racers, the competitors, of whom there were altogether about 120, were not allowed to return to the starting point along the track, but had to make their way back along a somewhat bumpy road behind the promenade.

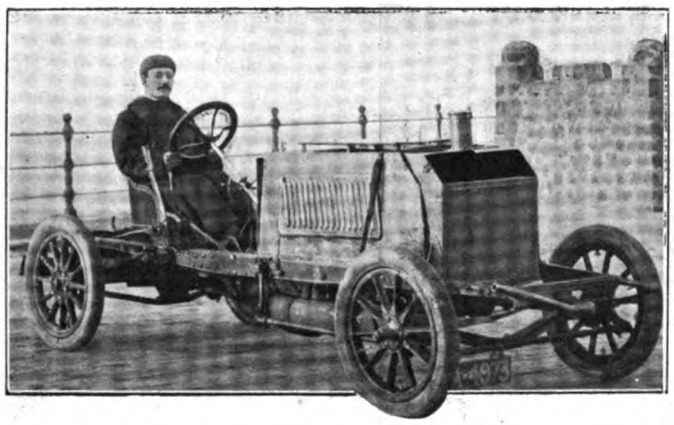
Shortly after 10 a.m. the competitors in Class A were ordered to get ready. Fourteen entries had been received for the event, which was confined to motor cycles weighing not more than 170 lbs., but only eight faced the starter. These were sent off in two batches of four. In the first heat the competitors were:—E. T. Jones (Humber), O. L. Bickford (5-h.p. Chase), B. Blaker (Bat), and H. G. Metcalf (3-h.p. Bradbury). The race was hotly contested, Jones being first in 1 min. 24 1-5 sec. and Bickford second in 1 min. 26 2-5 sec. Heat 2 brought out H. Rignold on the 4½-h.p. Lagonda he rode in the recent international race in France, Holgkinson on a 4½-h.p. Jap, T. H. Tessier (4½-h.p. Bat) and J. F. Crundall (Humber). Tessier quickly got away and set a very fast pace, winning easily in 1 min. 19 2-5 sec., Crundall being second in 1 min. 22 2-5 sec. The final heat brought out Jones, Bickford, Tessier and Crundall. The pace was again



Mr. Andrew Fletcher starting for the Flying Kilometre on his 90-h.p. Mercedes.

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fast and Bickford was quickly outdistanced and left in the rear, Tessier coming in first in 1 min. 13 2-5 sec., equal to a speed of over forty-nine miles per hour; Crundall being second in 1 min. 18 sec. Class B, for motor-cycles, unrestricted as to weight, proved another exciting event, the five competitors—Jones, Rignold, Hodgkinson, Tessier, and Crundall—being sent off in one bunch. Tessier's machine again showed its superiority, he covering the standing mile in 1 min. 15 sec., beating Crundall (second) by 1 4-5 sec.



Mr. Clifford Earp on the 80-h.p. Napier.

Class C, for cars to carry not less than two passengers and costing £250 or under, was run off in a series of heats followed by demi-semi finals, semi-finals and finals. There were altogether thirteen entries, including a 7-h.p. Star, a 10-h.p. Vulcan, a Ribble voiturette, a 10-h.p. Speedwell, an 8-h.p. Rover, an 8½-h.p. Cadillac, a 9-h.p. Norfolk, a 6-h.p. De Dion, a 10-h.p. Vulcan, a 10 h.p. Duryea, a 10-h.p. Nelson, an 8-h.p. Eagle and an 8-10 h.p. Brown, the latter being driven by Miss M. Hind. The race for the final between the 10-h.p. Speedwell driven by Mr. J. W. H. Dew and Mr. E. Failes Baker's 10 h.p. Duryea resulted in a victory for the latter in 1 min. 49 2-5 sec. A protest was, however, entered with regard to the vehicle not being eligible for the under £250 class, and at a meeting of the organising committee held in the evening the protest was upheld, the first prize being awarded to Mr. Dew.

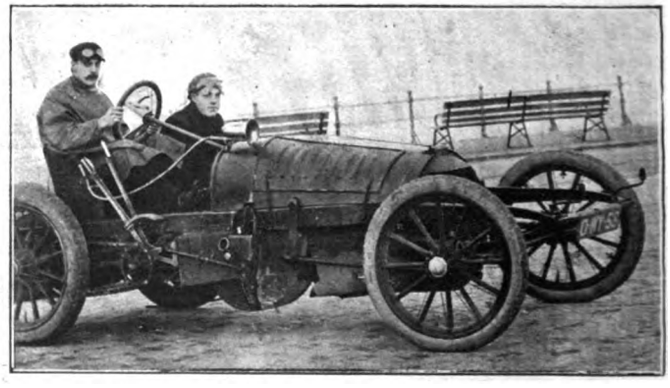
After a short interval for lunch the races were recommenced in the presence of a much larger crowd than in the morning. Class D, for cars to carry not less than four passengers, and costing up to £500, brought out seventeen competitors. The event was run off in heats, the majority of which were rather tame, owing to the distance which separated the two cars the greater part of the mile. The tightest run, which, although far from being the fastest, created the greatest interest on the part of the spectators, was between the Elsworth Company's 14-h.p. Spyker and Mr. P. C. Kidner's 12-14-h.p. Vauxhall—a new three-cylinder car—the two vehicles finishing almost neck and neck, to use a horsey term. The fastest time (1 min. 31 2-5 sec.) was made in the semi-final, in which three 15-h.p. Darracqs competed. The final was a struggle between Mr. F. C. Noar and Mr. J. Keele, the former winning in 1 min. 36 3-5 sec.

Class E.—For cars to carry not less than four passengers and cost up to £750, brought out thirteen competitors. The fastest race in the heats was between a 20 h.p. Pipe driven by M. Dumont, and a 16-18-h.p. Sunbeam (time 1 min. 14 sec.). The Pipe successfully went through the demi-semi and semi-finals, but was beaten in the final by Mr. Huntley Walker's 30-h.p. Darracq, which covered the mile in 1 min. 34 sec.

There were eleven entries for class F, for cars to carry not less than four passengers and costing up to £1,000, all of whom lined up at the start. They were dispatched in pairs, the fastest heat being that in which Mr. J. W. H. Dew's 24-28-h.p. Bollée was beaten by Mr. P. Martin's 30-h.p. Daimler; time 1 min. 9 2-5 sec. The race between the 18-22-h.p. Mercedes driven by Mr. H. A. Whalley, and Miss Dorothy Levitt on a 20-h.p. Napier proved a popular victory for the latter, her time being 1 min. 30 3-5 sec. Mr. P. Martin, who had qualified for the final, was unable to compete owing to the water circulating pump of his Daimler being damaged, and the race was a struggle between Miss Levitt and a 40-h.p. Leon Bollée driven by Mr. H. Martin, the latter winning by about twenty yards in 1 min. 21 3-5 sec.

Very few of the races being keenly contested, the victors winning easily, the interest of spectators had somewhat flagged, but when class G, for cars to carry four passengers, irrespective of cost, was reached, a buzz of excitement went along the course. The competing cars included no less than five 60-h.p. Mercedes, a 60-h.p. Fiat, a 40-h.p. C.G.V., a 36-h.p. Spyker, a 40-h.p. Mercedes, a 40-45-h.p. Leon Bollée, and a 25-h.p. Rochet-Schneider. Mr. Cecil Edge's 65-h.p. Napier did not compete, owing to a successful protest that the vehicle was not a touring car according to the rules of the meeting. The fastest race in the first round was that between Mr. C. Cordingley's 60-h.p. Mercedes and Mr. L. Williamson's car of similar make and power, the latter winning by a few yards in 1 min. 9 sec. Considerable interest was shown in the race between the 60-h.p. Mercedes of Mr. Huntley Walker and Miss D. Hampson, owing to this lady driving her own car. She was, however, out-distanced, on account of the gear box on her car going wrong. The competitors in the final were Mr. A. J. Dew on a 40-h.p. Bollée, and Mr. L. Williamson, 60-h.p. Mercedes, the latter winning easily in 1 min. 15 sec.

The *bonne bouche* of the day was reserved to the last, and, although the crowd had somewhat thinned as darkness came on, those who stayed to the end were provided with a brilliant display of speed by the cars which competed in Class L—Racing cars weighing less than 1,000 kilogs. The cars were again dispatched in pairs, a 96-h.p. Wolseley driven by Mr. A. Callan and a 100-h.p. Darracq driven by Mr. A. L. Guinness being sent off first. This was the car which, as mentioned in the last issue of the *Journal*, was fitted with a new form of ignition, and many of the motoring spectators were looking forward to its performance with especial interest. They were, however, doomed to disappointment, for just after leaving the starting point the case surrounding the differential on the back axle gave way and Mr. Guinness was forced to abandon, Callan finishing alone in 1 min. 2 1-5 sec., equal to 58 miles per hour. In the next heat, Mr. G. Higginbotham on a 96-h.p. Wolseley made the fastest time of the day—56 sec., or equal to 64·28 miles per hour—beating Mr. A. Rawlinson on a 100-h.p. Darracq. In the contest between the Hon. C. S. Rolls on a 100-h.p. Mors and Mr. A. Fletcher on a 90-h.p. Mercedes



Mr. G. Higginbotham on the 96-h.p. Wolseley.

the latter won in 57·4 sec. In the semi-final, Mr. A. Fletcher was beaten by Mr. Higginbotham, Mr. Callan having a walk-over. The final was a keen struggle between the two 96-h.p. Wolseleys, that driven by Mr. Higginbotham proving itself the winner, the standing mile being covered in 58 3-5 sec., or a speed of 61·43 miles per hour.

No accidents or hitches marred the day's proceedings. In the races for touring cars the finishes were sometimes tame,

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because any slight difference in speed capacity at the start became considerably accentuated before the finish, and runaway wins were frequent. When the finishes were close, however, the crowd cheered enthusiastically, and, on the other hand, indulged in good-humoured chaff when one car struggled in a long way behind its rival. Much amusement was repeatedly evoked, moreover, by the intermittent appearances of dogs upon the track. The results were signalled in a novel but effective manner. Of each pair of competitors one driver wore a blue band and the other a white one, and after the finishing line was crossed a white or blue flag was hoisted, according to the colour worn by the winner. Similar flags at intervals along the course passed the result along right up to the starting point.

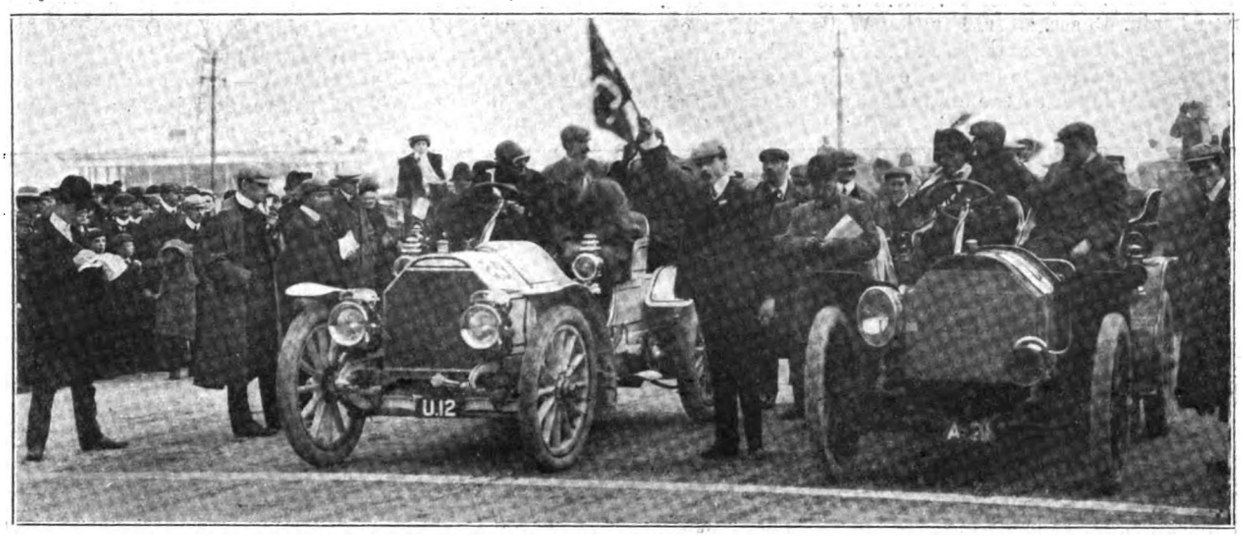


Photo by] The Race between the 60-h.p. Mercedes Cars of Mr. L. Williamson and Mr. C. Cordingley. *[Argent Archer.*

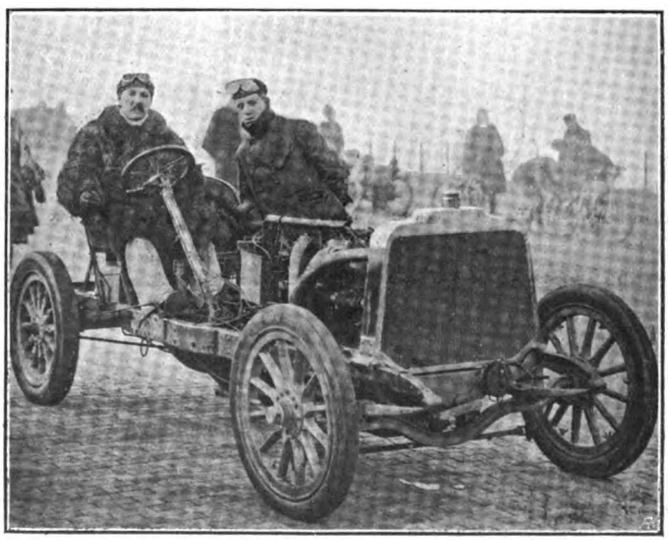
The Second Day.

On Saturday morning the motorists were early astir, practising over the course with the view of getting their vehicles *au point* ready for the contests. While Friday was somewhat dull and cloudy, Saturday was gloriously fine, and it was consequently not surprising that the promise of some fine racing over the flying kilometre, over which all the races except the matches and the Darracq and Clipper cup events were run, brought together an unusually large yet orderly crowd to the promenade. Not only did the local residents turn out, but train after train brought in interested visitors from the many industrial centres in Lancashire. In the afternoon the course was thickly lined on both sides from end to end, the grand stand was packed, and the twenty tramcars, which had been poorly favoured on the preceding day, each had its full quota of spectators. The sight was a pleasurable one to the Blackpool authorities, who, accustomed as they are to thousands of visitors in the summer, have never before seen so many people in their midst in the month of October. Various estimates were made as to the number of people who witnessed the race, the general opinion being that there were not less than between 50,000 and 60,000 spectators.

As there was a big programme to get through, it was decided to make an early start, and shortly after 9.30 a.m. the competitors in Class Q—motor-cycles weighing under 170 lbs.—were marshalled up. There were in all nine riders, an addition to the previous day's list being Mr. Binks on a Binks four-cylinerd machine, which, however, did not show any great speed. T. H. Tessier on his 4½-h.p. Bat again proved invincible, his time for the flying kilometre being 36 3-5 sec., equal to 61·6 miles per hour. J. F. Crundall (Humber) was second in 39 4-5 sec., and H. Rignold (4½-h.p. Lagonda) third in 41 sec. Class R, for motor-cycles of any weight, brought out a field of six riders, Tessier again proving the victor and improving his time to 35 3-5 sec., with Crundall second in 39 2-5 sec., and E. T. Jones (Humber) third in 42 sec.

Attention was next given to Class S, for cars to carry not less than two passengers and costing £250 and under. Altogether ten vehicles competed, the best time being made by Mr. A. J. Dew on a 10-h.p. Speedwell, who covered the flying kilometre in 1 min. 2 1-5 sec., equal to about thirty-six miles per hour. The second place was secured by Mr. J. S. Bennett on an 8½-h.p. Cadillac in 1 min. 3 4-5 sec. Mr. J. Lisle on a 7-h.p. Star being third in 1 min. 9 sec. The slowest car in this class covered the flying kilometre at a rate of 27 miles per hour, so that it may be said that the various vehicles costing under £250 acquitted themselves well from a speed point of view.

No less than 19 competitors turned out in Class T—car to carry four passengers and costing under £500. There was, however, considerable variation in the speed attained, the times for the kilometre varying from 48 1-5 sec. to 1 min. 9 4-5 sec. Several close finishes served to arouse the interest of the spectators, notably a race between a 12-h.p. Pipe and a 12-h.p. Star, only 3-5 sec. separating the two at the finish. In the end, the event resulted in a victory for Mr. J. R. Richmond's 15-h.p. Darracq, time 48 1-5 sec., or about 46 miles per hour, Mr. J. Keele being second on a similar car in 51 4-5 sec., and Mr. W. J. Duck third on a 20-h.p. Weston in 54 1-5 sec. The next event was a competition between the four types of Darracq cars, 12-h.p., 15-h.p., 24-h.p., and 30-h.p., for a 100 guinea challenge cup presented by the Darracq Company to be run off annually over a mile course from a standing start, the cup to become the absolute property of any person winning it three years in succession. The cup was run for in classes according to horse power, the winners of each



Mr. A. Rawlinson on the 100-h.p. Darracq Racer.

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class being handicapped together, and running off in a final. In addition to the challenge cup, the Darracq Company also presented a cup value £10 to the winner, and cups to the value of £5 each to the winners of the other classes. Altogether four 12-h.p., six 15-h.p., and two 30-h.p. cars competed. Mr. H. Kennedy's 12-h.p. vehicle won in 1 min. 43 sec.; Mr. Huntley Walker's 30-h.p. car was second, 1 min. 49 2-5 sec.; and Mr. F. C. Noar's 15-h.p. third.

Interlarded between the programme events was a series of matches, which added much to the enjoyment of the spectators, owing to the exciting finishes. The first one was between Mr. Charles Cordingley's 60-h.p. Mercedes and Mr. W. D. Coddington's 12-h.p. Lanchester over the flying kilometre, the former allowing the latter 1 min. start. It was too big a handicap for the distance, and the Mercedes was beaten by forty yards, the time being 1 min. 9 2-5 sec., as against 36 sec. by the Mercedes. Mr. Cordingley also made a match over the standing mile against Mr. Andrew Fletcher's 60-h.p. Mercedes, which he beat by 8 sec., doing 1 min. 7 2-5 sec., 53½ miles an hour, thus winning the "Andrew Fletcher Cup." In a race between Mr. Miller's 60-h.p. Fiat and Mr. Cordingley's 60-h.p. Mercedes, the latter was again successful. The concluding match was for £50 a side between Mr. F. Birtwistle's 24-h.p. De Dietrich and Mr. E. Instone's 28-h.p. Daimler. The Daimler won by 100 yards, covering the flying kilometre in 43 4-5 sec., against the De Dietrich's 55 3-5 sec.

After an adjournment for lunch, the bugler called up the fourteen competitors in Class V—cars carrying four passengers, and costing under £750, the result being shown below:—



The Scene at the Starting Point.

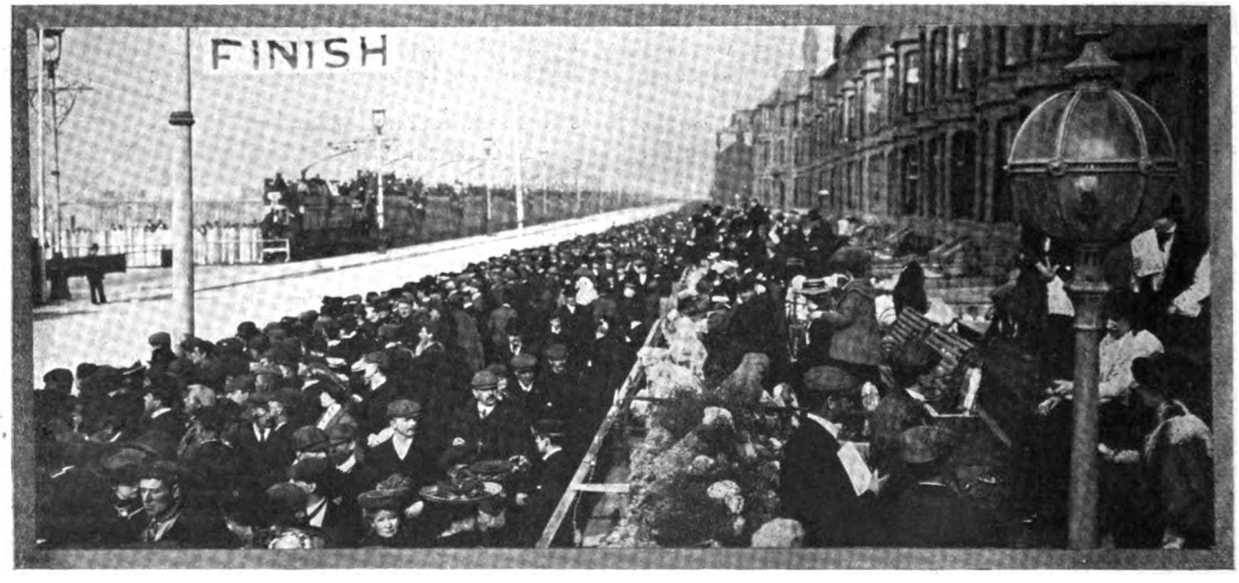


Photo by] The Crowd at the Finishing Point. [R. Banks.

No.	Name.	Car.	Time m.	s.
1	Huntley Walker ...	30-h.p. Darracq	45	4-5
2	J. D. Higgin ...	... 20-h.p. Darracq	47	4-5
3	H. Flyn... ...	... 20-h.p. Thornycroft ...	49	2-5
4	C. Watney ...	... 20-h.p. Pipe	49	3-5
5	G. Lorenzen ...	... 24-h.p. Beaufort	50	
6	E. H. Lancaster	... 20-h.p. Clement	53	3-5
7	H. Wood ...	... 16-18-h.p. Sunbeam ...	54	4-5
8	A. Rawlinson ...	... 30-h.p. Darracq	57	
9	R. Jackson ...	... 24-h.p. Eagle	1	0 3-5

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No.	Name.	Car.	Time. m. s.
10	A. J. Clay	20-h.p. Rykniel... ...	1 0 4-5
11	S. F. Heyl-Dia ...	20-h.p. Newton Pearce...	1 1 2-5
12	P. A. Bell	24-h.p. Bell	1 1 4-5
13	W. D. Coddington ...	12-h.p. Lanchester ...	1 5 1-5
14	C. E. Oliver	15-h.p. C.G.V.	1 12 1-5

Some excellent racing was witnessed in Class W—cars carrying four passengers and costing under £1,200. There were altogether ten competitors, the times ranging from 40 3-5 sec. to 54 3-5 sec. The first place was taken by a 40-h.p. Leon Bollee in 40 3-5 sec., Miss Levitt on a 20-h.p. Napier being second in 42 1-5 sec., and Mr. S. Ormerod's 19-h.p. Mors third in 44 3-5 sec. With the advent of Class X—for four-seated cars, irrespective of cost—the crowd settled down to its long-awaited display of fast travelling. Nor were they disappointed. The competitors included three 60-h.p. Mercedes, a 40-h.p. C.G.V., a 45-h p. and a 24-28-h.p. Leon Bollèe and a 36-h.p. Spyker. Mr. L. Williamson proved to be the winner, he covering the flying kilometre on his 60-h.p. Mercedes in 33 2-5 sec., beating Mr. Cordingley's car of the same make and power by exactly a second, the latter being classed second. The third place was secured by the Elsworth Co.'s 36-h.p. Spyker, the time 38 3-5 sec.

The special contest for a cup presented by the Clipper Tyre Company was next held. This was a standing mile handicap contest between touring cars of 20-h.p. and upwards, the competition being open to p.ivate owners only, who had to drive their cars themselves. Mr. L. Williamson (60-h.p. Mercedes) was on scratch, Mr. A. Fletcher (60-h.p. Mercedes) having five seconds, Mr. F. Birtwistle (24-h.p. Dietrich) 15 seconds, and Mr. T. Thornycroft 30 seconds. The handicap allowances were given in despatching the cars, the first past the post winning. In the first round Mr. F. Birtwistle did 1 min. 55 sec., Mr. L. Williamson 1 min. 9 3-5 sec., Mr. Thornycroft 1 min. 34 3-5 sec., and Mr. A. Fletcher 1 min. 12 4-5 sec. In the final Mr. Thornycroft won by a yard from Mr. Williamson in 1 min. 33 1-5 sec., the loser's time being 1 min. 4 1-5 sec. The two cars crossed the tape almost together, amid great excitement, as the Mercedes was gaining ground very rapidly, and if the course had been but a yard or so longer Mr. Williamson would have undoubtedly won. The excitement was increased by the fact that just as the two cars had crossed the finishing line practically side by side, a big dog ran on to the track, right into Mr. Williamson's car. It was instantly killed; fortunately the car was not deflected from its course, otherwise the consequences would have been most serious, a collision being almost inevitable.

The last item on the programme had now been reached, and the crowd prepared to thoroughly enjoy the exhibition of speed in store for them. A crackling as of artillery fire gave warning that the fast racing machines were making their way to the starting point. They carried no horns to warn people to make way for them; the banging of the exhaust was in itself an alarm that made stragglers in the roadway bound to the pavement. The cars were run singly, and Mr. A. Rawlinson's 100-h.p. Darracq, the most sensational racer of the group on account of the terrific noise it made, took the opening spin over the course. Its speed was 82·49 miles. Then came Mr. Clifford Earp, driving an 80-h.p. Napier, he making the best time of the day, covering the flying kilometre in 26 2-5 sec. His speed works out at 84·68 miles per hour, which ties with that achieved by the Hon. C. S. Rolls at Welbeck, on a course which has a much slower surface than that at Blackpool, but is slightly downhill. Most of the cars made several trips over the course, Mr. Rawlinson, Mr. Rolls, and Mr. Earp in particular striving to beat the British record, which the latter had tied. Mr. Rolls' Mors, the same car as made record at Welbeck, ran very badly in its first two attempts, and then suddenly improved, he succeeding in covering the course in 26 3-5 sec., or only a second slower than Mr. Earp. The following are the performances:—

Driver.	Car.	M.p.h.	M.p.h.	M.p.h.	M.p.h.
C. Earp ...	80-h.p. Napier ...	84·68	82·80	80·42	81·58
A. Fletcher ...	90-h.p. Mercedes ...	79·27	69	—	—
A. Callan ...	96.-h.p. Wolseley ...	67·74	61·43	63·51	—
G. Higginbotham	96-h.p. Wolseley ...	76·55	—	—	—
A. Rawlinson...	100-h.p. Darracq ...	82·49	80·42	82·80	79·27
C. S. Rolls ...	100-h.p. Mors ...	46·57	54·26	84·04	78·16

A rush was then made for the grand stand, where the Mayoress, Mrs. G. Blundell, distributed the handsome cups to the winners of the various events, and thus ended what had undoubtedly proved the most successful motor meet so far held in this country, either from the point of view of the number of entries, the public interest, or the speeds attained. Although one or two points could be improved upon, especially as regards the telephonic time-keeping arrangements, which got somewhat deranged on the second day, Mr. G. H. Woods, the hon. secretary, Mr. Huntley Walker and the other members of the Committee deserve warm commendation upon the success of their first meeting. Beyond the killing of a dog, and a slight collision between two of the cars, the two days' meet passed off entirely without accident. It remains to be added that Colonel Holden and Mr. Mervyn O'Gorman acted as judges; the times were taken by Messrs. J. H. Woollen, A. V. Ebblewight, F. Straight, and J. H. Swindley. The cars were marshalled at the starting point by Sir Archibald Macdonald and Mr. Charles Jarrott, Mr. E. Shrapnell Smith being the starter. The Blackpool Corporation spared no pains to make the meeting a success, and are already contemplating holding another meet next year.

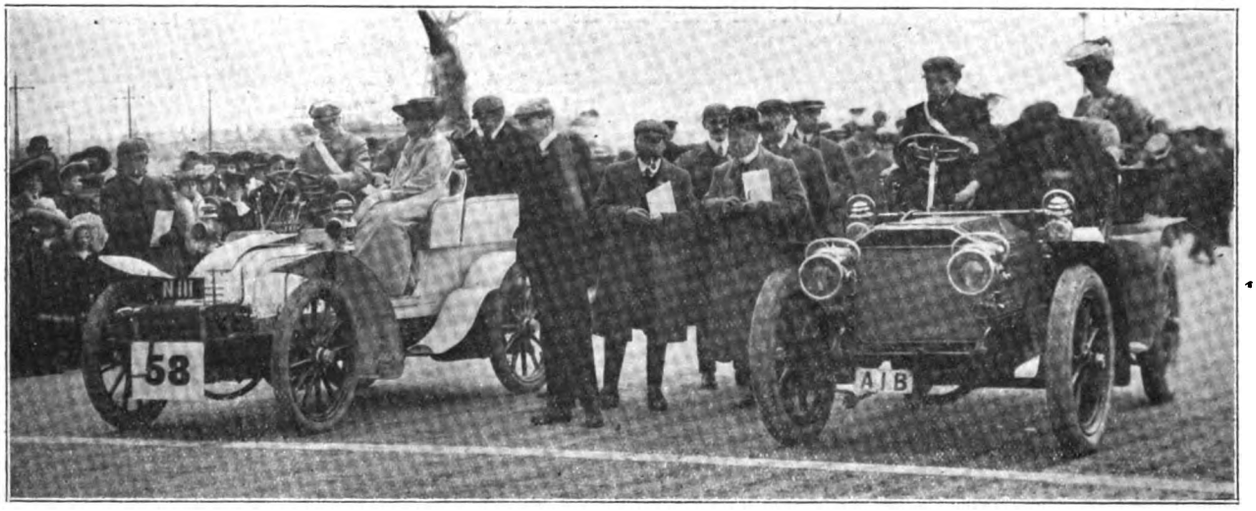


Photo by] Mr. C. E. Oliver's 15-h.p. C.G.V. and Mr. G. Lorenzen's 24-h.p. Beaufort ready to start. *[Arjent Archer.*

WHEN leaving the car at night, or for any length of time, make it a practice to shut off the petrol supply. If this is not done, and if there is a leak, or a flooded carburettor, a fire may be caused by someone carelessly tossing a burning match under the car.

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THE BLACKPOOL SPEED TRIALS.

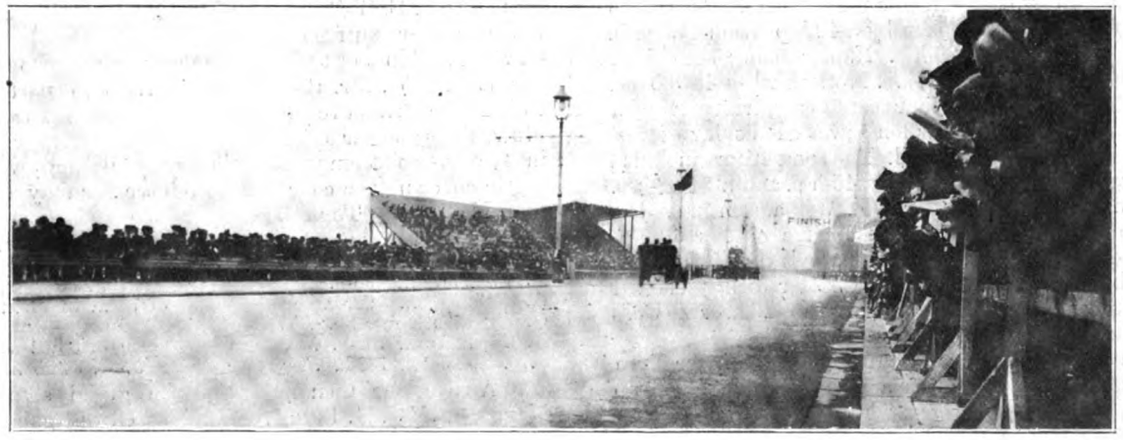


Photo by] View of the Course near the Grand Stand. *[R. Banks.*



The Start of the Motor-cycle Competitors.



Mr. L. Williamson, Miss D. Hampson, and Mr. C. Cordingley out for an early morning spin on their 60-h.p. Mercedes Cars.

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CONTINENTAL NOTES.

The Chateau-Thierry Hill Climb.

The annual hill-climbing competition, to be run off at Chateau-Thierry on Sunday next, is this year being restricted to touring vehicles. So far only about thirty-five entries have been received, the leading firms being conspicuous by their absence from the list.

The Gaillon Hill Climb.

All motorists will remember the hill of "Gaillon," which for some few years past has been the scene of hill-climbing trials in the vicinity of Paris. The hill, although commonly named as above, rejoices really in the aristocratic title of "Sainte-Barbesous-Gaillon," and the competition was originally organised by the "Velo" in December, 1899. This year the event is to be reserved entirely to racing vehicles, which will make the climb on the 30th inst. So far, however, only three Gardner-Serpollet steam cars have been entered.

Motor-Boating in France.

With the object of furthering the motor-boat movement in France, a Chambre Syndicale de la Navigation Automobile has just been formed in Paris. Among the objects of the new body are the unification of the rules at present in force concerning automobile navigation, and of establishing for France a single gauge, and later an international gauge. M. A. Vedrine has been elected president, the vice-presidents being M. Varlet and M. Pitre, and the secretary and treasurer M. Pabanel.

Transmission Gear Efficiency Tests.

The comparative tests of transmission gear efficiency, which were to be held this month in the mechanical testing laboratory of the Conservatoire National des Arts et Metiers in Paris, have at the request of several manufacturers been postponed until January next. The object of these tests is to determine which types of transmission gear deliver the greatest percentage of power of the motor to the wheel rims, and the tests ought to give a good idea of the differences in efficiency between plain and ball bearings, and bevel gear and chain transmission, &c. In connection with the trials the French Automobile Club is offering medals for (1) the chain-driven car showing the highest efficiency, (2) ditto for bevel gear-driven cars, (3) the most efficient motor lorry with a variable speed gear, and (4) details of transmission earning special mention.

A Dirigible Balloon Competition.

A dirigible balloon competition is being organised in connection with the Liége International Exhibition, to be held next year. The tests will be held under the auspices of the Belgian Aero Club, between August 15th and October 15th, 1905. A prize of £4,000 is offered to the competitor who succeeds in making the journey from Liége to Spa and back twice. The distance between the two places is 26 kilometres.

A New German Car.

The Grafenstaden Engineering Works at Strasburg are taking up the construction of a new type of motor-car designed by Herr E. Bugatti, formerly with the German De Dietrich Company. The vehicles are to be known as the "Hermes-Simplex," and it is announced that a racing car is to be built for the eliminating trials for the German 1905 Gordon Bennett team.

A Big Contract.

It is announced from Brussels that the Pipe Company has secured a contract from an Italian syndicate for no less than 600 Pipe cars, part to have van bodies and the remainder to have two bodies each, so that they may be used either as lorries or public service vehicles.

Motor-boat Racing on the Seine.

A series of motor-boat races for the "Auto" Cup was held on the Seine at Maisons Lafitte on Sunday last. The cruiser section was won by M. Luce's Titan I., with Delahaye engine, its time for 50 kilometres being 2 h. 5 min. 55 sec. M. Tellier's La Rapee III., with 90-h.p. Panhard engine, secured the cup for racers by covering 100 kilometres in 2 h. 23 min 3 sec. The meeting was unfortunately attended by a disaster, the Mercedes I.A.F. being sunk with the mechanician on board. The accident is attributed to the narrowness of the river and the tremendous swirl set up by the action of the propellers of the competing vessels. Five boats had lined up for the start. On the pistol being fired they dashed off at a great pace, and before they could get clear of one another one vessel was bumped violently against the Mercedes, which was swamped and went down. The steersman managed to jump clear and swim ashore, but the mechanician was carried down with the boat and his body was not recovered until Monday.

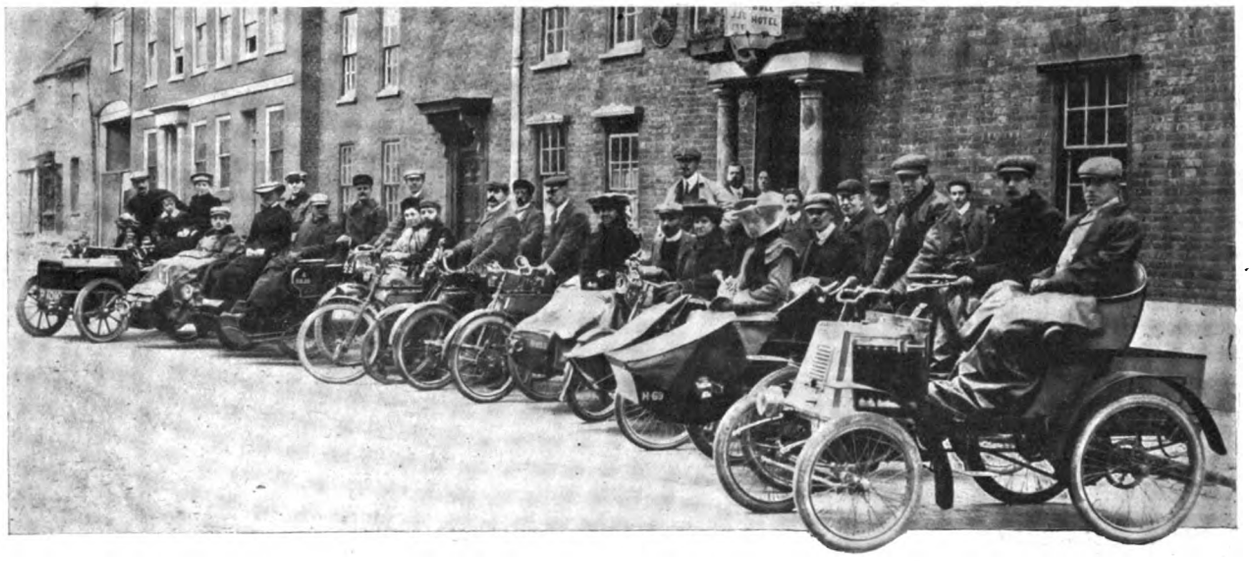


Photo by] The Motor-Cycle Club's closing Run for the 1904 Season. At the Bull Hotel, Redbourne, on Sunday last. *[E. W. Ashworth.*

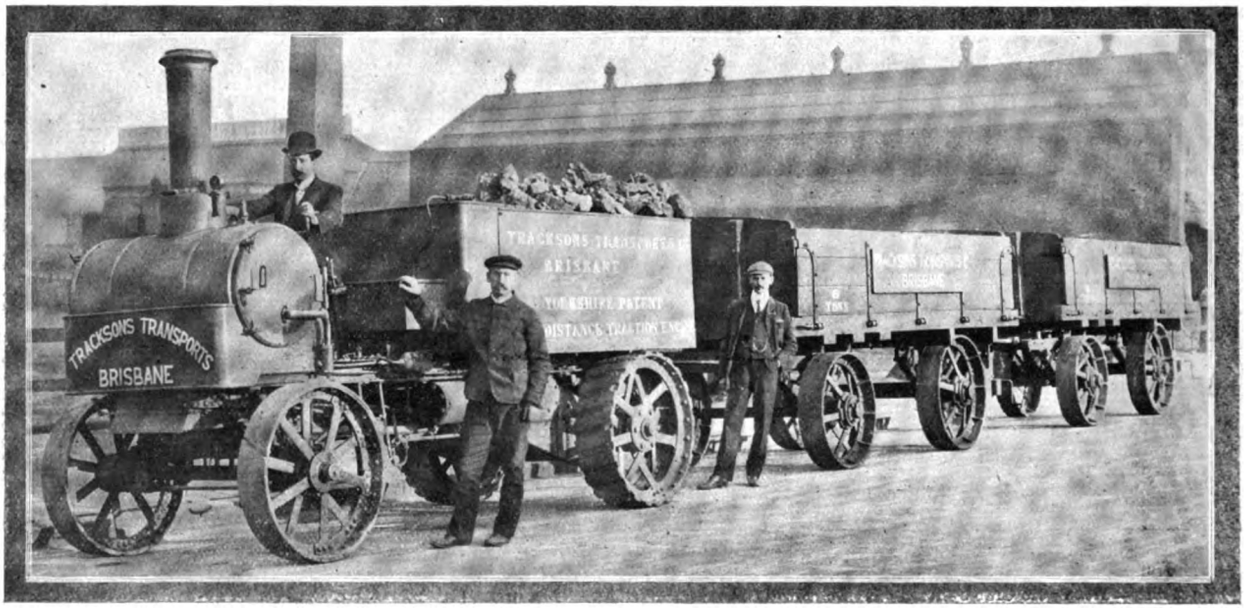
THE United Motor Industries, Limited, have taken large additional premises in Poland Street, London, W., which will be devoted entirely to storing and packing, while new workshops will enable them to execute all commands. In addition they will open next month a branch at the Sherbourne Works, Gosford Street, Coventry. All correspondence, however, should be addressed to 45, Great Marlborough Street, W., as hitherto.

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COLD WEATHER PRECAUTIONS.

THERE is now a nip in the air which reminds us that the glories of summer are once again departing, and those motorists whose experience does not yet include winter use of their vehicles will probably welcome a few remarks on the special precautions necessary in their operation at this season of the year. Carelessness in leaving steam and petrol vehicles exposed to freezing temperatures with water in the tanks has been the cause of much annoyance in the past, and users are especially liable to suffer from this trouble at the beginning of the cold season, when a sudden drop in temperature often comes unexpectedly. In petrol vehicles the cracking of the engine cylinders is the most serious result of this oversight. With steam cars the piping and tanks are sure to burst if the water is allowed to freeze. In the case of petrol vehicles an efficient method of preventing the water from freezing at temperatures below the freezing point is to add glycerine in the proportion of about one part to every five of water. Calcium chloride is also a good specific against freezing, and by many is thought to be superior to glycerine. Probably the chloride of calcium will cause the water to withstand a somewhat lower temperature without freezing, but if it is impure it may cause corrosion in the water tanks or piping. It should therefore be obtained as chemically pure as possible. Various suggestions have been made to neutralize the presence of any acid in commercial chloride of calcium by the addition of some suitable alkali, such as potash, soda, or lime. Whether their effect would in time be detrimental in any way to the circulating system, we are not prepared to say definitely, but it is reasonable to state that they counteract the action of any acids present and probably without deleterious effects. A good solution density is obtained by using 5 pounds of hydrated calcium chloride crystals to 1 gallon of water. This solution will not freeze above zero Fahrenheit. A proportion of 8 pounds to the gallon is recommended by one authority, but in most cases the weaker solution is preferable, as there is less danger of too much water being allowed to evaporate and of trouble caused by crystals forming in the pipes and preventing circulation. Fresh water should be added frequently to keep the system filled and the solution at its normal density. Many owners prefer, of course, to go through the winter without using a non-freezing mixture, simply drawing off the circulation water, arguing that for the limited use they make of a car it is not worth while going to the bother and expense. In this case, however, pains must be taken to see that the draining of the pipes, tanks, etc., is done thoroughly, for a few drops of water left behind will do almost as much damage as a large quantity. A burst is a burst, and it will sometimes cost just as much to repair the ravages of one caused by imperfect draining of the water receptacles as one due to the neglect to take any precautions whatever. As long as a car is kept in commission through the winter it ought to be looked after properly; and there can be but one way of thinking about the matter of freezing, *i.e.*, that an ounce of prevention is worth a pound of cure.

Steam cars must not be exposed, when not in use, for any length of time to freezing temperatures. When left in the motor-house either all the water must be drawn from the tanks or else the house must be heated, the latter being probably the method most generally employed by steam-car owners. At periods of extreme cold lubricating oils have a greater viscosity than during the warm season, and to feed the oil at the same rate requires, therefore, a greater opening of the lubricator. When there is snow on the ground the traction or adhesion of the wheels is naturally reduced, and the liability to skid or side slip is increased. The same conditions prevail when frost sets in shortly after rain, and in all such cases special care in driving is necessary.



A Transport Train for Queensland. (*See page* 705.)

SIR JOHN DORINGTON, Bart., has become a motorist, his car having been delivered last week.

THE 40-h.p. Leon Bollée which won two silver medals in the touring classes at Blackpool has been sold to Lord Howard de Walden.

THE motor lamps exhibited by Mr. G. Ducellier at the International Show at St. Louis have received a diploma of "Hors Concours." Mr. Andre Godin personally put up M. Ducellier's exhibit at St. Louis while he was in the United States.

THE premises of Messrs. Sydney Lee and Co., Limited, in Furnival Street, Holborn, have been acquired by H.M. Government for the Patent Office, and the firm of auctioneers have opened new offices at 31, Brooke Street, Holborn, E.C. Messrs. Sydney Lee and Co. are about to erect large motor and engineering salerooms in the vicinity of Gray's Inn Road, W.C.

CAPTAIN THEO MASUI, who has introduced the Samson leather tread to the English market, has just issued a new price list and catalogue. A considerable reduction has taken place in the price of these treads, and a complete Samson outer cover, consisting of a Samson leather tread vulcanized on to a motor tyre casing, can be obtained at a price which is only moderately in excess of an ordinary outer cover.

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SOME USEFUL NOTES.

We shall be glad to receive contributions for this column from motorists of experience. Suggestions and hints, briefly expressed, may prove valuable not only to novices, but also to many who have passed the early stages of practical automobilism.

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It is not often that a piston cracks, but it has happened, and if a case of want of compression should occur, and all the valves, etc., are perfect, remove the cylinder. Then scrape the deposit off the top of the piston, and a crack may be found, the mystery then being solved.

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The brakes of a motor-car may in various respects be compared to the safety valve of a steam boiler. Both are safety appliances, and must, to be reliable, be adjusted perfectly and kept in perfect repair. In stationary steam plants the safety valve is periodically lifted off its seat by the engineer or fireman to insure its not sticking to the seat by rusting, and thus giving a false sense of security. Similarly the brakes of automobiles, especially those running in hilly districts, should be examined periodically by their owners.

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Most motorists have suffered at one time or another from burnt fingers after some necessary adjustment to a hot motor. A good way of minimising the chance of this is to cover the exhaust and water pipes, in such places where the hand or arm may touch them when groping after valve-springs, lifter, and the like, with a lagging of asbestos. This may be easily applied by wetting a strip of asbestos card, cut to suitable size, and coiling it round the pipe; when dry, it will adhere sufficiently. Of course, it is inadvisable to cover the pipe more than necessary.

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While on the subject of burns it may be useful to mention a valuable remedy, perhaps not universally familiar, namely, a strong aqueous solution of picric acid. This at once removes pain and to a great extent prevents blisters, at the expense merely of dyeing the affected part, for several days, of a colour that will probably match the wheels of the car.

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When sparking plugs are located in the cylinder in such a way that it is necessary, in order to remove them, to use a "box" or "socket" spanner, care must be taken that the spanner does not come in contact with the metal tip on the end of the porcelain, because if it presses against this tip or against the porcelain even lightly it is almost sure to crack the latter. For the same reason it is well to remove the thumb nut or screw which fastens the wire to the plug terminal. On some kinds of plugs the nut or screw is so large that it is almost impossible to put a box spanner on the plug without cramping the nut, and so cracking the porcelain. When connecting the wire to the plug, this screw or nut should be tightened up with the fingers, as, if pliers are used, the central wire which goes through the porcelain is likely to be twisted and loosened. On other types of plugs the binding screws are slotted so that a screwdriver can be used to tighten or loosen the screws. With these the screwdriver used should be a small one and handled with care.

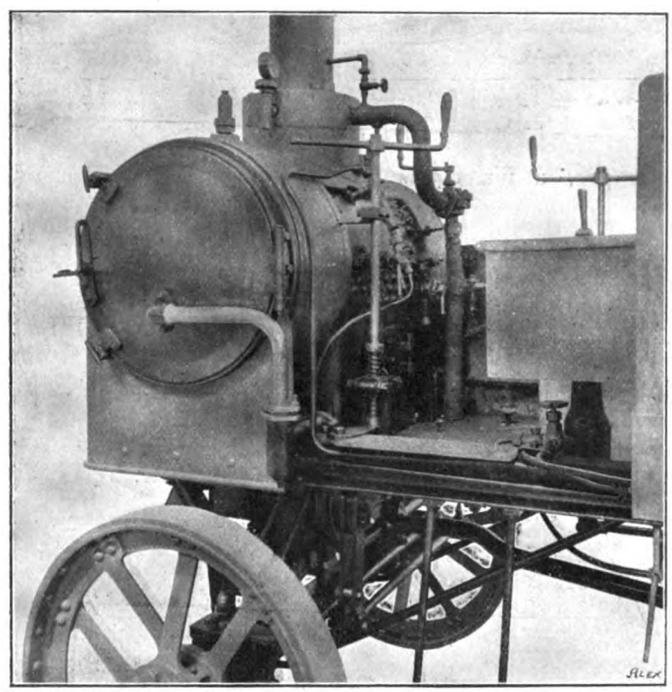
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Often when a motorist has run up to, and come to a rest at, a point at which he desires to stop on top speed, a little difficulty will be found in returning the change speed lever to the neutral notch in the quadrant. This is due to the fact that the teeth of the toothed wheels on the sliding sleeve on the clutch shaft do not at the moment exactly coincide with the spaces between the toothed wheels on the gear-shaft, and the wheels will not pass each other. Of course, the clutch can be let in slightly, which would alter their position with regard to each other, but not infrequently the teeth still foul. The depression of the brake pedal, however, and the consequent grip of the brake bands on the drum, will, permitted by the slight play in the driving shaft, cause the gear-shaft to move just enough to permit the passage of the wheels on the sliding sleeve through their fellows, and allow the neutral notch to be at once attained.

STEAM TRANSPORT IN QUEENSLAND.

That the automobile is being regarded by the railway companies as a feeder rather than an enemy of their prosperity is becoming increasingly apparent in this country, and now the Australian railways are beginning to realise that it is to their advantage to encourage the use of mechanical traction on the ordinary roads to act as feeders.

For some considerable time Mr. James Trackson, of Brisbane, has been investigating the merits of various traction engines for the development of an idea for assisting the Queensland railways in reaching the agricultural settlements many miles from their lines. After a tour of inspection through the United States, the Continent, and Great Britain, he decided to place his orders in England for the engines required, and the Yorkshire Patent Steam Wagon Co., Ltd., were fortunate enough to secure the contract. We give an illustration on page 704 of the traction engine, which in this country would, of course, be allowed to proceed without the guiding and slowing presence of the man with the red flag—although whether such a wise bye-law prevails in Queensland is a matter of doubt. Some tests were recently



View of Footplate.

made with this traction engine and train on a windy and showery day, the roads selected being good but hilly. The traction engine weighed 5 tons 15 cwts., the load in the trailers was 10 tons, the weight of water and fuel on the traction engine 2 tons, making a total moving weight of 17 tons 15 cwts. In travelling fifteen miles, 228 lbs. of coke were consumed and 159½ gallons of water evaporated, the actual running time being two hours thirty-one minutes. The test was in every way satisfactory and Mr. Trackson is of opinion that the engines will be equally successful on the Australian roads. The maximum weight to be drawn is twelve tons at a rate of eight miles per hour. A trial mile was covered in 4¾ minutes.

The idea is that these traction engines will haul all kinds of produce, wool, horns, hides, etc., and that the Queensland Railway authorities will be able to quote through freights from the agricultural settlements to any railway station. There is no doubt a great future for such an enterprise, and the way in which the Queensland service is being initiated leads to the hope that large developments will early be made. Trackson Brothers, Limited, engineers, of Brisbane, are the sole representatives for these transports.

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MOTOR CYCLING NEWS.

THE Croydon Motor Club held a Reliability Trial on Tuesday with a non-stop run to Brighton and back, starting from the headquarters. The first prize was a special gold medal, winner to also hold the "Brown" trophy—presented by the president, Mr. C. W. Brown—for twelve months. There were



The Start of the Croydon Motor Club's Reliability Trial on Tuesday.

nine entries, but the general unfavourable condition of the roads reduced the actual number of starters to five, amongst those being Messrs. Bradbury Brothers, twin-cylinder Corydons; Mr. H. Martin, Excelsior; and Mr. E. J. Steel, Rover. Mr. C. W. Brown acted as starter and timekeeper, and the start was effected soon after eight a.m. from the Swan and Sugarloaf Hotel, a slight deviation from the actual route being taken to avoid the treacherous tram-lines to Purley. Mr. F. Bradbury dropped out at Crawley on the outward



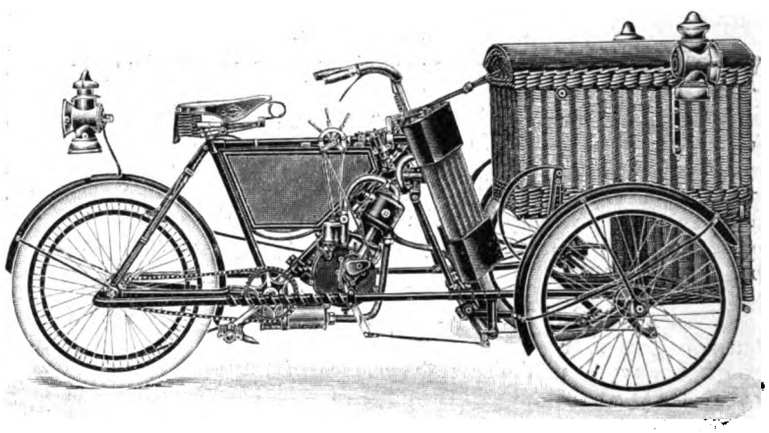
A Military Motor Cyclist in the recent Dutch Manœuvres.

journey, while his brother gave up the contest soon after leaving Patcham on the return home. Messrs. Steel and Martin arrived back with the full complement of marks, and it was decided to run off this dead heat. The run off was a repetition of the first, except that Mr. Steel had to dismount in consequence of an obstruction from cattle, one mark being deducted for this traffic stop. Unless the matter should come up for further adjudication, Mr. Martin receives the first gold medal, and holds the cup for the second year in succession, while Mr. E. J. Steel takes the second prize. The hill-climbing competition was contested the following day (Wednesday) in the neighbourhood of Addington.

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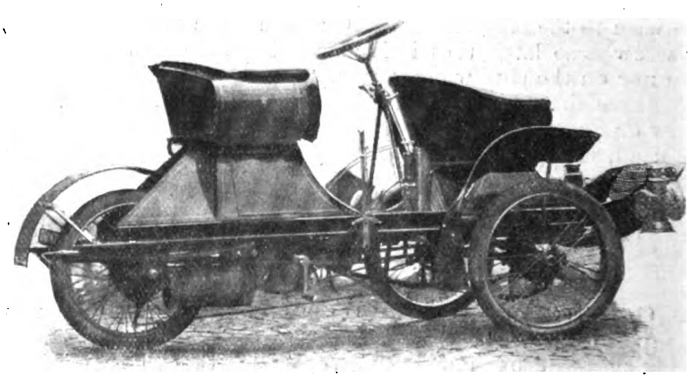
THE first motor-bicycle race ever held in Roumania was run off a few days ago. The course was from Bucharest to Ploesti and back, a distance of 74 miles, which was covered by the winner, M. Bastiani, in 2 hrs. 33 min.

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THE Hubbards Motor and Engineering Company, Limited, of Coventry, has for some time been devoting attention to the production of a serviceable motor-cycle carrier, and has now put on the market the machine shown in the accompanying illustration. The motive power is supplied by a 3½-h.p. water-cooled engine, fitted with radiator and thermo-siphon water cooling. The transmission is by means of a ½-in. flat belt, a clutch being provided in connection with the driving pulley to give a free engine when desired. The wicker basket parcel-carrier has a waterproof top and is securely hung on springs; its dimensions are: length, 2 ft. 9 in.; width, 1 ft. 9 in.; and depth, 1 ft. 9 in. A small compartment is provided for the storage of tools, while the basket is so arranged that it can readily be removed and a passenger's seat substituted, converting the machine into an ordinary tri car.

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The 1905 Rexette, with suspension frame. This little car has a 5-h.p. motor and two-speed gear. Its steering gear, brake mechanism, and clutch are on the same lines as on an ordinary car.

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A MEETING of the Metropolitan District Association of the Cyclist Touring Club is to be held at the Society of Arts, John-street, Adelphi, London, W.C., on Wednesday next, when Mr. Basil Crump will give a lecture, with limelight views, on "The Possibilities of the Double-seated Motor-tricycle, with Notes on Continental Touring."

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HERE AND THERE.

A MOTOR-TRAIN service is being established between Dublin and Howth.

MESSRS. FRISWELL, LIMITED, will hold an auction sale on Tuesday next, the 25th inst., at Southsea, on the premises of Messrs. G. H. Cox, Limited, 41, Castle Road.

MR. G. GOLDSCHMIDT, who is the agent for the "Zanardini" motor lamps, and sole concessionnaire for the "Jupiter" headlights, has taken up Merz's motor goggles with patent capsules. His new catalogue is nearly ready.

FOR the first time in many months, the exports of automobiles and parts from the United States, during August last, showed a decrease, the shipments attaining a value of £33,660, as contrasted with £34,226 in the corresponding month of 1903. For the eight months ending with August the figures are £264,499, as compared with £209,862 for the same period a year ago.

HEREWITH we illustrate one of the latest Argyll light delivery vans, built by the Hozier Engineering Company, Limited. The engine is a two-cylinder Aster, 88 mm. bore by 140 mm. stroke, fitted with mechanically operated inlet valves developing 13-b.h.p. A Longuemare carburettor is fitted; also a large honeycomb radiator with fan, the radiator being large enough to obviate the necessity of any other water tank. The gearing is the well-known Govan type, which has secured so many



awards. The body, which is designed to carry a load of 15 cwt. at a speed of fifteen miles per hour, is strongly made with thoroughly seasoned timbers. Its dimensions are:—Length, 5 ft. 5 in.; height, 4 ft. 9 in.; and width, 4 ft. 2 in. The wheels are of the artillery pattern, 30 in. diameter, Sirdar 3 in. solid rubber tyres being fitted to the back wheels, and Michelin pneumatic to the front wheels. The wheel base of the car is 8 ft. and the track 4 ft. The approximate weight of the complete vehicle is 16 cwt.

ONE of the most original experiments to discover or demonstrate the pulling power of an automobile was recently conducted by the experimental department of the Olds Motor Works in Detroit, U.S.A. A 10-h.p. Oldsmobile light tonneau was coupled to an electric tramcar, the trolley of which was held off the overhead conductor. The route was then followed until the tramcar was filled with passengers, fifty-one in all. Although the weight of the tramcar, with its passengers, was over 12 tons, the Oldsmobile succeeded in towing it at a good rate of speed.

THE long non-stop run on a small Clement-Talbot car, seating four persons, has been very successfully accomplished. The original distance of 600 miles was completed in 36 h. 10 min., an average of 16·59 miles per hour. 1,000 miles of actual running were accomplished in 54 h. 5 min., equal to 18·49 miles per hour. 1,000 miles full time occupied 61 h. 20 min., while 1,033 miles full time occupied 64 h. 5 min., an average of 15·949 miles per hour. After completing the 1,000 miles run, the vehicle, which remained throughout in excellent order, successfully climbed the Westerham Hill.

AT Swansea the two Oldsmobiles, now on the last 1,000 of their 3,000 miles tour, obtained a fresh stock of motor spirit, oils, etc, from Mr. Pryce Trow's garage.

UNDER the style of Osborn and Lord, a new firm of automobile engineers and agents has just been established at 33A, Broadway, Hammersmith. Both gentlemen are well known in the motoring world, Mr. F. J. Osborn having been connected with Messrs. Panhard and Levassor, whilst Mr. W. T. Lord was for two years manager for Messrs. C. S. Rolls and Co. New repair



The Non-Stop Run of the 9-h.p. Gladiator. The Car in Broad Street, Hereford. (*See page 687 last issue.*)

works have been erected at the side of the Empire Theatre at Shepherd's Bush, and these have been equipped with modern machinery, enabling all classes of motor repairs to be undertaken.

AT the Bucks Quarter Sessions on Tuesday, a labourer was charged with attempting to do bodily harm to Mr. William Partridge, who was driving his motor-car along the Bath road one Sunday night in June, when he saw a wire stretched across the road and attached to telegraph poles. Fortunately he had time to apply the brakes and to push the wire underneath his steering wheel. The case was dismissed.

THE photograph reproduced herewith depicts an "Orion" petrol motor-lorry lately supplied by Messrs Moss and Woodd to Messrs. Blundell, Spence and Company, Limited, colour and paint manufacturers, Hull. The lorry has been in regular work



for nearly three months, making six to seven short journeys daily in somewhat less than half the time that the horse-drawn vehicles take for the same journeys.

MR. ELLIS LEVER calls attention to the necessity for local authorities bestirring themselves in the direction of widening the existing narrow and congested highways of the country and constructing new means of communication. He advises those interested to go to Colwyn Bay to see what can be done by a progressive local authority at road-making, promenade-building, and tree-planting.

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CORRESPONDENCE.

DOCTORS AND MOTOR-CARS.

To the Editor of *The Motor-Car Journal.*

Sir,—The motor-car has received, even in its comparatively early years, so much attention that little now remains to be said *pro* or *con.* But, like any live subject that is with us to stay, the great mass of arguments will bear repeating many times; and, therefore, the only excuse for this letter is to help to "hammer in" some accepted and important facts, with particular reference to the use of the motor-driven vehicle by physicians. It is admitted on all sides that the motor-car has come to stay, and is even now an important factor in the pleasure and the commercial worlds. The question often asked is what are the advantages of the motor-car? Well, anyone who has motored will say it is the greatest of pastimes. It is exhilarating, and whatever is exhilarating is conducive to a good body, mentally and physically. A jaunt of a few miles is quite as invigorating as a dip into the sea, and no special locality is necessary. One has only the pure air and bright sunshine. The dust is always left behind. Long distances may be covered, and the individual has the benefit of the ever-changing scenery and also of going somewhere. There is a fascination in a definite journey planned before-hand that is not experienced by simply driving out and back a few miles, as with a horse. Then, too, by this method of travel the natural enemy of man—close, stuffy railway carriages—is avoided. For the busy man and the invalid alike, nothing can compare with a pleasant, rapid run over a well-selected route of fifty or sixty miles, replete with natural scenery or historic interest.

The motor-car is safe. Hundreds of people are killed and maimed for life by the horse, "the friend of man." But we have been educated to the subject, just as we have to the fact that all mules will kick—and expect it. Reports of accidents to motor-cars are overdrawn, and a horse is mixed up in the affair in nine cases out of ten.

For the physician, with a riding practice, the motor-car is well-nigh indispensable in these days of hurry and competition. He can do more business, and do it better. Any physician who has no time to bother with one, is like the man who does not take any (or many) medical journals because he has no time to read them. The physician who has no motor-car has time to "bother" with it. It will save him weeks of time in a year. My car has earned its price many times over. The motor-car is not only a means by which the physician may make his calls in quicker time; it is also a means by which he may start upon them more promptly. Thus the new conveyance may be a very direct means of saving lives.—Yours truly,

A Satisfied Motoring M.D.

BELT TRANSMISSION.

To the Editor of *The Motor-Car Journal.*

Sir,—Referring to "Assam's" letter in the *Journal* of the 8th inst., he has a poor opinion of the numerous enthusiasts of belt transmission. Surely they know something of modern gears. He, however, admits that a perfected belt car can be produced within reach of all; add to this the simplicity, capacity for hard wear, freedom from intricate mechanism and lubrication. I do not see why manufacturers should fight shy of such a vehicle for the man of moderate means, or the novice, who does not want to be bothered with gears, chains, &c., unless it is vested interests in plant and designs. If as much thought and expense had been applied to belt drives as to gears and their numerous associated weaknesses, we should by now have had a large industry on these lines.—Yours truly,

E. B.

To the Editor of *The Motor-Car Journal.*

Sir,—I have read Mr. C. Dent's remark in the last issue of the *Journal* with much interest, and, as one who has had eight years of belt transmission experience, most cordially agree with him. I have now a small F.N. two-cylinder car with a system of belt adjustment that allows me to place any tension on the belts while running by simply turning a key. This is a perfect success and has given no trouble with the belts for twelve months—the time I have had the car. I feel I must, in justice to the makers, also say a word in praise of the engines. I have never had to adjust a nut on them (except the contact breaker) or grind in a valve, and they run magnificently, and the car simply romps up any hill I have ever met, and this with full load—two or three. The car is extra strongly built, with finest finish, and has been much admired. It is silent on top speed, and, as the belts take off all strain on the engin s, their life would be prolonged indefinitely.—Yours truly,

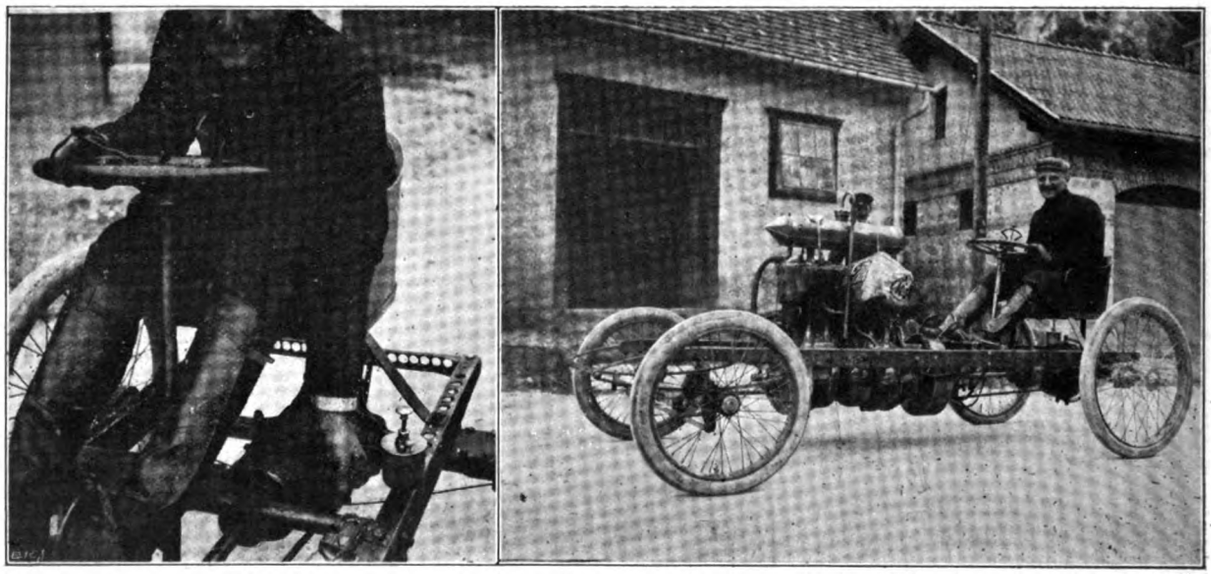
H. Cove.

THE BLACKPOOL SPEED TRIALS.

To the Editor of *The Motor-Car Journal.*

Sir,—The word "automobile" explains itself. It matters not whether a vehicle is propelled by petrol, electricity, oil, or steam—it is an automobile all the same. Therefore, if the races are for automobiles, one kind of car is as eligible for entry as another. On making application to enter my steam car for the Blackpool trials on Monday last, the 10th inst., the entrance fee was taken and my car accepted in Classes C and S (cars value £250 and under), the car being a small 6½-h.p. Stanley. I went over to Blackpool on the 13th inst., as per their printed forms, to obtain the number and permit, and was refused on the grounds that steam would not be allowed to compete against petrol cars. They also asked me to take my entrance fee back. If the Automobile Club of Great Britain and Ireland is for the purpose of advancing automobilism generally, why should this form, namely, steam, be excluded? It would appear that the club is wrongly named, and should have been designated "Petrol Automobile Club." If that had been the case I could not have complained. I think the committee have acted very wrongly and foolishly in disqualifying this little car, and one is driven to the conclusion that they were afraid of it interfering with the success of the petrol cars they have an interest in and the manufactories from which they have been turned out. What is the result?—Yours truly,

B. 339.



The Spitz Light Racer driven by Hieronymous in the recent Hill-climbing Competition at Semmering, Austria. In the left illustration the driver is seen operating the change speed lever. [*Allgemeine Autom.obile Zeitung.*

To the Editor of *The Motor-Car Journal.*

Sir,—While watching the races at Blackpool last week I made the remark to my friend that it was strange no steam cars had entered. Imagine my surprise when he told me he knew of several who had wished to enter, but they had been "barred." "On what grounds?" I inquired. "Ah!" he said, "you evidently don't know much about the trade. You see our shining lights in the motor-car world are all interested in the petrol car, and apparently can arrange matters to suit themselves, hence they shut out the steam car, which goes to prove," said my friend, "that

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they are afraid of it." For the life of me I cannot see why there should be this prejudice. With such cars as the White, Turner-Miesse, and Stanley in the market, and not to allow them to compete with petrol cars is beyond all reason. I take it as long as a vehicle is propelled mechanically it is a motor-car. Then what right have these "sportsmen" to bar the steam car? Perhaps some of your readers will be able to enlighten me.—Yours truly,

DISGUSTED.

THE USE OF THE ACCELERATOR.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—Is it not generally allowed that the proper use of the accelerator is as a resource in reserve, to be brought into action to obtain higher speed on a level road, or in making a rush at a hill, or in changing to a higher speed? I am told by the representative of one of our best firms that the car should be driven "on the accelerator." Can this be right?

I am in much perplexity over a four-cylinder Aster engine fitted to a car I am driving. In making use of the accelerator for getting greater power from the engine, as stated above, so far from accelerating the engine, it slows down, sometimes to the point of stopping altogether, and so it is useless to depend on it in driving in traffic or when half-way up a hill. The engine generally picks up again, but only after a long delay, and when, perhaps, it is no longer required. The action of the accelerator ought to be immediate, and my difficulty is how to account for a long delay before it comes into action.—Yours truly,

A. T.

[The use of the accelerator is for giving extra power when wanted; by opening the same the engine should pick up immediately, unless overpowered on a hill or by too high gearing. With regard to "A. T.'s" trouble, we should think that the spring between the pedal or hand controller is too weak to overcome the governors. If this is strengthened the difficulty will probably be overcome.]

GEAR TROUBLES.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—I have a "Baby Peugeot" car, but am unable to use it, on account of the difficulties in getting the gears in. The heavy preliminary grinding that took place before the gears could be got to engage in a short time completely wore out the first and second speed pinions, which I have had to recently renew. With these new gear wheels the trouble is as great as before, and after one day's work I found the teeth of pinions again so badly worn away that, unless the trouble can be got over, they will again require renewal. Although the gears slide in beautifully when the engine is at rest, at the very lowest speed of the engine excessive and continued jerking on the small gear lever is necessary to get the gear to engage, and usually several attempts have to be made before success, while in the meantime the teeth are being ground off. I shall be obliged for any advice as to how this difficulty can be got over, as at present my car is of no use to me. Possibly some of your readers may be able to help me in the matter. Can you give me the most satisfactory way of hardening gear pinion wheels?—Yours truly,

F. W. B.

SILENCERS.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—I have a 12-h.p. Darracq, and, being desirous of getting it more silent, think of trying a fresh silencer.

I have had the Stanley and the Universal strongly recommended, but perhaps some of your readers could give their practical experience of these or other makes.—Yours truly,

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MOTOR AND HORSE-DRAWN TRAFFIC IN LONDON.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—We have some official facts to set against the prejudiced fancies which exist in the minds of some people in regard to the danger of motor traffic. In the returns of the Chief Commissioner of Police for London, the number of persons injured during the year by traffic of all sorts was 10,202. Of these 360 were injured by motors and light locomotives. The proportion, therefore, of accidents caused by horse traffic and motor traffic was approximately 95½ and 3½. On the other hand, about 95 per cent. of London traffic is still horse-drawn, which, as compared with the danger of the motor-car, judged by the number of accidents corrected by the proportionate amount of traffic, is as 5 to 4—a very clear proof of the comparative safety of the motor.—Yours truly,

H. GEORGE MORGAN.

BOWDEN WIRES.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—As Mr. James R. Nisbet's reply to my letter of October 1st is rather misleading, I beg you will allow me to correct same. Mr. Nisbet argues that "I amply confirm his contention that the Bowden Syndicate suffers from the lack of understanding of the principles of the mechanism on the part of manufacturers." This is not correct, as, on the contrary, I pointed out that this slur on the intelligence of the trade neither justified him nor the system he controls in the slightest. The machine referred to was a Riley, whose productions are second to none in design and exquisite workmanship. Does Mr. Nisbet suggest that this well-known firm does not understand the Bowden mechanism? If so, he had better tell them. But I am sure he does not. It seems to me the system is more at fault than the manufacturers, because if the system or mechanism requires such expert fitting, it is quite clear the amateur has no chance at all to effect his own repairs on the road. My complaint is that they failed to render me the assistance I was willing to pay for. Fortunately, however, at the last moment I came across the Gripwell back-pedalling brake, made by Messrs. Wass and Cocks, the simplicity and effectiveness of which appealed to me at once; and, although I have no interest whatever in this firm, I can say that I never knew what it was to feel safe on my machine until I had this brake fitted. In fairness to Messrs. Bowden, Mr. Nisbet has written me saying that the matter has been investigated and that I was invited to drive the machine to his works for adjustments; but, as I explained at the time, the engine was being overhauled, and this could not be done.—Yours truly,

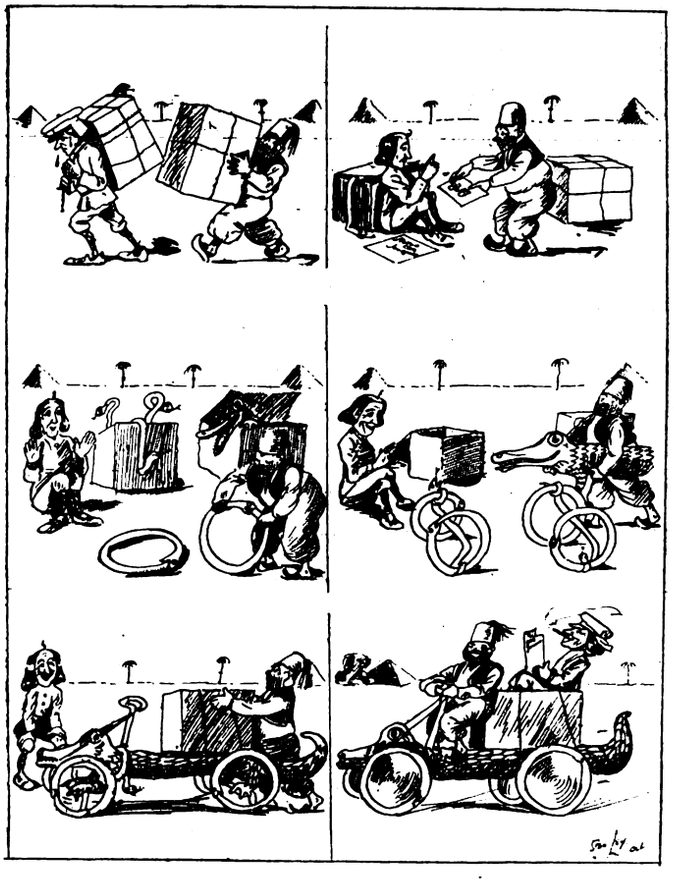
OWEN JOSEPH.

THE LIFE OF A MOTOR-CAR.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—One of the questions most often put to his motoring friends by the new convert who is about to purchase a car, especially if he contemplates using it for professional or business purposes, is rather apt to puzzle them, as it is difficult to give a direct answer to "How long will it last?" As, however, there is no reason why a piece of mechanism should not "last" for ever, with due replacements of worn parts, though such a reply would hardly satisfy the inquirer, the question should more properly take the form: "What is to be allowed for depreciation and repair?" The usual figure of 15 per cent. may be taken as a fair estimate for the light car in careful hands, if about £1 per 1,000 miles be added as the cost of pneumatics; but the cheaper forms of vehicle will probably considerably exceed this, as will also really fast cars, the cost of upkeep rising rapidly with speeds over, say, a fifteen to eighteen miles average. The hard and constant use, too, that a doctor's practice involves may necessitate a rather higher figure; but, on the other hand, the more a car is worked the more marked is its economy, and in this latter case the saving over other means of transport would, where two horses are replaced, cover three times the amount mentioned. Where a vehicle is only used for pleasure purposes, however, a rational estimate of the above kind is almost impossible, and it can only be remarked that a car does not deteriorate with age, but only with use, while the fall in value due to "out-of-dateness" varies from accidental causes, and may generally be taken as less in the case of the productions of old-established firms than with newer ones.—Yours truly,

G. F. SWIFT.



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NON-SKID TREADS FOR TYRES.

To the Editor of *The Motor-Car Journal.*

Sir,—I am a regular reader of the *Journal*, from which I have had many valuable hints, and some time ago I read a favourable account of the Wilkinson non-skid treads, which induced me to try them; I regret to say that the result has been far from satisfactory. Within the first 200 miles one of the treads came right off, catching the mud-guard and smashing it completely, and the other only lasted about 600 or 700 miles before it split all round and is useless. Not only have the treads been a failure, but the method of fixing seems to have rotted the tyres and made them so that they cannot be used any more. Could you or any of your readers recommend a good non-skid band? My car is only an eight-horse, and I do not particularly want speed.—Yours truly,

J. H.

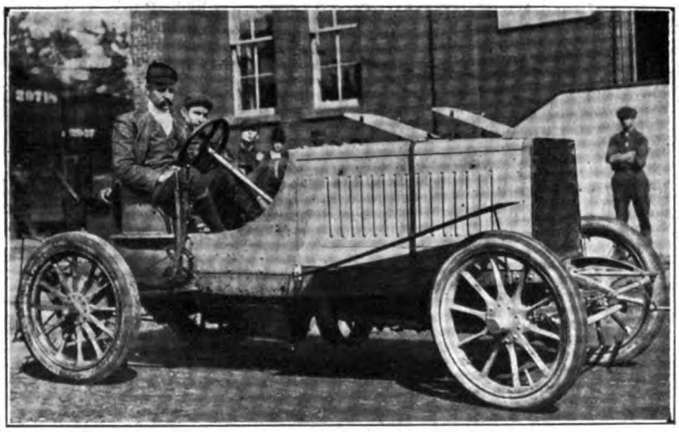
HOW TO SELECT A MOTOR-CAR.

To the Editor of *The Motor-Car Journal.*

Sir,—I don't think your correspondent "A Would-be Motorist" need be in any doubt as to what car to buy to meet his requirements. A study of the small car trials at Hereford clearly shows that one or two makers stand in the very front rank, and I should strongly recommend a careful examination of the Wolseley and De Dion—the latter I should think would be his selection, owing to the excellence of workmanship and design, and also its powerful brakes. It is an economical car to run, and the price well below the limit given by "A Would-be Motorist." I have no interest in De Dion cars, but know by my own experience and that of several friends how thoroughly good and reliable they are, and should your correspondent purchase one, I feel sure he will never regret it.

Let me strongly advise "A Would-be Motorist" to resist every persuasion to start his career as a motorist by buying a second-hand car; there may be some good ones, but the risk is not worth the apparent saving.—Yours truly,

N. 30.



Mr. Heath on the Panhard Car on which he won the Vanderbilt Cup Race.

ENGINE REPAIRS.

To the Editor of *The Motor-Car Journal.*

Sir,—In answer to "X. Y. Z.'s" letter in the last issue of the *Journal*, re motor repairs, I should feel inclined to think that either of the courses he suggests would be very expensive. But, of the three, he would perhaps find the first the cheapest, although perhaps not the best. The charge for a good man would undoubtedly be from 1s. to 2s. per hour. From personal experience, I would advise sending the car to a reliable firm and get repairs done, as no doubt in the end it would be better and cheaper. With regard to metalling the bearings, this requires to be done carefully, and should only be entrusted to a man who has had experience in this class of work; otherwise the metal would be likely to become loose and cause trouble.—Yours truly,

Ixion.

STEAM CARS.

To the Editor of *The Motor-Car Journal.*

Sir,—I may say that a few weeks ago I became the proud possessor of a "Conrad" steam car, and was quite in love with it. It arrived on a Tuesday night, and afforded exquisite pleasure in driving on Wednesday, Thursday and Friday morning. Prepared for a drive on Friday afternoon, with 100 lbs. steam, I remembered that the needle-valve next the tank was not turned on sufficiently in the morning, hence steam did not keep up so well. I therefore gave a few more turns, expecting there would be a "stop" when full on. But there was not, and the valve was blown into my hand. I at once pushed it back, but before I could give the necessary turn to engage the screw, the petrol fired and wrapped me in flame, burned my face and right hand—the latter badly, although the cuff of my coat was not even scorched—and in a few moments my car and the wood and iron stable in which it stood were smoking ruins. I have been among steam engines all my life, but did not sufficiently understand needle valves, especially those of American make.—Yours truly,

G. K.

To the Editor of *The Motor-Car Journal.*

Sir,—With reference to the subject of steam cars, I have found that a good plan is to now and then fill up the boiler with cold water, and then pump up with the hand-pump till the valve blows off. Any leak can thus be readily seen and put right. Then by opening the various taps the rush of water will clear any sediment out of the pipes. It is best to have a shut-off cock put in between the gauge glass and the boiler above the water level, so that by closing the same all steam or water must come from the bottom of the boiler, otherwise you may get a rush of steam only if the bottom ways are not clean. In my Locomobile I have fitted this device, and also arranged that by taking out a plug I can run a clearing wire along the various pipes. I have also replaced the old throttle with a screw-down valve; by this means I can regulate the steam to perfection. I find that my steam car does not cost so much for repairs as the petrol one I had, and the absence of sparking plugs, levers, clutches, gear box, etc., makes it a pleasure to drive; the only disadvantage is the filling up with water and spirit. I think that much could be done to make the mechanism more easily get-at-able, and I also think that if all the pipes were a size larger it would add to the success of the cars. I have used my machine in the heavy City traffic, and always found it well under control. The Editor has my address, and I should have much pleasure in showing my car to anyone, especially "Wiser Man." I think the steam car has been sadly neglected, and the prejudice against the same is for want of properly understanding it. I do not say that it is the best for every purpose. To-day I wanted to take out my car, and found one of the tyre valves leaked. It set me thinking of bygone days, when I rode a bicycle fitted with Fleuss tubeless tyres, on the flaps of which soft soap was rubbed. I took the valves out and gave them a dose of this useful domestic article, and it effectually stopped the escape of air. This hint might be useful to some other motorist.—Yours truly,

W. T. Warne.

The Blackpool Speed Trials.—We have received a long letter from the Duryea Company with regard to the Blackpool Motor Races, from which we take the following:—"We have to complain in the strongest possible manner of the treatment, which, largely, we believe, through the presence of trade rivals upon the committee, was meted out to us. In the first place, in the two-seated car classes an entirely new rule was introduced into motor-car competitions, stipulating that all cars should have four wheels. This did not trouble us, and was a perfectly fair regulation to make, if the committee so thought fit, but at the same time the price limit of the class was advanced to £250. We therefore removed the single steering-wheel, and replaced it by a standard axle and pair of steering wheels, converting the phaetonette into a phaeton. We won the class on Friday, beating all competitors, making better time than the second car by 11 sec., which is equal to about 400 yards on the mile run. The owner of the beaten car in the final protested, and the committee disqualified us and awarded the cup to the Speedwell Co., whose 10-h.p. car finished second. The complaint against us was that we were too cheap, and that our car did not legitimately come into the £250 class. We gave our explanation, but the committee 'did not consider it satisfactory.' We therefore place the facts—facts which we are prepared to prove—before the automobile public, and, in justice to ourselves, would ask you to publish them. They are as follows:—1. The car, as a three-wheeler, has been catalogued and sold at £200 all this season, and has competed at two race meetings in the £200 classes. 2. The interchange of double for single steering wheels is a change which we have been accustomed to make when desired for the past two years at a charge of £25, and we have never charged more than this figure. 3. This brought the actual figure for the particular car run to £225, but, as adding two wheels converted it to a phaeton, we entered it at phaeton price for a car fitted as this was, viz., £245. 4. The Speedwell Company in their objection pointed to the fact that our standard phaeton is listed at £295, ignoring the fact that these vehicles are fitted complete with Halliday top, storm apron, and ornamental leather dash board in front, as well as with two systems of water circulation, natural and forced. 5. At the time of the races, and at the time of the issue of the programme, our price for phaetons with double circulation system, but without top, &c., was £245, and we contend, therefore, that our car legitimately came within the regulations. 6. We can prove that although the price above referred to is a winter price, issued on September 15th, we have never yet sold a four-wheeled phaeton with single circulation system, and without top, apron, and dash, like the car we ran, for more than £250."

Cotton Tyres.—A correspondent wants the address of Messrs. Hyatts, Limited, the makers of the cotton motor tyres which have lately received some publicity.

Where Repair Shops are Needed.—H. Young writes:—"I cannot agree with E. A. Edsworth regarding repairers in Ramsgate. I have found everything very satisfactory at the "Motories," 22, West Cliff Road. The proprietor, Mr. Bowrah, is very willing, and has evidently had a good experience in repairs. I have no interest in Mr. Bowrah, but recommend him, as I found him an excellent repairer."

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CLUBS AND ASSOCIATIONS.

SCOTTISH AUTOMOBILE CLUB.

THE Eastern Section had a run to Middleton on Wednesday of last week. The meet was in Charlotte Square, Edinburgh, where sixteen cars put in an appearance. As the Duke of Connaught was holding inspections in the vicinity, Captain George Macmillan, the hon. sec., who has a commission in the Automobile Corps, being on duty, was prevented from accompanying his club. The distance to Middleton Hall, the residence of Mr. E. E. Moss, being about twelve miles, was soon accomplished, and as the weather was all that could be desired and the roads good, some members made record spins. On arriving within the demesne they were received on the steps of the mansion by Mr. Moss, who only returned from London that day in order to be present. It is needless to say that the company of about seventy were entertained in a hospitable manner, and, though the afternoon soon closed in, the time was spent in a very enjoyable manner, as the estate was looking its best, being clothed in its autumn garb.

THE LADIES' CLUB.

THE Ladies' Automobile Club has elected the Hon. Mrs. Bingham to membership.

On Saturday last many members of the club were entertained by Mr. and Mrs. Wilson Noble at their beautiful place—Tangley Park, Guildford. Mrs. Wilson Noble had had a special road laid out round the house to enable the cars to drive on to the South Lawn. Members all said that they had had pleasant runs to Guildford, for, although it was cold and windy, there was little or no dust, and the roads were in good condition. Tea was served indoors, after which Mrs. Wilson Noble showed her guests over her interesting house. Among those present were:—Lady Cecil Scott Montagu (the first vice-president of the club), Mrs. Ainslie, with her nephew, Mr. Lafone, on a new 24-h.p. Panhard, Mrs. Alfred Bird and Miss Bird on a Georges Richard, Mr. and Mrs. Buttemer and friends on a 10-h.p. Decauville, Baron and Baroness Campbell von Laurentz (Serpollet), Miss Hill with her aunt, Miss Pilcher, on a 12-h.p. Ariel, Mr. and Mrs. Copland, 16-h.p. Clement, Mrs. Pigott, Lieut. T. E. Russell, 8-h.p. De Dion, Miss Christabel Browne and friends, 6-h.p. De Dion, Miss Crowthers, 9-h.p. Darracq, Miss Edith Schiff, with whom were Mr. Schiff and Miss d'Esterre Hughes, 24-h.p. Panhard.

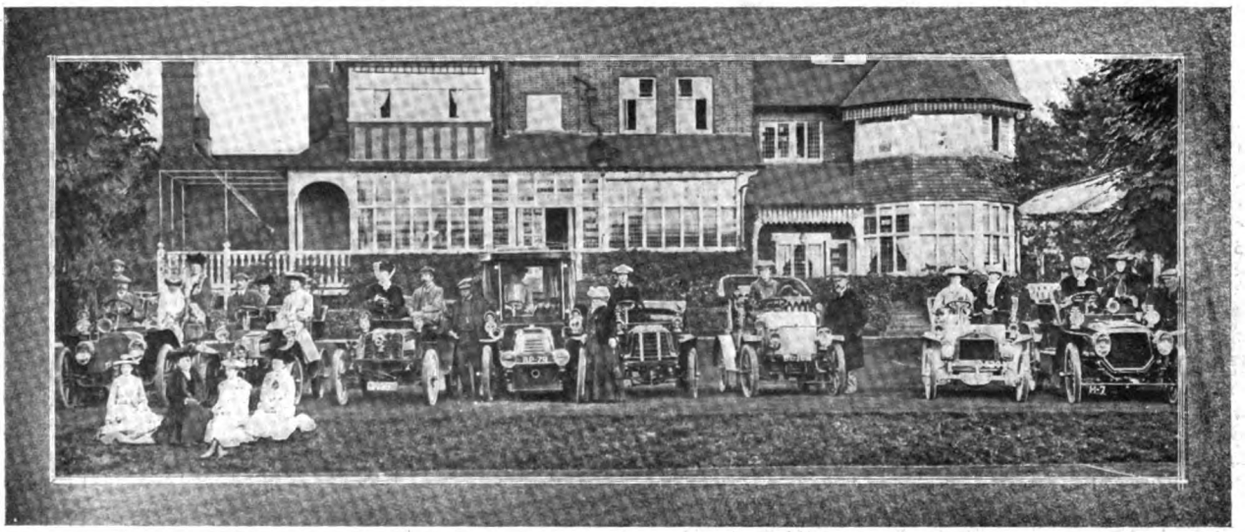


Photo by] **The Meet of the Ladies' Automobile Club at Tangley Manor, Guildford.** *[W. Shawcross.*

SCOTTISH AUTOMOBILE CLUB (WESTERN SECTION).

THE "Anniversary" run in commemoration of the coming into operation of the Light Locomotives on Highways Act, 1896, which is one of the events of the Scottish year, took place on Saturday last to Ayr. This fixture differs from the others on the programme of the Section in that the cars meet in Glasgow instead of at the rendezvous and proceed in line through and out of the city. Well over fifty vehicles met in Blythswood Square sharp to the appointed hour of 10.30, and, headed by Mr. Adam, of Larchgrove, the chairman of the Section, who drove his 10-h.p. Wolseley, they left in long procession for the Ayrshire county town. Large numbers of interested spectators were gathered at the meeting-place and at various points in the city and *en route*. The arrangements were excellent, and every facility was given to the passage of the cars by them, as well as by the tramwaymen and the drivers of other vehicles, so much so that the long line of cars passed almost without stop or break through the busiest parts of the city. The committee's instruction that rank was to be kept, and no passing take place until the country had been reached, was absolutely adhered to. Similar courtesy was extended to the club at Kilmarnock and Ayr; and in the case of Kilmarnock especial pains were taken by the posting of a large force of constables to guide the drivers by a circuitous route, in order that they might escape the inconvenience and annoyance of negotiating the main route through the town, which is up for the laying of electric tram lines. The Ayrshire county road surveyors also showed consideration by arranging, after they were advised the previous day of the run, that on some stretches of road where repairs were proceeding and metal was being laid special steps be taken to have the new metal all rolled and other matters put right in time for the passing of the cars.

A considerable number of cars from outlying districts joined the route by the way or proceeded direct to Ayr, and by the early afternoon about 100 vehicles were recorded as "arrived" at the Station Hotel, Ayr, where the party lunched. Special and most satisfactory arrangements had been made for coping with the large party.

This meet constituted the record turn-out of privately-owned motor-cars yet seen in Scotland, and is fairly indicative of the growth of the club and of automobilism in the west of Scotland. The day was an ideal one for motoring, and the run was much enjoyed and passed off without untoward incident. The following were among the makes of cars represented:—Albion, Arrol-Johnston, Argyll, Beaufort, Cadillac, Darracq, Decauville, De Dietrich, Humber, Leon Bollée, James and Browne, Napier, New Orleans, Peugeot, Renault, St. Vincent, Wolseley, and Vauxhall.

BLACKHEATH.

THE Blackheath Automobile Club's concluding run to Chislehurst on Saturday last proved most enjoyable, the weather being ideal and roads good. Members met at the hon. secretary's house in Westcombe Park, arriving on a dozen cars, two tandems and two motor-bicycles, some coming from Bexley, Croydon, Earl's Court and north of the Thames to join in the run. A start was made at 3.30 for the Bull's Head Hotel at Chislehurst, a wide *detour* being made by several members before arriving there, whilst others went there direct and enjoyed a ramble on the adjoining Pauls Gray Common. Thirty-nine members and friends sat down to high tea, after which an informal general meeting was held, when suggestions were made with respect to social evenings to be held during the winter, a dance, progressive whist evening, concert and dinner being proposed. At the conclusion of the business an impromptu concert was held and a return journey made about 8.30 o'clock. The success of this concluding run speaks well for the future of the Club, which promises to become largely augmented next year by the accession of local and other motorists to its ranks.

LINCOLNSHIRE.

AT a committee meeting held at the Red Lion Hotel, Revesby, in accordance with the scheme for the amalgamation of the South Lincolnshire Automobile Club with the County Club, Dr. F. Miller, of Wrangle, was appointed to fill the place on the committee vacated by Dr. Pim. A letter was read from the clerk to the Horncastle Urban District Council asking if this club would assist in the erection of a sign-post in the Bull Ring, Horncastle. The matter was adjourned for inquiries to be made as to what local authority pays for the erection of sign-posts on the main roads. The following new members were, subject to the rules of the club, elected, viz.:—Mr. C. Pratt, Lincoln; Mr. J. Buck, Northolme, Gainsborough; Dr. W. H. Brook, Lincoln.

The special committee appointed by the club to investigate the subject of the use of alcohol for motive power have arranged for a paper entitled "The need for Duty-free Alcohol for Motor and Industrial Purposes, and its Profitable Production from home Agricultural Produce," to be read by Mr. W. R. Ormandy, D.Sc. (of Warrington), on

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Friday, October 28th, 1904, at 8 p.m., in the theatre of the Municipal Technical School, Monk's Road, Lincoln. The chair will be taken by Mr. F. Howard Livens (President of the Lincoln Chamber of Commerce), and the committee have arranged for an informal dinner to be served at the club headquarters (Saracen's Head, Lincoln) on the same evening for the convenience of those attending the meeting.

YORKSHIRE.

AT the Wentworth Woodhouse speed trials on the 1st, which were reported in our issue of the 8th, the official times of the first and second respectively in each class averaged as follows :—

CLASS 1 (single-cylinder up to 6-h.p.).

Owner.	Car.	Average miles per hour.
A. Masser	6-h.p. De Dion	24·95
Whitworth	6-h.p. Prunel	19·86

CLASS 2 (single-cylinder up to 6-h.p.).

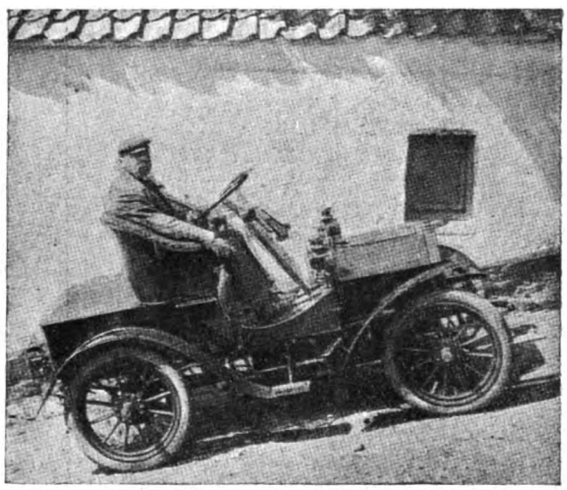
W. R. Booth	8-h.p. De Dion	26·6
F. Bottomley	9-h.p. Renault	22·88
H. Martin	8-h.p. Renault	21

CLASS 3 (double-cylinder up to 12-h.p.).

Underwood	10-h.p. Argyll	31·3
Churchill	10-h.p. Hallamshire	26·15
Drew	7½-h.p. Wolseley	22·77

CLASS 4 (up to 16-h.p.)

Bayliss	14-h.p. Renault	38·05
Fawcett	15-h.p. Darracq	37·1



The accompanying illustration is reproduced from a photo sent us by the Siddeley Autocar Co. It depicts a 6-h.p. Siddeley car on a steep hill, which has to be ascended every time the owner leaves his residence. The gradient is 1 in 5, and illustrates the hill-climbing power of the little car in a striking manner.

CLASS 5 (up to 30-h.p.).

A. Farnell	28-h.p. Daimler	45
W. Jackson	20-h.p. Brush	40·8

CLASS 6 (30-h.p. and over).

H. R. Kirk	60-h.p. Mercedes	58·8

CLASS 7 (motor-bicycles, up to 2¾-h.p.).

G. Martin	2¾-h.p. Bat	30·5

CLASS 8 (motor-bicycles, over 3-h.p.).

C. Parker	3½-h.p. Griffon	38·75
O. Brooks	4½-h.p. De Dion	32·8

A DEVON APPEAL CASE.

IN regard to the impending appeal against the decision of the Wonford justices in fining a motorist 20s. and costs for refusing to bring his car to a standstill at Alphington when signalled to do so by Mr. Studd, jun., Mr. Alford applied to amend the conviction, on the ground that an appeal did not lie unless the penalty exceeded 20s.—The Chairman (Mr. W. T. Bayne) said they had no idea, in imposing a fine of 20s., that it precluded appeal. But it was impossible to amend the conviction. It was open to counsel to apply to Quarter Sessions to do so when the case was called.—The appellants are the Motor Union, and Mr. Alford, on behalf of that organisation, said the appeal could proceed if Mr. Studd would assent to the conviction being amended, but unfortunately he refused his assent, notwithstanding the expression of opinion of the magistrates at the hearing that they were desirous that an appeal should proceed.—The Chairman said it was now open to Mr. Alford to take what course he thought proper.

EXCESSIVE SPEED OR RECKLESS DRIVING.

LOUIS HADLEY, of Hunt End, was charged, under Section 1 of the Motor Car Act of 1903, with driving a motor-car recklessly in Redditch, on the 29th ult.—Mr. G. W. Hobson defended, and pleaded not guilty.—Police-constable Gittus stated about half-past ten at night he was on Church Green with Police-sergeant Bounton, and saw the defendant drive a motor-car round the corner and down Unicorn Hill at the rate of 18 to 20 miles an hour. So fast did the car travel that witness was unable to discern the number at all, but he followed defendant down to the railway station, and the sergeant took his name and address.—In answer to Mr. Hobson, the witness made no complaint as to the driving of the car, except that it was being driven at an excessive speed, and that there were people about.—Mr. Hobson submitted that they were not charged with driving at an excessive speed. They were charged with driving recklessly, and if they wished to prove negligence they should have taken the summons out under a different section. "Recklessly" meant driving in a careless manner and to the danger of the public.—In answer to Mr. Hobson, the witness again said that there was nothing in the actual driving of the car to complain about; it was the pace.—Mr. Hobson pointed out that as there were no local bye-laws laying down the speed of motors in the place in question to ten miles an hour, according to the Act they were allowed to travel at twenty miles an hour.—Colonel Bartleet expressed the opinion that it was reckless to drive a motor-car down Evesham Street at eighteen miles an hour.—Mr. Hobson: Not necessarily. One would have to pay regard to the circumstances of the case. To prove the case it must be shown that the driver was drunk, or had not hold of the handles, or did not sound his horn properly. Sitting with his back to the front of the car, for instance, would be very careless and reckless. Mr. Hobson asked the witness if, supposing the car had been going at six, eight, ten, or twelve miles an hour, he would consider an offence had been committed. After some discussion between Mr. Hobson and the Bench, the Chairman said the summons would be dismissed, as it was taken under the wrong section.

CASES AGAINST MOTORISTS.

Place.	Summoned for	Fine.
Reigate	Exceeding speed limit	£1, etc.
Isle of Wight	Having no licence for motor-cycle	£1, etc.
Dorchester	Leaving car without taking the precaution to prevent it being restarted in absence of motorist	5s. 6d. costs.
Exeter	Driving dangerously	40s., etc.
Darlington	Leaving car standing	Dismissed on payment of costs.
Dolgelly	Refusing to give name and address after an accident	£5, etc.
Perth	Failing to stop when requested	£2 10s.
Bradford	Failing to give sufficient warning of approach	Dismissed.
Belfast	Driving recklessly	20s. etc.
Birmingham	(1) No light; (2) Failing to produce licence	(1) £1; (2) £1
Dumbarton	Furious driving	Dismissed.
East Harling	Reckless driving	Dismissed.
York	Dangerous driving	Dismissed.
Bourne	Refusing to stop when requested	£2, etc.
Northampton	Driving recklessly	£5, etc.
Daresbury	Furious driving	£3, etc.
Beverley	Passing at rate of 15 miles an hour through part of the town where the new by-laws restrict the pace to 5 miles an hour	£1, etc.
Birmingham	Keeping motor-car without licence	£1 1s.
Kingston	Dangerous speed	£3.
Woolwich	(1) Allowing another person to use his motor-car licence; (2) aiding and abetting another person (his son) to drive the car without a licence.	(1) £5; (2) £2.
,,	Arising out of the foregoing case was another case charged with (1) driving the car without a licence; (2) giving a false name and address.	(1) £5; (2) £2.
York	Driving dangerously	Dismissed.
Bray	Driving dangerously	£5, etc.
Croydon	Driving at excessive speed	40s., etc.
Sheffield	Not stopping after accident	£2.
Warrington	Reckless driving	£10, etc.

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THE

Motor-Car Journal.

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COMMENTS.



THANKS to the presence of a speed indicator on his car, Mr. Leonard Bayne has just secured a dismissal in a case at the West London Police Court, when he was summoned for travelling beyond the legal limit at Chiswick. The police evidence, founded on calculation with a stop-watch, was that the motor-car attained a speed of twenty-eight miles an hour. On the other hand, the defending motorist's indicator on the car only registered fifteen miles an hour, and Mr. Plowden, the magistrate, rightly acknowledging the difficulty in giving a fair decision in motor-car speed cases, went on to observe that he thought it just as likely that the indicator was as accurate as the stop-watch, and dismissed the summons. If other magistrates were equally fair minded and country justices as amenable to reason, the possession of an indicator would be a valuable economiser to all car owners. Certainly in this case, when the police swore to a speed of twenty-eight miles, and the indicator showed only fifteen miles, its presence was most useful.

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Petrol and Accidents.

THE keeping of petrol has been exempted from the Petroleum Acts by the Locomotives on Highways Act, 1896, which substitutes regulations made by the Secretary of State. When the owner of a motor-car can keep his spirit in accordance with these regulations he need not obtain a licence, but when he cannot comply with them he has the alternative of applying for a licence from the local authority. During the past year sixteen accidents in which petroleum spirit was involved were investigated by the inspectors of the London County Council. Eight fires on automobiles were reported during the twelve months. The accidents were not necessarily concerned with motor-cars, at least three having no remote association whatever with such vehicles. In one case a man attempted to light the gas in the coachhouse where a motor-cycle was kept. An explosion followed. Carelessness is generally the cause of such mishaps.

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In South Wales.

AUTOMOBILISM is making great headway in South Wales, and the South Wales and Monmouthshire Club has just removed to new rooms at the West Wharf, Cardiff, where they will have facilities for storing about forty cars. All members of automobile clubs in this country will have the free use of the garage provided their own organisations reciprocate the privilege. While the local automobile club is thus progressing, the Town Council of Newport (Mon.), has been endeavouring to secure the restriction of the speed of motor-cars in its streets to ten miles an hour. The case for the Corporation was that the main streets of the borough for about two miles form the only route for through and local traffic, and that already, owing to double lines of electric tramways and the traffic of the town, the roads are often congested; but it was pointed out in the course of the evidence that the trams already travelled at a speed greater than ten miles an hour. It seems rather unfair for any Corporation to seek to restrict the speed of other vehicles when they allow their own to travel at this rate.

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The Race in India.

CONSIDERABLE interest is being felt, not only in India, but in America and on the Continent, in the forthcoming Delhi to Bombay motor-car trials, the programme of which has already appeared in the *Journal*. From the British Chamber of Commerce in Paris we learn that some of the French motor cars are entering for the cup, to be competed for at Christmas time, and that they intend to make the best of the opportunity to sell cars and establish a good trade connection with India. The Secretary of the Chamber suggests that some of the British manufacturers should build a car that would stand knocking about on the rough earth roads in India. Mr. Arthur Hoare, one of the honorary secretaries, says that the road is in excellent condition, although two or three rivers will have to be negotiated. The Government, however, will probably bridge or ferry these, so that it will be possible for a really good race to take place. Lord Kitchener has given his patronage to the trials, and the military authorities of India are taking considerable interest in the event. It is gratifying, too, to learn that so many of the leading residents of our great Dependency are becoming ardent motorists, the latest accession to their ranks being the Hon. Mr. Justice Boddam, who has acquired a White steam landaulet.

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A "Passive Resister."

IN some quarters "passive resistance" is popular, and, having been adopted by some well-known public men, is now being accepted as a convenient way out of paying the rates by other people. A Basingstoke trader was summoned for non-payment of his rates, and the collector, or rather the man who should have collected, said the defendant objected to pay because the police set traps for motorists, and from what he paid deductions would be made to pay for these trappists. This new "passive resistance" is not likely to become general, nor will it be effective, but the idea indicates something of the dissatisfaction that exists in some quarters. The police rate, at one time, was intended as a contribution towards the expense of protecting property; now it bears the costs of trapping ourselves, while burglaries continue and housebreaking still has its votaries.

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Motor Cars in Canada.

ACCORDING to the Bulletin of the French Chamber of Commerce at Montreal, the automobile trade in Canada is steadily expanding. Several garages have been established at Montreal, in which city there are said to be nearly 200 automobiles, most of which are of American manufacture; a few, however, come from France. As the Canadian roads are not very good, solid and powerful cars are the ones most in demand. The American car sells well at present on account of its cheapness; but, in the opinion of our official contemporary, a well-constructed, fast-running car, with perfect steering apparatus, would find purchasers even at a high figure, as

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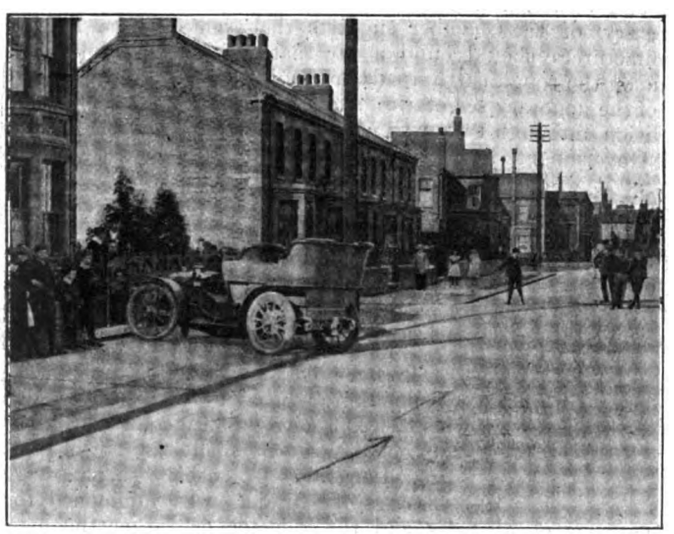
amateurs of motoring are beginning to grasp the fact that, owing to the necessity for frequent repairs, the cheapest machines prove dear in the long run. It may be of interest to British manufacturers to note a suggestion of the Bulletin to the effect that several French firms should combine to establish a depot in Canada, to serve as a permanent exhibition of the advantages of French automobiles, with competent mechanics attached to execute repairs. At the present time difficulties are often raised at repairing shops when cars, other than American, are sent to be dealt with; complaints are made as to the lack of the necessary parts, the intricacy of the machinery, and so forth, which naturally tend to discourage the purchase of such cars.

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Universal Lights.

ALL the bodies which are interested in the rights of users of the roads should combine to secure legislation with regard to lights on vehicles. With the increase in the number of rapidly moving cars on the road, and the development of rural traffic generally, there is a greater necessity than ever before for the provision of lights on the slowest as well as the quickest vehicles. The matter is not merely one of equality, but of real danger if long neglected. Hitherto the agricultural classes have been credited with a powerful opposition to any alteration of the law in this respect, but now that accidents have become so frequent the necessity for universal lights is apparent, even to the most prejudiced persons.

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A Northampton Incident (*see page* 716).

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An Australian Reliability Trial.

THE Automobile Club of Victoria has granted its patronage to the projected reliability trial for motor-cars from Sydney to Melbourne, which will probably be held about the end of February next. A party of motorists are now motoring overland over the route with a view of inspecting the course, selecting the sections, etc., before drafting up the conditions which will govern the trial. The competition will be run on such lines that any contestant establishing faster time over any of the stages than that set out and allowed by the schedule will receive no more marks than the motorist who arrives to schedule time. In no case will a speed of more than twenty miles an hour be required to gain the maximum number of marks, the probable figures being seventeen or eighteen miles an hour for cars weighing over 1,000 lb., and fifteen or sixteen miles an hour for cars weighing under 1,000 lb. The competing vehicles will not be allowed to be touched after being placed in control at the end of each day's ride, all repairs and refilling having to be done during driving hours. The competition will be carried out in daylight, as the roads will not permit of night travelling.

A Fourfold Proposal with regard to Roads.

THE Automobile and Cycle Engineers Institute has inaugurated its winter session with an address from the president, Mr. H. Austin, who dwelt upon the importance of our common highways. These, he rightly pointed out, were as valuable a heritage to the British people as were their coalfields and iron mines. And yet there were hundreds of turnpike roads quite deserted. Tramways monopolise certain districts, but there are many miles of our highways yet to be utilised, and to secure this Mr. Austin suggests the establishment of some representative body with power to frame bye-laws for the safety of those who make use of such roads. Practical points to be immediately dealt with were (1) the uniform lighting of all vehicles, (2) rounding off corners where cross roads join, (3) high banks and hedges obstructing the view, (4) cleanliness of roads and streets. This quartette of proposals comprises a programme which might well be made the basis of legislation.

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Scottish Progress.

THE public opening of the new premises of the Caledonian Motor Car Company at Aberdeen was an event of considerable local ceremony. Dean f Guild Lyon declared the place opened and congratulated the chairman of the company (Mr. J. Brown) and the manager (Mr. Paterson) on the success that had already been attained. Twelve cars were drawn up in a row in Bon-Accord Street in front of the new premises, and then the procession proceeded by Union Street and Market Street to the Imperial Hotel, where the guests were entertained by the Company at luncheon. Mr. John Brown presided at the luncheon, and proposed "The King," which was loyally honoured. The toast of the afternoon, "Success to the Caledonian Motor Car Company, Limited," was given by Mr. W. L. Sleigh, who congratulated the shareholders of the Caledonian Company on acquiring such admirable premises for their trade. Mr. William Piper gave the health of the managing director of the company, and Mr. Paterson replied. Ex-Lord Provost Mearns proposed "The Guests," and Messrs. C. Friswell and Kingsbury responded. The Chairman, with whose name the toast was coupled, in responding, mentioned that the company had sold almost fifty motor-cars during the last financial year, and when they were told that some of these cars cost as much as over £1,000, they would see that it was a very big thing.

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Tarring the Highways.

MR. C. A. SMITH, the proprietor of the White Lion Hotel at Cobham, calls our attention to the tarring of the main road which runs through Cobham. In the middle of April last, Mr. T. E. Ware, the surveyor of the Epsom Rural District Council, treated half-a-mile with ordinary tar obtained from the local gas works. Under his directions the flint road was well swept and cleared of all dust, the tar being strewed on piping hot and then well brushed in. This dressing of the surface of the road has protected it from all wear, and even now there is not a loose stone to be seen. What dust there is on the surface has been blown on to it from the footpaths, etc. In addition to binding the road and saving the wear and tear, it has been found that there was no need to use a water-cart at all this season on this stretch of the great Portsmouth road. After rain the water rapidly drains away and the road is dry sooner than when not tarred. Great credit is due to Mr. Ware, who is said to have been the first surveyor to have experimented with tar on a main road in this country with the idea of doing away with the horrible dust nuisance. He first used tar as a road dressing on a footpath at Ewell, close to the railway station, nearly four years ago. It is estimated that the Cobham tarring cost £39, the area being about 7,500 yards, which works out at about 1½d. per square yard. This for a road twenty-one feet wide would come to about £64 per mile. The cost of watering roads for the summer season is generally estimated at £50 per mile; but, as it is now universally acknowledged that this system of laying the

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dust is destructive to the road surfaces, it would seem that tarring roads is not so expensive as to prohibit its use more widely. Indeed, as local flints (costing 4s. 6d. per cartload) could then be used in repairing the highways instead of imported granite (costing 16s. 6d. per cartload), the money saved in the material and the water cart might well be spent in tarring.

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The Economy of Heavy Motor Vehicles.

HAVING made an excellent reputation as makers of roundabouts, Messrs. Savage Bros., Ltd., of King's Lynn, are now attaining distinction as makers of motor-lorries. At a luncheon given to some local friends last week Mr. F. W. Savage, the chairman of the company, said it was half a century since the business was established. During the whole of the time they had been more or less engaged in the making of road locomotives and wagons for road haulage. At the present time they were constructing vehicles to carry three, four, five, and six tons, and were also designing a vehicle of a smaller capacity to meet the requirements of their mineral



A Napier Racer on the Dustless Road at Cobham.

water friends, coal, ice and fruit merchants, etc. They were also manufacturing a light and small traction engine, which they had christened "The Little Samson," this engine meeting the wants of timber merchants and furniture removers who were wishful to attach mechanical traction to their present rolling stock. They were making a speciality of their steam sanitary wagon, and the one they had recently supplied to the Folkestone Corporation was giving most satisfactory results, and he was able to say, upon the authority of Mr. A. E. Nichols, Borough Engineer of Folkestone, that this one wagon used for street watering would do as much as six horses and six watering carts, the weekly cost of the steam wagon being £5 11s. as against £18 for the horses and watering carts.

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Public Services and Roads.

THE Canford Cliffs Motor Omnibus Company has been assuring the Bournemouth public that no variation in its routes will be made so long as the roads are good. This latter is a necessary condition for the success of any such service, and local authorities will do well not to ignore the implied suggestion in the notice of the Canford Cliffs Company. The failure of the District Council of Helston to do its duty in this respect has been held responsible for the withdrawal of the service which the Great Western Railway Company established in Cornwall. If private enterprise is to provide such public conveniences the local authorities must give their hearty co-operation.

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Official Repairers.

WE have received some inquiries of late with regard to the appointment of official repairers by the A.C.G.B.I. These are made on the recommendation of at least one member of the Club, and repairers who desire appointment have to fill in a form stating whether they understand the mechanism of cars, the works in which they served apprenticeship, any engineering certificates they hold, particulars of their staff of skilled men, garage accommodation, and other detailed information. Charges for garage and charging electric accumulators have also to be given. It is to be hoped the care that is taken by the Technical Committee in appointing official repairers will be sufficient to prevent any unqualified men appearing on their list, for there is no doubt that the motorist passing through a town and needing some slight repair has hitherto been largely at the mercy of folks whose qualifications he did not know at the start, but which he has found to be of an entirely negative character before they have finished with the job he has given them. Where motorists find really competent men, they can render a service to their confreres by submitting the names of such to the A.C.G.B.I.

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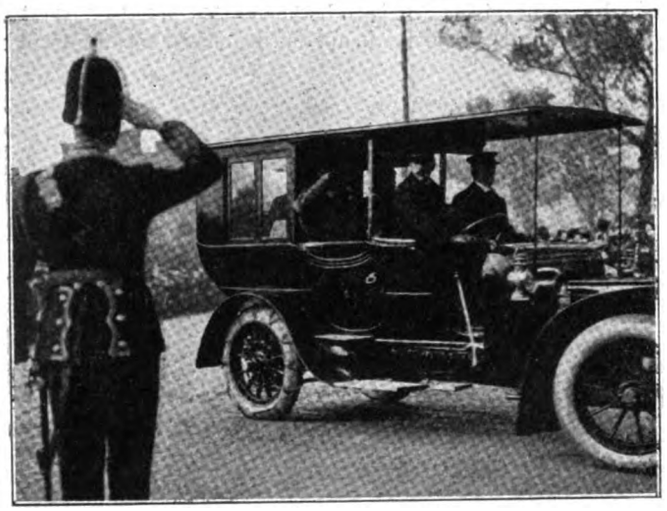
More from Rural Councils.

SEVERAL local Councils continue to pass resolutions and say nasty things with regard to motor vehicles and those who drive them. At Wivelsfield it has been resolved to make complaint to the County Council of the speed of cars, and to urge the authorities to take steps to minimise this danger to the public. At Ripon the deputy chairman of the Rural District Council has agreed with a proposal to have a conference with the West Riding Bench on the subject of the speed of motor-cars. He is, however, sensible enough to believe that time will work its

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own reasonable way in this matter, and that ultimately little will be heard of what is now fairly a prominent subject for discussion. Perhaps one of the most remarkable resolutions adopted is that from Scotland, where, at a meeting held at Colmonell last week, and addressed by Mr. Cathcart Wason, whose Parliamentary antipathy to motor-cars has already received illustration, a resolution was adopted to the following effect:—"That, in view of the fact that in the Colmonell parish motors are constantly being driven at such a furious rate of speed that the lives of persons, especially children, are in great peril, and that ordinary farming operations are much hampered, this meeting regrets that the County Council of Ayrshire neglected to apply to the Secretary for Scotland for leave to restrict and limit the speed of motors, under sections 8 and 9 of the Act, within certain limits, through farm steadings, at cross roads and dangerous turns."

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The King Returning from the Inspection of the Garrison at Woolwich

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From Dover to Putney.

MR. A. L. GUINNESS, whose recent acquisition of Mercedes IV. has already been chronicled in our columns, has had an eventful trip in this powerful boat. At Dover he had the greatest difficulty in discovering a pilot venturesome enough to accompany him on his voyage round the coast to the mouth of the Thames. A start was made at length from the ancient fort, and within six hours Mr. Guinness arrived at Putney, doubtless glad to reach his destination in safety. As a pioneer it has proved a demonstration of the capacity of the motor-boat for either sea or river.

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Drowsy Drivers.

ONLY those familiar with the roads of the county of Essex can appreciate the slovenly driving and the slumbering drivers which seem characteristic of the county. An instance of what we mean was mentioned at the Ongar Court the other day, when a careless driver was fined £3 and costs under the following circumstances. While the housekeeper and another servant of the Rev. Dr. Lewis, of Fyfield Rectory, were driving home at night they saw a lumbering hay-cart approaching them. They called out and pulled into the side of the road, but the cart came on and smashed the trap up, throwing the occupants to the ground. The driver of the hay-cart was overtaken by a policeman half an hour later, and was then found to be fast asleep, snugly wrapped up in sacks. He knew nothing of what had occurred, and said he never heard a sound. This is by no means an isolated case, and the authorities of Brentwood, Romford, Ilford, and East Ham might well undertake a campaign against the drowsy drivers who allow themselves to be led by their horses in quite a mechanical fashion from the market gardens to the London markets.

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Motor Tracks.

Now that track racing has proved so popular at Blackpool, additional interest attaches to the announcement that in connection with the scheme for the extension of the marine drive from Southport to Ainsdale-on-Sea, a distance of four miles, Mr. Weld-Blundell, lord of the manor, has decided that there shall be a separate motor track, marine drive, and promenade. The scheme is costly, but will greatly develop the district and find employment for a large number of men. Doubtless the presence of an automobile track where periodical meets can be held should prove an attractive feature at many a seaside resort, while its use on other occasions by private individuals should prove a magnetic influence in drawing visitors.

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First-class Railway Traffic.

FIRST-CLASS traffic is a perennial source of concern to railway managers, and its fluctuations are the subject of much earnest speech at the meetings of shareholders. At the Highland Railway Company's meeting the chairman has just been suggesting that the first-class traffic was a business with which they could not pretend to be thoroughly satisfied. There was no question that the development of the motor-car had seriously affected the first-class traffic of their company. It was very clear that a number of people who used to go to the Highlands by train and travelled first-class were now going by motor-car, and moving about the Highlands by automobile instead of taking the train from station to station as they used to do. The motor-car was undoubtedly a distinct hindrance to the development of the first-class traffic. The companies will have to tap other probable sources of revenue, including the extension of motor-car services, to bring passengers and goods from regions hitherto inaccessible to the railway.

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The Need for Careful Drivers.

THAT there is need of care in the selection of drivers is constantly being impressed upon motorists. Inexperienced chauffeurs should be very careful not to take risks to their own vehicles; nor should they cause other drivers to do things that involve danger. The other day a valuable car was being driven through Northampton by its owner, who is an expert driver, when a light car, driven by a somewhat youthful chauffeur, darted out of a side street on the wrong side, and far too close to the corner. The driver of the larger automobile instantly recognised the danger and steered his vehicle on to the pavement, intending to run between the post and the house. The driver of the small car, instead of keeping to the left, turned to the right, and collided with the car that was endeavouring to avoid him. Our photograph on page 714 shows the result, the arrows indicating the direction in which the larger car was originally proceeding.

A FINE new motor-garage has just been completed near the stables at Buckingham Palace.

EARL TEMPLE, Mr. Lyell, M.P., and the Master of Elibank, M.P., have been on a political campaign in Scotland by motor-car.

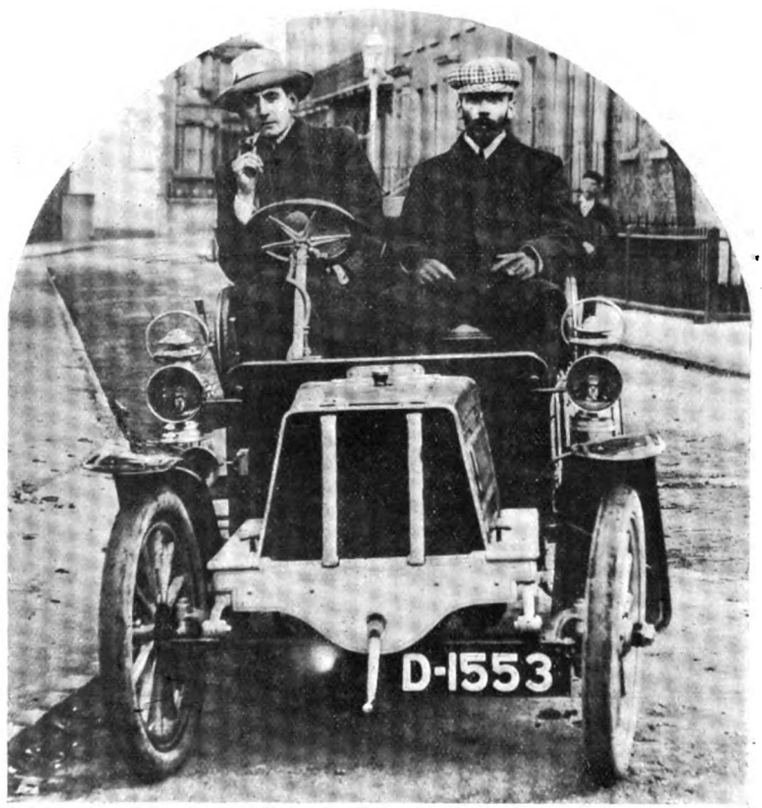
THE marriage of Mr. H. W. Egerton, of Messrs. Mann and Egerton, of Norwich, to Miss Sorel-Cameron, of Hingham, occasioned quite a motor meet in the village.

DUNSTABLE is the title of the latest volume issued by the Homeland Association, Limited, to whose publications reference has been made already in these columns. It is written on the same general lines as the previous excellent volumes, and the illustrations are, if anything, above the average.

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FROM WOLVERHAMPTON TO MARGATE ON A SMALL CAR.

FRIDAY morning broke fine, so, accompanied by a friend, writes a correspondent, I started off at about seven o'clock *en route* for Margate, *via* London. The car was a standard 7-h.p. two-cylinder Star, with seating accommodation for two, just out of the works. Everyone in the Midland district knows that the road from Wolverhampton to Birmingham is about the worst in existence—nothing but tramlines, with the exception of one stretch between Moxley and Wednesbury, and that stretch—well, pen cannot adequately describe it. I have often wondered whether an Improvement rate is in existence in that particular part. We trotted along, however, at a fair pace, and soon found ourselves through West Bromwich and nearing Birmingham. We reached the last named city at 7.45, and, after an almost endless struggling through roads torn up for trams, and various detours to gain the main road, we at length settled down to a nice steady run to Coventry. We soon passed Stonebridge and at about 8.30 we pulled up at the King's Head. We had one or two calls to make in the City of Spires, so that it was nearly 9.30 before we re-started. It is a most delightful run from Coventry to Daventry, a perfect road all the way, the stretch between the trees at Dunchurch being particularly delightful. The little car, despite the fact that it was new, was pulling grandly, fairly knocking off the miles, and in about three-quarters of an hour we were at the Wheatsheaf, Daventry. A little lubrication here, both for man and car, and at half-past ten we were on the road again. It was not far off Daventry that the only little trouble on the road to London occurred. We were going up one of the hills, about halfway between Daventry and Towcester, when one of the cylinders struck work. An examination revealed a broken sparking plug, which was speedily replaced.



The Car at the End of the Journey.

Our next stop was at Fenny Stratford. Having had nothing to eat since seven, a good meal was desirable. I can recommend the Swan Hotel as being a most hospitable house and most reasonable in its charges. We left this town at a little past one and did not stop before we reached Barnet. After a halt of a few minutes we ran straight on to London, arriving at the Great Central Garage at about three o'clock.

We left at five *en route* for Margate, *via* Maidstone. Crossing London and getting through the suburbs is always a tedious business, and it was some time before we reached Farningham. Here we experienced a little trouble—the second only through the journey. The engine appeared to be taking too much petrol, so a slight adjustment was made to the carburettor. This improved matters for a few miles, but the engine still appeared to be getting too much spirit, consequently we decided to examine things more closely at Maidstone. We did, and made the unpleasant discovery that the float was full of petrol. It is not really a serious trouble, but of course it is a nuisance when it happens, and I have covered I do not know how many miles motoring and never had a similar occurrence, and doubtless I shall cover many thousands of miles before it happens again. We then rectified the trouble, made a small hole and removed the petrol and sweated up the hole, and also the joint in the float where the original leak was.

The road from Maidstone to Canterbury is, to one who does not know it, very awkward. It is very narrow in places, and there are many dangerous hills and corners. Now, of course, we were travelling in the dark, and it was a particularly dark night, and, further, there were banks of mist rolling up now and again, so our progress was not very speedy. We backed the hill at Charing in fine style, using the top speed on part of the hill, and never dropping below the second. We stopped at Chilham, as the back lamp had ceased to shine, and found that the reason of this was lack of paraffin. The public-house had none, but the driver of quite the largest traction engine I have ever seen had some, and he obliged. The mist continued to block our progress until we were three miles the other side of Canterbury; after that, we ran straight ahead into Margate. It was well past eleven by the Clock Tower, and we were not sorry to sit down and eat and drink and be merry. I think, however, that the run will clearly demonstrate the value of a good small car. There was practically no trouble at all, and the average speed was certainly all that anyone could desire.

MESSRS. OFFORD, WILSON AND BARFIELD, of Birmingham, have recently introduced a set of apparatus specially designed for garages and similar places, for charging ignition cells with economy, no matter what the pressure of supply may be, or whether it be direct or alternating current. The set comprises a motor-generator with switches, resistances, meters, and a connection board; the apparatus is arranged for 200—230 volts supply, the dynamo giving 6 amperes at 35 volts, and it can be used for simultaneously charging six 60 ampere-hour motor-car cells, or eighteen 20 ampere-hour cycle cells, or a combination of these. The apparatus can be supplied fitted up to suit any requirements, and is connected up to an ordinary lamp-holder or wall socket. As the charging of small groups of cells from the mains through resistances is exceedingly wasteful, it is evident that a considerable economy can be effected by using this apparatus.

THE Alcohol Committee held its first meeting on Thursday last, and settled preliminaries.

MESSRS. WALSH, NICHOLLS AND CO., LIMITED, have removed to new works in the Dudley Road, Wolverhampton, where they have every facility for their growing trade in motor-car bonnets, radiators, tanks, lubricators, and silencers.

AN agricultural motor-wagon travelling at two miles an hour along a Hampshire road met a herd of cows, striking two with its wheels. The County Court Judge of Southampton held that until directed otherwise by the Court of Appeal he should lay down as law that when cattle or sheep were hurt by such an engine there was negligence on the part of the driver so long as the engine was kept in motion. The owners of the wagon appealed, but the Lord Chief Justice, sitting in a Divisional Court, agreed with the decision.

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CONTINENTAL NOTES.

A Hill Climbing Competition at Marseilles.

La Provence Sportive of Marseilles, which introduced the idea of a hill-climbing competition with a standing start and a stopping finish, proposes to repeat the event on the 19th March next. The contest will be held on the Platrieres hill, on the road between Aix and Salon, and will be over a distance of 500 metres, the average gradient being 6·3 per cent. Only touring vehicles are eligible for entry, and instead of classification by horse-power, as hitherto, the cars will be classed according to the cost of the *chassis*.

Santos-Dumont's New Airship.

M. Santos-Dumont has begun the construction of a new airship (No. 13), by means of which he hopes to remain for a whole week in the air without descending. The form and construction of this balloon will differ considerably from those of its predecessors. The chief distinguishing feature will be that, instead of pumping air into the compensating balloon to allow for the loss of gas, the vapour of water, which is infinitely lighter, will be used. The airship is expected to be ready before the end of the year.

The Gaillon Hill Climb.

Château-Thierry over, all attention in French motoring circles is now centred on the hill climb at Gaillon, which takes place on Sunday next. The entries in the heavy-car class include two Serpollet steamers, a couple of Hotchkiss cars, and a six-cylinder Napier. In the motor-cycle section, two Griffons and three Magalis have been entered.

Racing in Italy.

A 10-kilometre race with a flying start, for the Targa d'Oro Cup, was held on the Borolenta - Padua road, in Italy, a few days ago. The best time was made by the Chevalier Florio, who, on an 80-h.p. Darracq, covered the distance in 4 min. 48 sec. Monastero, on a Marchand motor-bicycle, was second in 4 min. 53 sec.



Lanfranchi and his Peugeot Motor-Bicycle on which he established new kilometre and mile records at Dourdan. (*La France Automobile.*

Graduated Taxes on Motor-Cars.

The Government of the Grand Duchy of Hesse, Germany, is considering a schedule of taxes to be proposed on automobiles. It is proposed that the tax on motor-bicycles should be 5s. per year; on motor-tricycles, 10s.; 15s. for single-cylinder cars; 25s. for two-cylinder vehicles; 35s. for three-cylinder automobiles; and 50s. for cars with four-cylinder engines.

Automobile Trials in Belgium.

A technical committee has been formed in connection with the Automobile Club of Spa and Luxembourg to promote a series of automobile trials. It is proposed to organise a 500-kilometre reliability trial for touring cars and speed and consumption tests for motor-cycles.

The Gordon Bennett Race.

There will, after all, be no eliminating race to select the Italian team for the 1905 Gordon Bennett race, the Italian Automobile Club, notwithstanding the entries of two other concerns, having allotted the whole three places to the F.I.A.T. Company. The reason given for this decision is that the other concerns have not hitherto built racing cars, and that their works are not yet on a sufficient scale to undertake their construction.

Public Services in Germany.

Quite a number of new public services of motor-cars are projected in Germany. A syndicate has been formed to organise one between Kleke and Emmerich, while the establishment of a service between the town and railway station at Oberhof is under consideration. The health resort of Schonach, in the Black Forest, is also to be provided with a motor-'bus service connecting the town with the railway station at Triberg.

Motor-'Buses in Paris.

Following the example set by the London omnibus companies, the General Omnibus Company in Paris is making some experiments with a 24-h.p. Serpollet steam omnibus. The vehicle has been going over the difficult Bastille-Place Wagram route, selected on account of the thick traffic and big gradients, and by running under exactly the same conditions as the horse 'buses, with the usual stoppages, the steam vehicle is said to have covered the route in thirty minutes, as compared with the forty-five minutes usually taken.

Racing Cars for the 1905 Season.

It is announced that the Benz Co., of Mannheim, has decided to take part in all the leading racing events of the 1905 season, and have put in hand the construction of four special 80-h.p. racers, which will make their appearance at the Nice week.

1905 Models.

Details are beginning to leak out with regard to the 1905 models of the leading French builders. *La Vie Automobile* is authority for the statement that Messrs. De Dion-Bouton and Co. will adopt a *train-balladeur*, or sliding pinion type of gear box, on its 8-h.p., 10-h.p., 12-h.p., and 15-h.p. cars for next season, together with a new type of clutch. The separate clutch system of change-speed gear is to be retained on the 6-h.p. car, but it will be similar to that used on this year's 8-h.p. vehicle, giving three speeds forward and a reverse. As regards the Panhard 1905 models it is stated that these will show but little change from this year's cars. A new touring vehicle of 50-h.p. is, however, being introduced.

THE Harrow Town Council contemplates asking for Grove Hill, Harrow, to be closed to motorists, and, despite the receipt of a letter from the Middlesex County Council, in which the representations of the Automobile Club were urged, has adhered to its former decision. An inquiry into the matter will be held under the authority of the Local Government Board.

THE Thames Conservancy Board has referred to the Upper River Committee the question whether special regulations should be made for the licensing of petrol launches on the river. These launches have increased from 46 in 1903 to 273 this year.

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The Maxim Petrol Motor Landaulet.

THE accompanying illustration shows the 24-h.p. "Maxim" landaulet, one of the latest productions of the London General Automobile Company, Limited. The frame is made of steel of tapered channel section with continuous

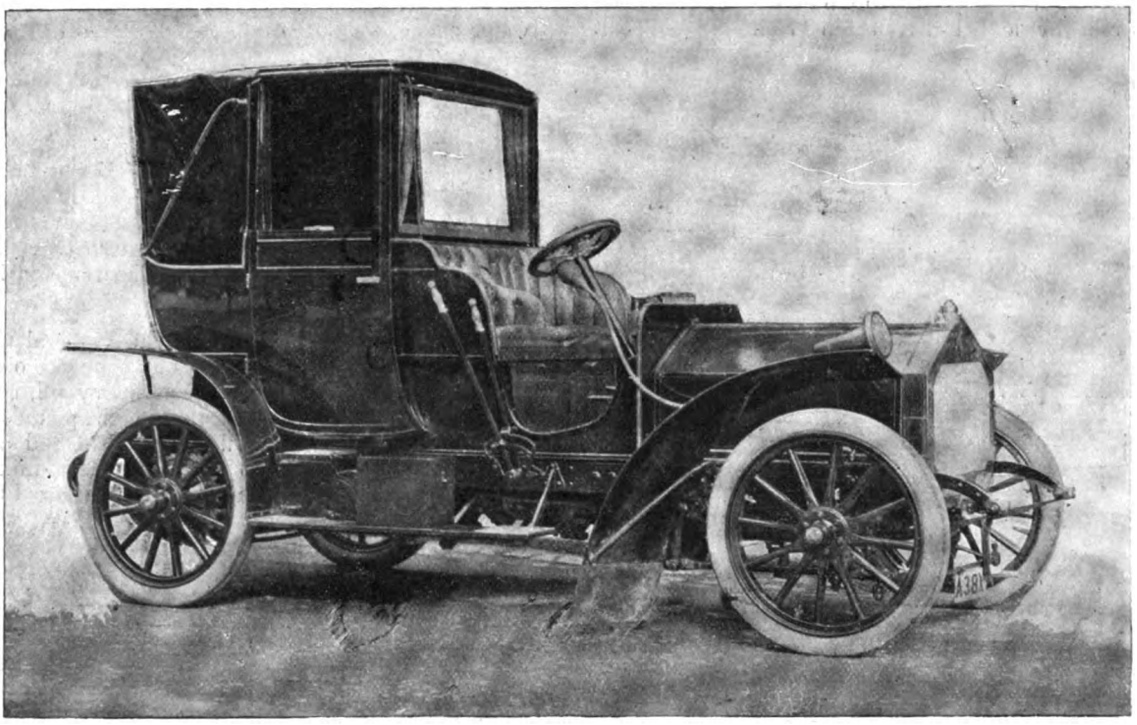


Fig 1.—General View of the Car.

hangers, the width in front of the dash-board being 33½ ins., and at the rear 35½in.

The springs are of the Grasshopper type, 50 in. long at the back, and 39 in. at the front. The hangers rest on inserted steel rollers, which prevent great wear of the spring bolts, and releases them of all weight.

The motor is vertical and has four cylinders 100 by 120 mm. stroke developing 24-h-h.p. when running at the normal speed of 1,000 revs. per minute. The cylinders are made of special close-grained iron, cast solid with their jackets, and are fitted with pistons having three piston rings. They are water-cooled, with ample cooling surface. The connecting rod is forged from tool steel and fitted with phosphor bronze gudgeon at the big end. The crank shaft, forged from solid nickel steel case hardened in all the journals, is carried on three main bearings fitted with ring lubrication. The crank chamber is of aluminium and is fitted with large and accessible inspection covers. All the valves, both inlet and exhaust, are operated from one cam shaft. They are of large diameter and interchangeable. The inlet valves are placed on the tops of the cylinders and by use of bridges each pair of valves are entirely removable. The exhaust valves are placed on the sides of the cylinders, and are accessible by means of box screws. The governor is of the vertical centrifugal type, and acts on the carburettor, which is of a special design. The ignition is high tension electric, by means of accumulator and induction coil with tremblers. The commutator, of the simple wipe pattern, is gear-driven, entirely enclosed, and dust and damp proof.

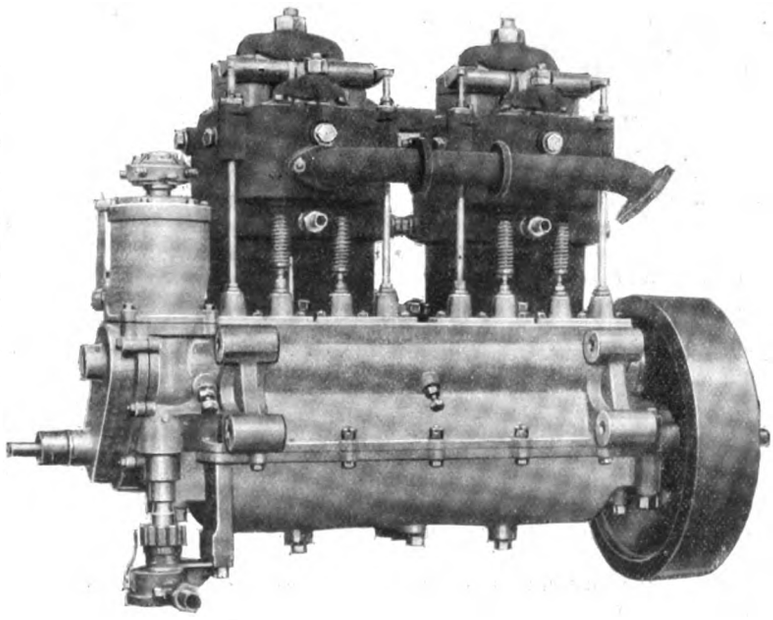


Fig. 2.—The Maxim 24-h.p. Motor.

The clutch is of the leather-faced cone type. The internal part of the clutch is freely mounted on the extension of the crank shaft, and is connected to a coupling between the engine and the gear box. The clutch spring is of the internal type, and is mounted on the crank-shaft, so that the thrust is entirely self-contained and rendered accessible by a special device.

The gear-box is adapted to give three speeds forward and a reverse controlled by one lever. On the top speed there is a direct drive through the gear-box, and when this is in operation the secondary shaft does not revolve. The gear-box is very accessible, as also is the differential, which is sepa-

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rate from the bevel gear conveying the power from the change speed gear shaft to the countershaft. From the latter to the rear road wheels the transmission is by side chains.

There are two independent brakes, one operated by the right pedal, which acts on a brake drum fitted on the bevel drive, and internal expanding brakes in the hubs of the rear wheels controlled by a hand lever. By means of a compensating bar the latter act simultaneously. Both brakes when applied automatically draw the clutch; they are also both double-acting. The sprag is a ratchet acting on a toothed wheel fitted to the brake drum on the bevel drive.

The radiator is of the honeycomb pattern and is cooled by induced draft by a belt-driven fan running on ball

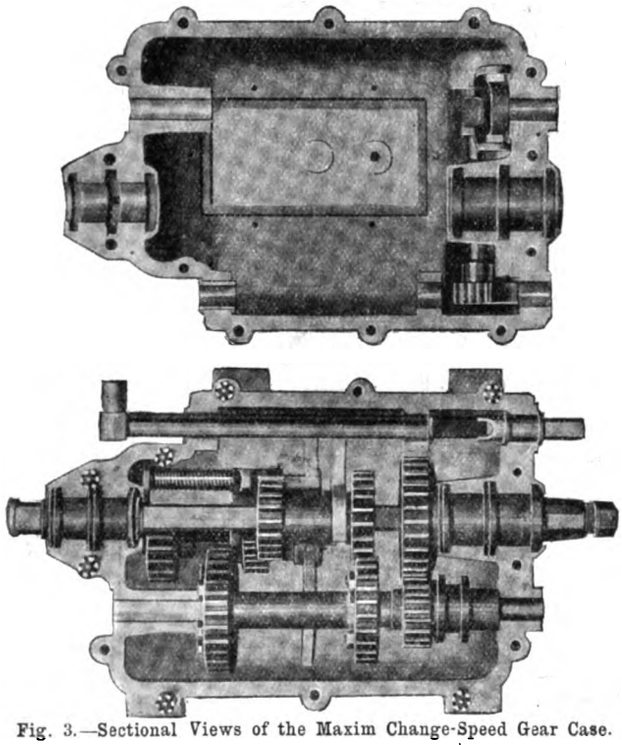


Fig. 3.—Sectional Views of the Maxim Change-Speed Gear Case.

bearings and placed immediately behind the radiator. The cooling water is circulated by means of a gear-driven pump. The bonnet is of the Mercedes type. The steering is of the irreversible type with worm and worm wheel enclosed in an oil-tight box. The friction due to the vertical load is reduced by ball bearings. The levers for the governor and ignition are fixed on top of the steering wheel. All parts are lubricated automatically by pressure, and tubes with separate sight feeds lead to all bearings. The petrol tank is placed at the back of the *chassis* and fitted with a combined pressure and gravity feed worked by a regulating valve on the exhaust. We may add that the body is hinged so as to render the whole of the mechanism accessible. The wheel base of the car is 9 ft. 2 in. and the track 4 ft. 7¾ in.

ST. ANNE'S HOTEL at Buxton has now a well-equipped garage.

THE Automobile Club of the Yonne has just been formed at Auxerre, France, with M. J. Guillet as first president.

MR. T. K. HINDS has opened a motor-car depot at Kildare, an ancient town on the Gordon Bennett race course of 1903.

FROM Messrs. Anthony Treherne and Company, Limited, comes a new volume entitled "Three Men in a Motor Car," by Mr. H. R. Maxsted, in which we have the interesting chronicle of a couple of tours, aggregating over 5,000 kilometres, undertaken by a party of ardent motorists. They seem to have had a thoroughly enjoyable time, not only in the south of Europe, but in Algiers and other distant places, and have introduced some excellent travel notes in the account of their journey.

SOME USEFUL NOTES.

CARS which are constantly in operation during the winter are preferably kept in a heated stable. If kept in a cold place the bearings will be found exceedingly stiff when the machine is taken out in frosty weather, which makes them run much harder. Besides, with many forms of carburettor, difficulties are experienced in starting the motor.

IF acetylene lamps are to be expected to give satisfactory service, the gas generators should be thoroughly clean every time they are filled. A good way to do this is to use a hose and water under pressure, compressing the end of the hose so as to make the water stream out forcibly. See that all the residue is thoroughly removed from the generator before refilling with carbide.

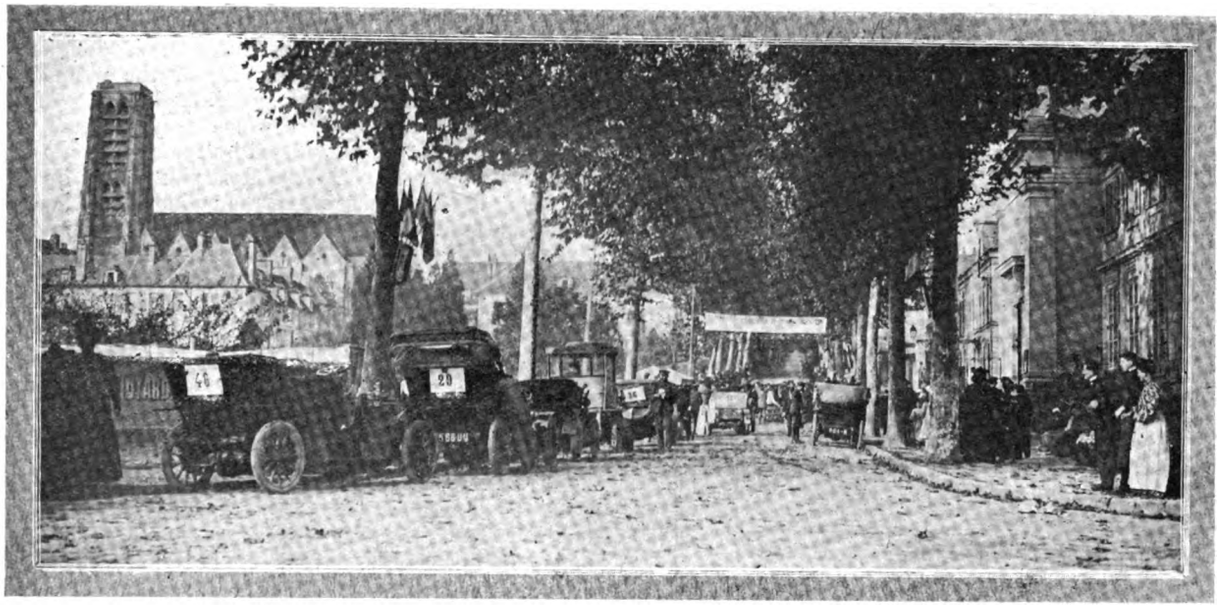
ACETYLENE lamps are sometimes not hung properly on the brackets. The latter may be inclined forward from the vertical, causing the light to strike the road close to the car, and showing very little light ahead, or they may be inclined backward, causing the light to shine upwards, and leaving the road close to the car in comparative darkness. The remedy in both cases is obvious.

DRIVING chains should be cleaned several times during the season by thoroughly washing out the old oil and dirt with paraffin, and then soaking in warm heavy oil, so that it will run into the bearings; or in a mixture of eight pounds, approximately, of tallow, two pounds of flake graphite and a quart of heavy lubricating oil melted up together. The mixture should be heated until liquid and the chain then allowed to lie in it until the whole is a solid mass. The outside of the chain should afterwards be wiped clean. In replacing the chain adjust it so that it will show a little slack at the bottom when tight at the top.

WHEN motoring, if matches cannot be had, and a light is wanted, it may be obtained in the following way, if the car is fitted with accumulator and coil ignition:—Disconnect one of the high tension wires from its plug; place the free end of this wire in such a position that it lays about a quarter of an inch away from the cylinder casting. A small piece of cotton waste or a piece of paper should now be saturated with petrol and placed over the free end of the ignition wire. Switch on the current and slowly turn the starting handle of the motor. When the spark jumps from the free end of the disconnected wire to the cylinder casting, it will set the paper or waste on fire. Extreme care must be taken not to allow the blazing waste or paper to fall into the "apron," underneath the motor, if one is used. This "apron" is usually covered with grease and oil, and if it catches fire it may imperil the car.

Now that the bad season has set in, motorists have to resign themselves to stabling their car for a longer or shorter period, and should follow the advice given by Messrs. Michelin as to the care to be given to pneumatic tyres during the winter. As a rule, towards the end of the season motorists are less particular about the condition of the tyres on their cars, and less anxious as to sending them to be repaired directly they show any signs of wear. In fact, many delay sending them to the manufacturers until they cannot run any longer. Others take off the tyres, wrap them up carefully, and put them away according to all the rules for good preservation laid down by makers. And when the fine weather returns and they wish to "motor" again, they are surprised to find that the tyres cannot be used till they have undergone some repairs; and consequently they have either to wait till these repairs are executed, or buy new tyres. It is much more simple, in order to prevent this contingency, to send all faulty tyres to the repairers at once. The repairs will be done much quicker now than in the spring, when motor tyre repairers will be overwhelmed with orders, and besides, the tyres will be preserved just as well during the bad season after they have been repaired.

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The Cars lined up at the Starting Point of the Chateau-Thierry Hill Climb.

THE CHATEAU-THIERRY HILL-CLIMBING COMPETITION.

THE annual hill-climbing competition organised by the "Auto" was held at Chateau-Thierry on Sunday last, the event this year being reserved entirely to touring vehicles. The contest was over a mile course on a hill known as the Chesneaux, and was made from a standing start. The hill begins right in the town, and is mounted by a narrow street very badly paved, there being, in addition, a bend at the last and most difficult part of the climb. The conditions are therefore very severe, as the hill, starting with a fairly easy grade, becomes steeper and steeper until the summit is reached. When the list was closed it was found that no less than seventy-four entries were received, and of these sixty-three were weighed in on Saturday last.

In the class for motor-bicycles having a cylinder capacity of a third of a litre there were a dozen competitors, the best time being made by M. Collomb on a Magali bicycle with Buchet motor, 1 min. 43 4-5 sec. (equal to over 35 miles per hour). Bac, also on a Magali with Deckert motor, was second in 1 min. 47 2-5 sec. The Magali is a new machine which has quickly come into repute; a description of it is given elsewhere in the present issue. The third place was taken by M. Le Metais on a German machine known as the Neckarsulm, in 1 min. 54 4-5 sec.

In the class for two-seated cars costing less than £160 the victory fell to M. Barriaux, who, on a Bolide car with twin-cylinder De Dion engine, scaled the hill in 3 min. 11 1-5 sec., M. Bailleau, on a vehicle of his own construction, being second in 3 min. 49 4-5 sec. The competitors in the class for four-seated cars costing from £160 to £300 included Passy-Thellier, Boyer, Bolide, Chenard and Walcker petrol cars, and a Gardner-Serpollet steam car. The latter, which was driven by M. Vendel, proved the winner, the time being 2 min. 38 sec., M Meyer, on a Passy-Thellier car with Gobron-Brillié engine, being second in 2 min 50 2-5 sec.

Ten cars competed in the class for four-seated vehicles costing from £320 to £480, these including three Aries, two Corres, a Roy, Creanche, Gardner-Serpollet, Boyer, and a Chenard and Walcker. The winner was M. Amand, on the Serpollet steamer, his time being 1 min. 52 sec. The second place was secured by M. Walcker on the Chenard and Walcker (time 2 min. 39 1-5 sec.). A dozen competitors turned out in the class for four-seated cars costing between £480 and £720, these comprising two Richard-Brasiers, two Radias, and a Gardner-Serpollet, Peugeot, Aries, Tony-Huber, Renault, Berliet and Alcyon. The hill-climbing capabilities of steam cars were again shown, M. Pelser, on the Serpollet, making the best time, viz., 2 min. 1 sec., as against 2 min. 13 sec. by the second man—M. Cuchelet, on a Peugeot. Of the cars with covered bodies, M. Barthelemy on a Berliet made the fastest climb (3 min. 28 sec.). There were only two competitors in the class for cars costing between £720 and £1,000, M. Rulot, on a Serpollet, being first in 2 min. 5 2-5 sec., and M. Albert, on a C.G.V., second, in 3 min. 11 1-5 sec. The class for cars costing over £1,400 was competed for by two 60-h.p. Mercedes, that driven by M. de Larentre-Tholosan making the best time of the day, viz., 1 min. 42 2-5 sec., a speed equal to about 35½ miles per hour.

The competition, which lasted from soon after 1 p.m. almost till dark, went off without accident of any kind. The feature of the day was the success of the Gardner-Serpollet steam cars, which carried off the first place in each of the four classes in which they competed.

PUBLIC SERVICES IN ITALY.

A COMPANY has been formed to work a "Diligence" service in middle and southern Italy by motor-cars in place of the horse-drawn vehicles at present in use. After exhaustive tests an order has been given to the Compagnie Belge de Construction d'Automobiles, the makers of the well-known "Pipe" cars, whose representatives in this country are the London Motor Garage Company, Limited, for no less than 600 20-h.p. "Pipe" *chassis*, 300 omnibus bodies, and 300 wagon bodies. The motor vehicles will be so constructed that the omnibus body can be replaced by the wagon body, as occasion may arise, the change from one type of vehicle to the other occupying only half an hour to effect. The omnibuses will each carry ten or twelve passengers, and the wagons about two tons of merchandise. The Italian Government and municipal authorities have given their support and assistance to the motor service in a most practical manner. The roads to be traversed present unusual difficulties, but where awkward corners exist means will be taken to render them easy to negotiate. The Motor Transport Company will enjoy the same privileges as the Italian Railway Companies; there will be fixed stopping places, where only the passenger vehicles will stop to take up or set down. The municipal authorities of each city have agreed to furnish a station, with waiting room. The first service will be inaugurated on January 1st, 1905, and other routes will be arranged as quickly as the vehicles can be manufactured.

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A USEFUL FOOT-WARMER.

A USEFUL foot-warmer for use on motor-cars has lately been brought out by Messrs. Desponts and Godefroy, of Levallois-Perret, Paris. It is arranged to be fitted in connection with the piping connected with the circulation of the engine cooling-water. It consists of a flattened copper pipe, the ends of which are beaten and riveted together, and a two-way valve, the latter being fitted on the dashboard, so that the water may be made to circulate through the "chaufferette," as

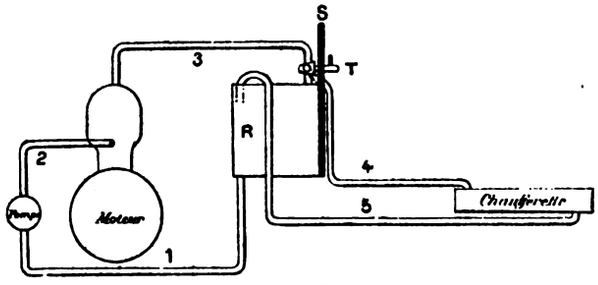


Fig. 1.—Diagram of Connections.

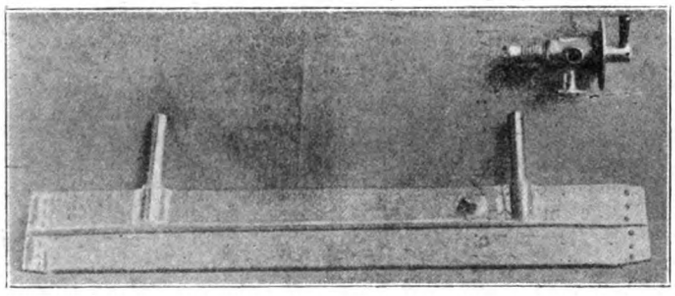


Fig. 2.—View of Footwarmer.

it is called, at will, or shut off when not required. The accompanying diagram shows the arrangement as applied to a De Dion car; it can, however, be readily adapted to any car. As will be seen, in addition to the pipes 1, 2, 3, which form the usual circuit of the cooling water, a pipe, 4, is provided to convey it to the chaufferette, and another, 5, to return the water to the tank. The two-way valve T is mounted on the dashboard, and when the foot warmer is not required the water is made to pass direct into the tank.

THE two Oldsmobile cars were last week put through the most severe test that they have had during the whole of the run, with perhaps the exception of the four days in Ireland, and the letters received from the two drivers have been very different from what they were for the first week or two. They have found their 100 miles a day very trying and difficult, on account of the terrible state of the roads and the fogs. The roads through Cornwall and Devon were beyond description, and, to make matters worse, in mapping out the route for them Messrs. Jarrott and Letts had taken them off the main roads, and they had to get right into some of the country lanes; still, in every case they completed their day's run at the town arranged for them. One day they drove fifty miles through nothing but fog and rain, and they had some very trying experiences, nearly coming to grief on several occasions, as the horses, especially in Cornwall, seemed unused to the sight of motors. The hills were very bad, and the surface was so greasy that the wheels absolutely refused to bite, and then when they had a very fine stretch of down hill, it was impossible for them to let their cars go, owing to the treacherous state of the roads. The run on Saturday was from Exeter to Bath; on Monday, Bath to Oxford; on Tuesday, Oxford to Stamford; on Wednesday, Stamford to Hatfield; finishing in London on Thursday morning.

CYLINDER COOLING.

PERHAPS no one thing in an explosive motor has received so much ingenious attention from designers and constructors as has the keeping of the cylinder in proper condition. To understand some of the difficulty of doing this, one must consider the causes which may increase or diminish the quantity of heat transmitted by the explosion of the mixture to the cylinder walls. In the first place, this quantity varies according to the dimensions of the cylinder, the volume of gas being constant. The loss of heat is practically proportionate to the area of the cylinder walls divided by the volume. There is, however, no proportion between the loss of heat and the number of explosions, since with the increased speed the gas is not so long in contact with the walls and is not cooled to the same extent.

All things being equal, a compression which raises the temperature, without the temperature of the cylinder walls being augmented at the same time, means, remarks Mr. T. Trenholme in the "Automobile Magazine," a greater absorption of heat by the cylinder. There are other causes of absorption, such as bad carburation and the existence of scale or fur in the cylinder head. This latter is often due to insufficient cooling, and should be carefully avoided. In radiating the heat from the cylinder it should be remembered that there is an interest in keeping the temperature as high as possible without decomposing the lubricating oil.

The oils generally employed cannot stand a temperature of more than 350 degrees Cent., and experience has proved that this point is not exceeded by keeping the water at a temperature of 80 to 100 degrees. This is, unfortunately, not the case with the valves, which work best at a low temperature, when they allow of the admission of a larger volume of gas. This seems to imply that the water should enter the jacket round the valves so that they would be sure to get the benefit of the low temperature. Some makers have even eliminated the jacket around the cylinder and contented themselves with circulating the water round the explosion chamber. The same result can, however, be obtained by varying the dimensions of the jacket, but care should be taken to ensure a circulation of water as active and regular as possible. Furthermore, the same water should be used over and over again as a means of preventing the formation of scale or fur, and for this reason the radiator should be designed to avoid any loss of water.

In considering the radiator, it will usually be found that its efficiency depends upon the difference between the temperatures of the air and water, the speeds of the water and air, and the form of the cooling surface. The honeycomb radiator has a greater cooling power than the older form of flanged tubes, but its construction is somewhat delicate.

Some experiments have recently been carried out with regard to the cooling of motors in the laboratory of the French Automobile Club, wherein it was found that when the water entered cold at the bottom of the cylinder there was less power than when it entered at the top. Logically the water should enter the cylinder at its hottest part, that is to say around the exhaust valves, which are always bathed, as it were, in very hot air. The cooling of the valves has a far greater influence on the running of the engine than is generally believed, and it should, in consequence, be given even greater study than it has so far received.

FOLLOWING the note in a recent issue, Mr. G. Goldschmidt, of 323, Green Lanes, London, N., asks us to mention that he was the first to introduce the Merz motor goggle in this market some years ago, and is still the sole agent for the United Kingdom and the colonies. He is supplying these goggles with the new Merz patent interchangeable capsules, which very much facilitates repair in case of breakage of glass or mica. The new catalogue, which we mentioned in our previous note, is now published, and includes also his "Original Doubletwist" and "Octopus" horns, as well as the "Zanardini" headlights.

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HERE AND THERE.

THE Derby and District Automobile Club has now a membership of a hundred.

LORD WINDSOR will probably preside at the inaugural dinner of the South Wales Automobile Club in December.

THE Reilloc Tyre Company, Limited, has been registered with a capital of £10,000 and with offices at 122, Victoria Street, S.W.

MR. J. W. LOVEGROVE has taken the management of the tailoring department of Messrs. Alfred Dunhill, Limited, in Conduit Street, W.

MESSRS. W. HANCOCK AND CO., brewers, of Cardiff, are thinking of adopting a two-ton petrol wagon for their bottled beer business.

LORD ONSLOW, the President of the Board of Agriculture, continues his visits to agricultural associations, generally travelling by motor-car.

A MOTORIST who collided with a market cart at Church Stretton has been censured by a coroner's jury for not giving audible notice of his approach by sounding his horn.

ON the 2nd prox. a presentation will be made to the hon. secretary of the Yorkshire Automobile Club, at the headquarters, and on the 25th prox. the annual dinner of the organisation will take place.

MR. A. MEIER is now stocking petrol at Redhill. Being twenty miles from London and thirty-two from Brighton, he is in a convenient position for supplying those travelling from the Capital to the sea.

MESSRS. PETO AND RADFORD'S "Ashtead" accumulators were used by Mr. Archibald Ford on his recent non-stop motor trip. The first 1,500 miles were finished on one accumulator, and the trip of 2,391 miles on a second.

THE IDEN MOTOR-CAR COMPANY has been registered with a capital of £10,000 to acquire the business of motor-car maker carried on by Mr. G. Iden, at Fleet Works, Fleet Street, Coventry, as the "Iden Motor-car Company."

MESSRS. SAVAGE BROS., LIMITED, King's Lynn, have lately completed a steam sanitary wagon for the Folkestone Corporation. The engineer of the borough reports that the vehicle is used for street-watering and does as much work as six horse-drawn watering-carts.

THERE is a possibility of the Automobile Club of Victoria having to postpone its motor race meeting, which was to be held on the 31st October, on the new automobile racing track, at Aspendale Park, near Melbourne, the recent heavy rains having delayed work on the track.

MR. W. P. BURKE, Fethard, co. Tipperary, has recently devised a series of improvements in and connected with the dashboards and foot-boards of motor-cars. His object has been to increase the comfort of the front occupants by sparing them the numerous draughts caused by the side openings and others attributable to the ordinary dashboard arrangements. In his device the effect is gained by diverting the air currents in another direction, by means of a series of simply designed wings made in wood, or light sheet metal. These are affixed to the sides of the dashboard by means of brackets on hinge pieces, which latter may be said to be the only permanent fixtures necessary to attach to the vehicle. The draught screens themselves in no way interfere with the roominess of the car, nor require the alteration of any fitting, lever or controlling device; on the contrary, they add to the lateral width of the car, forming as it were a pair of outside pockets. As arranged for the front dashboard the fitting forms a sort of semi-dome shaped cupboard, suggestive of the type used on Daimler cars, but, being hinged, may be swung flush with the top of the dashboard. The various dashboard fittings, lubricators, clock, gauges, etc., are thus protected from the weather, and their inspection rendered easy by the tilting movement of the dome-shaped cover. The pockets formed by the angle fastenings at the side of the dashboard and the side draught screens form convenient receptacles, or may be used to attach lubricators, carriage clock, and similar light fittings. Judging from the drawings sent us by Mr. Burke, the device seems likely to prove a success and should prove of interest to motor-body builders.

THE Duke of Connaught has so far recovered that he has been able to again go a motoring.

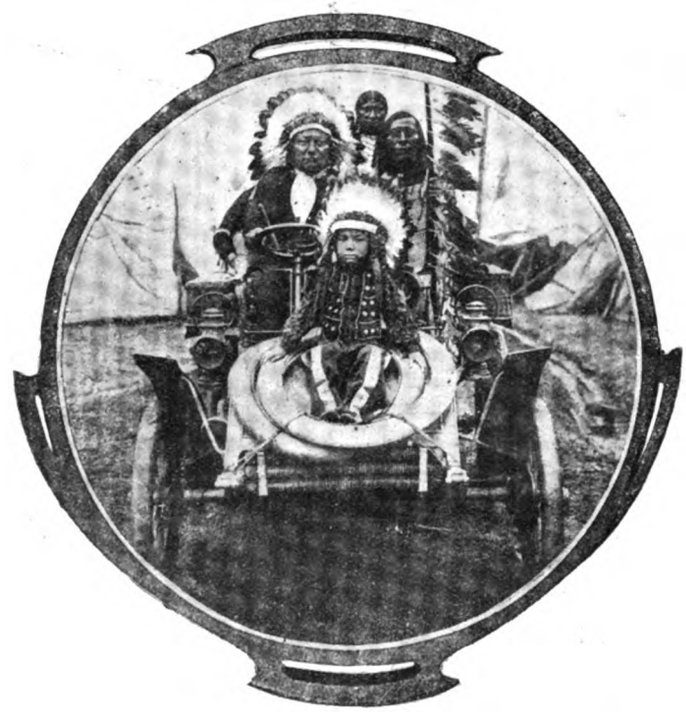
THE King's motor-car was kept at a standstill in Brentford's narrow High Street recently owing to a heavy lorry being slightly ahead of the vehicle.

THE Paddington Borough Council have petitioned the Local Government Board to limit the speed of motor-cars all over London to ten miles an hour.

MR. G. P. RUE has acquired the motor repair business of Mr. C. Wood at Paddock Wood, and is adding an inspection pit to the accommodation for motorists.

THE motor char-a-banc built in Paris for Yarmouth, to which reference was made in a recent issue, has arrived, being driven there by Mr. H. Bateman, the managing director of the Pioneer Cycle Company, Limited, of Great Yarmouth.

THE Palmer Tyre, Limited, are to-day (Saturday) transferring their head offices from Martineau Street, Birmingham, to more commodious premises, Nos. 119, 121 and 123, Shaftesbury Avenue, London, W. The warehouse at Belmont Row, Birmingham, will be retained for the distribution of tyres in the Midlands.



A Sioux Chief and his Family on an unaccustomed spin.

A CLASS for instruction in automobile engineering is about to be started at the West Side Auditorium of the Young Men's Christian Association, New York. The class will be open to pupils desirous of becoming professional chauffeurs, and also motorists who seek to acquire a thorough working knowledge of their cars.

WE learn that Messrs. Brown Brothers, Ltd., are making a speciality of fitting four-cylinder engines in place of two-cylinder engines in the cars of those motorists who desire more power. This work is done at their West End depot, 15, Newman Street, where they have every facility and convenience for doing it promptly and satisfactorily.

MR. E. KENNARD draws our attention to a new motor-horn with reed mouth-piece, which gives notice to careless carters on the wrong side of the road at least a hundred yards further than any horn he has previously used. Another article which he has found serviceable is a petrol gauge, which is soldered flush on the top of the tank. The cork inside the tank, floating on the surface of the spirit, turns an indicator in the little dial, which tells at a glance what amount remains within. Messrs. Dunhill's, Ltd., are agents for these specialities.

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THE report that the German Daimler Motoren Gesellschaft is at work on an 8–14-h.p. three-cylinder Mercedes car is denied.

THE United States Heating Company is adapting its system of heating buildings by independent generators outside their walls to garages.

MR. W. L. DUCK drove a 20-h.p. Winton car in the speed trials at Blackpool, and secured third place in the flying kilometre test for cars costing under £500.



The Doherty New Pattern Standard Bonnet.

AT the twenty-sixth annual ploughing match of the North Kent Agricultural Association at Dartford, on the 3rd prox., there will be some exhibition trials of double furrow ploughs fitted with agricultural motors.

THE Société des Automobiles Ader, Limited, has been registered with a capital of £12,000, to adopt an agreement with M. L. Duchanoy, and to carry on the business of manufacturers and repairers of and dealers in automobiles, &c.

ASTER, LIMITED, is the title of a company just incorporated and fully subscribed, which has purchased the goodwill, name, and business of the Begbie Manufacturing Company, Limited, and will continue to carry on the business in the same manner as hitherto under the same management. Mr. S. D. Begbie will continue as managing director.

THE Garcin Renault Electric Cars and Accumulators, Limited, has been registered with a capital of £20,000, to adopt an agreement with M. P. Verhaeghe, and to carry on the business of dealers in and factors and vendors of motors, motor-cars, motor-yachts, launches, air ships, accumulators, and other vehicles of all kinds, whether propelled by electricity, steam, petrol, alcohol, gas, or other motive power.

MR. A. BRUCE-MOORE has been appointed agent for the United Kingdom for the Harburg and Vienna India Rubber Co., and has opened a depot at 193, Corporation Street, Birmingham, for the sale of motor-tyres and all kinds of rubber goods. The firm have a patent rim, one side of which is detachable by means of clips, and it is claimed that a punctured tyre can be taken off the rim and replaced in a few minutes.

IN rebuilding worn tyres the Glasgow Motor Tyre Co., of 71, Waterloo Street, Glasgow, have attained distinction, and from the section of a motor-car tyre which they have renovated it is clear that they have every facility for doing good work. Their method is to thoroughly strip the old rubber off and replace it with new, rubber of a good quality being used. The company are sole proprietors of the Cassell non-puncturable band for motor tyres.

THE Highways Committee of the London County Council report that from September 24 to October 8 they registered 114 motor-cars and 69 motor-cycles, thus making the total number of cars and cycles registered up to the last-named date 4,585 and 3,147 respectively. The Clerk of the Council has also issued during the same period 122 licences to drive motor-cars or cycles, and general identification marks for motor-cars have been assigned to four manufacturers or dealers, the total number of licences and general identification marks issued being 11,130 and 291 respectively.

IN their latest booklet descriptive of their non-skidding bands, the "Otto-Bennett" Motor Company draw attention to their "Otto" detachable non-skid, which can be attached in less than three minutes, and from its construction it is practically impossible for it to creep or come off. The strength of the tyre is said to be considerably increased, and bursts and punctures are practically unknown in their experience. The See unpuncturable band and the "Stepney" patent wheel for motor-cars also find illustration in the catalogue.

THE Atlas Brass Foundry Co., of Brooklyn, U.S., has during the past few months successfully repaired a number of broken aluminium castings—parts of automobiles—by a new and interesting process. The repairs made have been mostly to gear boxes or engine crank cases, from which a supporting lug had been broken, or in which a crack had developed. In cases of the first kind, if the part broken off is comparatively small, no attempt is made to use the old piece, but new metal is cast on and the original shape of the part restored. To do this, the larger part of the casting is imbedded in sand for some distance from the break, and the smaller piece is used to form a mould for the new metal to be cast on. Molten aluminium, together with a special flux, is then poured into this mould, and is specially treated as it cools. In cases where the casting is cracked, or a large piece is broken off, the method of procedure is somewhat different. Both parts are imbedded in a mould, with the broken edges abutting. The molten metal and the flux are then poured between them, and the cooling process used as in the other case. A perfect continuity of metal from the old part to the new is said to be obtained in this manner, and it is impossible to tell, even by cutting into the metal, where the old metal stops and the new begins.

THE accompanying illustration shows a portable work bench and tool chest adapted for use in connection with the repair of motor-cars, which has lately been brought out by Messrs. Thos J Syer and Company. As will be seen, it comprises a complete repairing outfit for a motorist or motor repairer, and in addition a bench to work upon. It can be wheeled to any point, and the

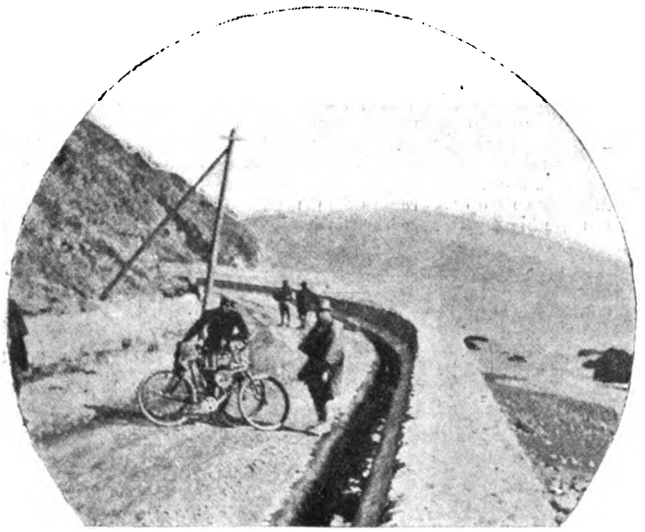


necessary repairs made on the spot, thus saving much valuable time. The bench can also be used in the workshop as an ordinary table, and the tools can be kept under lock and key when not required for use. The bench top measures 3 ft. 6 in. by 1 ft. 10 in., while the tool chest is 2 ft. 6 in. long. The combination is fitted with screw bench stop, locks and keys for tool chest, an engineer's vice, and all necessary fittings and tools to customers' requirements.

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MOTOR CYCLING NEWS.

On Saturday next, the 5th prox., the Automobile Cycle Club will hold a reliability trial for motor-cycles designed to carry two passengers, fitted with change speed gears and costing under £100. The start will be from either Barnet or Hatfield and the route probably through Hertford, Royston and Newmarket.



Motor-Cycling in Japan. On the way to Fusiyama.

The Coventry Motor-cycle Club have decided to continue the Saturday afternoon runs for the next three months by arranging a country headquarters at the Duncow Hotel, Dunchurch. An attendance book will be kept at the hotel, and members should insert their names on the outward journey, stating which route they have taken and the time they expect to return. By this means those who do not wish to extend the journey may know that they will have company at teatime and on the return journey. Mr. W. Grew, or a member of the committee, will leave the L. and N.W. railway arch on the London Road, Coventry, every Saturday at 2.30 p.m.

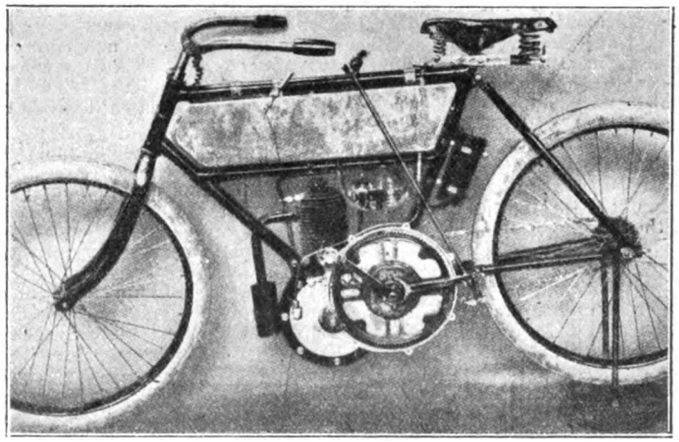
The Birmingham Motor-cycle Club have recently held a competition, the finish of which took place on Saturday. A flat bye road near Erdington was marked out as a starting and stopping course. This consisted of about a third of a mile, with two lengths of twelve feet, at equal distances, within which the competitors were obliged to bring their engines and road wheels to rest and restart. This distance was covered against the watch, making three starts and three stops, this proving a very fine test for the brakes. The times were:—Mr. Downing, 1 min. 15 3-5 sec.; Mr. Winckle, 2 min.; Mr. Thompson, 2 min. 30 sec. Mr. Downing was declared the winner of a three-guinea prize.

The "Adaptable" is the name of a new driving belt for motor-cycles which has lately been put on the market by Messrs. S. Rawlings and Sons, Limited, of Frome. The new belt, instead of being made of two or three continuous strips of leather fastened together, is built up of a series of short lengths of leather connected together in a simple manner and in such a way that a short tongue projects every few inches on the under-side of the belt; the tongue wedges itself in the V-groove of the pulley and so prevents the belt slipping, while allowing it to leave the pulley freely when it has completed its circuit. It is claimed for the new belt that it is exceedingly pliable, and that, owing to its gripping powers, it can be ridden slacker than usual. It is also easily shortened when necessary.

Messrs. Crudginton, Kennedy and Co., Birmingham have brought out a new belt fastener known as the "Flexo," designed by Mr. J. T. Flood, of Dublin. The device is of the hinged-plate type with a threaded wire for each hinge, one end terminating in a looped joint, through which the pin which couples the hinged plates together passes, the other or free end terminating in a screw, bent at right angles, and passing through a hole in the end of both plates. The latter being of a short length, the belt may be readily bent over even a small pulley without straining the fastener, this being also facilitated by the holes in the plate being larger than required to fit the screwed wire. The method of attaching the fastener is very simple; the plates are merely laid over the top of the belt and a hole punched to meet the one in each. The free end of the binding screw is then passed through from the under side of the belt and screwed taut.

The Manchester Motor Club held its first hill-climbing competition on Saturday last. The event was confined to motor-cycles and fore-cars, and was in the form of a handicap. The course was on the mountain road up to the "Snake," on the borders of Derbyshire, about fifteen miles from Manchester, the starting-point being a mile and a half from Glossop. The course measured about a mile and a half. There were twenty-two entries, of which eleven competed. The men were sent off at two-minutes intervals, fifty yards behind the starting line, up to which they were allowed to pedal, but not beyond. The best time was made by H. Andrew, who, on a 3¼-h.p. Fleet, with 10 sec. start, made the climb in 2 min. 59 2-5 sec.

A new motor-bicycle which is at present attracting much attention in France is the "Magali," made by Messrs. Gaillon and Co., of Levallois, near Paris. The feature of the machine lies in the system of transmission. As will be seen from the illustration, the power of the engine is conveyed through a small pinion on the engine shaft to a large toothed wheel running loosely on the bottom bracket spindle. Combined with the wheel is one-half of a leather-laced cone clutch, which by a lever, controlled from the top bar of the machine, can be made to engage with the female part of the clutch, also mounted on the bottom bracket spindle, from which the engine power is transmitted to the rear wheel by the usual pedalling chain. The illustration shows a machine fitted with an engine of 1¾-h.p. and weighing only 88 lbs., which is, owing to the direct transmission, claimed to



be able to attain a speed of forty-four miles per hour on the level and to mount all ordinary hills without pedalling.

The Sheffield Automobile Club will meet to-day (Saturday) at Beeley, beyond Chatsworth Park, at 4 p.m.

Further evidence of the resiliency of the Palmer Cord motor tyre was afforded by the fact that the fastest time in the racing class for the flying kilometre at the Blackpool Speed Trials was made by the only car—the Napier driven by Mr. Clifford Earp—fitted with Palmer tyres.

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CORRESPONDENCE.

THE BLACKPOOL SPEED TRIALS.

To the Editor of *The Motor-Car Journal.*

Sir,—In the interests of the steam car and its advocates, we wish to bring the following facts to the notice of your readers. Two Gardner-Serpollet steam cars were entered by us, under their respective selling prices, for the speed contests at Blackpool. The entry and fees were duly acknowledged by the secretary, but, four days before the race we were advised by telephone that these cars would not be permitted to compete with the petrol cars, as they were reputed to be able to gain greater speeds than the latter. We pointed out to the secretary that the classification was by price, and that there was no mention of the events being restricted to petrol cars, and it was obvious that one of the objects of the race was to find out the fastest car at a given selling price, and we could not see any reason why the Serpollets should be debarred from running, but nevertheless the committee remained firm, and our cars were not allowed to compete. As the races at Blackpool were classified under selling prices, we cannot see any just or reasonable explanation for debarring our Serpollet cars from competing, and we hope at future race meetings the committee will not again place these cars under a ban, but allow them to stretch themselves in a race against petrol cars selling at the same price.—Yours truly,

J. W. H. Dew.

To the Editor of *The Motor-Car Journal.*

Sir,—Will you allow me, through the medium of your valuable paper, to say a few words about the motor speed trials at Blackpool? It seems a pity that these trials are not entirely organised and carried out by a committee of Blackpool or other gentlemen who are unbiassed and who would act fairly in the matter to all cars alike. I was looking forward to this meeting and had arranged to enter two cars in some of the events. On the official programme and entry forms there was absolutely no stipulation whatever against the steam car, and yet two days before the races commenced I was informed that steam cars would not be allowed to run. I take it the Blackpool people and general public want to see the fastest car win, and it really seems extremely unfair that such excellent motor-cars as the White, Stanley, Turner-Miesse, and Serpollet should be prevented from running.—Yours truly,

Fair Play.

REPAIRS IN DUBLIN.

To the Editor of *The Motor-Car Journal.*

Sir,—In a recent issue of your paper you print an extract from an article written by Dr. Abbott, of Tunbridge Wells. As this reflects upon my capacity as a motor repairer, I beg to give you the facts of the case. The doctor drove his De Dion car here and requested that his expanding clutch be adjusted. My foreman expressed regret that he could not put a man on to it just then, at which the doctor became choleric, declaring that if he had the facilities he would do the work in ten minutes. Thereupon my foreman placed my garage and tools at his disposal, and the doctor and his friend put in a good two hours' struggle with the refractory clutch, which latter finally came out victorious, having eluded the doctor's best attempts at bringing it back to working order. One of my men put it right when he took it up late that night. The doctor misrepresents the facts when he suggests that at least six of my men had a try at it.

During the time he was in the garage I passed through, and Dr. Abbott complained to me rather furiously of the De Dion agent's business methods. (Most people are furious at the end of an unsuccessful two hours "set-to" with a motor-car.) I explained that the firm were new in the business, only sold the cars, and did not pretend to be repairers. I added that he could, however, safely leave his car with my men, as they executed repairs for His Excellency the Lord Lieutenant.

Of course it must have been to introduce a spice of humour and fun that he quotes me as addressing him "Sure Sor" and "Oireland." These are good things to tickle an Englishman's fancy, and he catered accordingly for his readers in "The Kent and Sussex Courier." "Sor" does not exist in any brogue, and "toimes" and "Oireland" are a pure East Endism, as the doctor knows well, for did he not come to Dublin in his youth to receive his education? I can understand Dr. Abbott being as he was at the time, irritated, but I submit it was churlish, not to say libellous, to recount his experiences to my prejudice. Apologising for troubling you with so lengthy a communication.—Yours truly,

Dublin. J. J. Keating.

GEAR TROUBLES.

To the Editor of *The Motor-Car Journal.*

Sir,—I have just read "F. W. B.'s" letter in the last issue of the *Journal.* This appears to me to be a case of trying to change gears without first releasing the clutch, which would, without doubt, soon wear the gears out. In some cases the first gears are found to be difficult to get in, especially when the car is stationary, owing to the clutch continuing to run, but this difficulty can easily be overcome by fitting a small block for the clutch to rub against when the same is released. With regard to the second and top speeds, these ought to cause no trouble if the clutch is first released. The most reliable way to caseharden gears is by means of a muffler, which is filled with scraps of leather and bone dust. The work to be hardened is placed in with this, a lid put on, and the whole kept at a blood-red heat for several hours, according to size of work and depth to be hardened; after which the work is cooled off either in water or oil.—Yours truly,

Expert.

THE REPAIR OF ROADS.

To the Editor of *The Motor-Car Journal.*

Sir,—I wish through your columns to protest against the way in which trenches dug across the road are filled in, making a huge ridge that must be a source of danger and discomfort to all users of the road. Only last Wednesday night, coming from Coulsdon on to Purley, I ran across a ridge of this description just made. My car, being a small one, pitched very badly and shot both my passenger and myself right out of the seat. It was a wonder the springs of the car were not broken; but fortunately, so far as I can discover, a badly bent chain stay is the only damage done.

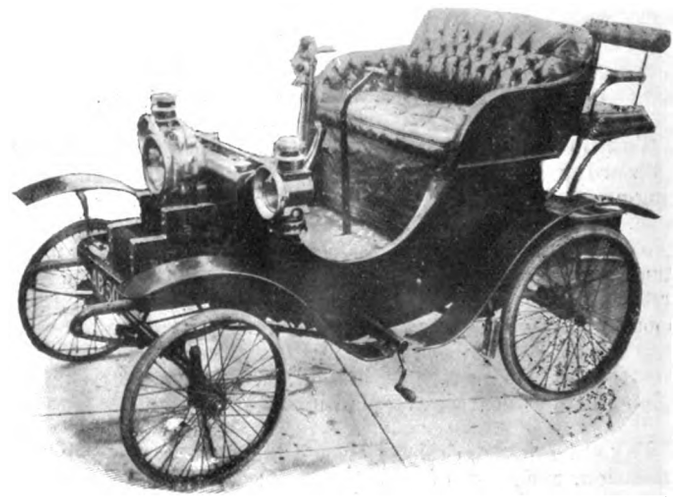
A correspondent of yours recently suggested the making of these ridges in order to stop "scorchers," but it seems to me the small cars suffer more than the big ones from inequalities in the road surface.—Yours truly,

4½ H. P.

LEVER STEERING.

To the Editor of *The Motor-Car Journal.*

Sir,—As you suggested in a foot-note to a letter of mine some months past, I now send a photograph of my car fitted with rather an unusual form of lever, as an experiment. It is quite successful, and far preferable to a wheel in ease of control, and is easy of access to seat. This is the second



car from which I have removed wheel steering and fitted lever instead. The upper end of the lever is 28 inches long, and the lower end below pivot is six inches. Tested by spring balance a pull of six to eight pounds will send the wheels right over, when car is standing on a stone pavement. Will anyone test the pull required by ordinary wheel steering? I think it will be found to require considerably more than this.

Any form of lever steering, combined with inclined wheel pivots, would be much more comfortable for small cars than the wheel, and would be non-reversible, without special fittings as required by wheel, and therefore cheaper to make?—Yours truly,

A.B. 50.

RELATIVE SPEEDS OF MOTOR-CARS.

To the Editor of *The Motor-Car Journal.*

Sir,—It has frequently been discussed what are the uses in this country for high-power motor carriages, and to what extent such cars can be utilised on the roads of England.

During the past week I had an interesting demonstration as to what extent a motor-car of 60-h.p. is superior in speed to a car of one-half this horse-power. I was a passenger on a Mercedes car of 60-h.p. on a run of 290 miles to London; the other car which was engaged upon this run was a 28-h.p. Crossley. The latter car started five or six minutes in advance of the higher power car. An early start was made, so that London could be reached the same evening. When the cars started the roads were very wet, and there was a continuous drizzle; however, after the first ninety miles the weather cleared and everything was in favour of good running, the roads being in perfect condition. There was no element of a race between these two cars, but both were driven by expert, reliable, and careful drivers. Being on the much more powerful car, I was under the impression that we should very quickly pick up the Crossley car; however, it was not until 200 miles had been covered that we came in contact with it, when we found the passengers just on the point of completing their lunch. It may be stated that both

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cars pulled up on the road in the morning for half an hour, for the purpose of replenishing the petrol tanks at different points of the journey. The ultimate destination of the two cars was in close proximity in the West of London, where both arrived within five minutes of each other. Of course, there is no question as to which was the speedier of the two cars, but this interesting run goes to prove it is only possible on English roads to gain a very slight advantage, if any, in average speed on a day's run with any power above 30-h.p. I can vouch for the 60-h.p. car being driven at its utmost speed, having regard to the nature of the traffic on the road. No stops were made by either car on the road, except for the purpose above-named.—Yours truly,

J. S. CRITCHLEY.

BELT TRANSMISSION.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—As one of those motorists who have a hankering after a good belt-driven car, on account of the simplicity of the same and small cost of upkeep, I was very interested in Mr. C. Dent's letter in the *Journal* of the 15th inst. and the separate specially illustrated description of his belt-race cone system of transmission. It would be interesting, I am sure, to those of your readers who are not mechanical enough to see the weak spots in this method of transmission, if somebody who is an engineer would point them out. Mr. H. Cove in your issue of the 22nd inst. also gives a very interesting account of a belt-driven car he has. It would, I am sure, be also interesting to your readers if Mr. Cove would inform us where such a car as he has can be obtained, and the probable cost, number of speeds, power of engine, and the make and width of belts used, also a minute description of the novel belt adjustment he mentions. V388

A good method of belt transmission would, I think, do a great deal to popularise motoring with the man of moderate means, on account of the smaller initial outlay, economy in upkeep, ease of change from one speed to another as compared to gear-driven cars, etc., absence of noise, etc.—Yours truly,

LANCASTRIAN.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—The correspondence on this subject has been most interesting, but I am rather surprised at the lack of criticism on the part of those who run down belt drives. The invention of Messrs. Dent, in your issue of the 15th inst., has a formidable list of claims, which, if maintained, would easily give this neglected drive a place again. I am not an expert, but should like to hear what such have to say on the matter. Such possibilities in belt transmission as would appear from this correspondence, and particularly that in the *Journal* of the 15th inst., by all means ought to be speedily available. If, on the other hand, those who know can finally urge such objections as will condemn it, let them give them.

Such points as extreme simplicity, mechanical correctness, small upkeep, etc., are those that business men in particular appreciate.—Yours truly,

J. B.

QUERIES FROM SOUTH AFRICA.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—In your issue of September 3rd I notice in a letter written by "A. H. 59" he says he has used stout bands on the wheels of his Locomobile and had no punctures. I am also the owner of a similar car with 28 in. wheels and single tube Diamond tyres. Would "A. H. 59" kindly inform me, through your paper, the name of the maker of these bands and where I can procure them?

I am just now expecting a Model B Cadillac car, and shall later let you know how it behaves on our South African roads and under our summer sun.

These light car trials now going on are very interesting to all intending motorists out here, and have already, to my mind, demonstrated how few really reliable hill climbers there are among the legion of different makes, and should do more to enable correct choice than anything yet tried.

Can any of your readers tell me if the motor-bicycle is yet built that will take a passenger up Frome's Hill; if so, name and horse-power?—Yours truly,

South Africa.

G. C. WILLIAMS.

LIGHTS ON VEHICLES.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—Having read a paragraph in the *Journal* asking readers to report on accidents caused by vehicles improperly lighted, I send the following incident. A few nights ago a friend was riding a motor-bicycle, to which a side-car was attached (empty), along the road between Ashtead and Leatherhead, when he noticed a light some distance ahead, and he steered, as he thought, to clear the object, when to his surprise he ran into it. It turned out to be a traction engine, and was standing still on the off side of the road with the only light on the near side, giving one the impression that there was sufficient room to pass. There was barely three feet between engine and bank. It smashed the front of the side-car and bicycle. The rider was fortunate to escape with a severe shaking, causing him to be kept from work for two weeks. If he had not been well acquainted with the road he must have been killed. I was informed that the driver was sitting in front of the engine fire warming himself.—Yours truly,

A CAREFUL DRIVER.

EXPERIENCE WITH THE REXETTE.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—Would any of your readers give their experiences in regard to the Rexette, as I am thinking of getting one of these little cars? I would like to know something of its hill-climbing powers, speed, petrol consumption, or any other detail that would be of any use to a beginner. Mine is a very hilly district.—Yours truly,

A REGULAR READER.

THE RULE OF THE ROAD.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—I see in your comment on the accident to the Duke of Connaught you put the entire blame on the cart, which was admittedly on its right side of the road, for being without lights. It is quite evident, and perfectly clear to me, that the accident would not have happened at all had the driver conformed to the rules of the road. It was simply his wilful transgression of these, in attempting to pass the tramcar on the off-side, which was the cause of the regrettable accident. How long will it be before motorists and also cyclists will understand that the ordinary rule of the road "to pass vehicles which are being overtaken on the right-hand or off-side" *does not* apply to the passing of tram-cars which run on fixed rails. The only side on which trams should be passed is on the near-side, between the car and the kerb of the footpath. The sooner this is learnt as a general lesson by all road-users, the better for everyone. There will surely, sooner or later, be a most serious accident if motorists will persist in defying the rules of the road and passing trams on the off-side, and so putting themselves in the best possible position to be smashed into by an oncoming tram or other vehicle, or running down something themselves.—Yours truly,

COCKNEY.

ALTERING A DE DION CAR.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—Will somebody kindly inform me how to alter a 4½-h.p. De Dion car so as to place the engine in front, put in tiller steering and actuate the gears and reverse by foot pedals? A detailed reply would greatly oblige—Yours truly,

R. N. P.

STEAM CARS.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—Unfortunately, there is still a prejudice against steam propelled cars amongst a certain class. The performances of petrol cars are usually chronicled fully, but, as a rule, the performances and successes of steam cars—when, as is very rare, they are given a chance of competing on equal terms with petrol cars—are practically ignored, or passed over without comment. Why should not steam cars be allowed to compete with petrol cars in hill-climbing competitions or in speed contests, like the one recently held at Blackpool? I take it that hill-climbing and speed competitions are held to select which cars are the best for those purposes, and I entirely fail to see why steam cars should not be allowed to compete with petrol cars, or why they should be relegated to a class of their own, and compete merely with one another. At Blackpool last week I heard a good many enquiries as to why there were no steam cars running, and I think very few of the motoring public had any idea of the reason, which was that, by the decision of the committee, no steam cars were allowed to compete in any of the classes with petrol cars.

The steam car industry, if it is given a chance, bids fair to return to its old prosperity, and I think the public might be reminded of some of the recent successes of steam cars, such as—1. The wonderful success of the Stanley in the Mount Washington Hill climb. The small Stanley made faster time than any other car entered, doing the distance of eight miles of steep rugged road in 31 min. 45 sec., the previous record being about 50 min. 2. The great success of the Turner-Miesse steam cars at the recent open hill-climbing competition held at Bridgnorth under the auspices of the local Automobile Club, when all three 10-h.p. Turner-Miesse cars entered made faster time than any petrol cars entered of anything like equal power. 3. The all-round win of the White cars in the hill-climbing competition held by the Herefordshire Club, when White cars gained first, second, and third places, and altogether scored a great success.—Yours truly,

A STEAM CAR ENTHUSIAST.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—If your correspondent "W. T. Warne" is in the London district, I should be very glad to see his Locomobile, and show him my Weston, which I have had in use two years. I find the throttle as fitted in these cars very troublesome at high pressures, it being sometimes almost impossible to prevent the engine racing, and I am sure a screw-down valve is better if it can be easily fitted. Your correspondent "G. K.," who met with such disaster over his needle valve, should surely have known that

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one revolution is usually sufficient to open such a valve. All the American made valves I have seen come right out, but there is always a fairly long thread on the stem requiring many turns to bring it out.—Yours truly,

E. F. CALLAND.

THE HORSE POWER OF PETROL MOTORS.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—I have been much interested in the various letters on this subject which have appeared in recent issues of the *Journal*. The whole question of motor power is one which has been treated in an unfortunate manner from its commencement, and even the ill-named unit by which it is commonly measured has proved a fertile source of misconception. It is easy, of course; to fix a calculated output for a given size and type of motor, and allow no engine to leave the workshop unless it reaches this standard in a workshop test; and, provided the standard is high enough to ensure the best of workmanship and adjustment, this is, perhaps, the most legitimate use of the definition. But "horse-power," according to this, does not provide the information which the average purchaser desires; in the first place, his engine will seldom work up to its workshop standard, if high, or may improve with use, if low, and also, whereas he would like to be able to roughly estimate the qualities of his car by a horse-power weight ratio, the omission of the question of transmission efficiency makes this impossible. Secondly, the extent to which the construction of the engine permits the normal speed to be exceeded will cause wide differences in the actual performance of engines having equal b.h.p. according to this test at the normal speed. The practice, frequently adopted, of listing engines at anything from 10 to 42 per cent. below their actual maximum power has led to hopeless confusion, increased by the few makers who state the actual average power as nearly as possible, or, following cycle-motor practice, list them at something rather more than any driver will ever get out of them. It is difficult to suggest a remedy, unless it were that, now that most motors are fairly well-designed, cylinder capacity should be quoted for comparison.—Yours truly,

T. C. PILKINGTON.

A COMMERCIAL TRAVELLER'S MOTORING EXPERIENCES.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—During the past six months I have been running a 6½-h.p. Coventry Humberette on my journeys throughout the Midland Counties, and have found it not only a very pleasant means of travelling, but also more economical in time, especially to such towns as Leicester, Burton-on-Trent, Redditch, and Nottingham, which places are slow of access by rail. Another advantage is that one can start as early as one chooses, and on the return journey need not consult a time table. The expense of running a reliable small car is comparatively small, as something like thirty to thirty-five miles can be covered on a gallon of petrol, and although to date about 3,000 miles have been covered, the car is in even better condition than when new, as all the parts have been thoroughly tested, and the engine is in freer working condition. Beyond ordinary ignition troubles and a few punctures, very little has occurred to mar the pleasures of motoring, and it is only a question of a little experience and confidence for scores of travellers similarly situated to adopt the motor-car for their journeys.

Another class of men who are fast joining the ranks of motorists are retired tradesmen and business manufacturing men of moderate means, who, having plenty of time on their hands, fill it up by admiring, cleaning, and driving about at their leisure. Hitherto, the obstacle in the way had been unreliability, but this cannot now be made an excuse.

Going back to the car under consideration, it has proved to behave admirably in crowded thoroughfares, being fitted with all the necessary levers and points for perfect control in traffic. It is very free from side-slips; in fact, has never shown a tendency in that direction, although on several occasions it has been driven over miles of greasy tram lines and setts in the Birmingham streets. There is ample brake power for the steepest of hills and cases of emergency. It has sufficient power to climb gradients of 1 in 5, and can usually get up all ordinary hills on the top speed.

On the level a shade under thirty miles per hour can be attained, although I seldom drive above the legal limit, as, from experience, I consider that a small car can be over-driven, and prefer to use the extra power for hill-work. For a single cylinder the car is comparatively quiet, and, owing to the body being well sprung, is very free from vibration. I have had a few special parts added to the car, such as Doherty's transverse tubular radiator, which has so far not given one moment's anxiety. As to tyres, I have been running a pair of Clipper Continentals on the back wheels, and Palmer cord tyres on the front. The distance of 3,000 miles, however, has made little or no difference to their appearance, as they are practically free from cuts, and show very little sign of wear.—Yours truly,

MIDLAND COMMERCIAL.

THE BLACKPOOL SPEED TRIALS.—The Speedwell Motor and Engineering Company, Limited, have sent us a long letter in reply to that from the Duryea Motor Company relating to the disqualification of the latter's 10-h.p. car. They state that they quite fail to see why "the protest of Messrs. Carter and Horsfall, the Anglo-American Motor Company, and ourselves should not in fairness have been upheld. The Duryea Company are certainly incorrect in the statements embodied in their advertisements, wherein they announce that they beat our 10-h.p. car by 400 yards. Unless Mr. Sturmey did his own timing, we cannot see how he can arrive at this figure; the official times are certainly not used. The Duryea Company also state that they have made better times than any of the cars under Class D. A reference to the official times will at once prove this incorrect."

STARTING HANDLE FOUND.—Mr. C. Botwright, 7, Whitfield Road, St. John's, Tunbridge Wells, has found a starting handle on the road between Hailsham and Eastbourne, which he will be pleased to return to the owner.

PUNCTURE PROOF BANDS.—In reply to the inquiry of "Irish" in our issue of the 1st inst., Mr. E. F. Cotterall writes commending the Wilton-Cox puncture proof bands.

IGNITION TERMINALS.—In answer to several correspondents, the ignition terminals illustrated in a recent issue of the *Journal* are made by the Chater Lea Manufacturing Company, Limited, 114, 116, 118, 120, Golden Lane, London, E.C.

GEAR TROUBLES.—Messrs. Friswell write in reply to "F. W. B.," to the effect that this is the first "we have ever heard of trouble with the gears of a Baby Peugeot, and that out of over five hundred of these machines running about they have never heard such a complaint before." If "F. W. B." will kindly communicate with them they will see what his trouble is, and put the matter right.

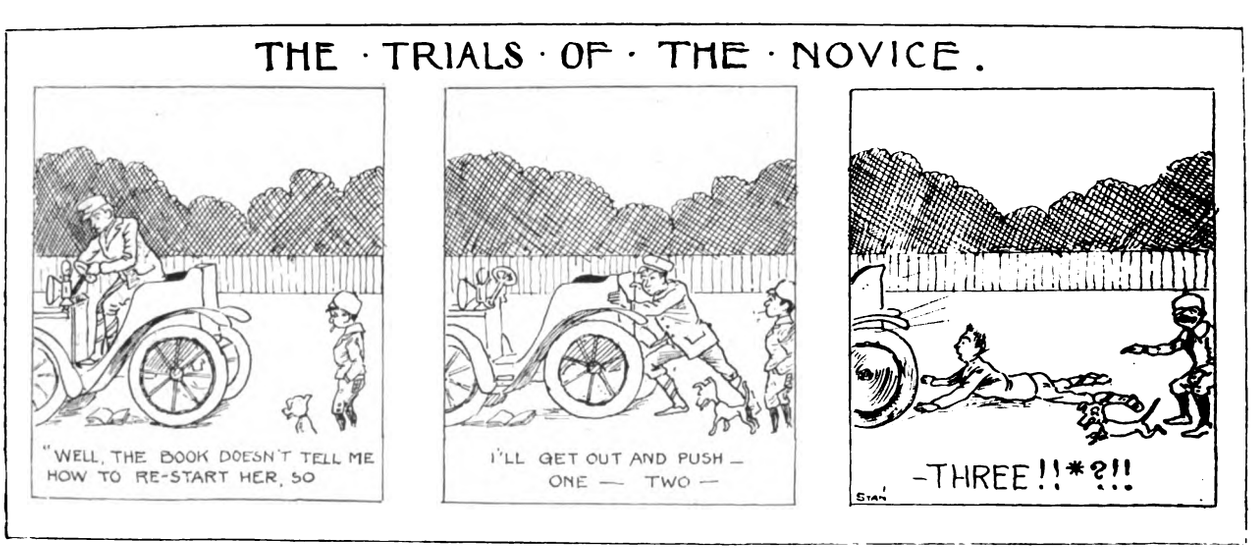
POLICE TRAPS.

AT Chipstead, near Reigate, a police trap has been established in which several motorists have been caught.

THE District Council of Beckenham has been considering the speed of automobiles passing through its streets, and the police will probably be incited to action.

THE Surbiton police trap is again in active operation. It is located in the Portsmouth road.

IN the High Street, Chiswick, the police have a measured furlong.



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THE HORSE-POWER OF PETROL MOTORS.

By Captain C. C. Longbridge, M.I. Mech. E.

The indefinite rating under which petrol motors are sold is no doubt responsible for the numerous formulæ devised for rapid computation of their horse-power. Admittedly, such formulæ cannot be more than approximate in application; but the point is, which, if any, are sufficiently accurate to be of practical value. Without special selection, the following motors are taken, and to test the question various formulæ are stated and applied :—

Make.	Number of cylinders.	Dimensions.	Revs. per min.	Piston speed.
		Bore. Stroke.		
7½-h.p. Wolseley ...	2	4in. × 4in.	750	500
25-h.p. Maudslay ...	3	5in. × 5in.	800	675
18-h.p. Star	4	4in. × 4·5in.	800	607

The examples instanced are :—

(*a*) An American formula, devised, it is believed, by Mr. E. M. Roberts, of Clyde, O., U.S.A. :—

$$\text{H.P.} = \frac{D^2 \times L \times R}{C} \times N.$$

(*b*) A second American formula, deduced by Mr. Duryea, from comparisons of 73 American and 22 foreign car motors :—

$$\text{H.P.} = \frac{D^2}{3} \times N.$$

As standard piston speed for the formula, 750 ft. per minute is taken.

(*c*) A third American formula, given by Mr. A. L. Clough, based on American practice, in the case of 22 horizontal motors of various makes :—

$$\text{H.P.} = \frac{D^2 \times L \times \cdot7854}{20} \times N.$$

In the above formula—

D = piston diameter in inches,
N = number of cylinders,
C = a constant; 18,000 for Otto cycle, and 13,500 for two-cycle motors,
L = length of stroke in inches,
R = revolutions per minute.

(*d*) A French formula, by M. Hospitalier :—

$$\text{H.P.} = \frac{r^2 \times l \times R}{1000 \times 75} \times N.$$

Where r = radius of bore in centimetres,
l = length of stroke in centimetres,
N = number of cylinders,
75 = 75 kilogrammes,
R = number of revolutions per minute.

(*e*) An English formula, suggested by Mr. Nesbitt, and adopted by the Marine Motor Association :—

$$\text{H.P.} = \frac{A \times S \times R}{C} \times N.$$

Where A = area of bore in square inches,
S = length of stroke in fraction of a foot,
C = a constant; 1000 for Otto cycle and 600 for two-cycle motors,
N = number of cylinders,
R = revolutions per minute.

Applying these formulæ, and summarising results in tabular form, the computed horse-power of the various motors are :—

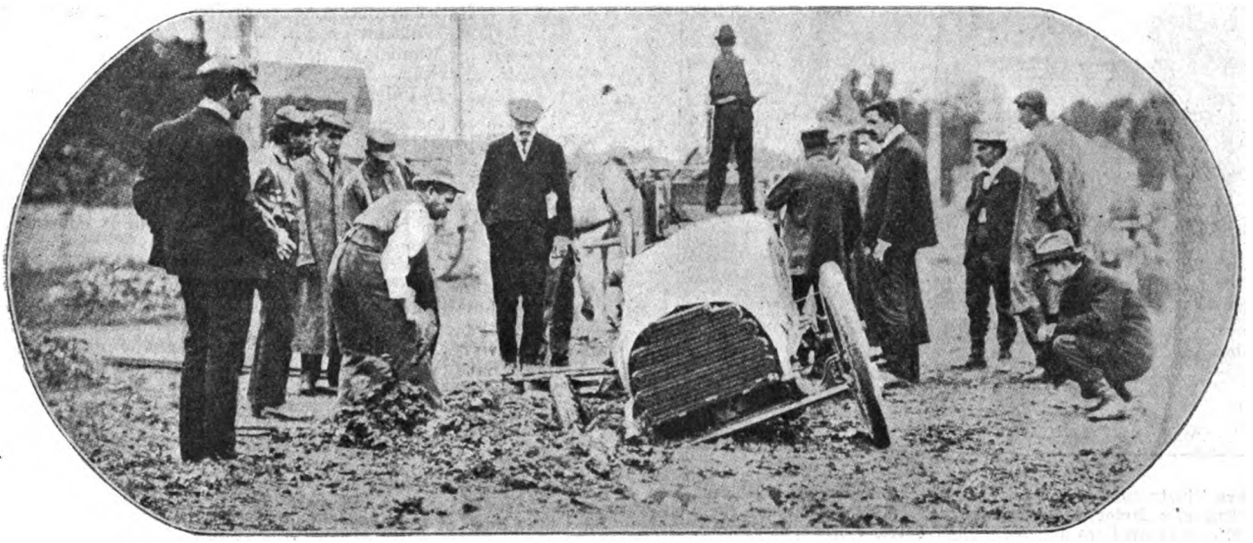
Motor.	As rated by maker	As computed by formula.				
		Roberts.	Duryea.	Clough.	Hospitalier.	Nesbitt.
	H.P.					
2-cylinder Wolseley	7½	5·33	10·66	5·03	5·24	6·22
3-cylinder Maudslay	25	16·66	24·99	14·72	16·38	19·63
4-cylinder Star ...	18	12·8	21·32	11·28	12·54	15·00

It can scarcely be said that the results, as a whole, come within the limits of practical approximation. Is this due to the formulæ or to incorrect rating? An answer is supplied by applying the formulæ to a motor, of which the correct rating is known to the writer, namely, the four-cylinder Daimler, 4·13 in. diameter by 5·11 in. stroke, giving 22 horse-power at 750 revolutions per minute. Calculated by the above formulæ, the horse-power would be :—

Motor.	As rated by maker	As computed by formula.				
		Roberts.	Duryea.	Clough.	Hospitalier.	Nesbitt.
	H.P.					
4-cylinder Daimler..	22	14·52	22·74	13·76	14·16	16·86

The only formula giving, in individual cases, approximately correct results is the Duryea. But, if applied in general, the results bear out the conclusion that, with petrol motors, horse-power computation by formulæ is entirely fallacious.

It may be asked, why cannot steam engine formulæ be applied? No doubt they could, but for one unknown quantity—the mean effective pressure. In the case of the steam engine, this is determined by the cylinder pressure; but in the internal combustion motor it is governed by the design of the engine itself. In the latter, the mean pressure depends on many factors—compression, ignition, temperature of cylinder walls, valves, speed, back pressure, etc.; and petrol motor designing is not yet sufficiently standardised to furnish a mean pressure figure applicable to all motors. Probably from 83 lb. to 85 lb. per square inch represents a figure common to a large number of petrol motors, and if any formula is employed, closer results would, in general, be obtained



An Incident of the Vanderbilt Cup Race.—M. Clement's Racer Partly Sunk in a Mud Hole on the Road from New York to the Cup Course.

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by the use of an equation embodying this figure. Taking, for instance, 85 lb. as mean pressure, and utilising the formula :—

$$H.P. = \frac{A \times S \times P \times \frac{R}{2}}{33{,}000} \times N.$$

Where A = piston area in square inches,
S = stroke in fractions of a foot,
P = mean pressure in pounds per square inch,
R = revolutions per minute,
N = number of cylinders,
the horse-power of the above motors work out as :—

7½-h.p. Wolseley	8·07
25-h.p. Maudslay	25·20
18-h.p. Star	19·30

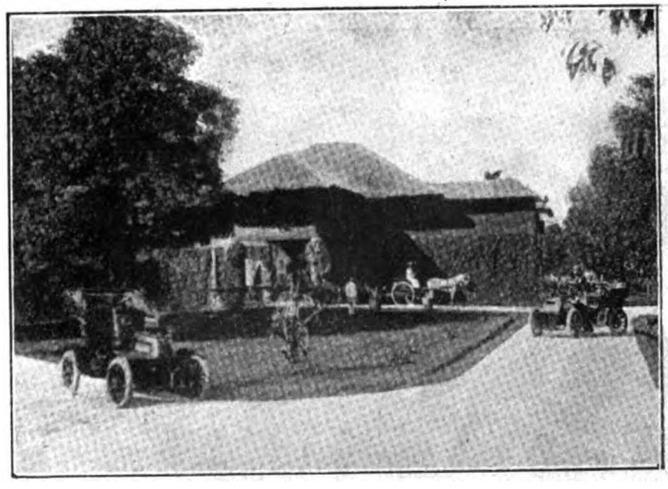
Piston displacement is also frequently used as criterion for rapid calculation of motor horse-power, and various figures are given :—

(*a*) Mr. Duryea allows 15½ cubic inches piston displacement for every rated horse-power in the average American motor, and 12½ cubic inches per horse-power in European motors.

(*b*) Mr. Clough, taking the piston displacement and rated horse-power of the horizontal motors of twenty-two American cars, finds that the average manufacturer gives 19·13 cubic inches displacement per horse-power.

(*c*) The *Motor-Car Journal* (July 25th, 1903) publishes, as average, taken from twenty-two motors, a displacement of 173 litres (10,481·2 cubic inches) per minute per horse-power.

(*d*) Mr. C. W. S. Crawley, in a paper, "The Limitation of Cylinder Capacity," read before the Automobile Club, November 12th, 1903, states



The above illustration, which is reproduced from a Photograph sent us by Turner's Motor Manufacturing Co., depicts one of their Turner-Miesse Steam Cars and a De Dion Petrol Vehicle, at Penang, in the Malay Peninsula.

that an average taken from all the cars entered in the 1903 Reliability Trials was 10 cubic inches per horse-power.

(*e*) The writer, dealing with the same motors, but classifying them according to the number of cylinders, found that there is, on the whole, a gradual increase in the piston displacement required, as cylinders are multiplied. Taking the total displacements of the one, two, three, four, and six-cylinder motor entered, and dividing by their respective total rated horse-power, the results were as follows :—

Number of cylinders.	Mean displacement per B.H.P., cubic inches.
One-cylinder motors	8·65
Two-cylinder motors	12·08
Three-cylinder motors	11·25
Four-cylinder motors	12·75
Six-cylinder motors	13·80

Summarising the horse-power calculated by piston displacements, we have :—

Motor.	Maker's rating.	Calculated from piston displacement by			
		Duryea.	*Motor Car Journal.*	Crawley.	Longridge.
	H.P.				
2-cylinder Wolseley ...	7½	8·02	7·16	10·04	8·30
3-cylinder Maudslay ...	25	23·55	22·47	29·43	22·16
4-cylinder Star	18	18·08	17·24	22·60	17·72

These figures are, perhaps, slightly more satisfactory than those obtained from such horse-power formulæ as omit the mean pressure; but they are clearly of little practical value. The reason is obvious. Different motors, even of the same bore and stroke, vary in compression, cooling surfaces, valve resistance, suction temperature, quality of the mixture, correctness of timing, silencer, back pressure, workmanship, &c., &c.—more than all, in speed, a factor vitally affecting the displacement per horse-power. Assuming equally favourable conditions of design, the value of the cubic inch displacement in the high-speed motor will evidently be proportionately greater than in the low-speed engine; and, if accurate computation is to be made on piston displacement, it must, for one thing, be based on averages taken from motors of equal speed.

From a comparison of rather over 100 British motors, classified according to the number of revolutions per minute, the average piston displacement per B.H.P. is :—

With motors of 750-800 revs. per min. ...	12·5 cubic inches.
„ „ 900-1000 „ „ ...	11·0 „ „
„ „ 1100-1200 „ „ ...	9·4 „ „
„ „ 1400-1600 „ „ ...	6·7 „ „

Using such averages as constants, an empirical horse-power formula of simple form could be constructed :—

$$H.P. = \frac{A \times S}{C} \times N,$$

Where A = piston area in square inches,
S = piston stroke in inches,
C = the average piston displacement for a motor of the given number of revolutions per minute,
N = number of cylinders.

Applied to the motors already mentioned, the formula gives :—

Rated by maker.	Computed by formula.
7½-h.p. Wolseley	8·36 h.p.
25 „ Maudslay	23·55 „
18 „ Star	18·08 „
22 „ Daimler	21·60 „

Even here the results do not very closely agree with the makers' ratings; but possibly nearer agreement could be obtained if the constants were averaged from a larger number of motors. It should be noted that the above average piston displacements do not apply to French motors, as sold in England. Either such motors require larger displacements per horse-power, or the rating at which they are sold is considerably under their real power.

If more data as to mean pressure were available, and if less variations in design prevailed, a useful chart could be readily constructed by which the horse-power could be computed. In the meantime, it would be more satisfactory to the public, and more beneficial to the trade, if makers gave not only the accurate rating, but the number of revolutions at which that horse-power was developed, and also the fuel consumption. —*The Engineer.*

APPEALS BY MOTORISTS.

At Norfolk Quarter Sessions, the appeal of Henry Palmer Collis, appellant, and Edward Gilbert and William James Owen Holmes, two of the justices of the peace for the Petty Sessional Division of Blofield and Walsham, in the county of Norfolk, respondents, has been heard. Mr. Kemp, K.C., with Mr. Eversley, for the appellant; and Mr. Low, K.C., with Mr. Wild, for the respondents. The appeal was against a conviction by the said justices on the 4th day of July, 1904, for that he, the said Henry Palmer Collis, did on the 12th day of June, 1904, unlawfully drive a certain motor-car recklessly on a certain public highway, to wit, the highway leading from Blofield to Witton, in the said county of Norfolk, contrary to the Statute in such case made and provided, and the said Henry Palmer Collis was fined £5 and costs. The Bench, after a brief deliberation, dismissed the appeal with costs.

Another case was heard at the Norfolk Quarter Sessions in which Albert Higgs was the appellant, and Edward Denham Spurrell and Francis Hubert Barclay, two of the justices of the peace for the Petty Sessional Division of North Erpingham, respondents. This was an appeal against a conviction by the said justices on the 12th day of September, 1904, for that he the said Albert Higgs did on the 21st day of August, 1904, unlawfully drive a certain motor car recklessly on a certain public highway in the parish of Sheringham, in the county of Norfolk, contrary to the Statute in such case made and provided, and the said Albert Higgs was fined £10 and costs, and his licence was ordered to be endorsed. Mr. Horace Avory, K.C., with Mr. E. E. Wild, for the appellant; and Mr. Freeman Barrett, with Mr. Carlos Lumsden, for the respondents. The Court allowed the appeal, and quashed the conviction, without costs. The Chairman added that he had very little doubt if the magistrates in the court below had had the additional evidence before them they would have seen their way to come to a different conclusion. On the application of Mr. Avory the endorsement on the appellant's licence was ordered to be cancelled.

Mr. Alfred Lane Joynt, solicitor, appealed at the Dublin City Sessions against a fine of £10, imposed by the magistrate on a charge preferred against the appellant of having driven his motor-car recklessly and to the danger of the public on the 7th of September in St. Stephen's Green in the middle of the day. Mr. O'Shaughnessy, K.C. (instructed

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by the appellant), appeared for Mr. Joynt. After hearing counsel and witnesses, the Recorder said he would reverse the decision of the magistrate in that case. If the prosecution was brought under the 9th Section of going beyond the statutory speed, as at present advised, he would not have altered the decision. The police neglected to serve the notice sequired under the section.

AT the Dublin City Sessions, before Sir F. Falkiner, Recorder, Mr. Arthur H. Hardy, of Clonskeagh, appealed against the decision of Mr. Drury, who imposed a penalty of £10 for alleged reckless driving of a motor-car. Messrs. O'Shaughnessy, K.C., and Jefferson (instructed by Mr. Lane Joynt) appeared for the appellant. The Recorder said he did not see that the defendant did anything to aggravate the case on the occasion. He reduced the fine to 1s., striking out from the conviction the endorsement of Mr. Hardy's licence as a motor-driver, also the word "reckless," which was in the original conviction, the conviction to stand for driving at a speed which might be dangerous to the public.

A CASE has been heard at the Oxford Sessions in which James Tindall appealed against a conviction by the justices of the Banbury and Bloxham Division, the respondent being Supt. Smith (informant). Mr. A. H. Spokes, with Mr. Cecil Walsh, represented appellant, and Mr. A. Moresby White and Mr. Ames were for the respondents. Sir E. Bradford stated that on August 13th he had crossed the bridge from Adderbury, and was about to ascend the incline. He heard a noise of a motor coming, and Lady Bradford rode on to the path and witness went to the edge of the road in the gutter. He had ridden the horse for eighteen months, and had repeatedly passed motor-cars in safety before. The car came down the hill round the curve very fast; his horse shied, and turned towards the centre of the road. The motor struck him; he fell off, and was dragged by the stirrup some short distance. After witnesses had been heard, Mr. Moresby White addressed the justice on the rights of motor-car drivers, and after a brief deliberation in private the chairman said before giving the decision of the justice he must say one word as to the tone in which this case had been conducted by the learned counsel for the defence, and he hoped he would not repeat it there or elsewhere. They had no doubt the case satisfied the conditions under which a motor-car driver should be convicted, and the appeal would be dismissed with costs. Mr. White observed that if he had said anything offensive to the chairman or Lord Jersey he had to apologise. Now the court had come to a decision they would permit him to say, if he had imported any heat in this matter, that, though not in that court, he had in many other courts experienced gross injustice.

AN appeal under the Motor-car Act was heard by the Huntingdonshire Quarter Sessions last week. The appellant was Earl Fitzwilliam's chauffeur, who was fined £5 for driving over twenty miles an hour on the North Road. Mr. Avory, K.C., appeared for the appellant, and Mr. Raikes for the respondents. Earl Fitzwilliam, who was riding in the car, denied that it was going at the speed alleged, and declared that within the measured distance the car was stopped, as a cylinder terminal was loose, and on restarting he himself changed to another seat and let the chauffeur drive. Three constables and another witness swore that a man in a dark suit (the chauffeur) drove all the way, and that Lord Fitzwilliam, who was in a light-coloured coat, did not change places, and also that the car did not stop. The appeal was dismissed, the court believing that Earl Fitzwilliam was mistaken as to the place where the car was stopped.

CASES AGAINST MOTORISTS.

P'ace.	Summoned for	Fine.
Cardiff	Reckless driving	Dismissed.
Aberdare.....	Reckless driving	£5, etc.
Warrington	Driving negligently	£2, etc.
Pendleton	Reckless driving	£3.
Lewes	(1) no rear light; (2) not producing licence	(1) 40s.; (2) 10s.
Otley	No rear light	£5.
Wrexham	Driving recklessly	£3, etc.
Longford.....	Startling a horse by a motor-cycle	£2.
West London..... ..	Beyond legal limit	Dismissed.
,, ,, ...	Not keeping record of name of driver of manufacturer's car	To pay costs.
Brighton	Dangerous driving	40s., etc.
Lambeth	Using an unregistered motor-cycle.	Dismissed.
,,	Failing to keep a record of the use of a general identification mark	40s., etc.
Oxford	Driving furiously	Dismissed.
Lewes	Failing to produce licence	£3.
Guildford	Dangerous driving	£1.
Penge	Driving unlicensed motor-cycle	20s., etc.
Andover	Dangerous speed	£5, etc.
Folkestone	Furious driving	£2, etc.
Huddersfield	Driving dangerously	40s., etc.
Rugeley	Driving dangerously	£5, etc.
York.....	Over legal limit	Adjourned.

SPEED LIMIT INQUIRY AT NEWPORT, MON.

AT Newport, Mon., on Thursday of last week, Mr. E. P. Burd, an inspector of the Local Government Board, held an inquiry into an application of the Town Council for the imposition of a 10-mile speed limit over certain roads within their jurisdiction.

The Town Council was represented by Mr. F. E. Abbot, who said that the situation of Newport geographically was almost unique. For over two miles the one long street was practically the only main thoroughfare, and had to be used by the whole of the through traffic in addition to the local traffic. It was the most congested part of the town, and there was a continuous tram service through it. The Council believed that the granting of the proposed regulations would give greater security to the public, and would ensure greater care in the management of cars using these roads.

Mr. Haynes, the Borough Engineer, said that the passing of the regulations would necessitate the erection of eighteen warning-boards at a cost of £4 each for erection, and of 3s. 6d. to 4s. each per annum for maintenance. If they were illuminated at night they would cost about £3 each per annum.

Mr. Rees Jeffreys, addressing the inspector, said the opponents were placed in an extraordinary position by the neglect of the Town Council to call evidence in support of their application, and by the virtual collapse of their case.

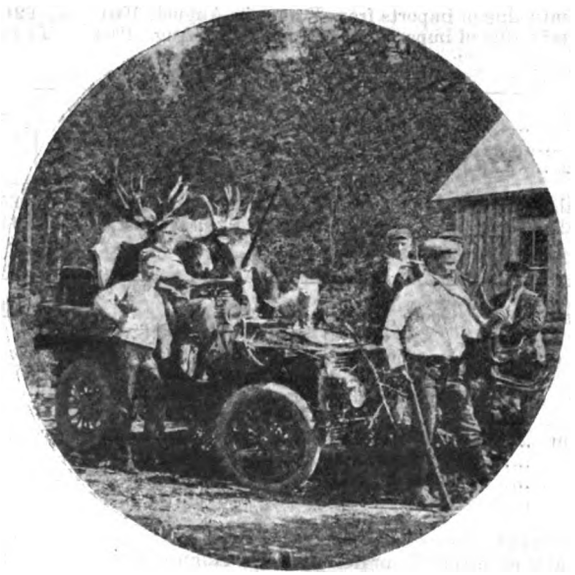
The Hon. J. M. Rolls, D.L., J.P., who is a member of the County Council of Monmouthshire, said he appeared on behalf of the Automobile Club to oppose the application. He thought the existing powers were quite sufficient for the regulation of motor traffic, and that the proposed new regulations would not secure the safety of the public. He was familiar with the streets upon which the Town Council wished to impose a 10-mile limit. He did not consider that the streets of Newport presented any special difficulties.

Mr. J. J. Neale, Cardiff, manager of the Cardiff Ice and Cold Storage Company, said he appeared on behalf of the South Wales and Monmouthshire A.C. These regulations, if passed, would be detrimental and vexatious to the members of that club, who, in large numbers, passed through Newport on their way to the Wye Valley or to the North. He objected to the limiting of the speed of motor-cars to 10 miles an hour.

Mr. R. J. Brind, official handicapper and timekeeper of the South Wales and Monmouthshire Automobile Club, said that, in conjunction with Mr. H. J. Powell, he had on October 12th taken the times of a number of trams over a distance of 110 yards in Commercial Street, and also in Clarence Place. The times and figures show that eleven cars went over 10 and up to 11 miles an hour, eight cars went at over 11 and up to 12 miles an hour, eleven at over 12 and up to 13 miles an hour, and fourteen at over 13 and up to 15 miles an hour. On another occasion he had timed the trams and found that fourteen cars went at over 12 and up to 14 miles an hour, and that six went at over 14 and up to 17 miles an hour, while two cars went at over 17 miles an hour.

Mr. E. M. Linton, Newport, and Mr. H. J. Powell, Cardiff, assistant secretary to the South Wales and Monmouthshire A.C. and hon. secretary of the South Wales Centre N.C.U., objected to the proposed restrictions. Messrs. H. A. Jones and J. Matthews, of Newport, also stated that the proposed regulations would not be in the interests of the public safety.

Mr. A. Arthur Dale, a member of the general committee of the Motor Union and hon. secretary of the Gloucestershire A.C., said that for the avoidance of accidents it was necessary to give a free hand to drivers to increase their speed when passing tramcars and other vehicles. The great controllability of motor vehicles rendered a limit unnecessary.



A Shooting Expedition by Motor-Car.

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IMPORTS OF AUTOMOBILES.

BELOW we publish our monthly official list of the imports of motor-cars, motor-cycles, and the parts thereof, into the Un ted Kingdom during the month of August, 1904 :—

BELGIUM.

Shipped from	To	Description.	No.	Value. £
Antwerp	Harwich	Motor-cars	2	656
,,	,,	,, cycles	3	95
,,	,,	,, car parts	—	398
,,	,,	,, cycle ,,	—	484
,,	Hull	,, car	1	250
,,	Leith	,, ,,	1	400
,,	,,	,, cycles	1	52
,,	London	,, ,,	11	426
Brussels	,,	,, cars	8	2,830
,,	,,	,, cycles	12	310
,,	,,	,, car parts	—	385
Ostend	Dover	,, ,, ,,	—	6
,,	London	,, cars	37	18,938
,,	,,	,, cycles	25	657
,,	,,	,, car parts	—	880
,,	,,	,, cycle parts	—	252

Total value of imports from Belgium in August, 1904 ... £27,019
Total value of imports from Belgium, Jan.-August, 1904 £184,306

FRANCE.

				£
Bordeaux	London	Motor-cars	2	550
Boulogne	Folkestone	,, ,,	33	13,150
,,	,,	,, car parts	—	8,628
,,	Goole	,, cars	30	14,550
,,	,,	,, cycle	1	35
,,	,,	,, car parts	—	645
,,	London	,, ,, ,,	—	3,857
,,	,,	,, cars	223	94.572
Caen	Newhaven	,, ,,	1	220
Calais	Dover	,, ,,	4	2,490
,,	,,	,, car parts	—	262
,,	Leith	,, cars ,,	1	630
,,	London	,, ,,	47	5,987
Dieppe	Grimsby	,, ,,	9	2,096
,,	Newhaven	,, ,,	107	61,350
,,	,,	,, cycles	5	208
,,	,,	,, car parts	—	9,845
Dunkirk	Hull	,, car	1	260
,,	Leith	,, ,,	3	1,020
,,	,,	,, car parts	—	555
Havre	Liverpool	,, car	1	700
,,	,,	,, car parts	—	45
,,	Southampton	,, cars	4	1,010
Honfleur	,,	,, ,,	1	650
Rouen	Glasgow	,, ,,	2	780
,,	,,	,, car parts	—	100
Treport	Dundee	,, car	1	700
,,	,,	,, car parts	—	276
,,	Leith	,, ,,	—	16,777

Total value of imports from France in August, 1904 ... £241,948
Total value of imports from France, Jan.-Aug., 1904 £1,486,984

GERMANY.

				£
Bremen	London	Motor-cars	14	5,005
,,	,,	,, car parts	—	19
Hamburg	,,	,, cars	4	900

Total value of imports from Germany in August, 1904 ... £5,924
Total value of imports from Germany, Jan.-August, 1904... £44,724

HOLLAND.

				£
Amsterdam	Goole	Motor-cars	5	2,300
,,	,,	,, car parts	—	5
,,	Harwich	,, ,, ,,	—	35
,,	London	,, car	1	450
Flushing	Queenboro'	,, ,,	1	500
,,	,,	,, car parts	—	122
Rotterdam	Goole	,, ,, ,,	—	60
,,	Harwich	,, cycle ,,	—	45
,,	London	,, cars	2	800
,,	,,	,, car parts	—	10

Total value of imports from Holland in August, 1904 ... £4,327
Total value of imports from Holland, Jan.-August, 1904 ... £30,645

UNITED STATES.

				£
Boston	Liverpool	Motor-car	1	560
,,	London	,, car parts	—	12
,,	Manchester	,, car	1	265
New York	Hull	,, ,,	1	120
,,	Liverpool	,, car parts	—	12
,,	London	,, cars	19	1,675
,,	,,	,, ,,	40	7,495
,,	Southampton	,, car parts	—	882

Total value of imports from the United States in Aug., 1904 £11,621
Total value of imports from the United States, Jan.-Aug., 1904 £109,161

CLUBS AND ASSOCIATIONS.

NOTTINGHAM.

THE dinner in celebration of the opening of the winter session of the Nottinghamshire Automobile Club was held last week at the Black Boy Hotel, Nottingham, the president (Mr. C. Hardy) being in the chair. After the loyal toasts had been honoured prizes were presented to the winners of club events and to the toast of "Automobilism" reply was made by Mr. S. F. Edge, who said the four drivers of Napier cars taking part in the eliminating trials of next year were to have three or four months' actual training for the event. He advocated a training school for chauffeurs, and said that professional drivers should be obliged to pass examinations and be under very stringent regulations. Every accident, too, ought to be carefully investigated. Mr. E. W. Wells proposed the health of "The prize-winners." Messrs. Ross Browne, Ernison, Bennett, Wright and Edge briefly responded. The secretary (Mr. A. R. Atkey), proposed the toast of "Mr. W. F. Foster," and that gentleman responded. During the course of the evening Mr. J. C. Wilson, a newly-elected member of the club, promised to give a trophy for another long-distance run next season.

NORTHAMPTONSHIRE.

THE Northamptonshire Automobile Club are making special arrangements for their winter session. The committee announce their intention to interest the members by a series of lectures on "Motoring in General," as well as by a succession of smoking concerts.

MOTORS AND TOLL-GATES.

BEFORE Judge Gye, at Southampton, last week, Mr. John Kemp-Welch, J.P., of Christchurch, sued Mr. James Hotspur, of Ealing, for damages to his motor-car, caused through the negligence of the defendant or his servants. It was alleged that while Mr. Kemp-Welch was motoring along the Botley road, the tolls over which had been paid, the toll-gate keeper suddenly rushed out of a cottage and closed the bar, into which the car crashed. The vehicle at the time was travelling at the rate of sixteen miles an hour and sustained damages. Defendant leased the tolls from the company over whose road the plaintiff's car passed. The defence was that it was the keeper's duty to collect tolls, and as the toll-bars were repeatedly "rushed" by motorists they were compelled to close the bar in duty to their employers. His Honour gave judgment for the defendant, with costs.

A KENTISH CASE.

AT the Maidstone Quarter Sessions, Lieut., H. C. Davies, of the Welsh Regiment, appealed against a conviction of the justices of Tonbridge, Kent, whereby he was convicted for that he did on the 28th day of August, 1904, on a public highway, to wit, the London Road, Southborough, Kent, unlawfully drive his motor-car in a manner which was dangerous to the public, having regard to the circumstances of the case, and he was fined the sum of 40s., and ordered to pay the costs, and his licence was endorsed. Mr. A. Moresby White and Mr. A. W. Gans, instructed by Mr. S. Firth, appeared for the appellant, who deposed that he was driving his car from Eastbourne to Gravesend; that he was coming through Southborough, and that his speed was not more than ten to twelve miles an hour; that he was keeping a good look out, and that, so far from going fast, one of his back tyres had burst. Moreover, he stated that he did not notice anybody in the road, and that he certainly did not inconvenience anyone. His brother gave evidence that he was the previous owner of the car in question, and spoke as to its capabilities. In the result the conviction was quashed, and the appeal was allowed.

TO CORRESPONDENTS.

All communications intended for insertion in this Journal or relating to Editorial matters should be addressed to THE EDITORIAL DEPARTMENT, MOTOR-CAR JOURNAL, *39 and 40, Shoe Lane, London, E.C., and must be written on one side of the paper only. Letters must in all cases be accompanied by the name and address of the writer, as no notice will be taken of anonymous communications.*

The Editors cannot undertake to return MSS. or drawings, although every effort will be made to do so in the case of rejected communications. Where such are regarded as of value, correspondents are requested to retain copies.

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THE

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COMMENTS.



ALMOST before the recent trials at Blackpool had come to a close a second meet at an early date was talked about. Those who took part in the trials at the middle of last month were so favourably impressed by the track, that the possibility of the world's record for the flying kilometre being broken on it was seriously discussed. The consent of the Town Council for the promenade to be used for the purpose of making an attempt on the record having been readily accorded, the event, originally intended for Saturday next, will now probably take place on the 19th. The permit of the Automobile Club has been obtained, and this, along with the attendance of the Club's official timekeepers, will ensure the international acceptance of the times recorded. One result of a visit to London of a deputation from the local committee has been to confirm the opinion that the last meeting at Blackpool was one of the best ever held, and there is every prospect of this success being repeated.

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Classes and Competitors.

THE chief feature of the trials, should they, as the local people hope, take place, will be the class for large racing cars up to 1,000 kilos. An entrance fee will be charged for each vehicle, and in the case of the 1,000 kilos class it is probable that a substantial purse may be given to the competitor lowering the world's record, the prize going to the car establishing the best time in the event of more than one achieving this feat. Medals will probably be given in the other classes. There will also be classes for motor-cycles. A departure from the procedure at the last meeting will be that, instead of the races being run against the watch, the timing will be done by electricity. The meeting should be a thoroughly representative one, the presence of many of the world's leading racers having been promised. Mr. S. F. Edge has consented to compete with his six-cylinder Napier racer which did so well at Gaillon on Sunday last. Mr. A. Rawlinson has intimated his intention of being present with his British Darracq; Mr. Andrew Fletcher, who was one of the first to suggest the meet, will be there with his 90-h.p. Mercedes; Mr. Clifford Earp with the 100-h.p. Napier; and the Hon. C. S. Rolls with his 100-h.p. Mors, of which better things are expected than at the previous trials. Invitations have been issued to prominent Continental racing men, and it is fully expected that the Gobron-Brillié car on which Rigolly established the world's record will be brought over, and probably the Hotchkiss, with Le Blon as driver; Baras may also be amongst the competitors on a Darracq car.

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The Track.

MUCH discussion has taken place as to the suitability of the track for record-breaking purposes, owing to a very slight curve, which, it has been argued, presents a danger when a speed of 100 miles an hour is attained. Experts who have had experience of the course have, however, declared that this slight bend offers no obstacle, and that, with a car running alone, a bee line from end to end can be obtained. The opinion has also been expressed that if records are to be obtained in England, they are obtainable at Blackpool, where the surface of the course is very fast. The success of the event seems assured, and vast numbers of people will no doubt pour into the popular Lancashire seaside resort. For, while it is no secret that on the first day of the last trials the proceedings were voted a "bit tame," owing largely to the long intervals between the despatch of the cars, a high pitch of enthusiasm was reached on the afternoon of the second day, which was chiefly devoted to the large racing cars. As to the probability of the record being broken, a great deal of course depends upon the conditions prevailing at the time, but should these be favourable, there is, it is considered, a reasonable prospect of Rigolly's time being beaten. Should this prove to be the case, the meet will have more than justified itself, and Blackpool will have added another to its long list of ambitions which have been realised.

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On Prohibited Roads.

THERE are local terrors in store for motorists in strange places, as a Glasgow lawyer who went a-motoring on the Trossachs road, Dunblane, has just discovered. He travelled very carefully without annoying anybody, or frightening even the smallest animal. But the road has been scheduled by the Secretary of State for Scotland as closed to motor traffic. And consequently the lawyer was summoned to the police court to receive a lecture from a Sheriff-Substitute, and to leave the sum of three guineas with the local police. When roads are prohibited notices should be prominent and frequent along the whole of the distance, so that those who drive may read.

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Motors and the Law.

THE useful summary of the legislation with regard to automobiles which Mr. Montague Barlow has given the members of the Solicitors' Managing Clerks' Association, and which is reprinted on another page, will doubtless be read with interest by the many victims of the Act. These have become a fairly numerous body, although hardly enough to warrant the formation, as a correspondent suggests, of a Motor-Car Victims' Protection Association. This ought to be the work of the Motor Union and the various local clubs which are now in existence throughout the country. They, too, can render useful work in reminding their members that the operation of the present Act will cease at the end of another two years, when the whole question will be reviewed again by the Legislature. Hence the necessity for care on the part of individual motorists.

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The Mutual Protection Association.

THE recent meeting of the Automobile Mutual Protection Association had a special interest, and the proceedings last week, briefly chronicled on another page, indicate considerable enterprise of a kind likely to be of value to the industry. The British people are a practical race,

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and rightly pay heed to the experience of other nations before adopting new methods or lending countenance to ideas that have only the enthusiasm of advocates to recommend. Hence the tour of investigation upon which the secretary has set out should result in the collection of information calculated to assist the progress of the heavy motor movement. Here, as in the case of light cars, much depends upon road problems, the elucidation of which will be materially assisted by knowledge of continental experience.

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The Dust Problem in London.

THE Borough Engineer of Kensington has been experimenting with dust-laying oils — pyneoiline, and Westrumite — in road-watering, and in a detailed report on the subject expresses the opinion that these dust-layers are unsuitable for use in London, and the adoption of either in Kensington at the present prices for the oils would at least double the cost of the work of road-watering. The smell would also give cause for much complaint. The Borough Council of that western borough does not, therefore, intend to proceed with the trials. So far as the Metropolis is concerned, the matter will have to be considered with regard to London as a whole, and not merely as a local question.

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The Kaiser at the German Military Manœuvres.

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A Trial of Headlights.

MONTHS ago the suggestion in these columns for a trial of headlights produced some correspondence from makers who expressed themselves as anxious to assist in the effort to secure a satisfactory light for automobiles. There the matter has rested, until the frequency of mishaps owing to the inefficient lighting of other vehicles has again insisted on public attention being riveted on the subject. Captain Deasy, too, has revived the proposal for a trial of headlights, and whether this takes place or not we trust the subject will have full discussion. In our correspondence columns a gentleman who has studied the question gives some useful opinions, and while we would not identify ourselves with all he says, the letter should serve the purpose of inaugurating a discussion of particular interest to all concerned with lamps and lights. The glare of the headlight has its drawbacks, undoubtedly, and these can, and must be, minimised. Probably some who have had manufacturing experience will give their views as to the lines upon which any really adequate trial should be conducted. If this is attempted it should be organised without delay, so that the advantage of dark nights and long evenings can be available for the judges.

The End of the Run.

IT was a foggy morning when the two Oldsmobiles which Messrs. Jarrott and Letts, Limited, sent on a 3,000 miles' pilgrimage for thirty days returned to town on Thursday of last week. They were welcomed at Barnet by a number of well-known motorists, and came into Great Marlborough Street, London, at the end of a goodly calvacade of cars of higher power. A great crowd had collected, and although buyers were probably absent, enthusiasm was not lacking. Messrs. Bell and Batchelor, the drivers, who had made their daily round with unfailing regularity, piloted their cars into the showrooms, where Mr. W. M. Letts voiced the pleasure of the firm at their achievement and handed each a silver cup as a memento of their long and arduous ride. During the week the vehicles have been on view to the public, the condition of the engines and gears being such that Messrs. Jarrott and Letts would have no hesitation in sending them on a further 3,000 miles' journey.

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Some Experiences.

THE cars went practically over every portion of England, Scotland and Wales, and 400 miles of wretched roads in Ireland. They encountered every kind of weather, and at times the drivers were almost ready to give up at the end of the day's journey, after travelling for hours through a dense fog or pouring rain, with roads absolutely indescribable. The drivers carried a book which has been signed by each hotel proprietor where they have lunched, and also where they have slept at night, thus proving conclusively that they were in the towns arranged for them at the commencement of the tour, although it was very hard at times to keep up to the programme, chiefly owing to fog. The only accident which might have proved serious was on the road to Bath, when travelling over roads made slippery by two days of rain and fog, the large car had a side-slip and went into a ditch, and a team of horses and chains had to be requisitioned to pull the car out. This somewhat strained the vehicle and broke two of the bolts of the spring and shifted the engine a little, but after some assistance at Bath they were able to continue the run. The little car on the same day had a side-slip which ended against a brick wall, bending the front axle; this was straightened, and they were both able to continue the journey. With these exceptions they had no troubles whatever beyond just a few simple adjustments. They have also been wonderfully fortunate with their tyres, having comparatively few punctures.

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From Dover to Putney.

LAST week we referred to the venturesome voyage of Mr. A. L. Guinness from Dover to Putney on his newly-acquired Mercedes IV. There were few sailors at the Kentish port who would accompany him on the novel trip and many were the refusals to set foot in the strange little craft. At length, with the kindly services of the Deputy Harbour Master, Mr. Guinness found a willing seaman, and this volunteer with the owner and his man formed the crew of three who started about nine o'clock one morning. Just off the Admiralty Pier rough seas were encountered and for a few minutes the enthusiasm of the voyagers was damped and subdued. But their pilot assured the two other members of the crew that they would soon be in smoother water and all went well until Ramsgate was reached. There the waves rose high and Mr. Guinness had to be continually drawing the clutch to dodge the seas. Rounding the North Foreland was a strange experience; the wind was south-west and a north-easterly swell met the tide. Mercedes IV. wisely kept inside the Long Nose Buoy.

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Up the River.

THE North Foreland being safely passed the boat was run at full speed for the first time. Margate was quickly reached, and, landing there to fill the petrol tanks, the voyagers learned that their craft had been mistaken for a whale when they were out at sea. After a stay of about three-quarters

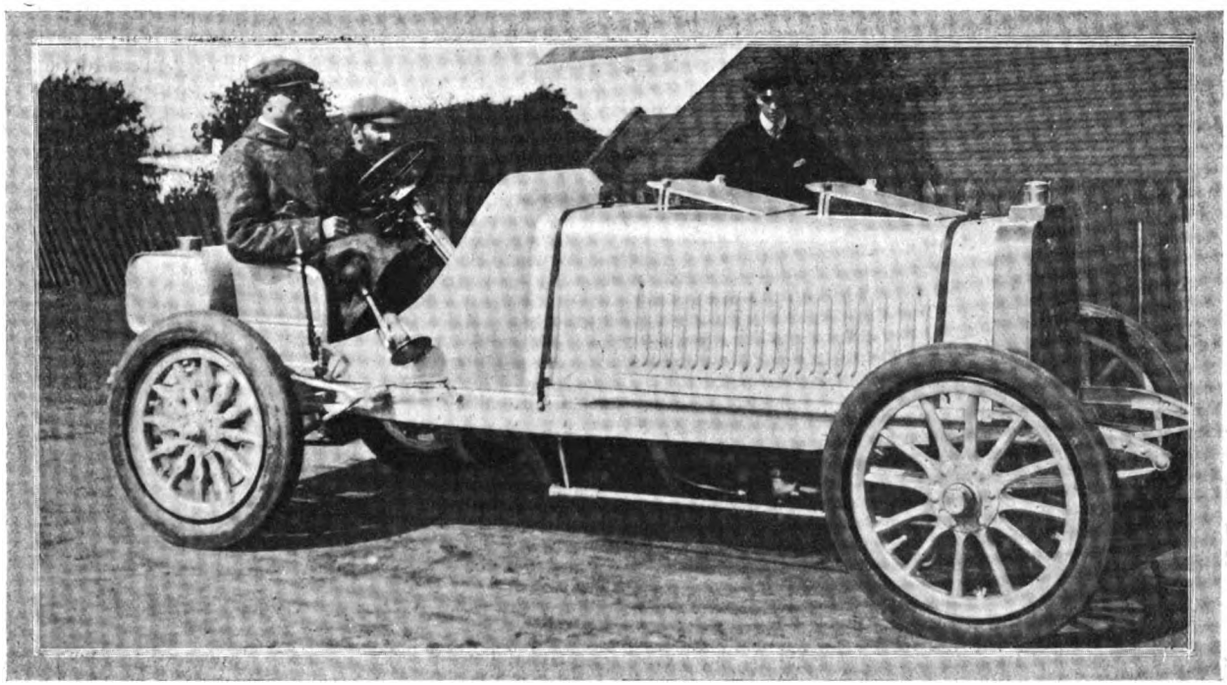
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of an hour a re-start was made, and the land was kept in sight until just off Sheerness a fog was entered. The compass was useless, for it was found to be making almost as many revolutions as the engine. The course had to be steered by the barges that were passed until the Thames received the boat into her waters. A comparatively uneventful trip was then made to Putney, which was reached at four o'clock in the afternoon. The motor ran well all the time, and from Margate to the destination there was no need to draw the clutch. After the boat was moored and the 90-h.p. engine had ceased its booming the air seemed full of quietness. For six hours the crew had listened to an engine without a silencer, never being able to escape from its roar and its rumble. The pluck of Mr. Guinness in undertaking such a trip was unmistakeable, and marks him out as one of our premier motor-boaters.

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On the Thames.

THE recent floating into popularity of motor-boats on the Thames has naturally caused the members of the Thames Conservancy to give increased attention to the possible dangers arising from their presence on the river. A committee of that body is now considering what special rules should be made for the governance of such craft on the Thames, and it is to be hoped that the representations of practical experts in motor-boating will be fully considered. Whilst we recognise that wise discretion should regulate motor-boats on a river so much given to pleasure-boating as is the Thames in its upper reaches, it would be a great pity if the viciousness which characterised some of the earlier doings with regard to motors on the road was emulated on the river. Given reliable boats and careful steersmen, there is no reason why petrol launches should not become even more familiar features on the Thames, without being an annoyance to the users of ordinary boats.



Mr. A. L. Guinness on his 100-h.p. Darracq Racer.

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Alcohol for Motors.

SUPPLEMENTING the report of Dr. Ormandy's lecture on another page, a Lincoln correspondent informs us that reference was made to the fact that petrol and alcohol would not satisfactorily mix, for petrol was not soluble in alcohol. When benzine was used with alcohol, the exhaust was very obnoxious. The cost of this spirit, with potatoes at a pound a ton, was a shilling a gallon, and with proper carburettors, higher compression and heating jacket (with petrol engine the heat had to be got rid of) it was very efficient. The makers of the Bel-size car were running a one-cylinder alcohol engine, and would shortly have a three-cylinder car on the road run by this spirit.

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Driving Certificates.

THE Committee of the Automobile Club have been considering representations made by the Royal Marine Artillery Committee of Portsmouth, asking the Club to carry out a practical and theoretical automobile examination in the spring of next year, and to issue certificates to such members of the Royal Marine Artillery Class as may deserve them. It has been pointed out that all members of this class have had previous knowledge of electricity and machinery—many are skilful artificers—and, as all are within ten months of taking their discharge, the test should provide useful men for civil employment. We hear that the Club Committee has approved of the principle of sending representatives to conduct the examination, and it may happen that the correspondence that has already taken place may prove the initiative for the organisation of a regular system of giving driving certificates which would have some authoritative weight. There is no doubt that there are a good many men up and down the country who would be glad to prepare themselves for a real examination in motor driving, and that if such a system were properly prepared and superintended it would be appreciated both by employers and employed. It must be confessed that outside the few technical institutions which are now giving attention to automobilism, the opportunities for really useful certificates are sparse indeed. While, on the other hand, several of those who profess to be in a position to offer diplomas, etc., have really no official standing, and the certificates issued are generally of no value to the recipient.

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Actuality in Teaching.

WRITING of instruction in motor-car work we would suggest to the teachers at the technical institutes now giving attention to the subject that no lectures should be unaccompanied with actual specimens of the motor-parts they describe. Blackboard illustrations and slides thrown upon a

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screen are useful, but they should be regarded as supplementary to the actual machines or parts, and not intended to wholly supply their place. In such classes very little should be taken for granted, and the operations of even the most elementary accessories should be described, actuality being given to the lesson by models and parts. Seeing that technical instruction in automobilism is yet in its infancy, it is desirable that the initial courses should be very carefully prepared and nothing left undone to give thoroughness to the teaching provided.

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Herefordshire.

AN echo of the recent small car reliability trials in Herefordshire comes in the presentation of a silver medal to Mr. Wilfred Groom, the Hon. Sec. of the local club, to whose initiative and enterprise much of the success of the event, and certainly its inception, was due. In securing the trials being held in that district, Mr. Groom did yeoman service in the education of the public in a county where county families are plentiful and motor-cars have hitherto been comparatively few. The Herefordshire Club has already rendered much useful service to the movement, and the way in which it has always kept on good terms with the police and county and other authorities proves that where automobilists are organised for social purposes as well as the advancement of the movement, troubles with the police have become fewer and less intense than in other localities, where motorists are merely isolated units without the mutual help that comes from association in a common cause.

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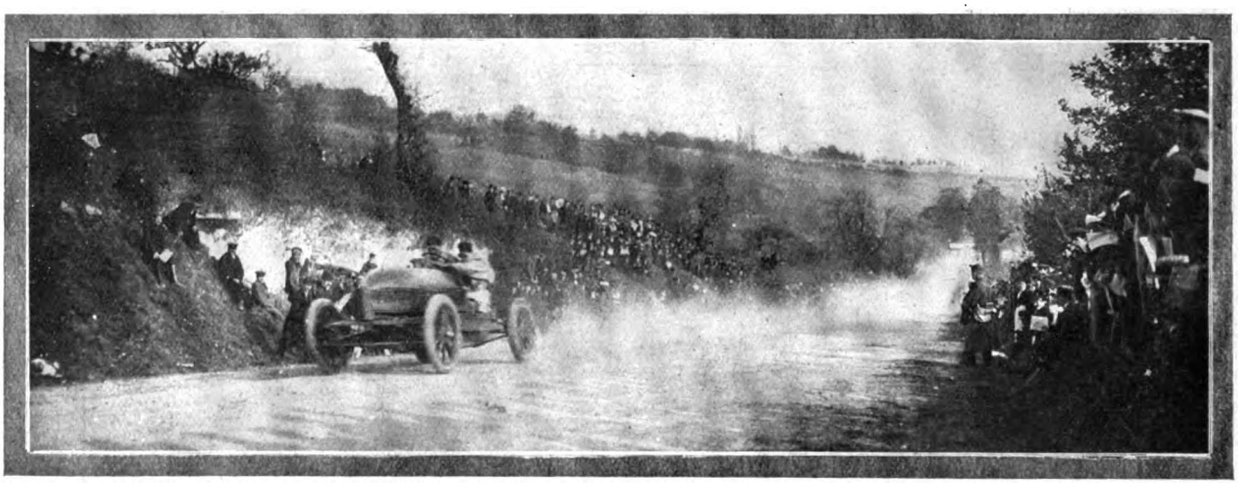
King Frost.

THERE are still, alas! a number—rapidly becoming, as far as influence goes, a minority—of blind reactionaries who refuse to see anything good in the automobile, and, impervious to argument, can only be left to the healing work of time. But if anything will convince the motophobe, a good hard frost, especially if following wet weather, will do it. At such a time the horse-owner, unable to go out without the fear of letting his horses down, can only abuse the local authorities for their feeble attempts to cope with the slippery state of the roads, and in the intervals envy the motorist, who goes on his way without a qualm. For Nature has beneficently decreed that frozen roads, however glassy, are with moderate care safe, and with good pneumatics comfortable, while his engine, if the carburettor is duly protected and warmed, never goes so well as when the outside temperature is low. Nevertheless, King Frost, who may now be expected to make his appearance at any moment, demands even from the motorist a certain special attention, not only against the risk of frozen radiators, etc.—against which sufficent warnings have been published—but in the minor but important matter of frozen lubrication. Drop-lubricators, if —as they frequently are—in a position where they are not kept warm, require special attention to ensure their functioning regularly in very cold weather, owing to the thickening of the oil. And for the same reason, the ordinary oil-can is often a tedious implement to use, and one of the varieties which has an ejector valve which forcibly drives out the oil is a time-saver at this season.

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Heavy Motor Vehicle Trials.

THE suggestion that a trial of heavy motor vehicles should be held on a date not too far distant has been approved of by the committee of the Automobile Club, and doubtless a programme of events will shortly be issued. Meanwhile, we are glad to see that the Club has invited the Automobile Mutual Protection Association, as well as the Industrial Committee of their own body, to express their views as to the particular form this should take. If these trials increase in number, it will soon be necessary to draw up an official programme each year, so as to avoid not only the clashing of events in which all motorists will have a kind of common interest, but also to allow of each competition taking place at a uniform interval from the others, for very often it may happen that the firms interested in one class of trials may also have vehicles entered in another. Hence, to secure the greatest success with the minimum trouble to the competitors, upon whose entries success will very much depend, some sort of definite understanding as to dates and periods during which the trials will take place should be arrived at as early as possible.



The Gaillon Hill Climb—Macdonald on the Six-Cylinder Napier.

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Motors and the Meet.

AGAIN the question of the presence of automobiles near the hunting field has cropped up, and we hear that novel means were adopted to take Sir John Amory's staghounds from Tiverton to the meet at Chawleigh the other day. They were placed in a van, the ends of which were wired, and drawn by a "Little Giant." The experiment proved so successful that the same means will be again adopted to take them long distances where the railway does not serve. This is a point so often urged that votaries of the motor-car are in danger of becoming wearied of it. But there are thousands of villages and larger places so distant from railway stations that the automobile is indispensable —if prompt transit is necessary.

MR. JAMES SMITH has just completed a large new motor depot facing North Street, Grantham, where not only a stock of petrol and spare parts are kept but where repairs of all kinds can be carried out. At the rear of the depot another spacious building is to be erected shortly, so that Mr. Smith will have, when his scheme is completed, a garage capable of accommodating between thirty and forty cars.

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THE GAILLON HILL CLIMBING COMPETITION.

THE sixth annual hill-climbing competition at Gaillon, organised by the "Auto," was held in beautifully fine weather on Sunday last. The hill is quite straight, and the gradient averages 1 in 10, starting with one stretch of 1 in 9. It was at first intended to restrict the event to racing cars, but, probably owing to the small number of entries received, it was at the last moment decided to allow those touring vehicles which had competed in the standing mile at Chateau-Thierry on the 23rd ult. to try their luck at the Gaillon kilometre with flying start. This rapidly increased the number of entries, which, when the list had closed, had reached a total of fifty-nine, and of these forty-five were weighed in at the goods station at Vernon on Saturday last.

Gaillon is a old-fashioned little town roused into activity once a year by this event, the presence of monster racing cars in its narrow streets, lined with fifteenth century houses, forming a strange contrast. The competitors were early astir, getting their cars *au point*, and indulging in trial spins, and shortly after 9 a.m. a start was made with the touring class, the motor-cycles with engines having a cylinder capacity of a third of a litre being sent off first. There were seven competitors, and the Magali machine illustrated in the last issue of the *Journal* again attracted attention by carrying off the first three places, the time of the winner, Collomb, for the flying kilometre being 55 3-5 sec., equal to forty-one miles per hour. In the section for cars costing between £480 and £600 the best time (1 min. 27 3-5 sec.) was made by Pelser on a Serpollet steam car, Walcker on a Chenard and Walcker being second in 1 min. 33 sec. In the category for cars between £600 and £720 there were only two competitors, Cuchelet on a Peugeot doing 1 min. 17 1-5 sec., as against 1 min. 27 2-5 sec. by Robert on a Richard-Brasier. The hill-climbing capabilities of steam cars were again shown in the £720 to £1,000 class, Rulot on a Serpollet covering the kilometre in 1 min. 2 3-5 sec., as against 1 min. 4 3-5 sec. by Gasté on a Radia, a new make of petrol car which is just now attracting much attention. In the over £1,000, M. de Lareinty-Tholozan was first on a 60-h.p. Mercedes (time 49 sec.).

The turn of the racing vehicles came in the afternoon, by which time a large crowd lined the whole length of the course. The motor-cycles were again sent off first, the event proving a victory for the Peugeot machine, which secured the first two places, Lanfranchi climbing the hill in the new record time of 29 3-5 sec., an average speed of no less than seventy-six miles per hour. Cissac was second in 33 1-5 sec., and Tavenaux on an Alcyon third in 34 2-5 sec. In the voiturette section De la Touloubre on a Darracq was first in 40 sec., easily beating the only other competitor. The light car class brought out four competitors—Hanriot and A. Clement on Clement-Bayards, Hemery on a Darracq, and Coquard on a Corre. The winner proved to be Hemery, his time—32 3-5 sec.—being equal to sixty-nine miles per hour.

As at Blackpool, the display of speed by the heavy racing cars, for which the crowd had waited, was reserved to the end. Nor were they disappointed, the hill being scaled by two cars—the Darracq driven by Baras and the Gobron-Brillié handled by Rigolly—in the new record time of 29 sec., equal to just over 77½ miles an hour. The honour of the first place is thus jointly shared by the two intrepid riders. Added interest was given to the event by the appearance of the six-cylinder Napier racer, which, driven by Macdonald, gave a very good account of itself, securing third place, the time being 29 2-5 sec., or only 2-5 sec. slower than that of Baras and Rigolly. The fourth and fifth places were taken by Hotchkiss cars, Fournier's time being 32 3-5 sec. and LeBlon's 33 4-5 sec. Pelser on a Serpollet steamer was sixth in 36 1-5 sec., and Chanliaud, on a similar car, seventh in 40 1-5 sec. After the events of the day were over Baras and Rigolly were anxious to make a second attempt at the hill to decide their dead heat, but, the crowd having invaded the course, the idea had to be given up.



Gasté on the "Radia" Touring Car.

WE had a run on a six-cylinder Maudslay car developing 48-h.p. last week. No attempt was made to attain a great speed, as the car was merely out on test; notwithstanding, on short stretches of clear road the car proved very capable in this direction. The balance of the engine seemed well nigh perfect, and nothing but a humming noise could be heard when travelling, whilst vibration seemed to be reduced to a minimum.

SOME time ago the Auto Lubrine Company sent us a sample tin of the special preparation known as "Blanchine," for removing grease, oil, etc., from the hands they recently introduced. After several weeks' use we are able to report that the preparation fully answers the claims made for it as a cleanser for soiled hands, especially when used in conjunction with a nail brush. It is also efficacious as a cleanser and polisher of metals, and for removing tarnish and rust.

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CONTINENTAL NOTES.

A Motor Mail Service in Sardinia.

The Italian Ministry of Public Works has approved a project for the establishment of a motor mail service between Polaro, Tempio, and Sassari, in the Island of Sardinia.

Public Service in Belgium.

A syndicate has been formed at Liege with the object of establishing a public service of motor-vehicles between that city and Maestricht. The vehicles would have seating accommodation for twenty-four persons, and would afford communication to a number of villages on the route.



The Motor Meeting at Hamburg.—The Glass of Water Race.

A Novel Trial.

The Marseilles Automobile Club proposes to hold a somewhat novel form of motor-car trial during the course of the present month. It is to be known as Average Speed Contest; each competitor, on entering, will be required to state the average speed per hour his vehicle is capable of attaining. The event is to be run off on a hilly road between Gemenos and Sainte Baume, near Marseilles, the winner being the motorist who makes the run at an average speed most nearly to that which he has specified on his entry form.

A Suggested Carriage Museum.

If the project of the well-known painter of Parisian life, M. Louis Vallet, becomes realised, France will possess another permanent museum of unique interest. M. Vallet's idea—suggested largely by the works of prophetic authors, who forecast the abandonment of horses for street work in the twenty-first century—is to organise a museum of vehicles, including in the collection those used to-day not only in Paris but in all parts of the world. Several great savants and collectors are supporting him in his scheme, and it is hoped that the State will provide a building and money for carrying the suggestion into effect. An exhibition of vehicles of the eighteenth and nineteenth centuries, which already exists at Versailles, might form the nucleus of the projected museum.

Motor-Cars as Hotel Omnibuses.

The proprietors of the Hotel des Indes, at The Hague, Holland, have set an example which might well be adopted by others, they having recently replaced their horse-drawn station 'bus by a handsomely appointed motor-car. The vehicle is a 12-h.p. two-cylinder Delahaye, and has accommodation for eight passengers, while in addition from eight to nine cwt. of luggage can be carried on the roof.

A De Dion Tour.

It has become a practice of the De Dion-Bouton Company to send one of their new cars on a long tour just prior to the Salon; the object being not only to make the new model known in various countries, but to thoroughly test the same on all classes of roads. This year it is the new 15-h.p. four-cylinder car with sliding pinion change speed gear that is to be subjected to the test, the vehicle being as usual in charge of M. Cormier. The route to be followed is, Paris, Turin, Milan, Venice, Vienna, Budapest, Belgrade, Bucharest, Warsaw, Berlin, Magdeburg, Cologne, Brussels, Luxembourg, Metz, Strasbourg, Bale and Geneva. The car left Paris on Monday.

Motor Races at Hamburg.

The North German Automobile Club held a successful meeting on the Bahrenfeld race track at Hamburg on the 23rd ult. Hieronymous on a Spitz voiturette racer won the four kilometre race for cars under 400 kilogs. in 3 min. 15 sec. The victor in the motor-bicycle class was Nicodem, who, on a Puch machine, covered 1¾ mile in 2 min. 26 sec. The 400-650 kilog. car section was a win for an Opel-Darracq driven by Hemery, whose time for four kilometres was 3 min. 13 sec. In a gymkhana which followed much amusement was caused by a race with which the driver had to be accompanied by a lady holding a glass of water, the winner being the one who spilled the least in making one lap of the track.

The 1905 Serpollet Steam Car.

It is reported that the Gardner-Serpollet Company are bringing out for the 1905 season a new type of light steam car, in which the engine will be located under the bonnet in the front of the frame, and in which in place of a condenser a radiator with fan will be employed. Improvements have also been effected in the burner by which the consumption of petrol will be greatly reduced.



The Motor Meeting at Hamburg.—Nicodem, the Winner of the Motor Cycle Section, on his Puch Machine.

A Swedish Automobile Week.

A committee has been appointed to organise an automobile week in Stockholm early next year. It is proposed that the meeting shall be held from the 4th to the 12th February next.

At a meeting of the Pontypool Urban Council a communication has been read from the Great Western Railway Company stating that they have not lost sight of the suggested motor service between Pontypool and Aberbeeg.

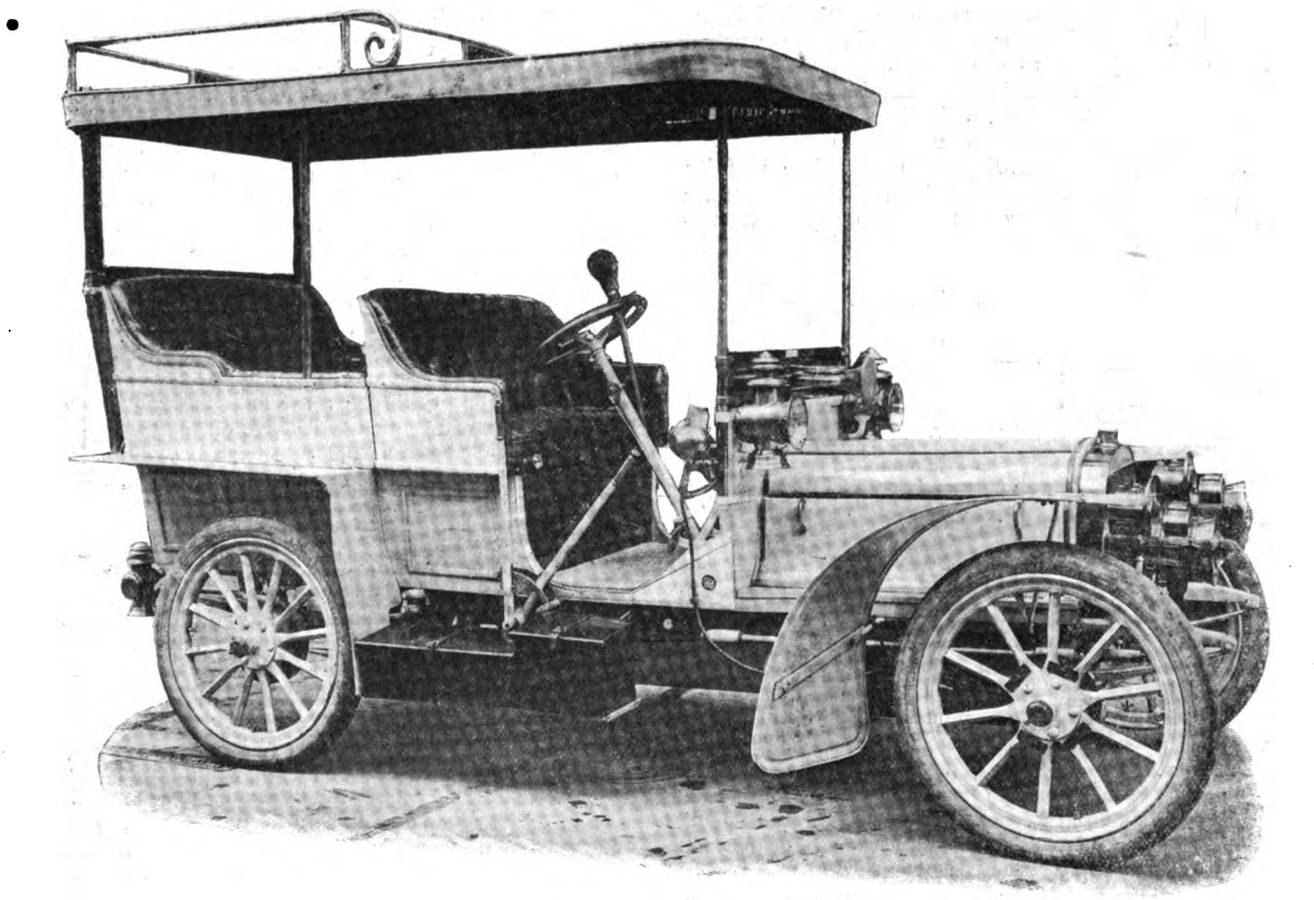
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THE "DIXI" PETROL CAR.

IN a recent issue we briefly referred to a new type of petrol car which is being introduced into this country by Dixi Motors, Limited. The vehicles are being made in four sizes—6-8-h.p., 12-15-h.p., 16-20-h.p. and 24-30-h.p.—the first having two cylinder engines and the others four cylinders. We are now able to give an illustration of a 12-15-h.p. "Dixi" double phaeton, from which it will be seen at once that the vehicles are built on modern lines throughout and have a graceful, attractive appearance. The frame can either be of pressed steel or tubular construction, the latter being the one most usually fitted to the 12-15-h.p. car. Special attention has been devoted to the production of these frames, no brazing being resorted to in connecting up the various members, which are held together by special screwed sockets. A feature of the construction is the adoption of a tubular underframe on which the engine and gear box are mounted. This underframe is of U shape and is connected to cross members of the main frame at three points, one at the front, at the bottom of the "U," and at each end just behind the gear-box. The connection is by bolts passing through the underframe and the cross members, rubber buffers being introduced between them to take up vibration. To bodily remove the engine and gear-box from the frame as a unit, it is only necessary to disengage this U-shaped underframe at its three points of suspension, a matter of but a few minutes.

The motive power is supplied by a four-cylinder engine, the cylinders being 95 mm. diameter by 100 mm. stroke, and cast in two pairs. The inlet and exhaust valves are all mechanically actuated off one cam shaft and are interchangeable. The inlets are ingeniously arranged on the top of the cylinder heads. The ignition is of the usual high-tension type with trembler coil, while the water circulation is maintained by a friction-driven pump and honeycomb radiator provided with a fan. The mixture is furnished by a special type of automatic carburettor, in conjunction with which is a throttle valve controlled by the governor and also by a lever on the steering wheel. The throttle valve is of the sliding type, the spindle, however, being able to also rotate, this arrangement being adopted to allow the throttle to be actuated by hand independently of the governor.

The power is transmitted through a leather-faced aluminium cone clutch to a gear-box adapted to give three speeds and a reverse, controlled by one lever, with direct drive on the top speed. From the gear-box a cardan shaft transmits the power through bevel gearing to the rear live axle. The cardan shaft is provided with a new form of universal joint having large wearing surfaces, and protected from grease and mud. The pedals are of the push-forward type, one controlling the clutch and the other the clutch and a brake on the gear shaft; a hand lever actuates band brakes on the hubs of the rear wheels, all brakes being double-acting. The road wheels are of the artillery type and run on ball bearings. Special attention has been devoted to the question of spring suspension with the view of producing an easy riding vehicle, while the wheel base is sufficiently long to permit of the fitting of side entrance bodies. In the course of a short drive on one of the 12-15-h.p. Dixi cars through the crowded traffic in the West End we had evidence not only of the simple way in which the vehicle is controlled, but also of the flexibility of the engine, the automatic carburettor and the throttle valve enabling the car to be driven at as slow a speed as five miles an hour on the top gear.



The "Dixi" 12-15-h.p. Double Phaeton.

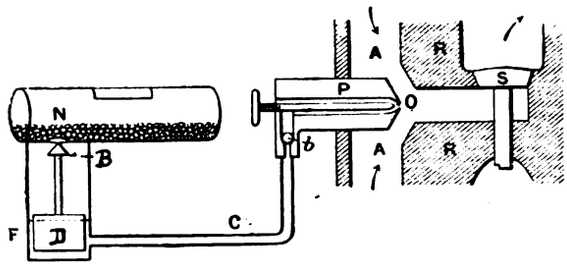
THE Works and Stores Committee of the Metropolitan Water Board are recommending that, as a tentative measure, licences to sell water for the use of motor-vehicles be issued to any persons supplied by meter, a charge of 10s. being made for any licence issued.

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SOLID FUEL FOR INTERNAL COMBUSTION ENGINES.

AT the invitation of Messrs. J. E. Hutton, Limited, we journeyed down to their works at Thames Ditton on Thursday of last week to witness a demons tration of an internal combustion engine utilising a solid hydro-carbon naphthaline as fuel. As a matter of fact, the engine—a 12-h.p. four-cylinder Hutton—was fitted up in such a way as to utilise either petrol, ordinary paraffin, or naphthaline. The latter is a waste product of gas works, petroleum and shale oil refineries, the only use to which it has hitherto been put being to keep moths out of clothes and as a disinfectant. Two French engineers, Messrs. Chenier and Lion, have, however, for some time been experimenting with it as a motor fuel, and now claim to have perfected a method of utilising refined naphthaline in the form of white balls 5-8 in. in diameter in internal combustion engines. To the usual form of motor several additions are made, notably a special injector for vaporising either petrol or paraffin, an exhaust jacket to the inlet valves to keep the latter at a high temperature, the jacket extending right across the top of the motor, and the device, which is also heated by the exhaust, for melting and vaporising the naphthaline balls.

In the absence of detail drawings it is impossible to fully describe the system; the arrangement of the naphthaline liquifier is, however, diagrammatically shown in the accompanying illustration. The naphthaline balls are contained in the receptacle, N,



which corresponds to the usual petrol tank, except that it must be located near to the engine. An enlarged mushroom valve, B, is mounted on the top of a vertical rod which terminates in a float, D, in the chamber F. The motor has to be started with ordinary petrol until sufficient heat has been obtained to melt the balls of naphthaline into a liquid of the consistency of treacle as they fall down through the mushroom valve into the float-chamber below. The melting point of the fuel being 78 deg. Cent., it is only necessary to run on petrol for a few minutes, and when the melted naphthaline attains a certain level, the mushroom valve, B, is, of course, automatically closed, preventing a further supply of balls from falling through. During the suction stroke of the piston the liquefied naphthaline is drawn through a spraying nozzle, O, situated immediately in front of the inlet-valve, the communication between the float chamber and the jet being nominally closed by a ball-valve, *b*, which must be lifted off its seat by the suction before the liquefied naphthaline can pass to the jet. As the liquid naphthaline is sucked in, air is also drawn in through the openings A, the space under the inlet valve practically forming the mixing chamber. The degree of pulverisation can be varied by adjusting the spraying nozzle, and the amount of sprayed naphthaline fed into the cylinder can be regulated by a needle valve.

After running the engine on petrol for a short time, M. Lion, one of the inventors, switched over on to paraffin, the engine continuing to work with no perceptible variation in the running. A supply of naphthaline balls was then placed in a hopper, above the liquifier, and the engine without any cessation was changed over to the solid fuel, and continued to run as regularly as ever. It is claimed that, notwithstanding the gluey nature of the liquid, no clogging of the inlet pipe or valves takes place, but that it has, on the other hand, a cleaning action, a sparking plug, which has been in use on the engine for some time, being shown in proof of this. It is also stated that the exhaust is quite clear and not at all offensive, but unfortunately we were not able to judge of this, as, owing to an overdose of lubricating oil, the engine was not working under the best of conditions.

A series of tests have recently been made with the three different fuels—petrol, paraffin, and naphthaline balls, the results of which are shown in the appended table:—

Fuel.	H.P.	Revs. per hour.	Consumption per 12-h.p. per hour.	Cost of fuel per 12-h.p. per hour.
			lb. gal.	s. d.
Petrol	12	1,000	12·32 = 1·78	1 2½
Paraffin	12	1,000	12·1 = 1·56	0 9
Naphthaline	12	1,000	12·75	0 9

The cost has been estimated with petrol at 8d. per gallon, paraffin at 5½d. per gallon, and naphthaline at £7 per ton: the latter is, however, an outside price, and it is possible that, when bought in quantities, a much greater economy would be shown.

In acquiring the British and Colonial rights in the Chenier-Lion system of ultilising naphthaline as fuel, Messrs. Hutton have in mind its use for the engines of motor-boats and on commercial vehicles, not only because of the saving in cost as compared with petrol, but more especially on account of the greatly reduced risk of accident, naphthaline, which takes up no more space than petrol, being not nearly so inflammable as the spirit. As proof of this Mr. Hutton dropped a lighted match into the hopper containing the balls, the match simply burning itself out. The demonstration was conclusive of the possibility of using a solid hydro-carbon as fuel in internal combustion engines, and we shall watch the development of the system with considerable interest.

MAISON-TALBOT have been appointed sole agents for London of the Wilton-Cox puncture-resisting device, to the qualities of which many testimonials have lately been received from eminent motorists. The firm has just issued a new price list.

THE London and Eastern Counties Agency for the Belsize cars has been obtained by Messrs. W. Bath and Sons, of King's Lynn and Regent's Park, who were responsible for the arrangements in connection with General Booth's motor-car tour.

THE Western Motor Company, Limited, has been registered with a capital of £5,000, to adopt an agreement with the Hozier Engineering Company, and to carry on the business of sellers of motor-cars and carriages at 70, Buchanan Street, Glasgow.

MESSRS. JARROTT AND LETTS have sent us a copy of a clever picture in colours, issued by the Turcat-Mery (De Dietrich) firm, by way of celebrating the remarkable climb of Ventoux Hill by Rougier, on a Turcat-Mery car, in August last.

SIR W. B. BARTTELOT, Bart., is one of the leading members of the Sussex Motor Road Car Company, which is about to start a service of cars between Pulborough and Worthing. A motor lorry may also be put on the road for the conveyance of goods and parcels.

THE directors of the Hozier Engineering Company (Limited), we are informed, have declared a dividend at the rate of 50 per cent. per annum on the ordinary shares for the six months ending 30th September last, which, with the interim dividend at the rate of 20 per cent. per annum, paid for the previous six months, makes the total return for the year ending on these shares 35 per cent. After providing for payment of interest on debentures, etc., and the dividend on the preference shares at the rate of 6 per cent. per annum, the directors recommend that the sum of £5,870 be applied as depreciation, £3,000 placed to "reserve" account, and the balance of £2,650 carried forward.

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SOME USEFUL NOTES.

NEXT to a correct knowledge of how to use a motor-vehicle is a knowledge of how not to use it, and many otherwise good drivers do not possess this latter knowledge. The result is that they abuse their vehicles unnecessarily, and do damage to the vehicles not only needlessly, but recklessly, and then sometimes complain because repair bills are high. As an example of this abuse, recently an owner of a two-seated car wished to make a trip, taking with him four ladies, and, being unable to borrow a four or six seated car for the occasion, he mounted a temporary seat on the rear end for two, crowded the other two in the main seat with himself, and the whole party proceeded on their journey merrily. The fact that the vehicle carried the load does not prove that it was the proper thing to do, for a two-seated car is certainly overloaded when four are carried, while five becomes an abuse. The feeling that there is ample power, and that the motor does not care, is largely responsible for this tendency to abuse the motor-vehicle, for very few drivers would attempt to load five passengers in a two-seated horse-drawn trap, and if they did, the trap would not stand it long. The result of such abuse is likely to be a strained spring, wheel, or axle and a breakdown at some future time, dating its beginning from this strain.

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A SECOND form of abuse is due to the driver's laziness. Rather than take the trouble to slow down or lift out his clutch he will bump over a newly metalled road without slackening speed, thus subjecting his car to damaging shocks needlessly. The horse-vehicle driver by years of experience has learned better and does not do this, and the experienced automobilist, having paid many repair bills, is likewise apt to do better; but the new man, "pleased with the power, speed, and staunchness of his car, is, in this strenuous age, inclined to get a lever in each hand, a pedal under each foot, the steering wheel in his teeth, and let her go, regardless of consequences. Fortunately, as we get more experienced drivers we find them discouraging this sort of foolishness.

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A FURTHER form of abuse is needless "racing" of the motor. The experienced driver does not, as a rule, throw the throttle wide open and let the motor try to fly out of the car while he puts on his gloves or attends to some other little errand before starting, but, on the other hand, he takes a pride in making each turn of the motor carry him as far as possible, to the saving of fuel, noise, vibration and odour, and at all times aims to keep the motor running at the lowest practical rate of speed.

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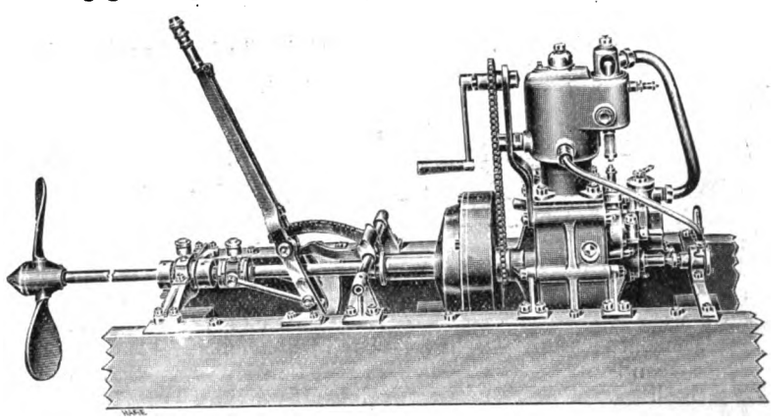
COUPLED with the racing motor is the sudden clutching abuse practised by the new man. With the motor running at high speed a sudden application of the clutch will cause the vehicle to jump forward or backward, as the case may be, straining all parts of the driving gear, and moving the car so quickly that persons to the front or rear are more or less in danger. Possibly such abuse is frequently due to the inexperience or ignorance of the proper way, and it seems more charitable to assume this. The experienced driver takes a pride in moving away without a jar or jerk, and this is as true in driving a motor-car as in handling a locomotive.

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A GOOD way to make a sparking plug joint, if one does not happen to have a washer at hand, is as follows:—Take a piece of copper wire, and make a ring with the ends slightly overlapping. Bevel off these ends by a tap of the hammer so that they will lie about on a level with the rest of the ring. Then heat the wire red-hot and plunge it into cold water. This will make it very soft, and should be done last of all, as manipulating the wire tends to harden it. Screw the plug down hard on this soft copper ring, and, if the job is carefully done, a first-class joint should be the result. The same method may be employed for making any joint where there is sufficient pressure to somewhat flatten the copper wire.

THE DE DION MOTOR-BOAT GEAR.

MESSRS. DE DION-BOUTON, Limited, who are devoting much attention to the motor-boat movement, have lately brought out a series of sets of combined engines with reversible propellers and control gear, ranging from 4½-h.p. single cylinder to 12-h.p. double cylinder. The accompanying illustration depicts a 6-h.p. set. The conditions under which the motor runs in a boat are somewhat different to those on cars. The engine is consequently provided with a longer shaft than usual, and on this an outside fly-wheel is mounted. This wheel is coned and fitted with a clutch to allow the propeller shaft to be disconnected from the motor. It is therefore unnecessary to stop the motor when stopping the propeller. On the motor shaft, in front of the outside fly-wheel, a chain wheel with ratchets is fitted; this is connected by a chain to a wheel fixed at the back of the cylinder. The motor is started by means of a detachable handle engaging with the boss of the top chain wheel. A rotary pump is fitted in front of the motor, to maintain the water circulation. It is driven by a jointed shaft direct from the motor axle. The pump is much smaller than those used on motor-cars, because it draws its supply from the water in which the boat floats. The special feature is the system by which one lever not only operates the clutch and inclines the propeller blades for going ahead or astern, but also allows the angle of the blades to be increased from a very fine to a coarse pitch whilst the clutch is engaged. Speed can thereby be controlled, and there is no risk



of stopping the motor by putting a full load on it at once. The power is transmitted direct to the propeller. By using a reversible propeller all pinion or other system of driving or reversing gear is dispensed with. The boss, as well as the blades, is of bronze, and the mechanism is completely enclosed. When the controlling lever is vertical the blades are set at right angles to the shaft and the clutch is disengaged. A short movement forward causes the clutch to engage and gives the blades a fine pitch for driving ahead. Further movement increases the pitch to any desired degree. Five notches in the sector provided for the purpose, with a bolt on the lever controlled by a spring and a sliding movement of the handle end, permit the handle to be fixed and the blades to be set at either of five different pitches. A movement of the lever backward along a similarly notched sector sets the blades for driving astern. The controlling lever is pivoted below the shaft. It is connected by two links to a sleeve on the shaft operating the propeller blades by a rod which slides within, and revolves with the hollow propeller shaft. This sleeve is fitted with two ball-thrust bearings. The clutch is operated by a right-angle or bell-crank lever and a roller on the controlling lever. The propeller shaft thrust bearing is fitted with two rows of balls to take up the end thrust in either direction.

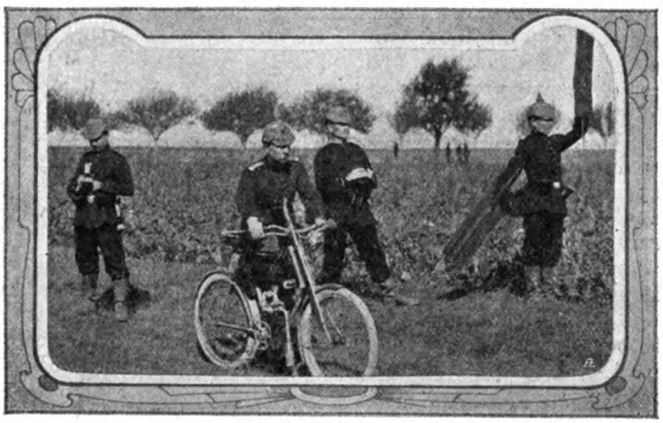
A PROPOSAL is under consideration to hold a series of mile and kilometre races in the Bois de Boulogne, Paris, next month.

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MOTOR CYCLING NEWS.

On Saturday Mr. J. Edge essayed the task of riding up the Great Orme's head, Llandudno, and was successful in piloting his 3¾-h.p. Bat to the flagstaff.

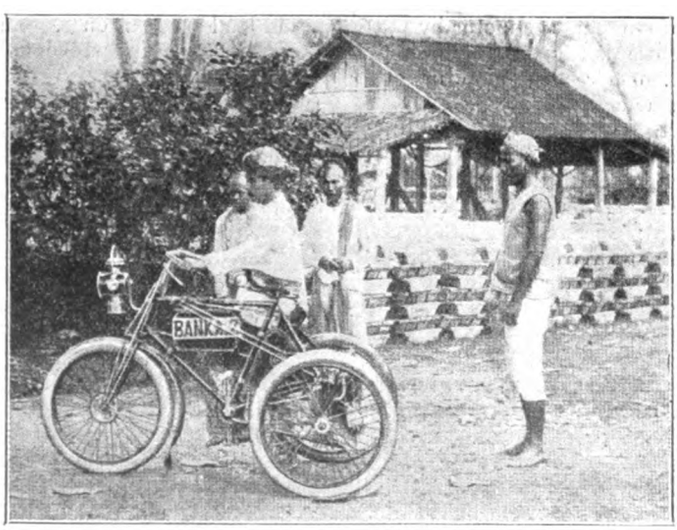
Mr. W. R. M'Taggart presided at the annual dinner of the Motor Cycle Union of Ireland in Dublin on Saturday. Mr.



A German Motor-Cycling Signalling Corps.

Lane Joynt proposed the toast of "The Union," which he said had done useful work. Mr. C. G. Grey, the hon. secretary, responded, referring in complimentary terms to the hon. treasurer, Mr. T. W. Murphy. Replying to the toast of his health, Mr. J. B. Dunlop, one of the vice-presidents, said, in his opinion, the pneumatic tyre would never be superseded in point of speed.

A new combined friction clutch and two-speed gear for motor-cycles and tri-cars is being put on the market by the E. M. Bowden's Patents Syndicate, Limited. Friction clutches are substituted for the toothed clutch, the gear being always in mesh. The wear is centred on the coned surfaces of the clutch, and replacement of the leather face—which will last several thousand miles—can be made for a few shillings. The drive is direct on the high gear, and the second gear is 50 per cent. lower, with a

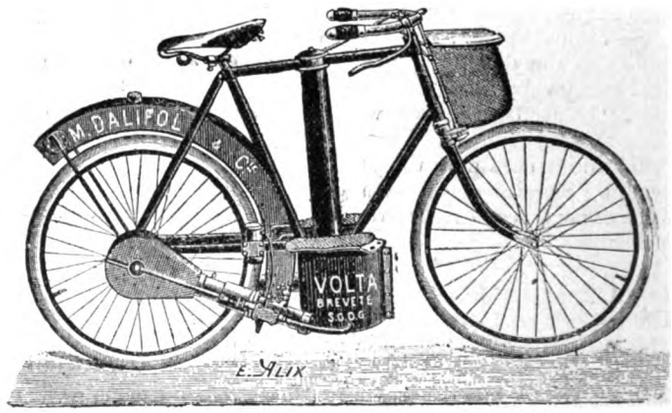


Motor-Cycling in the Dutch East Indies.

free wheel between the two gears. The whole is simple, efficient, and cannot easily get out of order.

A motor-cycle record was performed on the Canning Town track on Friday of last week, when G. A. Barnes, on a Barnes motor-bicycle, beat the one hour record of 48 miles 1,395 yards, that had withstood thirty-five previous attacks, adding to his laurels by riding 49 miles 800 yards in the hour. He started beating record at 33 miles, which he covered in 39 min. 35 sec., and from that point he set up fresh figures to 50 miles, which took him 1 h. 0 min. 42 2-5 sec. After Barnes's record ride H. Martin, in an attempt on the existing figures from 61 to 100 miles, succeeded in riding his fifty-first mile in 1 h. 8 min. 39 sec., and the 100th in 2 h. 21 min. 45 sec., creating new records for every mile from 51 to 100.

Arrangements are well in hand for the Auto-Cycle Club's 100-mile trial for tri-cars, which is to be held to-day (Saturday). Every machine must be fitted with a free engine and change-speed gear. The competitors will be started at 9.30 a.m., and thereafter at one-minute intervals, from the Red Lion, Hatfield, and will be expected to accomplish the journey without any stop other than as officially ordered, except for tyres. Fifteen minutes' rest will be allowed at the half-way point, but no adjustments, etc., will be permitted. The course will be one of about 100 miles in length, and will extend over a route from Hatfield to Hertford, Newmarket, and thence to Royston, Buntingford, and Hatfield. Times may be taken on one hill, the name and position of which will be kept a secret from the competitors. On one average hill during the trials each competitor will be required to stop at a given signal as rapidly as he can by applying the brakes, without stopping his engine. As soon as the observer is satisfied that the road wheels are at rest the competitor will be



A Motor-Bicycle of 1895.

instructed to proceed. During this test the driver must not leave the saddle either for the stop or re-start. The maximum running time for the journey will be six hours, and the minimum time five hours; a competitor exceeding the speed allowed by law, whether in villages or in the open country, will render himself liable to disqualification. No petrol or oil may be taken during the journey by any competitor under pain of disqualification, though water may be taken in at Newmarket. Adjustments and repairs, the time spent on them, and their nature, will be noted by the observer. Every machine making a complete officially recorded non-stop will receive a certificate, and awards will be made on the basis of excellence in, (1) fuel consumption (2) hill climbing (3) ease of starting and control (4) brakes. These certificates may only be gained by machines arriving within the maximum time. The makers of the following machines have already signified their intention of entering:—Humber, Bat, Riley, Phœnix, Garrard, Mars, Rover, Bradbury, Quadrant, Singer, Watson, Brown, Scarsdale, King, and Lagonda.

Northern motorists are familiar with several brands of petrol which have not yet made their appearance in the South. Among these is that known as the "Giant" motor spirit, which has been introduced by Messrs. Meade-King, Robinson and Company, of Liverpool, and which has quickly earned the approval of motorists, especially those in the Lancashire district.

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HERE AND THERE.

A MOTOR-GARAGE has been opened at Llangollen by Messrs. Moore and Company.

A LADY, Mrs. Shepherd, of Shirebrook, has just been elected to membership of the Nottinghamshire Automobile Club.

MR. H. C. DIGNASSE, of Marshall Street, W., has now the sole agency in London and the home counties for Sunbeam cars.

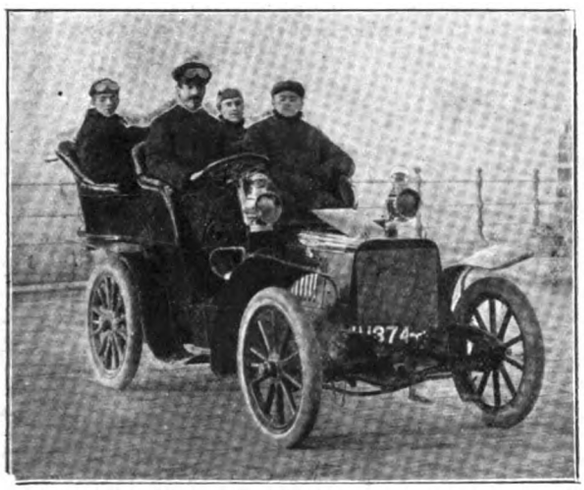
THE Belsize Motor Car and Engineering Company, Limited, are, we hear, busy with the construction of a new type of six-cylinder car.

THE United Motor Industries, Limited, have been appointed sole agents for the home counties for the Doherty Motor Accessories Manufacturing Company.

THE Kensington Motor Company, Limited, are removing from Hammersmith Road and Sinclair Mews, W., to their new premises in Avonmore Road, Kensington, W.

THE Hercules Motor Wagon Company are enlarging their works at Levenshulme, Manchester, and have set apart a portion of the factory for repairs to motor-cars.

THE Prested Miners' Gas Indicating Electric Lamp Company, Limited, has just introduced a useful outfit for effectually repairing celluloid accumulator cases and other celluloid articles.



Mr. J. Keele on his 15-h.p. Darracq car at Blackpool.

THE Chairman of the Newhaven Rural District Council states that he understands 2,000 signboards, warning motorists of dangerous places, are required for the whole of East Sussex.

A SPECIAL commission of the A.C.G.B.I. has been appointed to carry out the organisation of the race for the United Kingdom cup, *i.e.*, the new cup race in which there is a limit to petrol consumption, etc.

MESSRS. J. E. HUTTON, LIMITED, have been appointed sole retail agents for Mercedes cars in 1905 for London and district. They are stocking a full set of spares and accessories for the 1902, 1903, 1904 and 1905 models.

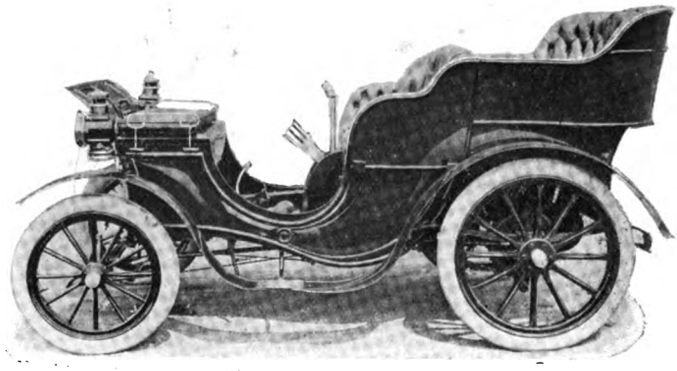
THE Highways Committee of the Cumberland County Council have withdrawn their application to the Local Government Board to issue a closing order against motor traffic on the main road from Keswick to Ambleside.

MR. W. G. CROUCHER, of Orchard Road, St. Annes-on-the-Sea, Lancashire, has fitted up a small garage, equipped with tools and machinery for the repair of motor-cars of all kinds. A large stock of petrol, tyres, spare parts, and accessories is also kept on hand.

SEVERAL automobilists were interested in the attempted sale of the Basingstoke Canal, which, with the estates in the vicinity, it had been suggested, would provide a splendid opportunity for a combination of motor boating with the pleasures of touring on land.

THE first 20-h.p. Brotherhood-Crocker car, with Mr. P. Richardson at the wheel, was seen out on the road undergoing a preliminary test a few days ago.

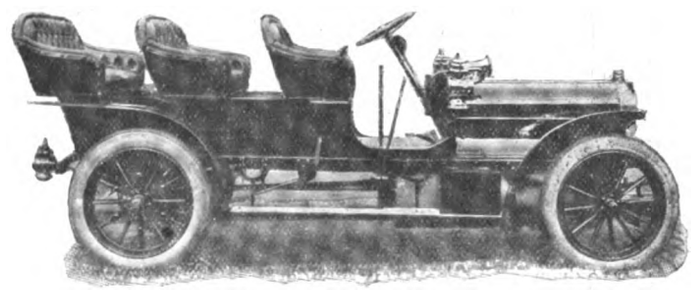
THE accompanying illustration depicts a new design of car which has recently been produced by the Duryea Company. The object is to secure a side entrance with a moderate wheel base. The front seat is made in two halves, both of which are hinged so as to swing over outwardly, thus giving access to the tonneau at the back. Either seat may be thus lifted, and only the driver



need dismount to give ingress to or egress from the tonneau. The tonneau itself is rendered exceedingly snug and compact, and, as with all Duryea cars, the rear seats are raised above the front, so that the occupants of the back seats have an uninterrupted view forwards. The particular car from which the photograph was taken was recently supplied to Mr. Mercer, of Weymouth, and, as will be seen, is also fitted with a cushion on the tool box in front, thus providing still further additional emergency accommodation if needed. This car was recently driven up to the top of the Island of Portland without difficulty, and has also made the ascent on its top gear of the well-known Ridgway Hill, between Weymouth and Dorchester.

MESSRS. T. H. S. ATKINSON, proprietors of the North of England Motor Company, Leeds, have received a second order from the Leeds Corporation for a Talbot car, for which this firm are sole agents in the Leeds district. The first car was supplied to the Tramways' Department last year, and the one now delivered to the Highways Department is a result, not only of severe test, but also of the highly satisfactory experience with the car first supplied to the Corporation. Incidentally, this is also a matter of congratulation to Messrs. Clement Talbot, Limited.

THE photograph reproduced herewith depicts a special nine-seated char-a-banc built by the Hozier Engineering Company, Limited, to the order of Mr. Leyland, of Haggerston Castle, Beal, Northumberland. The car is fitted with a four-cylinder engine of 16-20-h.p., and the special features are that the upholstery work is made so that it may be readily detached.

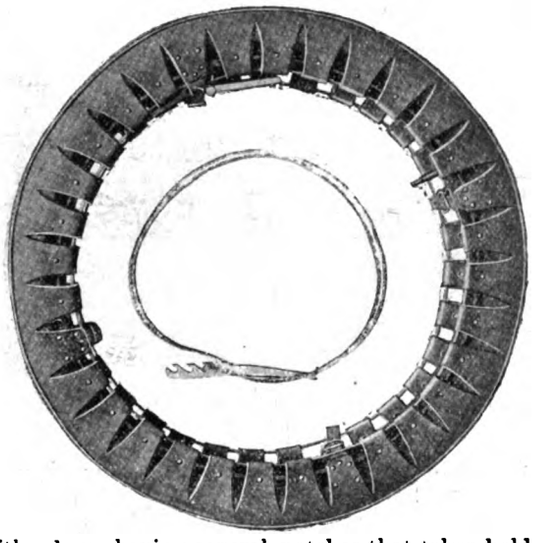


The rear seats can be removed, allowing the body of the car to be used for estate purposes, such as the conveying of game, luggage, guns, &c. We understand that Mr. Leyland is well satisfied with his vehicle, and is at present using it for conveying guests to his different shooting moors in the North of England, while in the winter he anticipates employing it for estate and station work.

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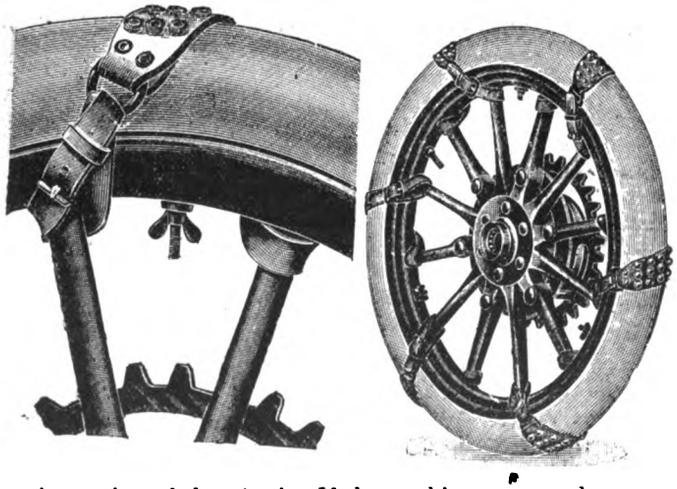
THE Holland Park Motor Company has lately supplied a special Prosper Lambert delivery van to the Central London Railway Company.

IN addition to the ordinary vulcanised non-slipping tyre tread, the Shaw Motor Tyre Tread Company, Birmingham, have just placed on the market a detachable non-slippling tyre tread cover, which can be fitted to a wheel or taken off in a few moments. It consists of a steel wire rope running through the



loops with a lever having several notches that takes hold of the other end of the rope, and when brought round regulates the tension by the various notches on the lever. It is readily adjustable and looks very neat. Side play is prevented by a clip, and we understand that there is no possibility of creeping.

A GREAT many motorists do not like to run constantly on wheels fitted with anti-skidders. An anti-skidder, say those who have had experience, is excellent for town work, but for country roads is cumbersome, and sometimes dangerous. This is an opinion that for the moment we need not discuss. We, however, call the attention of readers to what seems to be a simple anti-skidding arrangement, and one that is capable of giving satisfaction to everybody. This is the studded leather band manufactured by M. C. Beau, of Lyons, France, and which, as shown in the accompanying sketches, are secured to two con-



secutive spokes of the wheel. If the road is greasy, and a storm chances to drench the road, six bands may be taken from the box of the car and quickly laced to one of the hind wheels; and after this has been done there will, it is stated, be no danger of any skidding. The device, owing to its very simplicity, does not require any long explanation, but we may add that the maker claims that it is so perfect that when the two driving wheels of a car are provided with the bands there is an absolute freedom from skidding.

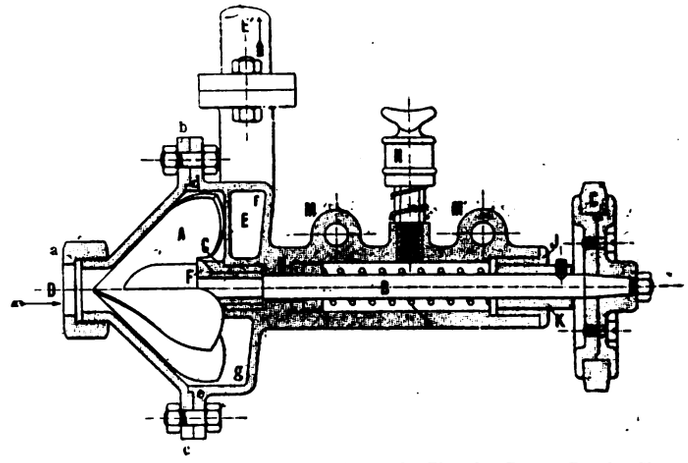
THE Seaham Harbour Works have recently supplied one of their five-ton Londonderry steam wagons to the Belfast and County Down Railway Co.

THE Finchley Road Garage, Limited, has been registered with a capital of £500 to carry on the business of motor-garage proprietors. Mr. J. G. L. Pleydell-Nott is the first director, and the office is in the Lymington Road, Hampstead, N.W.

THE Automobile Club of America has suspended Mr. H. Harkness, one of its members, for exceeding the legal speed limits of three States in a record run last June from Boston to New York. It is stated that the action was taken in fulfilment of a pledge that the club would enforce the speed limit among its members.

ONE of the features of cars of American construction is the popularity of the system of transmission by a single central chain on to a live axle. According to a recent estimate, 50 per cent. of the cars turned out in the United States are on this system, 32 per cent. are gear driven, and only 18 per cent. have side-chain transmission.

A GOOD deal of attention has lately been centred in France in the new water circulating pump brought out by the Société des Etudes Mecaniques of Levallois-Perret (Seine). A sectional view of the pump, which is known as the "Triton," is given herewith. The novelty consists in the special form of the helical screw A set on the end of the pump spindle B, rotating within the conical suction box. The four-vaned delivering screw runs just clear of the inner surfaces of the suction box, so that the



A Helical Screw.
B Pump Spindle.
C Driving Wheel or Pulley.
D Suction Pipe.
R^1 Delivery Pipe.
F Key securing Helical Screw on end of Spindle.
G and J Phosphor Bronze Bearing Sleeves.
H and I Packing Rings.
K Steel Sleeve on Spindle.
L Spring retaining Packing Rings.
M M Lugs on Pump Barrel for attachment to Frame or Motor.
N Lubricator.

only mechanical friction existing is that in the phosphor bronze bearings at each end of the pump spindle. The makers claim that with this pump the water tank can be placed in any part of the car or at any level, and that it can circulate over seven gallons of water per minute when driven in the usual way off the motor flywheel. A spring L keeps the packing ring I in position, so that leakage of the pump is prevented. It is made in bronze or aluminium, and, in the latter metal, only weighs 4½ lbs.

THE Wandsworth Borough Council has adopted a recommendation of its Highways Committee to purchase from the Lancashire Steam Motor Company, Ltd., a steam motor wagon with a tank of 1,000 gallons' capacity for street-watering purposes, and an interchangeable wagon body, at an estimated cost of £600.

IN reply to a petition from residents in the neighbourhood of Haslemere and Farnham, asking the London and South-Western Railway Company to run a motor-omnibus service between those two places, the general manager has informed the petitioners that it is hoped that, if the roads are found suitable for such a service, it may be possible to make arrangements for its inauguration.

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CORRESPONDENCE.

ECONOMICAL RUNNING.

TO THE EDITOR OF *The Motor-Car Journal.*

SIR,—I have been much interested recently in noting the fuel consumption capacities of different vehicles. The subject is one which must be viewed with increasing attention, as the use of the motor vehicle is extended and the utilitarian aspect of its various functions assumes a greater prominence. Too little attention has hitherto been given to the matter. What has been done until recently has, with the notable exception of French effort in this direction, partaken to a considerable extent of an incidental, even an accidental, nature. The small car trials in September, however, afforded much useful information on the subject, especially as the account of the fuel consumption of the different cars which was kept was a subsidiary object; the chief purpose was to get the car through the six days without a stop, and therefore only secondary importance could be attached to the fuel consumption. In the table of performances one car is a long way in advance. It was a 7-h.p. Clyde, which was driven 620 miles on a consumption of 13 gallons 1 pint of spirit. This figures out at 47·3 miles per gallon. How good this performance really is, is evidenced by a comparison with the work of the other cars in the trials. Second place was secured by a 7-h.p. Swift, with a consumption of sixteen gallons for the 620 miles, or 38·8 miles per gallon; and from this the consumption becomes greater, until the extreme point is reached with 39 gallons 7 pints, or only 15·6 miles per gallon. The work of the Clyde car demonstrates conclusively that the item of fuel expense is almost a negligible one where a light two-seated car is concerned, as in this case it figures out at less than a farthing per mile. or less than one-eighth of a penny per passenger. Another example of lower fuel consumption was afforded in the trial lately organised by the Auto-Cycle Club, when a 2¼-h.p. motor-bicycle covered a distance of 50 miles on 2½ pints of spirit, equal to 190 miles per gallon.—Yours truly,

J. C. HAYES.

TO THE EDITOR OF *The Motor-Car Journal.*

SIR,—The annexed statement of the actual cost of running my 10-h.p. Argyll car may be of interest to your readers. I have had my car for two years, and have just made up the cost for the past twelve months. My car at present is running as well as ever it did; the body and paint work have lost some of the finish, but the car does not look by any means shabby. I have used during the last twelve months 222 gallons of motor spirit, which has cost me £14 19s. 6d. As I have run 6,165 miles, this means an average of 27·77 miles per gallon. All repairs and renewals are detailed in full below:—

September, 1903	Plate fitted to frame	£0	4	0	
October, 1903	Mud guard stay	0	6	6	
December, 1903	Brake band	0	7	6	
December, 1903	Nail catchers	0	16	10	
March, 1904	Grill for horn	0	2	6	
April, 1904	Tail lamp bracket	0	9	0	
May, 1904	Two trembler blades	0	8	0	
June, 1904	Repairs time, new clutch leather and spring shackles	1	18	2	
July, 1904	Two inlet valve caps	9	1	2	
July, 1904	Repairs-time	2	5	0	
	Six piston rings	1	0	0	
	Brake parts	0	17	11	
August, 1904	Clutch coupling	0	12	6	
August, 1904	„ spring cup	0	4	6	
					9 13 7
	TYRES.				
October, 1903	Four covers retreaded	6	0	6	
June, 1904	Two new outer covers	12	3	6	
August, 1904	One inner tube repaired	0	5	0	
					18 9 0
	OILS.				
	2 gallons cylinder oil	0	10	0	
	3 „ gear box „	0	7	6	
					0 17 6
	Accumulators recharge l				0 12 6
	Petrol, 222 gallons				14 19 6
					£44 12 1

Add to this my last season's mileage and costs, and you have 9,940 miles at a cost of £56 2s. 9d., or 1·35 pence per mile, and that when generally carrying four and sometimes five persons.—Yours truly,

THOMAS P. NAISMITH.

THE USE OF THE ACCELERATOR.

TO THE EDITOR OF *The Motor-Car Journal.*

SIR,—In reply to "A. T.," the modern tendency appears to set the governors so as to cut out at a fairly high engine speed about 1,000 revolutions per minute and to drive by means of the throttle when lower speeds are required. Personally I agree with the firm's representative he speaks of. I will not go so far as to say that a car should be driven on the accelerator, as the modern tendency appears to be to decry this practice, but I must say that such a mode of control with the governors set so as to give an engine speed just sufficient to pull off with a full load, yet not to race violently when the clutch is withdrawn, appears to me far preferable to trusting to the throttle. In the first place, the control, save for the slowest crawl, on top speed is solely by the feet, leaving both hands free to steer, or one to apply the side brakes where necessary. In the second place, the speeds may be changed or the clutch withdrawn on an emergency stop without resort to the throttle to prevent the engine roaring like an angry bull, while a flick of the toe will rush one through a tight place in traffic far quicker and more easily than where the movement is by hand, and on releasing the pedal the car at once drops back to a steady twelve to fifteen miles per hour automatically. I assume the objection to driving on the accelerator is that you have with the modern four-cylinder motor and automatic carburettor so great a range of speed entirely controlled by the accelerator pedal that the inability to keep the foot quite steady puts an almost imperceptible surging action on the bevel gears, which is less marked where the control is mainly effected by the positive throttle. Be this as it may, there is to my mind a feeling of confidence where the control is carried out by the intervention of the automatic governors and the engine speed is varied by the compression and relaxation of the governor spring, whether by hand or foot, which the positive throttle independent of the governors can never give. Moreover, to one used to drive on the accelerator the want of a third hand to keep his engine cut down nicely when speed-changing without losing a revolution more than is absolutely necessary once the clutch is in again is very apparent. It would be interesting to hear what experts have to say upon the respective merits and demerits of the two systems of driving.—Yours truly,

FOOT CONTROL.

THE LIGHTING QUESTION.

TO THE EDITOR OF *The Motor-Car Journal.*

SIR,—Nothing better exemplifies the disadvantages of our hodge-podge road laws and regulations than the inconvenience and danger caused by the use of bright lights. It has recently been proposed, in the columns of a motor-car paper, that the first three lamps or so on the outskirts of a town or village should have diffusing glass on the sides facing the country, and there are other indications that the time is now ripe for drawing attention to the subject as a whole, and as including both fixed and moving lights.

Bright lights, spaced far apart, present certain difficulties, and now that incandescent mantles are so much used, street and road lamps are sometimes sources of great inconvenience and even serious danger, not only when they happen to be nearly on a level with one's eyes, and a short way off, but also when they appear over the brow of a hill and at a considerable distance.

The effect is, naturally, greatest with the outermost lamp as one approaches from the comparative darkness, but a great improvement will be made to our towns and villages when ground glass, or an equivalent, and screens are largely used and the principles of lighting properly understood and applied. Doubling the light that falls upon an object does not make it more visible if the pupil of the observer's eye be proportionately contracted.

The same optical laws hold in respect to lights on vehicles, but much more care and restraint are needed in their application. Since the whole question is one of comparative rather than absolute light effect, the best and most economical thing to do, as well as the most convenient for those who have to meet many vehicles at night, is to make use of the widely expanded pupils of the eyes and the natural light on country roads as far as possible, with such illumination of the vehicle and the road as may be necessary on dark nights or on account of shady places. To do this it is necessary to realise the twofold nature of what is now called "a light," which serves both to locate the vehicle and to light the road; or should do so.

The first necessity of traffic by night is that each vehicle show a light, and although there are physical exceptions, a bright moonlight night and on open roads, it is practically safest not to allow any departure from the rule. The principle of such a light is that of a Chinese lantern, an illuminated surface of considerable area which should be visible from almost any direction while incapable of dazzling anyone approaching or passing. There should be one at each side of the vehicle; and they should be coloured one red and one green, like a ship's side-lights. Both the usual single lantern of the country cart and the two head lamps of the motor-car leave a margin of invisible danger just where the eye can least well perceive it; and much would be gained if carts had to have a simple lantern on either side illuminating the wheel and side, and if motor-car lamps were made so as to throw some of their light back on to the car itself.

The second and lesser need is to throw some light ahead as well as, sometimes, a little to one side so as to steer by the hedge or grass border.

If all vehicles *showed* lights it would frequently be possible to drive without *throwing* a light more than an hour after sunset as well as on moonlight nights, and the pleasure of such drives, or when cycling, is much greater than the same drive with a glaring light. It is far more

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agreeable to travel through a visible country than to grind along in a blurr, even if the pace be somewhat reduced.

On ordinary nights, and even very dark ones, a light of very moderate intensity would be quite sufficient to illuminate the road, at reasonable speeds. The forward ray being as narrow as possible, and only a faint light being thrown to the side of the road, the eyes of the driver would be doubly or trebly as efficient for objects ahead as those same eyes when dazzled by a bright glare on the road and roadside. It is even worth while to abate the light thrown immediately in front of and at the sides of the car, where a faint illumination will reach with sufficient effect. To throw a bright light on to a wall of mist is not only discourteous to other users of the road, but defeats its own object.

While the side-lights will serve very well to illuminate slightly all surrounding objects, the head-light should diverge so little to the right that in normal positions the approaching passenger would be relieved of its glare at a distance of some fifteen yards, and no bright line be thrown on the hedge to the left nearer than, say, ten yards, or anywhere more than some four feet above the ground.

If one of the side-lamps be used to throw a light ahead it should be that on the near side, leaving a glareless space on the off-side for passing purposes. The following, then, are the important facts of the subject :—

An illuminated surface locates the object on which it is better than a bright light.

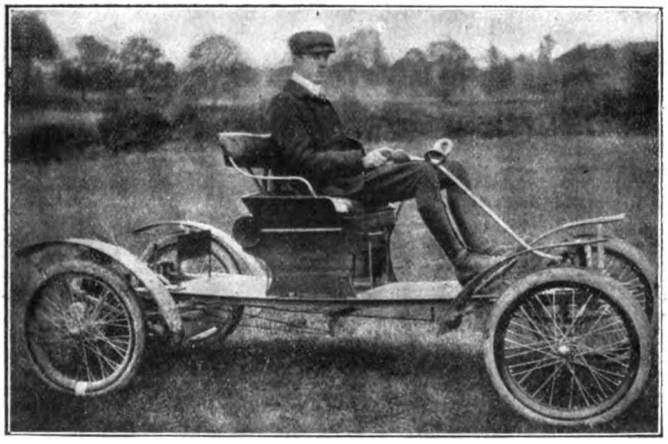
All appreciation of light is comparative, owing to the adaptability of the pupil of the eye.

The expansion and contraction of the pupil are not instantaneous; sudden change either way means partial blindness.

Vehicles which have width (*i.e.*, not bicycles) should show it.

Travelling is more agreeable, and driving less tiring, in proportion as glare is lessened and the landscape is visible.—Yours truly,

R. R.



Mr. H. E. Tryon, of the Lincolnshire Automobile Club, on his 4-h.p. Orient Buckboard.

ENGLISH V. FOREIGN CARS.

To the Editor of *The Motor-Car Journal*.

Sir,—The users of motor-cars have increased at the rate of at least 25 per cent. the last two years. The output of the British factories is, compared with the number of British users, a comparatively small one, and at the highest estimate their output has not increased more than 25 per cent. On the other hand, in order to meet the big demand for cars, the Continental factories have trebled and quadrupled their outputs, with the result that firms who, three years ago, were sending but 25 cars a year into England are now sending two and three hundred per year to meet the demand in this country. I could mention five French firms who have established agencies in London, who together have sent into England alone this year over 1,200 cars. America, which country, three years ago, at the utmost did not export into this country more than four hundred cars a year, now exports to one firm alone this number apart from the other firms who have London agencies importing cars into this country.

Take the outputs of the various English manufacturing companies, and the figures are ridiculously insignificant in comparison with the figures I have mentioned, which only include a small number of the cars which are being sent into this country. And what does England export? How many cars has England exported into France? How many cars has she sold to Germany? Twenty cars would cover the number she has supplied to America at the very most, and this is apart from other countries which are supplied exclusively from the Continental factories, and the Colonies which also get their supplies from France and America.

The most expensive car in the world, and the car with the highest reputation, comes from Germany. The winner of the Gordon Bennett race came from France. The winner of the great Channel motor-boat race this year was a mixture of Germany and France, that is to say, a German motor in a French hull. A French car won the big International race in America.

What International motor competition has England won? Last year England held the International trophy for motor-boats, and the Gaston-Menier trophy. This year she holds neither, and yet we are told that the British industry is in a much finer position in the world's motor industry than ever it was before. In making this refutation of the statements contained in Mr. Edge's recent letter, I do not do so with the idea of running down or decrying the efforts of England, but I do so in the wish to see England to the front and leading, and I do not think this can be obtained by congratulating ourselves on our present position. None are so blind as they who will not see, and stimulation is required instead of congratulation. There is a need, that grows stronger every day, for England to adopt the policy of progress and keen hard-headed enterprise if she wishes to be in the position which Mr. Edge would have us believe she is now in. And no one would be more happy and no one would welcome the time more gladly than myself to see this, when instead of having to buy motor-cars made in France as the centre of the industry for English requirements, I can procure in England as good a vehicle at as cheap a price as at present is constructed abroad.—Yours truly,

Chas. Jarrott.

DROWSY DRIVERS.

To the Editor of *The Motor-Car Journal*.

Sir,—I was glad to see the "Comment" in the last issue of the *Journal* with regard to the traffic on the highroad from London to Chelmsford *via* Whitechapel, Stratford, Ilford, etc. It was my misfortune one day last week to have to motor along this road; it was my first experience, and it was one I shall not soon forget. The fun—if fun it can be called—began at Aldgate, when for no less than ten minutes we were held up by the police amidst a seemingly inextricable mass of tramcars, omnibuses, haycarts, lorries, and costers' barrows. A little further on another hold-up was encountered, the cause this time being the reconstruction of Bow Bridge. Once over this I had hopes of making up a little of the time lost by a clear run, but it was not to be, for we began to encounter a number of gardeners' carts and wagons which, so far as we could see, were making their way home unattended by any driver. The vehicles were in the middle of the road, and no amount of horn-blowing caused them to change their position. With other vehicles approaching in the opposite direction there was nothing to do but to pass on the wrong side, and as we did so the drivers of the horse-drawn vehicles were discovered to be lying in corners of their carts fast asleep. The trouble was experienced as far as Romford, and on the return journey was, if anything, more pronounced. It was not only the slow farm vehicles which would not budge from the centre of the road—all seemed intent on sticking on the tramlines. To pass them on the right brought us well over on our wrong side of the road, and, tired of tooting the horn, we eventually had to risk passing on the left. Fortunately we got home without accident, but the strain of driving in the dark from Romford to London is such as makes me anything but desirous of repeating it. I fully endorse your suggestion that the police authorities in the districts passed through should undertake a campaign against drowsy drivers, and would further suggest that they would find some useful work in forcing slow-moving traffic to keep to the side of the road instead of the middle, as is insisted upon in London and many other places.—Yours truly,

Rosthern.

THE BLACKPOOL SPEED TRIALS.

To the Editor of *The Motor-Car Journal*.

Sir,—I see there is a proposal to hold another speed trial at Blackpool this year. For my part I think it would be sheer folly, as the public here have had quite enough for one year. When watching the recent trials I heard one fellow say that if the management had had a few donkey races, etc., between the different events it would have been much more interesting, and I have found this view shared by a great many who considered the whole thing badly managed. The waits were too long and the public saw but little racing and never knew who won. The only entertainment for them was to see the cars dash past, and this is too slow to arouse interest a second time.—Yours truly,

Blackpoolite.

BELT TRANSMISSION.

To the Editor of *The Motor-Car Journal*.

Sir,—I respond with pleasure to "Lancastrian's" request in giving such further particulars as I am able of the F.N. car, and for the rest I shall be pleased to show him or others interested the car and special method of belt adjustment. I am informed by the agents that these cars cannot now be obtained, they having ceased to manufacture owing to their very large business in the engines for motor-cycles. This of mine was a special exhibition model. It has two speeds and a crypto silent reverse by pedal; engines are 5-6-h.p.; water-cooled radiators and pump (which has never once fouled in action), and ten-gallon water-tank drum; width of leather belt 2 inches. The method of belt adjustment consists of a system of rocking levers actuated by a powerful screw. F

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only know it to be a perfect success, and cannot get out of adjustment unless the key is turned, while the massive construction is adapted to last a lifetime.—Yours truly,

H. Cove.

STEAM CARS.

To the Editor of *The Motor-Car Journal*.

Sir,—In the recent hill-climbing competition held at Bridgnorth, under the auspices of the Wolverhampton and District Automobile Club, my 10-h.p. Turner-Miesse made faster time than any car entered. The following were the actual net times as published in the local press:

		Min.	Sec.
J. B. Dumbell	10-h.p. Turner-Miesse...	1	12 1-5
F. W. Bayliss...	20-h.p. Wolseley ...	1	14 1-5
Captain Owen	10-h.p. Turner-Miesse...	1	16 1-5
C. Sangster	20-h.p. Ariel	1	16 2-5
Wolseley Tool and Motor Co. ...	24-h.p. Wolseley ...	1	22 4-5
Turner's Motor Manufacturing Co.	10-h.p. Turner-Miesse...	1	26 1-5
George Evans	10-h.p. Wolseley ...	1	38 3-5
R. A. Cobb	12-h.p. Star	1	44 2-5
R. M. Shelton	12-h.p. Lanchester ...	1	50 4-5
J. M. Cook	10-h.p. Argyll	2	6 4-5
J. O. Evans	10-h.p. Wolseley ...	2	13 4-5
N. Meakin	10-h.p. Mobile	2	24 1-5
W. H. Evans	10-h.p. Wolseley ...	2	37

Notwithstanding the above, the prizes have been allotted to:—

1. Mr. G. H. Evans, 10-h.p. Wolseley (which my 10-h.p. beat by 26 2-5 sec.)
2. Mr. Cook, 10-h.p. Argyll (which my 10-h.p. beat by 54 sec.)
3. Mr. Sangster, 20-h.p. Ariel (which my 10-h.p. beat by 4 sec.)

Now if the promoters of the competition had any idea that steam cars would be unfairly handicapped as compared with petrol cars, I may fairly claim they should have pointed it out to me or refused my entrance money. Nothing whatever appeared in the rules to indicate that steam cars were to be prejudiced by excessive handicap as compared with petrol cars—although it was reported to me after the competition was concluded that several competitors said we should never again have the opportunity of competing with petrol cars but should be relegated to a class of our own.

I can only assume that my 10-h.p. Turner-Miesse was considered of greater power than the 20 and 24-h.p. Wolseleys and 20-h.p. Ariel, an assumption that the makers of those cars would be somewhat loth to admit, I imagine.

My car, I am prepared to prove if necessary, was a standard 10-h.p. touring car in every respect, exactly the same in every respect as we supply to the public.

It was not a new car specially built for the contest, but as a matter of fact was a second-hand car that had been driven by a customer last year.

I assumed the competition was held to select the best car at hill-climbing, without any question of steam *v.* petrol, but this does not appear to be the fact, judging by results.—Yours truly,

J. Burns Dumbell.

THE MOTOR-CAR ACT.

To the Editor of *The Motor-Car Journal*.

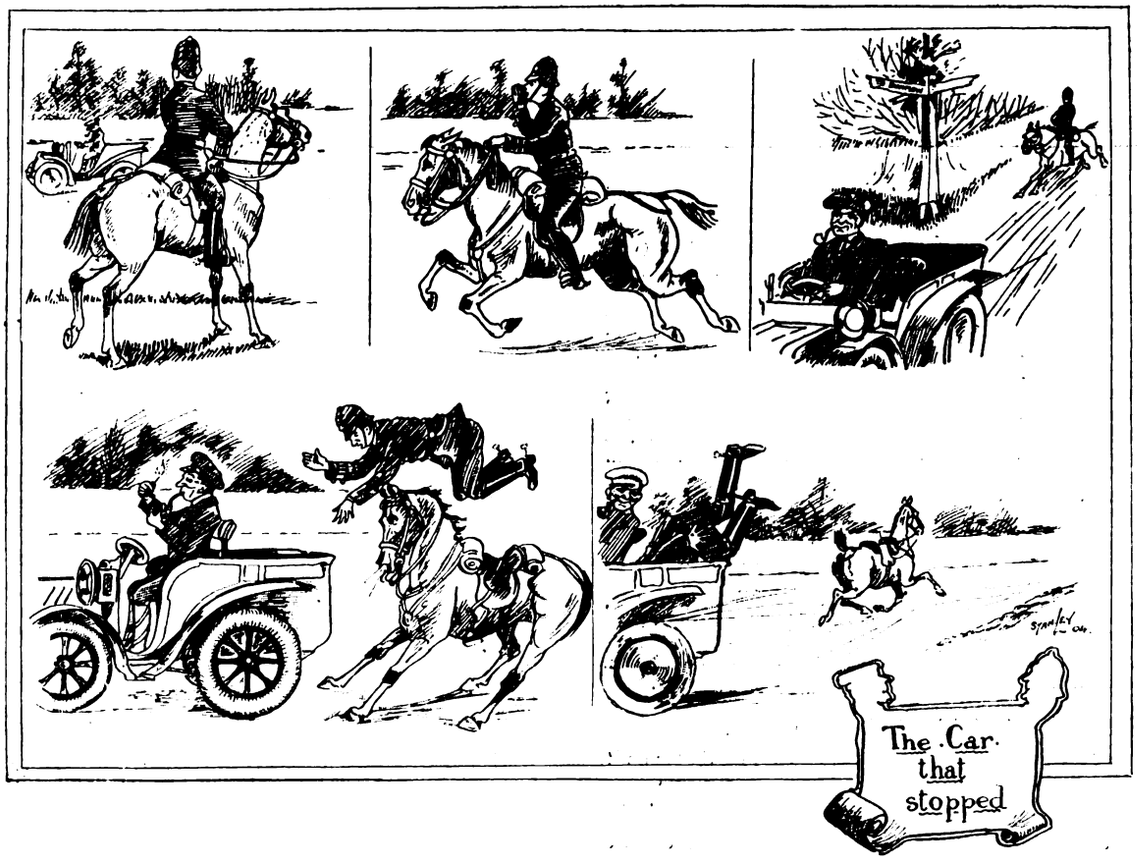
Sir,—My reason for asking you to insert this letter is that I feel sure there must be others like myself who are ignorantly breaking the law every day, and are therefore as liable to have the same fine inflicted on them as myself. Eleven days after my alleged offence I was served with two summonses to appear at Richmond Petty Sessional Court House. Two days afterwards I sent a letter asking to have the case adjourned. My intention was to apply to the Automobile Club, asking them to take the matter up. This I did by telephone, confirming by letter same day. After a waste of time I was told that the Motor Union could not take the matter up. I did not attend court, having asked for an adjournment, and imagining I was perfectly safe. You can judge my surprise when I received a letter to say I was fined £10 for exceeding the speed limit and 9s. costs, and £3 and 7s. costs for using an unregistered car. In the first instance the excessive speed is not admitted. The timing was of the most crude kind; I was timed, to use the constable's words, "from about here to practically opposite there," and on this ground I was prepared to fight it. The second summons is, I think, more interesting and instructive still: it states that I "did unlawfully use a motor-car at Kew Road there without the same being registered." We pay three pounds a year to use a distinguishing number; the car was out of order, and to prove this I had to call at Messrs. Wass and Co.'s, Richmond, to have a little adjustment done. The number was booked out in the register which we keep for that purpose, and booked in again.

I have since gone into the matter with the officials at Richmond, and find that the Act does not provide for a car being used with a trial number while it is under repair. The Act reads "after completion," which is taken to mean by the officials "after completion by the manufacturer." If you are giving a trial run it is another thing, as it is understood that, unless you have a passenger with you, you are liable to be summoned and fined as I have been.

I counted seven cars passing in Albany Street with manufacturers' numbers on them, and only the driver in the car. I am sorry to trouble you at such a length, but it is highly desirable that agents and others should know exactly what they pay their £3 a year for. Finally, the Motor Union offered to pay the cost of a barrister for an appeal; but, as I am already mulcted to the extent of £13 16s. I prefer to pay this rather than take the chance of increasing the amount to £50 or even more.—Yours truly,

F. Guy Lewin.

The Seddon Tyres.—A Yorkshire motorist asks motorists who have tried these motor tyres to send their experiences.



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CLUBS AND ASSOCIATIONS.

AUTOMOBILE MUTUAL PROTECTION ASSOCIATION.

MEETINGS of the Mechanical Transport Committee and of the Council of the Automobile Mutual Protection Association were held at Cecil Chambers, Strand, London, on Friday, October 28th.

The chair at the Heavy Traffic Committee was taken by Mr. Jesse Ellis, and the following resolution was unanimously adopted:—"That this meeting of motor vehicle manufacturers very earnestly represents to the Local Government Board that the commercial vehicle industry of the country, in which branch of automobilism England has so far taken a commanding lead, is being jeopardised by the existing uncertainty in respect of the intended regulations to be made by the Local Government Board under Section 12 of the 1903 Motor Car Act; and this meeting most strenuously urges that the said regulations shall be issued with the minimum of further delay." It was also decided that the Secretary, Mr. Shrapnell Smith, should proceed to Germany to investigate a system of maintaining roads under heavy traffic, which is reported to be very successful in point of economy and absence of noise.

The Heavy Traffic Committee also considered a letter, dated October 25th, from the Technical Secretary of the Automobile Club, in reference to proposed heavy vehicle trials, and it was decided to support such trials. Mr. W. E. Rowcliffe (The Hercules Steam Wagon Company) was added to the Committee.

In the absence of Lord Shrewsbury from town, Mr. Charles Holmes presided at the Council meeting, which took place after the meeting of the Mechanical Transport Committee, when the following resolution was unanimously adopted:—"That the Committee of the Automobile Club be asked to take into consideration (1) the adoption of procedure whereby members of the next Industrial Committee of the club shall be elected by the trade, instead of their being co-opted, and (2) that the matter be referred to a joint committee of the club, the Automobile Mutual Protection Association, and the Society of Motor Manufacturers and Traders." It was reported to the Council that writs had been issued against two members for alleged infringement of letters patent covering radiators of the honeycomb type, but that the actions had been withdrawn. Further instructions were given on this important matter, it being the intention of the Society to watch closely all claims made in respect of this type of radiator.

Messrs. W. G. Campbell (Hunslet Engine Company, Limited), Joseph Keele (Joseph Keele and Co.), and F. P. S. Harris (the General Petroleum Company, Limited), were elected to membership, and Mr. Harris was elected to the Council, making twenty-seven new firms who have joined the association during the last few months.

The next meeting will be held at the Agricultural Hall, Islington, on Thursday, November 24th, this date being selected on account of the Stanley Show, which will then be in progress.

A meeting of the Mechanical Transport Committee will be held on the same day to elect a chairman and deal with any other business.

NORTH-EAST LANCASHIRE CLUB.

THIS club brought a very successful season to a close on the 22nd ult. with a 100 miles non-stop run to Kendal and back. The conditions were those usually imposed at trials of this character, no adjustments of car mechanism being allowed and all stoppages save those arising from traffic being held to disqualify. Restricted to members only, the entries numbered nineteen, and of these eighteen paraded at Billinge End, Blackburn, at half-past nine as follows, the first twelve ultimately being credited with non-stop runs:—

Owner.	Name of Car.	Observer.
Mr. J. Walsh	... 10-12-h.p. Humber	Mr. H. Lonsdale.
Mr. S. Briggs Bury ...	... 12-h.p. Albion ...	Mr. F. L. Heppard.
Mr. W. Smith, jun. ...	... 12-h.p. Albion ...	Mr. A. Barnes.
Mr. P. J. Broadley ...	... 12-h.p. Wolseley	Mr. P. Roberts.
Mr. H. Lonsdale ...	... 12-h.p. Darracq ...	Mr. E. Briggs.
Mr. F. Marwood ...	... 12-h.p. Belsize ...	Mr. F. Hodgkinson.
Mr. R. Spencer ...	... 14-16-h.p. Rex ...	Mr. H. V. Miners.
Mr. H. V. Blake ...	... 15-20-h.p. Belsize	Mr. F. O. Whittaker.
Mr. Wm. Birtwistle ...	... 18-22-h.p. Mercedes	Mr. J. S. Green.
Mr. E. A. Riley ..	... 20-24-h.p. Belsize...	Mr. J. Birtwistle.
Mr. F. Birtwistle ...	... 24-h.p. De Dietrich	Mr. D. Ritzema.
Mr. A. Birtwistle ...	... 22-h.p. Daimler ...	Mr. T. P. Ritzema, Junr.
Mr. W. Livesey ...	... 15-20-h.p. Belsize...	Mr. G. Greenwood.
Mr. A. Marsh ...	... 5-h.p. Rexette ...	Mr. W. Carmichael.
Mr. R. S. Crossley, Jun.	... 6-h.p. Belsize ...	Mr. J. Briggs Bury.
Mr. R. Crossley ...	... 6-h.p. Belsize ...	Mr. H. Gray.
Mr. J. V. Fox ...	... 7½-h.p. Belsize ...	Mr. R. Wilding.
Mr. W. D. Walmsley	... 7½-h.p. New Orleans	Mr. J. Carmichael.

The cars were marshalled by Mr. W. Livesey, and Mr. T. P. Ritzema, jun., acted as starter.

The weather was ideal, bright sunshine and a soft breeze, and, though the greasy condition of the roads to Preston gave drivers some anxiety, the surface rapidly improved, and north of "the proud town" there was little to complain of. To ensure observance of regulations as to speed, a minimum time of 2½ hours was scheduled for the outward journey, the route being through Preston, Garstang, Lancaster, and Carnforth. Most of the cars arrived shortly after the time limit, and after lunch at the Railway Hotel ten minutes was allowed for filling up and lubricating, this having to be done in the presence of the observers.

The return journey was commenced at half-past two, and when the observers handed in their reports to the Hon. Sec. at the Half Way House, Samlesbury, on the conclusion of the run, it was found that an unexpectedly large proportion of cars—twelve out of eighteen—had completed the run without a stop. As the club had promised gold medals to those who qualified, the treasury officials came in for a little pleasant chaff, as report after report announced "another winner," but the treasury will stand the strain. The cars carried a full complement of passengers, and the run was voted one of the most successful in the club's history. The 20-24-h.p. Belsize was very creditably driven by Mrs. Riley, the well-known North-East Lancashire lady motorist, whose report was devoid of even compulsory stops for traffic.

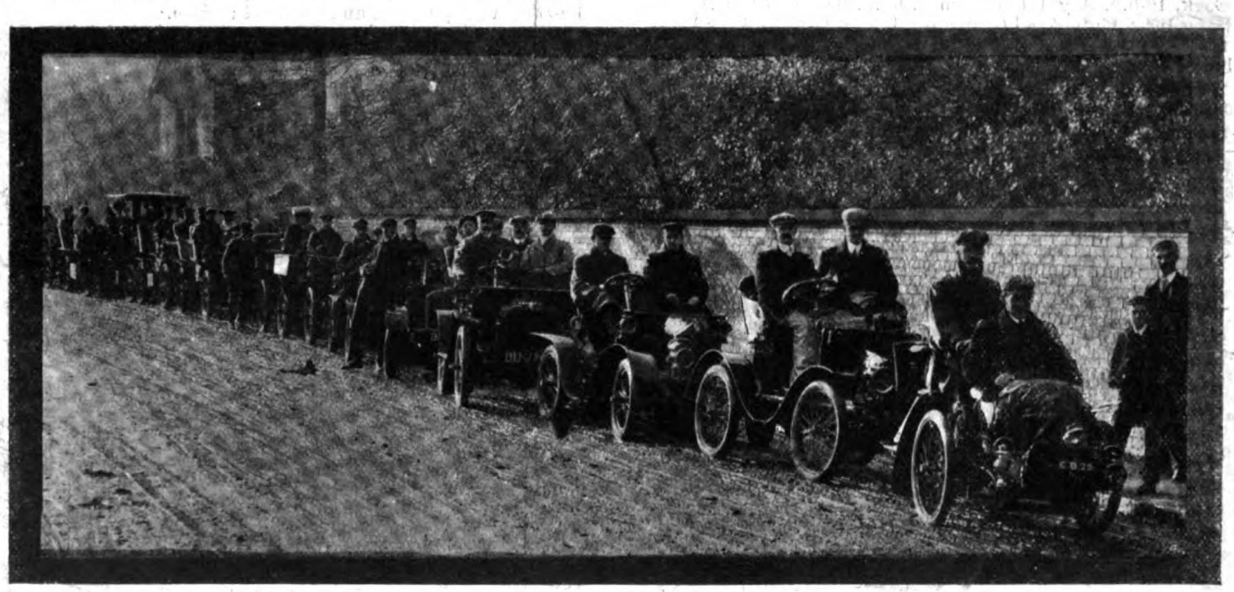


Photo by] Meet of the North-East Lancashire Automobile Club. [*Sharples*

NORTHAMPTONSHIRE.

THIS Club inaugurated its winter session with a succesful smoking concert at headquarters—the Great Northern Hotel, Peterborough—on Friday evening of last week. About 150 members and friends were present. Councillor Richard Winfrey presided. The following motorists were amongst the company:—Dr. Benson (Market Deeping), Dr. F. Husband (Crowland), and Messrs. W. Walshaw, W. J. Deacon, C. Godfrey, F. Redhead, Brodie, A. J. Sole, W. Southwell, T. Woodman, A. Woodman, W. Barrett, J. Simpson, D Gray, J. H. Carter (Market Deeping), T. A. Morris (Bourne), O. Rowe, J. Montgomery, H. Ruff, R. Parris, E. H. M. Wood, W. Barrett, J. Simpson, F. Whittorne

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G. L. Julyan, and R. Impey. In the course of his remarks the Chairman touched upon the question of Universal Lighting, and mentioned that if his proposition had been brought on after the recent accident to the Duke of Connaught a system of general lighting would, probably, have been enforced by the local County Council. Arrangements had been made for a series of lectures on motoring during the winter, and the first discussion, on the petrol engine, would take place on November 11th. To make these gatherings interesting different parts of the motor would be explained week by week, and some trials for motor-cars and cycles were under consideration. In the concert-room was displayed an amusing contrast, illustrative of the ancient and modern. The ancient was the first safety bicycle introduced into Peterborough—a truly antediluvian specimen, on which tradition states Mr. Bob Julyan initiated the earliest practitioners of the wheel into its seductive mysteries. By its side was a first-class up-to-date specimen of the 1904 "Bat" motor-cycle, of the type which won the recent contests at Blackpool. At the close of the proceedings a hearty vote of thanks, proposed by Mr. W. Southwell, and seconded by Mr. E. H. Wood, was accorded to Councillor Winfrey for his services in the chair.

WOLVERHAMPTON.

THE results of this club's recent open handicap were as follows:—

Name of owner.	Make of Car.	Result.
Evans, G. H.	10-h.p. Wolseley	1st.
Cook, J. M.	10-h.p. Argyll	2nd.
Sangster, Chas.	20-h.p. Ariel	3rd.
Bayliss, F. W.	20-h.p. Wolseley	4th.
Shelton, R. M.	12-h.p. Lanchester	5th.
Cobb, R. A.	12-h.p. Star	6th.
Dumbell, J. B.	10-h.p. Turner-Miesse steam	6th.
Evans, J. O.	10-h.p. Wolseley	8th.
Owen, Henry	10-h.p. Turner-Miesse steam	9th.
Wolseley Tool and Motor-Car Co., Ltd.	6-h.p. Wolseley	10th.
Wolseley Tool and Motor-Car Co., Ltd.	24-h.p. Wolseley	11th.
Meakin, Nelson	8-10-h.p. Mobile	12th.
Turner's Motor Manufacturing Co., Ltd.	10-h.p. Turner-Miesse steam	13th.
Evans, W. H.	10-h.p. Wolseley	13th.

The results of the Club Handicap were as follows:—

Evans, G. H.	10-h.p. Wolseley	1st.
Sangster, Chas.	20-h.p. Ariel	2nd.
Bayliss, P. S.	8-h.p. Panhard	3rd.
Bayliss, Edwin	7-h.p. Panhard	3rd.
Bayliss, F. W.	20-h.p. Wolseley	5th.
Bishop, F. C.	7-h.p. Star	6th.
Cureton, Thos.	10-12-h.p. Sunbeam	7th.
Mills, T. T.	10-12-h.p. Sunbeam	8th.
Evans, J. O.	10-h.p. Wolseley	9th.
Dumbell, J. Burns	10-h.p. Turner Miesse Steam	10th.
Marston, John	16-18-h.p. Sunbeam	11th.
Davis, J. W.	7½-h.p. Wolseley	12th.
Bath, H. J.	9-h.p. James and Browne	13th.
Evans, W. H.	10-h.p. Wolseley	14th.
Mills, Arnold	12-h.p. Sunbeam	15th.
Payne, S. B.	4½-h.p. De Dion	15th.
Lisle, J.	7-h.p. Star	17th.
Gattis, T. G.	10-h.p. Enfield	18th.
Marston, John	16-h.p. Sunbeam	19th.
Corker, F. B.	12-h.p. Sunbeam	20th.
Pratt, E. C.	6-h.p. Mobile	21st.

The formula upon which the foregoing resul were obtained is—

$$\frac{\text{Time} + \text{H.P}}{\text{Total weight.}}$$

MOTORS AND THE LAW.

MR. C. A. MONTAGUE BARLOW, LL.D., M.A., barrister-at-law, lectured on Thursday, the 27th ult., at Lincoln's Inn Hall, London, before the Solicitors' Managing Clerks' Association, upon the subject of "The Law of Mechanical Traction on Highways," Sir Albert Rollit, M.P., presiding.

Mr. Barlow, in the course of his lecture, said that the law with regard to the matter was in considerable confusion, and many sections of the various Acts relating thereto were difficult of construction. After a review of the legislation upon the subject from the year 1861 onwards, he said that the Locomotives on Highways Act, 1896, now to be cited with the Motor Car Act, 1903, as the Motor Car Acts, 1896 and 1903, was the charter of the motor-car, and first exempted motors from the restrictions of the Locomotive Act, such as the presence of an attendant twenty yards ahead, the speed limit of two and four miles an hour, and so on. But engine-owners and the public were not satisfied, and, as the result of a Select Committee, a further Act was passed, and ultimately the Motor Act, 1903, which came into force on the 1st January last. This Act was to be read with the Locomotives on Highways Act, 1896, as already stated. The definition of motor-cars was, generally speaking, to be the same as that of light locomotives in that Act, but the Local Government Board might make regulations increasing the maximum limits of 3 and 4 tons allowed by the earlier Act. The provisions of the Act dealt mainly with three points. The first of these was driving on the highways and the rate of speed. Four offences were constituted, viz., driving "recklessly or negligently, or at a speed or in a manner which is dangerous to the public, having regard to all the circumstances of the case," including the condition of the highway and the amount of the traffic. This clause would certainly lead to difficult cases of interpretation in the Courts. A constable might arrest anyone he *saw* driving recklessly if he refused his name and address, or if the motor was not carrying the marks of identification required by the Act. Motors were to stop if, owing to the car, any accident happened to horse, person, or vehicle, and the driver must, if asked, give his name and address under the penalty of a £10 fine, with a month's imprisonment for the third offence. The speed was fixed at twenty miles an hour, with power to the Local Government Board, on the application of the local authority, to limit speed in places or "controls" to ten miles an hour. There was to be no conviction on the evidence of one witness merely. Notice boards were to be erected at the special localities or "controls." The Local Government Board had power to restrict motor traffic, or the use of any particular kind of motor, on narrow roads less than 16 feet wide, or any other road where they considered such traffic dangerous. In the second place cars were to be registered, and in the third every driver was to be licensed. The Act was only to remain in force for three years. The one great storm centre, so to speak, around which the thunder of future litigation would rage was to be found in the following section of the new Act:—"If any person drives a motor-car on a public highway recklessly or negligently, or at a speed or in a manner which is dangerous to the public, having regard to all the circumstances of the case, including the nature, condition, and use of the highway, and to the amount of traffic which actually is at the time, or which might reasonably be expected to be, on the highway, that person shall be guilty of an offence under this Act." What were these circumstances? They would be the width of the road, frequency of traffic (carriage and foot), straightness or otherwise of the road, and the number of side roads or gates opening on it. If the road was winding, or obscured by trees, or ran through a well-peopled district or town, magistrates might easily find that these circumstances made driving dangerous, even at so low a rate as, say, eight or fifteen miles an hour, according to the limit; on the other hand, no penalty could be imposed so as to prevent the full maximum speed limit being allowed. In Smith v. Boon, decided on the old Act in 1901, the justices convicted the driver of a motor-cycle, who was proceeding down Esher High Street at eighteen or twenty miles an hour, of driving at a speed greater than was "reasonable or proper, having regard to the traffic on the highway." There was no evidence that any vehicle or person was interfered with or incommoded. The divisional court upheld the conviction, it being held that the words "having regard to the traffic on the highway" meant having regard to the traffic on the road, and not having regard to the traffic in the immediate vicinity of the motor. This was followed in Mayhew v. Tutton, where a constable saw a motor-car driven by the appellant, Mayhew, coming at a "terrific" speed down Red Hill, on the Oxford road, near Denham. The constable held out his arms; the appellant could see him on turning a corner 340 yards away, but did not pull up until sixty yards beyond where he stood. No evidence was given that there were any passengers or vehicles on that part of the road, or that anyone was endangered. The justices convicted on the ground that the appellant was driving to the common danger of passengers, and that it was not necessary to prove that any passengers were endangered. This was upheld in the divisional court. The result of these decisions appeared to be (1) The driving must be, in the opinion of the magistrates, such as, having regard to all the circumstances of the case, could be called "dangerous." It was not clear in either of the cases what elements justices considered constituted the driving in each case dangerous or the speed excessive. (2) It was not necessary to constitute dangerous driving to prove that any particular person or vehicle was in fact placed in danger at the actual moment. (3) The standard to be taken was the ordinary traffic of the road. If the speed or method of driving could be called "dangerous" in view of the normal state of traffic, it would be no answer for the driver to say that at the particular moment there was no traffic in sight. A speed of nineteen miles an hour might be dangerous driving down Kensington Grove in the middle of the day, having regard to the normal traffic there; nor would it be any the less "dangerous" within the meaning of the Act on the ground that at that particular moment there happened to be no one else on the road.

THE INDUSTRIAL USES OF ALCOHOL.

ON Friday of last week Dr. W. R. Ormandy, of Warrington, gave his lecture on "The Industrial Uses of Alcohol" to the members of the Lincolnshire Automobile Club. Mr. F. H. Livens, president of the local Chamber of Commerce, presided.

The lecturer dealt with the attitude of the permanent officials of the Government, and some of their mistaken ideas on the question. The Finance Act of 1902 did allow the duty on alcohol to be removed, but the restrictions were so many that so far only six had applied for the removal of those restrictions. Sympathetic measures were very important in the early days of an industry, and in Germany the industrial alcohol movement had been so well assisted by the Government that a great industry, paying eleven millions in wages per annum, had sprung up. He likened the present attitude of the country to Huxley's "Man and the Microscope," who saw only the leaf that was developing, and was unaware of the tree, the broader issues. A movement was, however, springing up

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started, he believed, by the Manchester Chamber of Commerce, who realised the great usefulness of alcohol for fuel, lighting, heating, and power. He had been to Germany to study the question, and found that we had some very erroneous ideas as to price, what alcohol could be mixed with (it could not be mixed with petrol, for which alcohol was not a solvent), and from what it could be made. The production in Germany was 300,000,000 litres per annum, of which 121 millions were used for industrial purposes—20 millions of that being for chemical industries, manufacturing varnish stains, solvents for various things—and 19 millions for vinegar. The remainder went for the purposes of light, heat, and power. We had, therefore, a great leeway to make up. In Germany there were 27,000 lamps made in three months, with incandescent mantles, giving a beautiful light of 40 to 60 candle-power, yet without heat, smoke, or smell. They were safe, and used in villages and on the farms in a far better and safer way than paraffin, yet at a third of the cost. The subsidiary trade, or side issues, such as bottle making, distributing, heating, and cooking stoves, used economically by even the very poorest people, brought in a big revenue. These stoves could be lit or extinguished at a moment's notice and were without smell. Another thing was that 2,700 engines up to 25-h.p. had been made and sold, and both ordinary engines and motor-cars were being successfully driven by alcohol. The price question was then dealt with, and it was shown that with potatoes at a pound a ton alcohol could be produced at a shilling a gallon. Land was used in Germany that was fit for nothing but potatoes, and all they troubled about was cheap, rough culture, getting the biggest crops possible, quality being immaterial. All went to the distilleries, and if the potatoes went bad it made little difference. The German Government had helped the farmers in adapting laws to their needs, holding peripatetic exhibitions, giving prizes for alcohol lamps, and in other ways. What happened may be summarised in this way. The potatoes were grown on poor land in a rough manner, turned into alcohol on the spot, and the residue, the schlempe, used for feeding cattle. He saw on one farm no fewer than 3,000 cattle, all fed on this schlempe, of which they had 16 gallons a day, and 6 lbs. of clover, 6 of molasses, and 40 of potatoes when being fattened. In this way the land was again manured, so that a farmer would grow his potatoes, make his alcohol, some of which he used for heating, lighting, and power; and he fed his cattle, of which he could keep enormous numbers, on what was left from the alcohol. An important phase of the question was, he thought, that if in England we could, in time, of course, go for the enemy and smash them up, instead of having to worry about getting plenty of food into the country, we should be in an enviable position. He was certain that if we adopted potato culture for alcohol we should almost be able, in time of war, to provide enough food from potatoes.

In the discussion which followed, Captain J. A. Cole, Colonel J. S. Ruston, and Messrs. C. W. Pennell, J. Jekyll, Arnold Lupton, and A. E. Collis took part. In reply the lecturer said three tons of potatoes was equal, for alcoholic purposes, to a ton of grain. We sent £4,000,000 to America each year for paraffin. Alcohol for engines had to be used in a different way to petrol. In the first they had to heat the jacket, and in the other to combat the heat generated. In the Manchester district they had a good one-cylinder alcohol engine running, and would soon have a three-cylinder one in use.

APPEALS BY MOTORISTS.

At the Dublin City Sessions, before the Recorder, the Hon. Walter Guinness appealed against the decision of Mr. Drury, Divisional Magistrate, imposing a fine of £10 upon him for alleged reckless and furious driving of his motor-car in Leeson Street. After a long hearing, the Recorder said if the case had been brought under the 9th Section, which prohibited a higher speed than twenty miles an hour, he would ask for evidence on the part of the defendant. The case was brought, however, under the 1st Section, and he could not hold under that Section that Mr. Guinness was driving recklessly and at a speed dangerous to the public, having regard to all the circumstances of the case, because it was clearly proven that the thoroughfare was entirely free from traffic at the time. Speed was not necessarily evidence of negligence; it all depended on the circumstances; and there was no evidence in this case that the public safety had been endangered.

Thomas Faulkner, of Fairford, appealed at the Oxford County Quarter Sessions against a conviction by the Justices of the Banbury and Bloxham Division, the respondent being Mr. Thomas Augustus Motion, the High Sheriff of Warwickshire. Mr. Cecil Walsh and Mr. Davidson (instructed by Mr. Claude Fortescue, Banbury) appeared for the respondent, and Mr. A. Moresby White and Mr. Ames (instructed by Messrs. Staplee Firth and Co., London) represented the appellants. After a long hearing the Bench did not see any reason for disturbing the decision of the court below. The appeal was dismissed with costs.

BUYING A SECOND-HAND CAR.

E. T. Holbrow, trading as the Earlsfield Motor and Engineering Works, sued Messrs. Clements, Knowling and Co., of Brentford, for £50, the balance of cost of a motor-car sold by him to defendants. The action arose out of a claim formerly before the Court, in which Messrs. Clements, Knowling and Co. were plaintiffs, and sued Mr Holbrow for breach of the contract. The case was tried before a jury, and after hearing the evidence His Honor, in directing them to the main points, told them that he was glad they had been summoned, because the responsibility of the decision was thrown on them, and not on him, although only two out of the five had said they were capable of dealing with the expert evidence. The jury retired to consider their verdict, and on returning, after a short absence, said they found in favour of the plaintiff. His Honour said he concurred in their verdict, and gave judgment for plaintiff.

CASES AGAINST MOTORISTS.

Place.	Summoned for	Fine.
Shap (Carlisle)	Not giving audible notice of approach	£2, etc.
Walton.....	Driving motor wagon without rear light	5s.
Dartmouth	Refusing to stop when requested	£1.
Plymouth.....	Furious driving	Dismissed.
Malvern	(1) no licence; (2) no rear light	(1) £1; (2) 10s.
Newbury	Reckless driving	£10.
Dunblane	Driving motor-car on a scheduled road	£3 3s.
Canterbury.....	No rear number	£1, etc.
Huntingdon	Driving to common danger	£4, etc.
Manchester.....	Not producing licence	20s., etc
S. W. London	Owner of car failing to assist identification of driver	£5.
Mortlake.....	No light	10s., etc.
Penrith.....	Lad of 14 years for failing to produce licence	20s., etc.
Kingston	Driving to common danger	£3, etc.
Bow Street	Exceeding ten mile limit in St. James' Park	40s., etc.
Perth	Beyond legal limit	£7 10s.
Brentford.....	Furious driving	£10.*
Dumbarton	Driving furiously and knocking down three men	A month's imprisonment.
Kirkham	Driving beyond legal limit	£10, etc.
Bow Street (London)	Driving in Green Park beyond ten miles an hour	£3, etc.
Westminster	Driving without a licence	£10, etc.
Kingston	Dangerous driving	£3, etc.
Cranborne	Dangerous driving	£3 9s.
Clerkenwell	Reckless driving	40s., etc.
Rushall (Staffs)	Stopping motor-van on top of bridge	20s., etc.
Dublin	Furious driving	40s., etc.
Hove	(1). driving recklessly; (2) failing to stop after accident	(1) £2 10s.; (2) £5, etc.
Littlehampton	No light	£1, etc.
Keswick	Furious driving	Dismissed.

POLICE TRAP.

A nicely devised trap exists on the Clifton Drive, St. Anne's. Several motorists have lately been caught therein.

CONVICTIONS QUASHED.

At the Maidstone Borough Quarter Sessions the case of Gale v. the Justices of the Borough of Maidstone has just been heard. It was an appeal by the driver of a motor-van against a conviction for negligent driving. P.C. Baker deposed that on June 25th he was on duty in High Street. About ten minutes to nine he heard a crash, and found Messrs. Style and Winch's motor-wagon on the pavement about fifteen inches from the bar door of the Queen's Head public-house. The railings of Mr. Winterhalter's sunblinds had been knocked down. Witness spoke to the driver, Dan Gale, who said that owing to the greasy roads the brakes failed to act, and thus caused the wheels to jump the kerb. Dan Gale, the appellant, said on the night in question the roads were greasy, and he shut down steam to get round the corner. The steering arrangement, however, jammed, and he could not get it to act till the van was on the pavement, which was when he put on the brake. He was driving at the rate of three or four miles an hour. Had the street been dry the engine would have stopped, but as the street was greasy it skidded quite four feet. The conviction was quashed, and no order was made as to costs.

Mr. Ralph Dickerson, of St. Andrew's Road, West Kensington, was convicted on the 19th of May, at Hastings, for driving a motor-car in Robertson Street, and in a manner which was dangerous to the public, and he was fined £10 and £1 4s. 6d. costs. Mr. Dickerson appealed against this conviction to the Quarter Sessions, held at the Sessions Court, Town Hall, Hastings, on Friday, October 28th. Mr. A. M. Labouchere, instructed by Mr. Staplee Firth, appeared to support the appeal, and in the result the conviction was quashed and the appeal was allowed.

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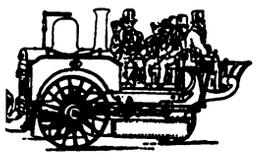
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COMMENTS.



IN rural districts, even more than in urban localities, where the presence of traffic prevents high speeds being obtained, the motor fire engine is likely to be regarded as the main element in the constitution of any properly equipped brigade. An evidence of its utility has occurred on the south coast, where, as is well known, the Brighton Fire Brigade has a motor fire engine. A fire broke out at Lewes which threatened to extend to other buildings and become uncontrollable. Help was asked from the neighbouring towns, Brighton being among the number. The superintendent at once despatched his motor fire engine, which arrived at the scene of the fire—eight miles distant—in twenty-five minutes. Once at Lewes it rendered good service. The point which we would urge, however, is that automobilism introduced into the fire brigade service will add considerably to the efficiency of the work in the country districts, where the time occupied in getting from large towns to distant places has often enabled fires to get a good hold of buildings before the arrival of the firemen.

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Some Notable Hills.

REPLYING to correspondents who have asked us as to some of the steepest hills for the trial of motor-cars, several occur to mind. Dashwood Hill, near High Wycombe, with its rise of 219 ft. in 3,350, is famous. One-third of its distance has a gradient of 1 in 10·37. The average gradient of Porlock Hill, in North Devon, is 1 in 6. The length of Westerham is 2,942 ft., the average gradient being 1 in 9·4. Between York and Bridlington is Garrowby Hill, which begins with a rise of 1 in 14, which, after increasing to 1 in 8, gets even more difficult of ascent. We shall be glad to hear from any of our readers in the locality the gradient of the Gas House Hill, near Norwich.

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The Blackpool Trials.

AS we were able to announce by means of a Supplement to our last issue, the Blackpool speed trials have been abandoned for the present. This decision was arrived at by the Corporation of the town owing to the delay in receiving assurances of the presence of a sufficiently representative number of racing cars. No further motor races, therefore, will take place at Blackpool until next spring, by which time the Promenade will have been further extended another thousand yards. This addition will give the Blackpool track a pre-eminence among motor racing tracks.

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Hotel Charges.

BEFORE anything is settled, we would, however, urge one point which has occasioned much comment and correspondence at recent motor meets. We refer to the extravagant notions which hotel proprietors seem to entertain as to the wealth of those who own cars. This has frequently reached a point quite out of keeping with modern ideas, and even the richest men do not care to feel that they are being fleeced to make a hotel keeper's profits. Because it happens that motorists decide to help the prosperity of a town by holding a series of races therein, is no reason why they should be taxed beyond the rates charged to ordinary visitors. They have to pay for the storage of their vehicles, and are generally liberally-minded with regard to charges on such occasions. But the ruinous prices charged by some hotels will produce a reaction, and no meets will be held until a large number of the local hotel keepers agree to regard motorists as human beings with ideas as to the value of the service received, and not as sheep to be shorn.

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Railway and Motor Cars.

A MOTOR-'BUS service between the commercial town of Wolverhampton and the picturesque, rugged district of Bridgnorth has just been established by the Great Western Railway Company. This will also serve the market-gardeners of the locality in getting their produce to the markets, and the Mayor of Bridgnorth has suggested a special service on market days, while from the Wolverhampton end of the journey comes the proposal for a theatre 'bus, so that the residents of other places may be able to enjoy amusement in that town without staying overnight. Doubtless other developments will be regarded by the railway company, for the journey can now be accomplished in an hour and a-half, as compared with the three hours taken up by the trip by train.

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Harrogate Organises.

THE Yorkshire Club is going ahead and developing into a powerful organisation likely to be of considerable service to owners of automobiles in the county of broad acres. Elsewhere we record a social gathering with which the winter season has been opened. Various centres in Yorkshire now possess their clubs, and at Harrogate, as the result of a meeting of local motorists and owners of motor-cars, it has been decided to form an automobile club for that town. A committee has been appointed, with Dr. F. N. Ozaune as chairman, to organise the association, and also to find out the best means for opposing the application of the Harrogate Corporation to the Local Government Board for the enforcement of an eight miles an hour limit in the borough. Doubless affiliation to the Yorkshire Club will follow, thus enabling the motorists of Harrogate to have the influence and experience of those of other parts of the county to guide them in their encouragement of automobilism.

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Licences for Carbide of Calcium.

WITH reference to the granting of licences for the storage of calcium carbide by local authorities under the Petroleum Acts, it has been represented to the Secretary of State for the Home Office that the removal of the limitation of quantity to be contained in any one vessel would be of advantage to the trade. We are glad to announce that the Secretary is of opinion that this limitation may safely be removed, inasmuch as there is, in his view, no increase of danger in the use of larger vessels, either in conveyance or storage, provided that the vessel is strong in proportion to the weight of its contents. He also wishes to bring to the notice of local authorities the fact that, whereas it is desirable to insert some condition in the licences as to the carbide

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being rendered inaccessible to unauthorised persons, it is seldom necessary to require that each containing vessel should be fitted with a lock.

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Farm Produce.

BOARDS OF GUARDIANS in the metropolitan area seem well inclined towards the automobile, and, following the lead of Edmonton, the Poor Law authority for Poplar is now purchasing a motor-wagon and trailer for the conveyance of produce from their farm at Laindon Hills, in Essex, to London. It is calculated that the cost of conveyance from the farm to London will be no more under the new system than the rates now charged for taking it from the farm to the railway station. Special facilities having been refused by the railway authorities, the guardians have been led to adopt the new method of transport for reasons of economy.

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After passing through the Water Splash—Something Wrong.

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Technical Instruction.

IN Ireland technical instruction in connection with motor-cars and automobilism generally seems to be making considerable headway, and at Bray no less than fifteen students at the local technical classes presented themselves for examination, all passing with credit. Curiously enough, the first place was taken by a police-constable, whose enthusiasm for motoring has apparently taken a very practical form; in fact, his success would seem to suggest that here is a new department of educational advance for the policemen of some of our Surrey districts. At the Pembroke Technical Schools in Dublin, too, automobile instruction is being regarded with favour, and the purchase of a motor-car for instructional purposes has been approved by the responsible committee, while Mr. McTaggert has been good enough to present a complete set of bicycle engine castings and parts to the local technical school, with a view of assisting the motor engineering classes in that institution. These developments are really on the lines that we suggested last week in connection with the technical instruction work in London, and would seem to indicate that Ireland, which received motorists in such a sportsmanlike spirit in 1903, is now seriously tackling the more technical side of the matter.

"Highway Robbery."

PROSECUTING some drivers of steam lorries at Ormskirk the other day, Mr. R. Glover, on behalf of the Lathom Urban District Council, urged that they had been guilty of a new form of highway robbery. The defendants were drivers for the Hercules Motor Wagon Company, and were summoned for having, on the 3rd August, at Lathom, stolen water from the District Council's main, and also for having wasted water. The defendants pleaded guilty to the first, and not guilty to the second charge. The men were each in charge of a steam wagon travelling from Southport to Manchester, and at Westhead they put a standpipe they carried with them to one of the council's hydrants and took about 500 gallons of water. They left the water running for about three hours. The defendants said their tanks would only hold eighty gallons. The bench imposed a fine of 10s. and costs in each case, and allowed two guineas costs outside the court costs.

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A Problem for the Near Future.

THIS case opens up another question for consideration by the organisations which are looking after the interests of users of motor-lorries and heavy vehicles generally. For, unless supplies of water are readily available in country places as well as town localities, the difficulties of drivers will be great indeed. Of course we do not defend the wastage which evidently took place, if the result is to be accepted as the rightful consequence. But, just as horses have been provided for in this respect, so motor vehicles will have to be considered in the future. The subject is not a mere local one, but must be regarded from the national point of view. The cost of registration and licensing should include all water supplies of this kind that may be necessary, otherwise the cost of checking the quantities taken from various sources would probably prove prohibitive to any reasonable settlement.

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Commercial Literature.

GREAT advance has been made of late years in the form and matter of the circulars and price lists issued by firms in the automobile business—a reflection that occurs on glancing through a little pamphlet entitled "Automobile Topics," issued by Messrs. J. B. Ferguson and Co., of Belfast, who have entered into the motor-car trade with energy and spirit. Only a few blemishes in the ways of spelling the names of certain well-known motorists detract from the merits of the booklet, which should do much to convince of the facilities of the firm for assisting motorists passing their way. We shall be glad to receive copies of similar publications issued by firms catering for the wants of those who travel by automobile.

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The Death of a Dog.

IN a case heard at Shap police-court the defendant, a motorist, who was charged with negligent driving, said he did what his judgment prompted him to do under the circumstances. In order to avoid killing the dog and endangering the occupants of his car, he guided the car so that the body of it passed over the dog. It was not compulsory for him to pull up the car even for a dog if such action endangered the life of the passengers. Had it been a child he would have sacrificed himself and the car. This raises a nice point, for the passage of the car over the body of the dog seems to have wrecked the life of that animal. The principal witness for the prosecution observed that the dog was running beside a trap in which the owner was riding. Surely it was his duty to either have kept the creature behind the vehicle or on the other side of the trap. If, in addition to the width of their vehicles and the necessary space for clearance, drivers of horse-drawn vehicles are also to claim another foot or two of the road, the highways would become impassable. No motorist would deliberately run over a dog, for, apart from kindly feeling, there is the danger that arises from contact with obstructions on the road.

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The Courtesies of the Road.

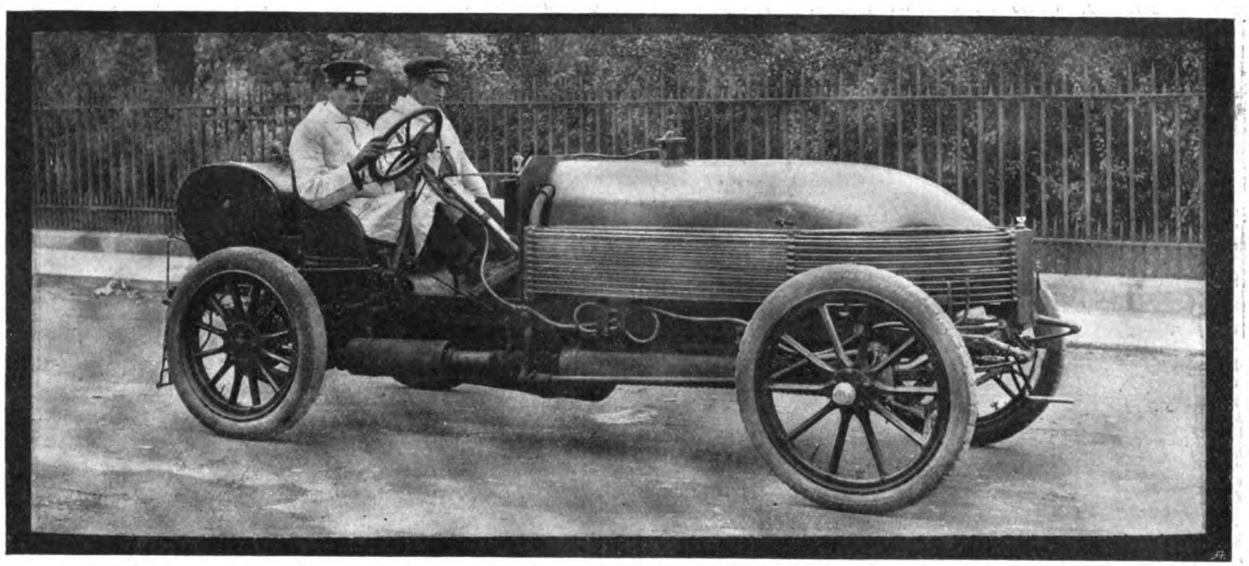
FOR exhibition in the motor houses of members and, we hope, in other places where drivers of motor-vehicles congregate, the Scottish Automobile Club has prepared a notice, mounted on stiff cardboard, giving some hints with regard to the courtesies of the road. There is no doubt that a careful regard to these warnings on the part of drivers would do much to engender good feeling on the part of the public to automobiles and their owners; and the idea might well be imitated by clubs and organisations on this side of the Tweed. Motorists are advised to give the maximum space possible when passing cyclists and horse-drawn vehicles. When passing restive horses, or—it might have been added—nervous drivers of such animals, to use the utmost consideration, even to stopping the engine, if necessary, although no hand may have been held up. Nearing roadside residences, or when passing through towns and villages, drivers should go slowly, so as not to fill houses and cottages with dust—a piece of consideration that would be appreciated throughout the country.

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Motor-car Service in Jamaica.

PARTICULARS are to hand of a motor-car service for the carriage of mails and of passengers—in fact, to act as a kind of feeder to the railway in Jamaica. Mr. Middleton is responsible for the proposed service, and he intends to place on the road a couple of steam motor-cars, one of which will start from Sav-la-Mar at 3 a.m., reaching Kendal to meet the early train to Kingston. It will then await the arrival of the evening train back to Kendal, and return to Sav-la-Mar the same evening. The vehicles will run by way of Balaclava and Santa Cruz in order to increase the postal facilities at those places. Originally it was intended to have a service from Kingston to Port Antonio, on the north coast, but this idea has been abandoned owing to the number of rivers that would have to be crossed. The fare to be charged for the service from Sav-la-Mar to Kendal, a distance of 80 miles, is equivalent to 16s., but the saving of time and also of expense as compared with the system now in vogue will doubtless make the new facilities popular among residents in Jamaica.

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Mr. Arthur Macdonald and his mechanician, Lewis, on the six-cylinder Napier Racer which attained a speed of over 76 miles per hour in the recent Hill Climbing Competition at Gaillon.

Motor-Boating on English Lakes.

OUR English lakes should have a fascination for those who take their pleasures on the water in motor-boats. Already it has been suggested to hold a motor-boat gathering on Lake Windermere next year, and there seems everything within the vicinity to make such a meeting a pleasurable success. Owners would be able to get their boats into the water safely and with little trouble. There is a large crane at the water's edge, which renders it possible to lift the boat from the railway truck and drop it direct into the water. The lake itself is large enough to enable a twenty mile course to be marked out, while the numerous hotels on the banks could afford accommodation to the great crowd of visitors that would be sure to be attracted by the event. The natural attractions of the lakes are great, and if the delights of motor-boating could thus be enjoyed during the pursuit of motor-car touring the joys of the pleasure-loving motorist should be complete.

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Imports.

IN calling attention to the official return of the imports of automobiles into our ports from foreign countries we would remind readers that these are based upon information derivable in the country from which they are shipped to British shores. Hence the non-appearance of Switzerland in the list, and the apparently small export from Germany is accounted for by the fact that large numbers of the cars of German make reach us *via* Belgian and Dutch ports.

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In Australia.

GREAT interest is being taken in the Colonies in the question of opening up the agricultural settlements and other communities removed from railway tracks. Doubtless the provision of automobile services for the transport of goods would do much to promote the prosperity of the countryside, and the Belgian Consul-General for the Australian Commonwealth has communicated to his Government the fact that inquiries into the matter have lately been frequent. Unfortunately for the colonist the import duty on motor-cars is heavy enough to restrict the trade in automobiles, save for pleasure purposes—a factor in the situation which cannot be overlooked.

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Boys and Cars.

TWO boys charged with placing obstructions in the way of the automobiles in Montreal have been required to give bonds for two hundred dollars each to keep out of mischief for a year. The sentence is not too severe considering the risk to human life involved in such pranks, and something of the kind may yet be required in some English localities where chil-

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dren congregate in groups in the roadway to pester and annoy motorists passing their way. Near Birmingham a sad accident has just occurred owing to the passengers in a car attracting boys to swarm thereon by the distribution of a few coppers. As soon as the vehicle was started one lad was knocked down, a mishap that naturally occasioned much sorrow in the car and indignation in the village. The further boys are kept from cars the better for both the boys and the cars.

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Motor-car Houses.

GREAT is the influence of the automobile in many subsidiary directions apart from the development of the engineering industry, which it has directly influenced. A great many firms that have hitherto been associated with the construction of horticultural buildings and the like, coach houses, and iron and wood buildings generally, are now studying the requirements of the owners of motor-cars for the stabling of their vehicles. Some, more practically inclined than others, have become possessed of automobiles in order to know from actual acquaintance the various fitments that add to the convenience of the motor-car shed. So that the automobile, which is in many ways displacing the horse, is not wholly without hope for the builder of stables and coach-houses who adapts himself to the changed circumstances of the time.

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Events in India.

FOLLOWING the information given last week with reference to the forthcoming events in India comes the news that the Maharaj Kumar Tagore has offered a trophy to be competed for under the auspices of the Automobile Association of Bengal. A special committee has been elected to formulate the terms of the competition, and consists of Messrs. E. J. Oakley, F. Marsh, and J. H. H. Rolfe. It is proposed to make the competition an open one, to eliminate the question of speed, and the award solely to be one of merit and reliability. The run is to be over a distance of some 150 to 200 miles only. The trial being similar to that to be held in the Bombay Presidency, the date is to be fixed as soon after this event as possible—say the middle of January. The objects are to bring prominently before the Indian public the fact that motor-cars have been brought to such a stage of perfection that they are eminently suitable for use in India, more especially for district work; to induce tourists visiting the country to take their cars with them, and thus avail themselves of the good roads and perfect weather which are invariably assured to the traveller between the months of October and March; to call the attention of manufacturers in Europe and elsewhere to the wants of India in the matter of motor-cars. Any sort of car will be allowed to compete, and the most successful car will be that obtaining the largest total number of marks for the different points stipulated for. It is requested that all owners of cars will write as soon as possible to Mr. J. H. Rolfe, whose address we shall be pleased to give to those interested intimating their willingness to enter their cars. The entries will close on December 1st.

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Fees for Instruction.

OUR attention has recently been called to the high fees charged by some of the motor-car schools for instruction in the practical work of automobilism. There is no doubt that in such an industry as that connected with the motor-car time has not yet succeeded in fixing a standard, either of qualifications for teachers or of financial arrangements for the same. If those who claim to give instruction in motor-car driving are wise, they will, however, recognise that anything in the way of exorbitant fees at the outset is likely to prevent the ultimate success of any scheme of instruction which they may devise. In this as in everything else, the provision of well-equipped shops is a great expense, and that, of course, has to be borne in mind by those who intend to take instruction in a practical way. Such plants cannot be placed at the disposal of novices entirely for nothing, and after all, there should be a certain amount of give and take with regard to the monetary aspect of motor-car instruction.



The Auto-Cycle Club Tri-car Trials. The Scene at the Starting Point at Hatfield. (*See page* 760.)

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The Gordon Bennett Race.

PROPOSITIONS for the alteration of the rules governing the Gordon Bennett Race had to be sent in by the 10th inst. to the French Club, and will be laid before the International Conference of Automobile Clubs in Paris on or about the 10th December. The following are the recommendations of the A.C.G.B.I.:—(1) That all the resolutions previously passed be cancelled. (2) That the Cup course should be extended from 500 kms. to 1,000 kms., since the former distance does not any longer, in view of the progress attained in the construction of motor cars, afford a satisfactory criterion. The cup would then be contested on two consecutive days, over a distance of 500 kms. on either day. (3) That we do not support the principle of altering the Gordon Bennett race into a team race, as it would destroy the personal sporting character of the event, and, moreover, the Montagu Trophy already provides for a team race under Gordon Bennett conditions. (4) That the competitors should no longer be allowed an unlimited number of pneumatic tyres, but a fixed number of tyres and inner tubes, stamped and registered. (5) That the weight limit for 1906 be reduced to 800 kgs.

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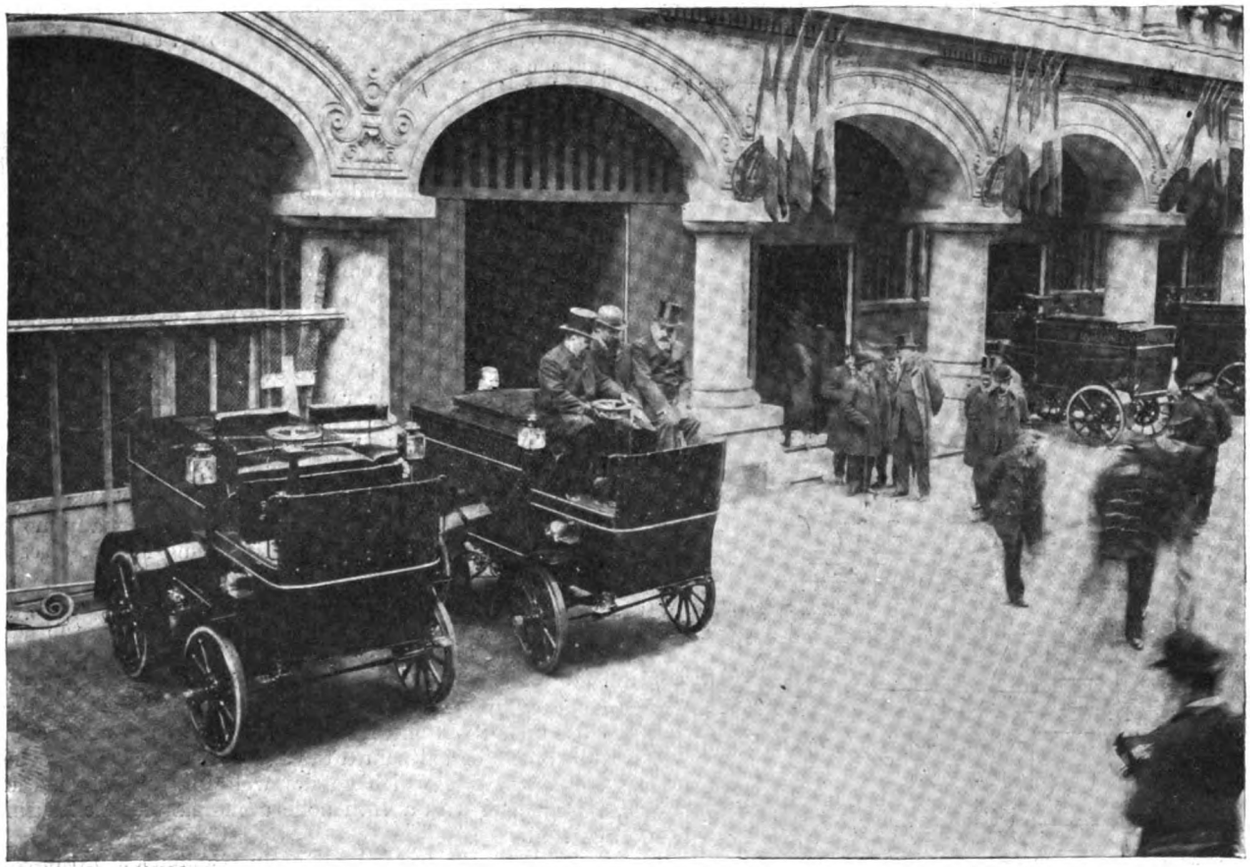
SOME HINTS ON NIGHT DRIVING.

POWERFUL headlights do not make fast night driving safe—they simply make it possible. The exercise of common sense is still necessary in these days of powerful acetylene lamps for automobiles. On these statements most motorists are agreed—theoretically. When it comes to their practical application, however, many forget. Given a combination of skill in driving, presence of mind in emergencies, and acetylene lamps, good time can be made on the road at night, but the risk caused by the unexpected remains. This produces far more mental strain and bodily fatigue in driving a given distance at night than would result in covering the same ground in daylight. Under any circumstances fast driving at night should not be attempted unless the car is equipped with powerful acetylene lamps, which are in perfect working order, and, even with such an equipment of lights, fast driving should not be attempted unless one is very familiar with the route to be gone over. Many drivers do not fit their lamps properly to the car. To be really effective the lamps should be fixed on the brackets in such a position that when lit the beams of light from them will be practically horizontal when the car is on level ground.

As is very generally known, the light from acetylene lamps casts very dark shadows, a characteristic which this light shares with the ordinary electric arc lamp. For this reason a road which is only slightly rough in its surface will appear to be very much more so when viewed by the light from an acetylene lamp. When a driver gets accustomed to this illusion he is, remarks the "Automobile," likely to become careless and take it for granted that when a road appears very rough, under the beams of the lamps, it is in reality only slightly so. Thus when a stretch of bad road is encountered the driver is likely to make an error of judgment, to attribute the apparent roughness of the road to the peculiar effects of the light, and, under the assumption that the road is good, high speed may be maintained until the wheels strike a ridge or hole so forcibly as to bend an axle or break a spring.

In driving at night particular care should be taken in going round turns. A rear end collision with a preceding car is easily possible on a sharp turn, especially if the car ahead does not carry a rear light. A moment's reflection shows that when the car is rounding a curve the headlights will show on the road only for a very short distance ahead, depending entirely on the radius of the curve. It follows as a consequence that if a car or other vehicle is rounding a curve just in front it will not be seen until the following car is very close, so close indeed that it may be practically impossible to stop soon enough to prevent a bad smash up. On dry roads it is usually very easy to tell when catching up with another car or horse-drawn vehicle, as the dust raised by the vehicle ahead is easily discerned when the beams of the acetylene lamps fall upon it. It should be an invariable rule to slow down a car when running into dust, and at the same time keep a sharp lookout. In the night time objects do not come into view progressively, as it were, as in the day time. When approaching an object in daylight it first appears small and indistinct, and gradually increases in size as one gets closer. When driving at night, however, with the aid of gas lamps, objects appear to flash into sight suddenly—appearing to leap out of the darkness. The suddenness of this appearance is intensified as the speed of the car is increased.

When driving at night motorists should exercise consideration for other road users. Horses are easily frightened by the dazzling rays from acetylene lamps. Frequently a horse that is met refuses to go by, and the best thing to do under such circumstances is to stop the car and get out and station a person in front of each lamp, with the body close against the glass so as to cut off all the rays of light.

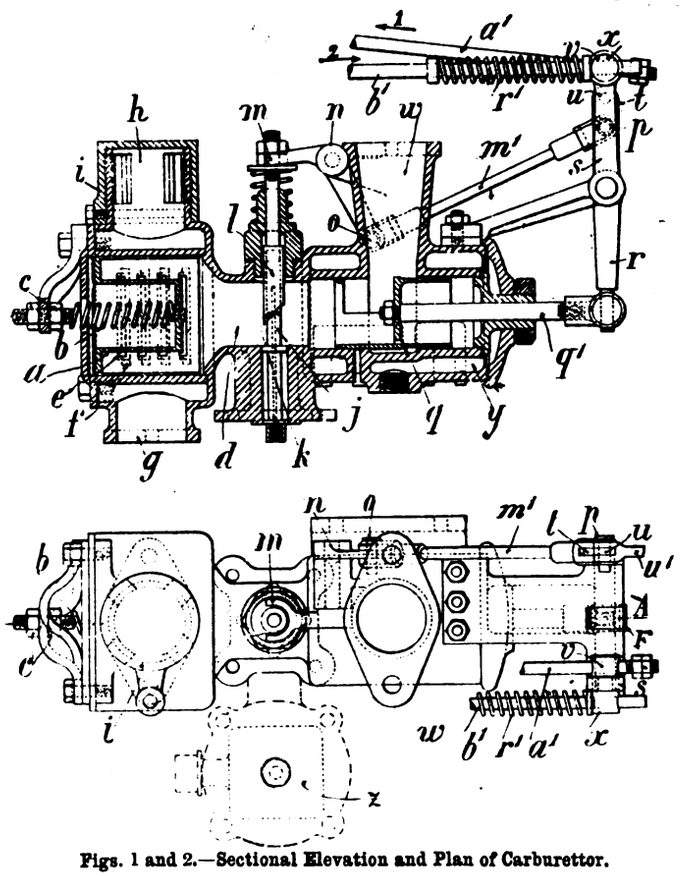


The new Electric Mail Vans in the Courtyard of the Paris General Post Office (*See* p. 757.) [*La France Automobile.*

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THE NEW PEUGEOT AUTOMATIC CARBURETTOR.

CALLING at Messrs. Friswell's extensive depot the other day we had an opportunity of inspecting a new automatic carburettor which is being fitted to the 1905 models of Peugeot four-cylinder cars. The device is quite a new departure in that provision is made not only for automatically regulating the amount of air in accordance with the speed of the engine, but the feed of petrol can also be increased by automatic means as the speed of the motor advances, in order to keep up the requisite proportions of air and vapour. Referring to the accompanying illustrations, Fig. 1 is a section and Fig. 2 a plan of the new carburettor. Two air inlets are provided, one at *g*, for the admission of warm air taken from around the exhaust pipe, and a second one at *i*, in which cold air can be admitted; the latter is provided with an adjustable opening, *h*, so that the amount of air allowed to pass through it can be regulated



Figs. 1 and 2.—Sectional Elevation and Plan of Carburettor.

by hand from the dashboard of the car. The total quantity of air which passes to the carburetting chamber, *d*, depends entirely on the suction of the engine, a series of holes, *e*, *f*, being normally closed by a plug, *a*, the holes being more or less opened as the suction overcomes the tension of the spring, *b*, provision being made for adjusting the latter by means of the nut, *c*. The petrol is fed, as usual, through a float chamber, *z*, to the spraying nozzle, *j*. It is here that the novel feature of the carburettor is found. The sprayer is arranged to furnish a variable automatic discharge of spirit and is provided with four small side holes, *k*, disposed in a horizontal row. The variable discharge of petrol through the sprayer is obtained by means of a cap, *l*, sliding closely on the cylindrical part of the sprayer. The cap, *l*, is provided with external connections in such a way that its position can be varied either by the automatic governor, by the accelerator pedal, or in conjunction with the throttle lever. One of the holes, smaller than the others, is always uncovered, so as to ensure the engine always getting a certain supply of fuel. The lower end of the cap is cut aslant in such a way that, as it rises, the other holes are successively uncovered. A balanced throttling piston, *q*, actuated automatically by the governor and also by the throttle lever regulates, according to the position of one or other of these parts, the quantity of carburetted gases which it is desired to admit to the cylinders, by the suction pipe, *w*. The piston, *q*, is actuated by a rod, q^1, passing outside the carburettor, and articulated on a lever, *r*, *s*, which is actuated by the governor rod, *u*, at the point *u*, by the accelerator rod, a^1, at the point *v*, and by the rod b^1 of the throttle lever at the point *x*. The operation of these regulating parts is as follows:—The hot and cold air are supplied in definite proportions to the carburetting chamber *d*, the carburetting liquid being sprayed into the chamber through one or more of the holes, *k*; the mixture thus formed is then sucked through the passage, *w*, to the explosion chamber of the engine, the quantity of such mixture being governed by the accelerator and throttle lever rods a^1 and b^1, which are moved in the directions of the arrows 1 and 2 and operate the piston *q* according to the quantity it is desired to admit to the explosion chamber. These rods a^1 and b^1 also act on the cap *l* through the rod m^1 and bell-crank lever m^2, by which means the mixture is made richer or poorer. Thus when the accelerator rod is moved the rod q^1 is drawn out and the size of the opening to the passage *w* increased, a greater number of holes, *k*, being also opened, allowing more petrol to flow, or when the throttle lever rod is moved the above operation is reversed. The governor rod, u^1, acts as an automatic retarder when the engine attains too high a speed, being controlled by the usual governor. In order to facilitate the working of the device in cold weather, a jacket, *y*, is provided to the mixing and throttle chamber, through which hot water drawn from the water-cooling system of the engine may be circulated. In designing the apparatus the Peugeot Company have in mind the provision of an automatic carburettor in which the proportions of air and petrol vapours of the explosive mixture may be adjusted in a very constant manner, irrespective of the speed or power required of the motor. It will be realised that such a carburettor will be able to secure the maximum of economy if the proportions obtained by the initial regulation of the mixture are such as to furnish the greatest calorific efficiency. We have seen the new carburettor in operation on a Peugeot four-cylinder car, and were much impressed with the rapidity of its action, any movement of the throttle lever in either direction being instantly responded to by the engine.

THE L.B.G. sparking plug sent us early in the summer by Messrs. Lamb Bros. and Garnett has so far proved a marked success. The plug was put into use in the middle of July last on a single cylinder car, and although the vehicle has since been driven close upon 2,000 miles, it has never yet been removed. In fact, during the period named the ignition has not given the slighest trouble, a fact which speaks well for the combination of the L.B.G. plug with a Lithanode accumulator which furnishes the current.

AT a meeting of the Yachting Committee of the Automobile Club de France the following localities were discussed as suitable for the race for the British International Cup for motor-boats next year:—The Bassin d'Arcachon, the Golfe de Morbihan, the Rade de Brest, and the Rade de Cherbourg. The final choice will be made within a fortnight. The race will take place between the 25th July and the 8th August. The entrance fee for each motor-boat is £20, half of which is returnable if it actually starts. It was also decided that the Automobile Club of France will organise a motor-boat race on the 15th July next between Calais and London.

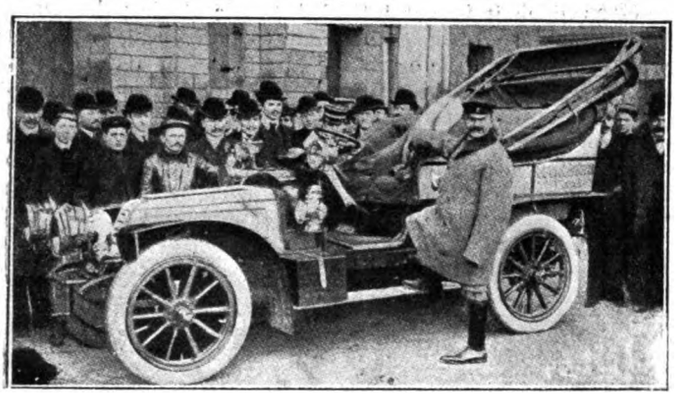
EDISON'S latest invention is a disc wheel for motor-cars. The disc is built up of sections of endogenous wood—palm wood for instance—secured together and mounted between the flanges of a suitable hub. An elastic cushion is interposed between the disc and the body of the hub, whereby the disc is free to move elastically with respect to the hub, so as to accommodate itself to the inequalities of the road surface. The elastic cushion is made in the form of a continuous ring of pure vulcanised Para rubber, which it is possible to use, since it is not subjected to wearing or abrading influences, but is merely displaced or distorted.

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CONTINENTAL NOTES.

Electric Mail Vans for the Paris Postal Service.

The Paris postal authorities are now employing fifteen electric vans for the conveyance of letters from the branches to the central office, and from the latter to the railway stations. Six of the cars have pneumatic tyres and the rest are fitted with solid tyres. The weight of the vehicles is one and a half tons, and the carrying capacity is about 12 cwt. The vehicles were built by Messrs. Mildè and Co.; the necessary current is furnished by a battery of 44 Heinz accumulators, having a capacity of 150 ampere-



Cormier Leaving Paris for his long Tour on the new 15-h.p. De Dion Car.

hours, sufficient to run the vehicles a distance of twenty-five miles on one charge. The battery is located in a receptacle below the driver's seat, and is so arranged that it can be entirely withdrawn and a fully charged battery substituted within five minutes. The controller is adapted to give eight forward speeds, three reverse, and two electrical brakes. By means of a pedal, the electrical circuit can be broken, thus stopping the motor whenever necessary in thick traffic, this corresponding to the clutch pedal in petrol cars. The vehicles are intended for an average speed of 11¼ miles an hour, the maximum being 17½ miles.

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The Dust Nuisance in Switzerland.

The Geneva section of the Swiss Automobile Club has decided to undertake a series of experiments with regard to the suppression of the dust nuisance. Trials are to be made with a number of dust-laying preparations, and tests are to be inaugurated as to the effect of speed, different designs of tyres, and the forms of car bodies on the quantity of dust raised.

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Automobilism in Roumania.

Slow but steady progress is being made by the automobile movement in Roumania, which has now its Automobile Club, of which Prince Bibesco is president. A 120-kilometre race was recently held between Bucharest and Giurgiu, in which five cars competed. Before motorists are allowed to drive cars, they, as well as their vehicles, have to be examined by the Prefect of Police, and to assist him in the work the Roumanian Automobile Club has appointed a special committee of four of its members.

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A Co-operative Garage in Paris.

A movement is on foot to establish a co-operative motor garage in Paris. The idea is for a number of motorists to join together in establishing and running a garage for the storage and cleaning of their cars. Should the scheme prove successful, it is also proposed to eventually lay down a repairing plant.

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Motor Racing in Sweden.

As was mentioned in this column last week, it is proposed to hold an automobile week in Stockholm from the 4th to the 12th February next. The meeting will be on novel lines, as it is proposed to hold the races on the ice near the island of Djursholm, in a fjord about eight miles to the north of Stockholm. There are to be different classes for racing and touring cars, and it is hoped that some of the leading French and English motorists will be induced to take part in the meeting.

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Austria and the International Motor-Bicycle Race.

Austria means to make a strong bid to win the 1905 international motor-bicycle cup race, the Motor-Cycle Section of the Austrian Automobile Club having already sent out circulars to the leading motor-cycle builders asking if they intend to enter for next year's event. If necessary, an eliminating trial will be held over a distance equal to that of the course of the cup race itself, in order to select the three best machines and riders.

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Motor Boats in Germany.

The German Automobile Club, which has been closely watching the development of the motor-boat movement, is preparing to include a number of competitions in its 1905 programme. Races are to be held during the season at Hamburg and at Kiel, while it is proposed to organise a race in the open sea, from Kiel to Copenhagen.

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A Motor-Boat for the Russian Navy.

Messrs. Pitre and Co., of Maisons Laffitte, have just completed a 40-h.p. motor-boat for the Russian Navy. The vessel is 32 ft. 9 in. long by 6 ft. 6 in. beam, the motive power being supplied by a 40-h.p. Fitz petrol engine. The boat weighs complete about 2,300 kilogs., and can, it is claimed, attain a speed of fourteen knots.

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Public Services in Switzerland.

A company has been formed at St. Blasier, to inaugurate a public service of motor-cars between that town and Titisee for the conveyance of both passengers and goods.

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The Gordon Bennett Cup Race.

The question as to the course on which the 1905 Gordon Bennett Cup race shall be held has still to be decided. In



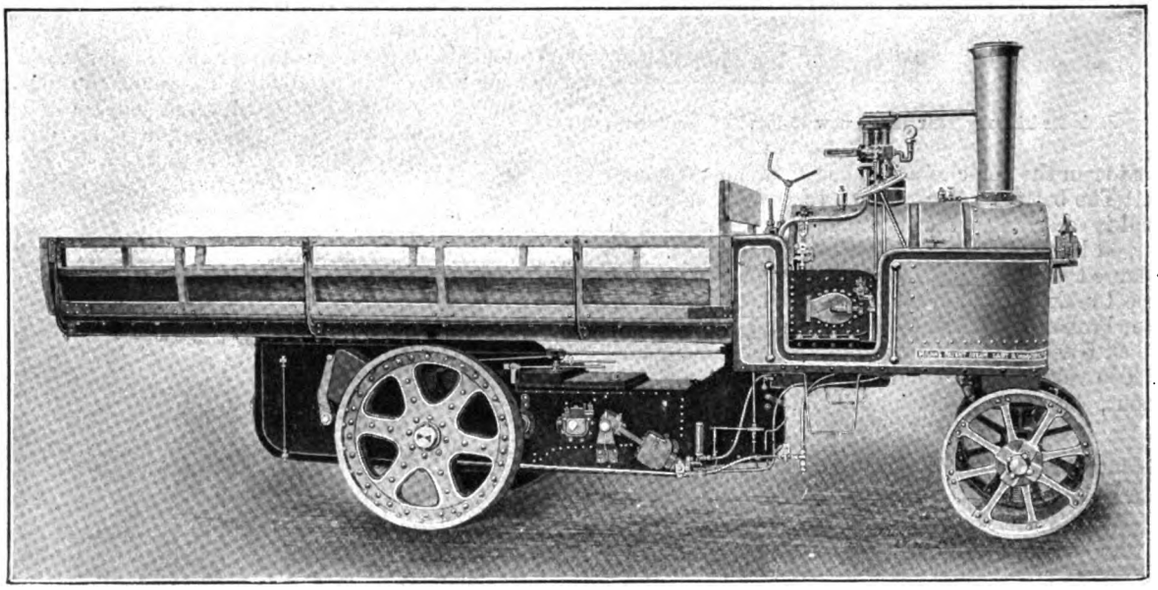
Palser on the new Serpollet Steam Car at the Gaillon Hill Climb.

addition to the proposed course in the Aix-les-Bains and Vichy districts, it is now suggested that an excellent one can be found in the Aveyron district, between Villefranche, Rioupeyroux, Pont-de-Salais, Millau, Severac-le-Chateau, and Rodez. It is announced that Mr. Gordon Bennett is presenting a large silver "plaquette" to the automobile clubs which have held the Gordon Bennett cup. The plaquettes, which are given as a permanent reward, will bear a silver reproduction of the cup with a suitable inscription.

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MANN'S NEW STEAM WAGON.

THE accompanying illustration shows a new type of steam wagon which is being put upon the market by Mann's Patent Steam Cart and Wagon Company, Limited, of Pepper Road Works, Hunslet, Leeds, to meet the views of the large number of users who attach considerable importance to the general appearance of a wagon. At the same time all the essential features of the original Mann wagon have been retained and have not been sacrificed in the attempt to meet users' wishes or the prejudices of the general public. The design, in addition to the essential features of their present standard type of wagon, contains many new details based upon past experience. The new wagon has less of the traction engine appearance than the older designs, as, although the locomotive boiler is retained, it is hidden by neat coke bunkers round the front. The engine has been sunk between the side plates of the main frame to be out of sight, and also to leave sufficient head room to enable it to be inspected with ease, even when the wagon is loaded. It also allows of the use of one single open-topped oil-bath to take both engine and quick running gear with change speed clutches, so that the whole of the motion work can be got at as easily as with an open type engine by simply removing the top cover. The compound engine is reversed by a single



General View of Mann's New Steam Wagon.

eccentric gear of the bell-crank type, of which all the details are forgings and case hardened instead of castings. The reversing lever, regulator and steering wheel are all brought close together on the foot plate so that the wagon can be handled and managed by one man. The steering gear is so designed that without alteration to standard parts it can be placed at either side. The power transmission is of the spur wheel type with a bevel pinion differential gear. The spring gear is of simple form, the weight being taken on plate springs and the driving thrust taken by cast steel brackets in which the main axle boxes slide. The shaft centres are so arranged that the full amount of play is obtained without causing the gear to run untruly. The road wheels are of steel throughout, and the tyres put on in sections to allow of easy replacement and to give a better grip of the road for driving than can be obtained with a shrunk ring. The front wheels are carried on a pivoted front axle turned direct from the steering wheel by a worm and quadrant gear. This gives complete control, as it is self-locking, and, owing to the few joints, it does not become difficult to manœuvre when suffering from wear. The wagon illustrated shows an open-sided lorry, but they are built with any class of body desired to suit different trades. They can be had with steel or wood wheels and with or without tipping gear, in sizes to carry 3, 5 and 7 tons.

SOME USEFUL NOTES.

IT should be remembered that exhaust gases contain ingredients of a highly poisonous nature. Therefore, when the engine is run whilst in the stable, always have a door or window wide open so as to ensure free ventilation.

THE entire wiring of a car should be carefully examined from time to time for signs of wear in the insulation. At certain places the wires are exposed to continual, if slight, friction, which will ultimately break through the insulation and establish a short circuit. The timely application of a little insulating tape will often save much trouble in this respect.

CARS which it is not intended to use during the winter months should be given a thorough cleaning before they are stored away, and all the bright steel parts should receive a coating of vaseline, to prevent rusting. The grease may be cleaned off again in the spring with paraffin. When the cars are thus prepared they may be stored in almost any building where they are protected from the weather, although a perfectly dry room is preferable. In any case, previous to storing the vehicle away, the tyres should be taken off, done up in sacking and stored in a dry, dark place, especially if the machine is to be out of commission during the entire cold season.

IT is not always convenient to heat the motor stable. A open fire is not to be recommended, and some users of steam cars who let the pilot light burn under their machines during cold nights have had cause to regret it. The problem is easiest of solution where steam heat is used in the building. It would be interesting if some of our readers who keep their vehicles on their own premises would let us know what provision they make for heating their stables during the cold season.

WHEN a car has to be driven through the rain, a great deal of subsequent work and worry can be avoided if all bright parts are given a coat of vaseline. With such a coating there is no immediate necessity for wiping down and polishing such bright parts, as the grease prevents the rain from spotting and tarnishing, while it may be readily removed at any time. Should any plated parts become tarnished they may be restored to their previous brightness by the use of silver polishing powder and a little liquid ammonia.

THE novice is usually as guilty of sins of omission as he is of those of commission. He forgets to fill up a petrol tank before starting, and comes to a standstill five miles from anywhere. Perhaps the most usual piece of negligence is failure to lubricate either properly or promptly. These and other bits of

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carelessness result in great inconvenience, and in certain damage to the car of a kind not to be classed with punctured tyres, worn cogs, clogged carburettors, and other purely accidental and unpreventable troubles. The owner of a motor-car, therefore, should early in his career acquire the habit of devoting a few minutes to the inspection of his vehicle every day it is in use, and hold that inspection before he starts rather than afterwards when out on the road, where, for reasons that he does not immediately suspect, he is obliged to interrupt his trip and often mix perspiration with profanity.

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One blunder which inexperienced motorists frequently make, and which occasions them no little chagrin, is attempting to start the car with one or more of the brakes on, so stopping the engine. Another consists in advancing the ignition lever too rapidly upon an engine which is slowed down under load. Changes of spark position should be gradual, giving the motor time to accommodate itself to the new conditions and sparing the moving parts the stresses to which they are otherwise subjected.

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It is well to occasionally examine the couplings and fittings on the oil and grease pipes on one's car, to see that there is no escape which would rob any bearings of their due and so cause overheating. A leak in a pipe of a multiple lubricating system is much more serious than a leak in a separate cup system, because it allows the reserve supply of lubricant to flow out and thus prevents sufficient pressure being applied to force the oil to the other bearings, which suffer in consequence.

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In making repairs to petrol-motors the greatest care is necessary, in reassembling the parts, to see that everything is put back in the correct position and that all adjustments are made exactly right. Particular care must be used with the ignition mechanism when making any changes affecting the timing. In such cases, before it is attempted to start the motor, it should always first be ascertained that the spark occurs at the proper moment. As is well known to all motorists, when the spark occurs too early a back fire is produced in the engine; and if the spark occurs exceptionally early, bodily injury may result to the person attempting to start the motor.

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Some gear-boxes are made in which the wheels that move (the sliding sleeve) are the larger ones, that is, the driven shaft and not the driving or clutch shaft; with this type of gear difficulty may be experienced in coming back from third speed to second, and second to first, but it may be easily overcome in the following way:—Depress the clutch at the change, and as soon as the wheels touch, let the clutch in, at the same time pulling the speed lever into position. The change will then be effected without any difficulty.

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If the starting handle on one's car is of the detachable kind it is always well to make sure that it is on board when starting out for a run, and furthermore that it is so safely secured that it may not be lost *en route*. With no handle available many a motorist has been puzzled to know what to do. There are, however, one or two ways of starting an engine without a handle. One consists of rolling a cord round the flywheel or round the clutch, then pulling hard enough to overcome the compression of the motor. This method is not easily applied to every motor, and unless performed with considerable dexterity presents some danger, for the cord may get entangled in the moving shafts if it is not withdrawn with extreme rapidity. A simpler means is to set the transmission on the high gear, switch on the ignition, and, letting in the clutch, get someone to push the car, withdrawing the clutch as soon as an explosion occurs. To start the motor in this way it is necessary to use the high gear, because the low gears would drive the motor much too fast, besides requiring an effort of strength to push the car beyond the help usually obtainable. Naturally, if the car can be started on a slightly downhill road the work will be the easier.

THE ADAMS MOTOR-JACK.

A novel and useful form of jack, for raising motor-cars off the ground, has been recently devised by Mr. Henry Adams, of Tunbridge Wells. It is designed to bodily lift either the front or back part of a car, by tilting jack towards the vehicle, and placing the claw under the axle. By simple leverage with the handle the car can then be raised from the floor about



Fig. 1.—The Adams Jack.

two inches, and the jack being on wheels it enables one person to move the car in any position desired, either backwards or forwards, placed in the shortest lock possible, and turned round in a space its own length. The car is then manipulated exactly as an ordinary bath chair, and by allowing the leg under the handle to rest upon the floor, the car is placed in a firm position resting on the jack, ready for repairs, cleaning or removing tyres. The operation is done by one person only in a standing position in much less time than by an ordinary lifting jack. The jack is made in two patterns; one is a lever jack only, and made with a telescopic centre shaft which can be set to any height from 12 in. to 18 in.; it weighs 48 lbs. and will lift cars up to 20 cwt. The second pattern is made with a screw in addition to the telescopic shaft; it stands ten inches from the floor when down, and will pick up a car by the axle by tilting the jack



Fig. 2.—The Jack in use.

forward towards the car. When the claw on the top of the jack reaches the axle, the handle is pulled towards the operator, levering the car on to the jack, when it can be raised further if necessary by turning the cross-bar handle. By means of the screw and telescopic shaft the jack can be extended to a height of twenty inches; this pattern weighs 58 lbs. and will lift up to 30 cwt. The jacks can be obtained from Messrs. Gamage.

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MOTOR CYCLING NEWS.

THE Auto-Cycle Club's 100-mile trial for tri-cars was held on Saturday last, the course extending from Hatfield to Newmarket and back. Of the fourteen competitors who had entered for the event, ten put in an appearance at the starting-point, these being J. F. Crundall, 3½-h.p Humber; W. J. Milligan, 4½-h.p. Bradbury; J. Browning, 4½-h.p. Riley; W. King, 4½-h.p. King; W. Batchelor, 3½-h.p. Wallace; W. H. Watson, 3½-h.p. Greyhound; G. Henshaw, 4½-h.p. Avonmobile; Eustace Gray, 3½-h.p. Humber; T. Sopwith, 6½-h.p. Pearson; and the Hon. H. Bruce, 4-h.p. Ormonde. So far as the non-stop character was concerned, the event was a disappointment, as not a single competitor got through without a stop. The first to retire was Watson, the gear of whose machine jammed. Browning dropped out owing to clutch troubles on his Riley eight miles from the start. Milligan (Bradbury) experienced ignition troubles, and Gray (Humber) broke an inlet valve stem. On Wades Mill Hill the machines were timed over a course measuring one-third of a mile. Crundall (Humber) made the best time (1 min. 19 2-5 sec.). On the return journey the machines were pulled up twice in order to test the brakes. The first to reach Hatfield was Sopwith, who had left last but one. He had covered



Hill Climbing in Japan.

the distance in 5 hr. 1 min., thus averaging a speed of twenty miles an hour. The order of arrival of the others was:—Crundall, Batchelor, Henshaw, King, and the Hon. H. Bruce.

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IN connection with the foregoing reliability trial for passenger cycles, it is of interest to note that, of the ten who started, six finished within the maximum time, and of these a majority approached to the minimum time, which corresponds to twenty miles per hour. The weather throughout the day was fine, and the roads generally in good condition. The judges have recommended the committee of the Club to award a silver medal and certificate for excellence in—(1) Fuel economy, (2) hill climbing, (3) ease of starting and control, (4) brakes, to vehicle No. 12, 6½-h.p. Pearson, entered by Mr. T. Sopwith; vehicle No. 10, 4½-h.p. Avon Trimobile, entered by Avon Motor Manufacturing Co.; vehicle No. 8, 3½-h.p. Wallace, entered by Mr. Wallace Batchelor; vehicle No. 7, 4½-h.p. King, entered by Messrs. W. King and Co.

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IT appeared in the trial that drivers had not sufficiently studied the regulations, and many might have gained specific advantages or avoided loss of credit by doing so. The brake test and the stop and start tests showed that the drivers were not as skilful in handling their machines as might have been expected; for instance, one or two men momentarily grasped the wrong handle or threw the lever in too late, unclutched too late, or only used one brake in the emergency stop. There were no stoppages on account of tyre troubles, though provision had been made in the regulations whereby a machine would not be thereby disqualified. The tests seem to show that the brakes were not always designed to be equally efficient forward and backward. Brakes that are easily thrown into and out of action unquestionably facilitate restarting on a hill, and the fact had been overlooked in at least one case.

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WITH regard to transmission the judges observe the manner in which water-cooling enables an engine of given cubic capacity, not only to somewhat increase its power, but also to maintain the increased power for long periods, must be borne in mind when designing the transmission. For heavy vehicles, such as tri-cars, the use of belts could probably be retained, if their proper proportioning were more carefully studied. A large and convenient water inlet, so placed that any liquid which splashes over shall not impair the insulation of the sparking plug or wires, might be more generally provided. Equal attention should be paid to the petrol inlet, providing it with an internal and detachable filter. Three instances of choked petrol pipes occurred in the trials.

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IN the evolution of the change gear tri-car from the single-geared machine, the proper distribution of weight necessary for the greater road adhesion of the driving wheel when the low gear is in use has in some cases been overlooked. On certain machines the driving wheels skidded considerably when re-starting on an average gradient. It is as well to remember that this skidding is not only severe on the single tyre, but wastes the engine power as much as belt slip.

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THE adoption of change-speed gears has naturally led to the use of water-cooling, with the attendant difficulty of combining lightness and strength. The strains to tank and pipe work on a partially-sprung machine are more severe than in the case of cars, and as the materials give little scope for improvements, attention should be centred on producing a stronger and simpler design. It is to be noted that by far the largest number of troubles arose in connection with the water systems. The possibility of dispensing with the pump by using simple and direct water connections, and placing a more efficient radiator high above the engine, seems to merit further careful trial. Thoroughly efficient radiators, with sufficient surface to prevent boiling on long hills, would obviate the necessity for tanks with their load of water, fragile joints and troublesome attachments.

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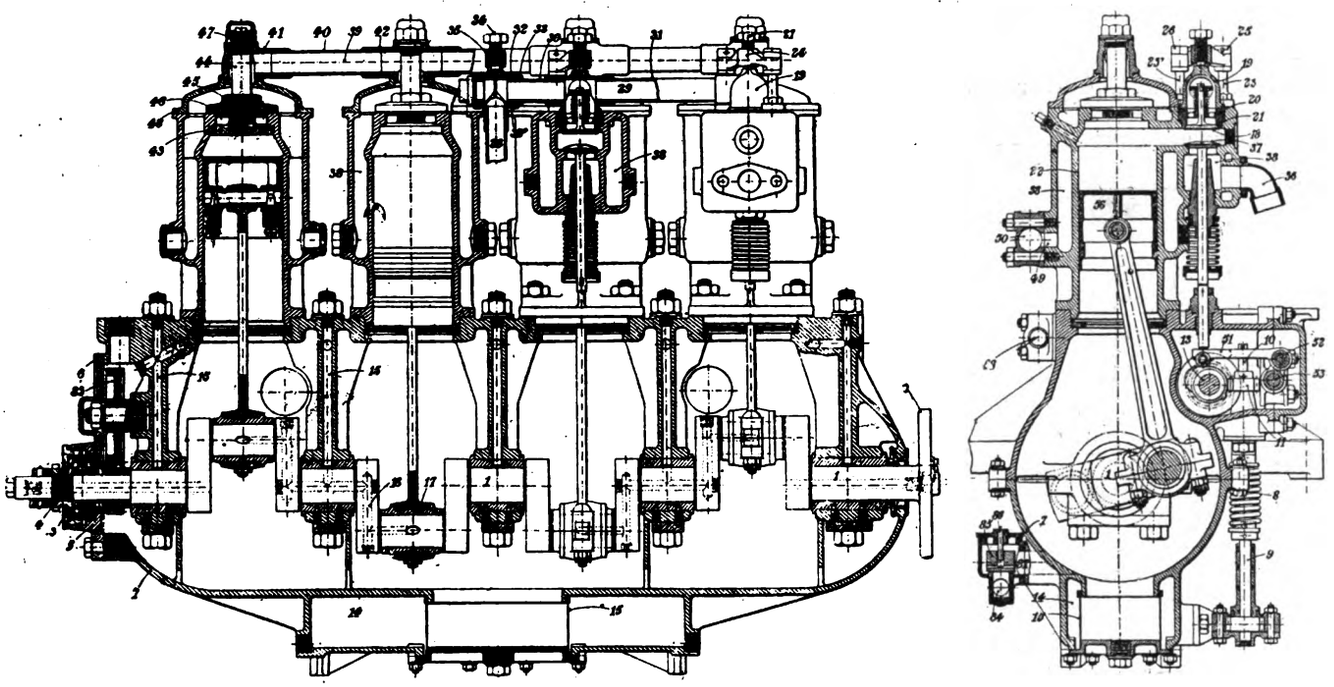
THE winter cycle racing track in Paris was opened for the season on Sunday last, the races being unfortunately attended by a nasty accident to Lanfranchi, whose recent record-breaking rides on his Peugeot machine have made his name a familiar one in the motor-cycling world. There were four competitors in the 10-kilometre motor-bicycle race—Fossier, Danglard, Anzani, and Lanfranchi; all were travelling at a high speed when the latter's machine skidded, pitching the rider against the fence and knocking him unconscious. Anzani, who was close behind, failed to clear Lanfranchi's machine, and he also was brought to the ground, but fortunately escaped serious injury. Lanfranchi, on the other hand, had to be taken to the hospital, where it was found that, in addition to other injuries, he had broken his leg. The accident naturally put an end to the day's racing.

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FOR the 1905 season the F.N. Co., for whom Messrs. McTaggart (Limited) are sole agents for the United Kingdom, are bringing out a four-cylinder motor-bicycle. The cylinders are placed one behind the other, and are air-cooled. Automatic inlet valves are employed. One of the chief novelties is the adoption of the bevel-gear system of transmission between the crank shaft and the rear road wheel. A new type of carburettor with automatic supplementary air inlet valve and a new arrangement for distributing lubricating oil evenly to each of the four cylinders are also prominent features of the new machine.

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The De Dion 15-h.p. Four-Cylinder Motor.



Figs. 1 and 2.—Sectional Elevations of Motor.

AS has already been announced, Messrs. De Dion-Bouton are bringing out a four-cylinder car for the 1905 season. Hitherto their productions have been confined to engines having at most two cylinders, but in the meantime experiments have been in hand, the results of which are seen in the new four cylinder motor of which we are now able to publish a description, together with sectional drawings. As leading characteristics, the new motor (Figs. 1 and 2) has four separate cylinders, automatic inlet valves, a released compression starting gear, oil lubrication under constant pressure, and ignition by single trembler contact-maker conjugated to a secondary current distributor. The four-throw crank shaft is supported on five bearings, there being one between each cylinder, in addition to the two end ones. The cylinders are fired in the order 1, 3, 4, 2, counting from the forward end. To overcome the bad effect of longitudinal thrusts on the shaft a ball race, 3 (Fig. 1), forming a support, is fitted on the starting handle side. Rods extending from the top of the upper half of the crank case of the motor form the supports of the bearings of the crank shaft; the power generated by the explosion is, therefore, transmitted from the cylinder to the upper crank case through the pistons, connecting rods, and crank shaft alone, without over-straining the joints of the half-crank cases, as would happen if the bearings were held together by the joint itself. The big ends of the connecting rods and the bearings can thus be easily inspected or adjusted, owing to the readiness with which the bottom half of the crank case can be detached. Each cylinder, together with its water jacket, is cast separately. The bottom of the cylinder, 43, alone is jointed, but the water joint is independent of the combustion chamber joint. The pistons are of steel, and are fitted with four piston rings.

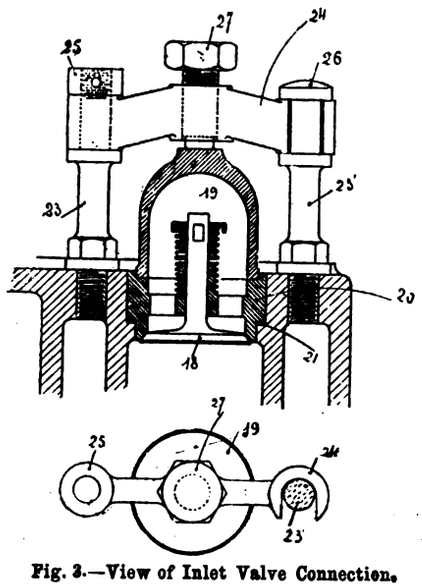


Fig. 3.—View of Inlet Valve Connection.

The lubrication of the different bearings is assured by a geared pump, actuated by means of a spring, 8, Fig. 2, uniting the spindle, 9, of one of the pump pinions to a vertical spindle, 10, carrying a pinion, 11, meshing with a worm wheel, 12, fixed on the cam shaft, 13. The oil drawn up from the reservoir, 14, formed in the bottom of the crank chamber is drawn in through a filtering gauze, 15, and is sent by the pump to the upper part of the crank chamber in a longitudinal conduit, 88, which diverts it to the different bearings by channels such as that shown at 15. Channels, 16, formed in the interior of the crank shaft and cranks receive the oil from the circular grooves in the bearings and conduct it to the heads of the connecting rods. In order to ensure a constant lubrication under pressure, whether the oil is limpid or viscous, a kind of relief valve is placed on the channel, 84, which it traverses in coming from the pump. When the pressure becomes too great, the valve, 85, is raised and the oil returns to the crank chamber by the orifice, 87.

The mixture from the carburettor is conveyed by a tube, 28, into a horizontal conduit, 29, running the whole length of the motor. This conduit is in two symmetrical parts, forming a single detachable piece for each pair of cylinders. The admission of the gases is effected by suction valves, 18, in the ordinary manner; the method of fixing the valves, however, presents certain peculiarities. Each valve is surmounted by a small dome, 19, Fig. 3, the base of which engages in a circular recess in the seat, 20, of the valve, lodged itself with the interposition of a joint, 21, in a special cavity. To maintain the dome, 19, two little columns, 23, are fitted for each valve, these being screwed into the cylinder casting. On their upper part these columns are joined by a cross-piece, 24, having at one end an eye threaded on

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one of the columns and maintained by a pinned nut, 25, whilst the other end has the form of a fork engaging round the small column, 23, under a head, 26, of the latter. One can easily see that to fix the dome, 19, it is sufficient after having engaged it in the lodgment of the seat, 20, to make the cross-piece, 24, turn horizontally around the column, 23, until the fork at the other end embraces the column, 23, it is sufficient then to tighten the central screw in the cross-piece. To withdraw a valve it is only necessary to loosen this central screw one or two turns, and turning round the cross-piece, 24. The exhaust elbows, 36 (Fig. 2), are united in a collector, not shown, which conducts the burnt gases to the silencer. Each exhaust valve, 37, is actuated in the ordinary way

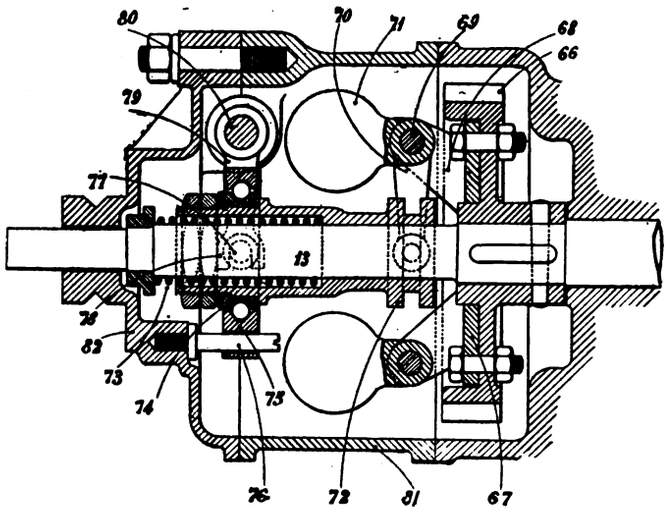


Fig. 4.—Sectional View of Governor.

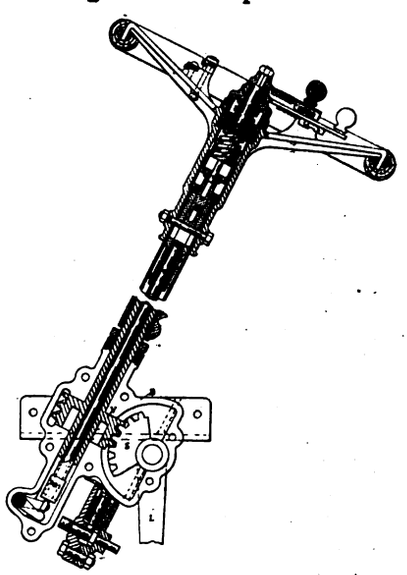
by the raising of a lever, 5, of which the head rests on a cam fixed on the shaft, 13, of the motor. The joint of each lever is movable, and for this purpose each lever is fixed on a small spindle, itself joined to an auxiliary longitudinal shaft, 53, by two small cranks. The result is that the angular displacement of the shaft, 53, whether by hand or by the effect of the governor, produces a variation in the raising of the exhaust valves, thus permitting within certain limits the regulating of the speed of the motor. The shaft, 53, has another function; by longitudinal displacement it allows the working of the compression release mechanism. The same profile is not given to the cams, 55, over their whole width; during the normal working of the motor one part only of the width of the cam comes above the head of the lever, 51, and consequently the exhaust valve is lifted to the extent determined by the profile of this part of the cam. If the shaft, 53, is displaced longitudinally the lever heads can be brought to rest on a part of the cams of different profile from the normal, and so alter the lift of the valve as to bring about the compression release necessary for the starting of the motor. The longitudinal displacement of the shaft is obtained in a simple way: a coil spring resting at one end on the small case enclosing the shaft, and at the other end on a pinned bush, pushes the shaft back normally towards the right. When it is desired to make use of the compression release mechanism a small shaft having a finger engaged in the groove of a bush fixed on the shaft is made to revolve, this movement bringing the requisite part of the cams under the exhaust-valve lever heads, 51.

The governor shown in section in Fig. 4 is mounted on one end of the cam shaft, 13. The half-speed pinion, 66, is joined by means of bolts to a plate, 67, carrying eight ears, 68, joined in pairs by a small spindle, 69, on which four levers, 70, each one carrying one ball of the governor, are fixed. Each lever, 70, ends in a nipple engaged in the groove of a collar, 72, sliding on the end of shaft, 13. A coil spring, 73, tends to push back the collar, 72, in the direction which brings the balls, 72, towards the shaft, 13. One of the halves, 74, of a ball race is borne by the collar, 72, whilst the other part, 75, which a gudgeon pin, 76, fixed to the case, prevents from turning by engaging in a notch, has two nipples diametrically opposed, 77, each engaged in a fork, 78, fixed at the end of a lever, 79, oscillating round a spindle, 80. When the motor is working the balls, 71, move away from the shaft, 13, the spring, 73, is compressed, and the shaft, 80, oscillates, the movements of this shaft acting on the throttle valve. The water enters the cylinders by openings, 49, branched on a collector, 50, running the length of the motor, and escapes by a conduit, 39.

(To be concluded.)

THE C.G V. STEERING GEAR.

THE accompanying illustration shows a section of the steering gear used on the C.G.V. cars, the British agents for which are the London Motor Garage Company. As will be seen, the gear is of the worm and sector type, the hand wheel operating the worm V, which is keyed at its upper end to the steering post or column. A toothed bronze sector S is keyed to a shaft which carries the lever arm L, from which a connecting rod runs to the steering knuckles. This lever arm L is provided at its lower end with a spherical knob, which fits into a spring-cushioned socket. A bronze casting B incloses the worm and sector, and this case is filled with grease previous to being definitely secured to the vehicle frame. All dust is excluded and the gear is therefore protected against rapid wear. The worm V has a quadruple thread and gives a normal steering reduction. The manufacturers have not considered it advisable to mount the gear on ball thrusts employing plain friction surfaces of large dimensions. Inside the upper part of the steering column is arranged quite a collection of worms and nuts for operating the throttle and the ignition. The spark lever is connected to the



central rod, while the throttle lever controls at tube surrounding this rod. A central hole through the worm shaft permits the passage of the rod and tube, which, at the bottom of the case B, action their respective levers, thus enabling the driver to control the ignition and the admission of gas by means of two levers working on sectors on the steering wheel. The inclination of the steering column with respect to a horizontal plane is 64 degrees.

A MOTOR-'BUS service between Ipswich and Woodbridge is being suggested by some residents of the latter place.

PRINCE HENRY OF PRUSSIA recently paid a visit of inspection to the works of Messrs. Benz and Co, at Mannheim, and left behind him an order for one of the latest 40-h.p. Benz-Parsifal cars.

THE Dunlop Pneumatic Tyre Company (S.A.), Limited, of Capetown and Johannesburg, have been appointed South African agents for the "Polkey" lamps, including the patent public service headlight, reflector headlights, and motor-cycle lamps.

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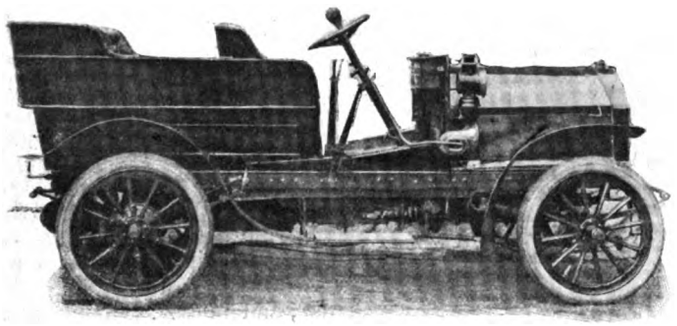
HERE AND THERE.

THE present strength of the Motor Volunteer Corps is 155.

THE Kent Automobile Club will hold a run to Brighton on the 3rd prox.

LORD AND LADY DUDLEY intend shortly to make a motor tour through France.

THE Institute of Chauffeurs, Limited, has just been registered with a capital of £3,000.



A 14-18-h.p. Hallamshire car built by Messrs. Durham, Churchill, and Co. This type of car has done exceedingly well in all the events in which it has competed during the year, and won the gold medal in the £200 to £400 class at the recent Portmarnock Speed Trials.

MESSRS. PHILLIPS AND SON, of King's Road, Reading, have been appointed official repairers to the Automobile Club.

AMONG new members of the A.C.G.B.I. are the Earl of Wharncliffe, Sir N. J. Menzies, Bart., and the Hon. W. E. Guinness.

MR. G. P. RICE is developing the motor business at Paddock Wood, and in addition to providing garage facilities is now letting cars on hire.

ADDITIONAL premises have been taken by the United Motor Industries, Limited, at 45 and 46, Poland Street, W., which are now being used as stores and workshops.

AT the ploughing match of the North Kent Agricultural Association at Dartford last week, the Ivel Agricultural Motor was awarded the gold medal of the society.

THE Britannia Motor Garage, Limited, the formation of which was recently referred to in these columns, have now opened their premises at 110, High Street, Marylebone, W.

THE Yorkshire Automobile Club have been granted permission by the Filey Urban Council to hold speed trials early next year on the sands which extend southward from Filey Brigg.

MR. G. E. ROBERTS, the late secretary to the Motor-Cyling Club, will have charge of the Coventry depot of United Motor Industries, Limited, which was opened in Gosford Street on Monday.

RECENT Surrey and Sussex appointments of repairers to the A.C.G.B.I. include Mr. N. J. Wilmott, of Bognor; Mr. A. Humphrey, of Chichester; Messrs. Wood and Trussler, of Cranleigh; Mr. G. W. Rice, of Surbiton; and Messrs. P. J. Buddery and Company, of Wimbledon.

AN illustrated lecture on automobilism up-to-date will be delivered by Mr. E. Shrapnell Smith, Secretary and Treasurer of the Automobile Mutual Protection Association, at the Grand Hotel, Leicester, on Tuesday next, under the auspices of the Leicestershire Automobile Club.

A NEW motor-car service between Glasgow and Greenock has been inaugurated. The intention is to carry grain from the city and return with sugar, and this method, it is expected, will be less expensive than the present, which involves excessive handling in connection with the lightering of the articles between the two ports.

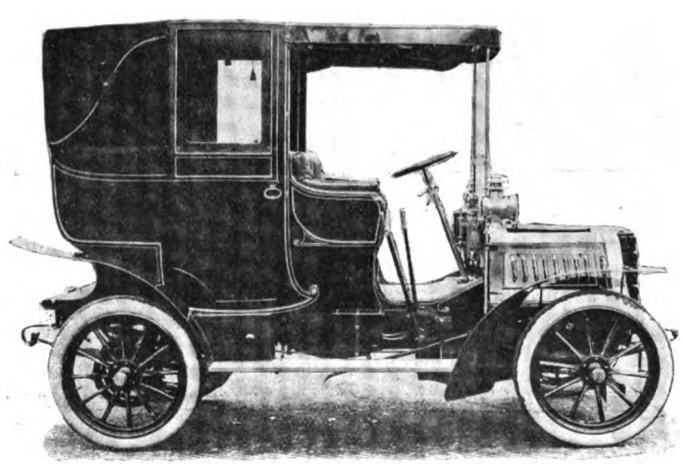
THE commandant of the Royal Military College, Woolwich, availed himself for the first time of the services of a member of the Motor Volunteer Corps last week, when Captain H. F. Trippel conveyed the commandant and three other officers from Woolwich to Dartford, when some highly important work in connection with a reconnaisance class was successfully carried through.

AS evidence in support of their petition to the Lancashire County Council to widen Crossford Bridge, the Stretford District Council recently obtained particulars of the traffic passing night and day over the bridge for the week. The following was the result:—Cycles (including motor-cycles) 9,207, motor cars 561, traps and other vehicles 4,038, lorries and carts 2,862; total 16,668.

WE have received notification from the publishers of Charles Letts's "Cyclist's Pocket Case" that the late Mr. W. H. Norton, of Anerley, who was killed by collision with a motor-car whilst cycling near Beckenham a few weeks ago, was in possession of one of the £100 insurance coupons issued in connection with this case. The case, which is of excellent value apart altogether from insurance policy contained therein, can be usefully carried by all cyclists and motor-cyclists.

MR. P. N. HASLUCK'S new volume on Metal Working just published by Messrs. Cassell and Company, Limited, extends to 800 pages and contains over 2,000 illustrations. The scope of the book embraces practically the whole art of working metals with hand tools and with such simple machine tools as the small engineering shop usually contains. The chapter concerned with the construction of a petrol motor will be of particular interest to many of our readers, especially as it is characterised by lucidity of statement and practical knowledge.

ACCORDING to the "New York Journal of Commerce," the liabilities of the American Automobile Association as regards claims for damages in connection with the recent Vanderbilt Cup race were covered by a policy written by Lloyds, London. The risk carried was understood only to apply in case of claims by spectators resulting from accidents and not to cover the participants in the race. Practically all the liability insurance companies in New York were offered the business, but declined, and the policy was finally effected with Lloyds by cable.



The new 9-h.p. Gladiator Landaulet. The car has heavy tyres nearly 4 inches in diameter to all four wheels, four speeds and a reverse, and self-regulating Carburettor.

A RECEPTION was given on the 11th ult. by the Automobile Club of America to the foreign motorists who visited the United States for the Vanderbilt Cup race. An address was given by the President, in which he recommended that at the race next year better facilities should be provided for keeping the spectators clear of the course at the start and finish. At a meeting of the club on the 18th ult., the topic for discussion was "Automobile Racing in Europe." The guests of the evening were M. Thery, the winner of the 1904 Gordon Bennett race, and M. G. Caillois, the winner of the Gaillon hill climb of 1902.

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A GARAGE is being opened at Peterborough by Messrs. T. Woodman and Company.

THE Hockley Brook Garage has been established at Soho Hill, Birmingham, by Messrs. Fowler and Cashmore.

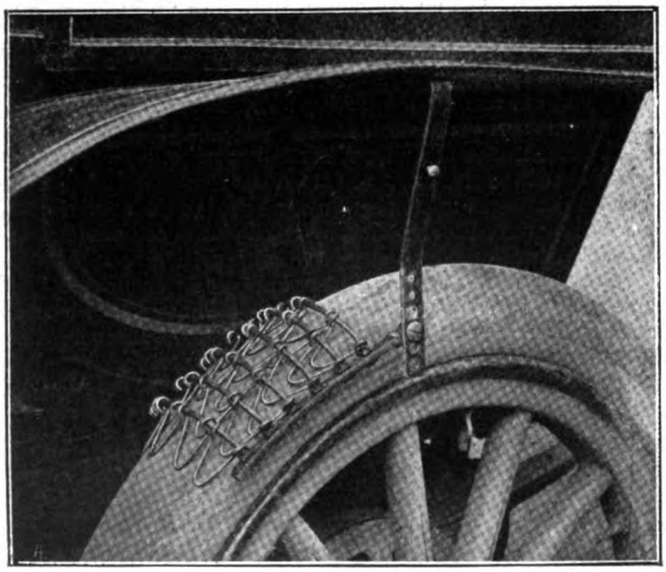
MESSRS. WALSH, NICHOLLS AND CO. are devoting a portion of their new works at Dudley Road, Wolverhampton, for garage purposes.

ON Saturday the London and South-Western Railway Co. were experimenting on the Farnham and Haslemere road with a 20-h.p. motor char-a-banc.

"HINTS on Handling a Turner-Miesse Steam Car" is the title of a *brochure* just published which will be of value to all users of that type of automobile.

IT is announced that the Italian Minister of Posts and Telegraphs has given out orders for a number of Fiat cars for use in connection with the postal service in Rome and other large towns.

To the many nail catchers which have already been described in the *Journal* has now to be added the "Challenge," which has lately been introduced by the Encore Cycle and Motor Company, Fore Street, Ipswich. The illustration herewith so clearly shows the device that but little description is necessary.



It will be seen that the nail catcher and puller is made up of a series of V-shaped wires held in a frame supported from two stays fixed to the underside of the mudguard. The puller can be readily adjusted as to height; it is claimed by the makers that a nail or flint cannot pass the pullers, as the latter, being V-shaped, act as a vice, and should the nail be missed by one, it is caught by another.

A CIRCULAR letter calling the attention of the superintendents of railways centreing in New York and district to the failure of engine drivers to sound the whistles or ring the bells of their locomotives when approaching level crossings, has just been sent out by the Automobile Club of America.

AT a meeting of a joint committee, representing various societies interested in untaxed alcohol for industrial purposes, the following gentlemen were nominated to offer evidence before the Departmental Committee appointed by the Chancellor of the Exchequer:—Mr. John C. Umney, Professor A. G. Green, Mr. David Howard, Mr. E. A. Webb, and Mr. Walter F. Reid.

MESSRS. FLEMING AND CO., of Rue Vicq d'Azir, Paris, have sent us a sample of a new preparation they have lately introduced under the name of "Pneu Cure," for filling up cuts and holes in the outer covers of motor pneumatic tyres. The fluid is easily applied, and, judging from the specimen section of a repaired tyre they have also sent, is an effective means of keeping one's outer covers in good condition.

THE Humber Company are, we learn, bringing out a new 8-10-h.p. four-cylinder car for the 1905 season.

ON Friday of next week the Earl of Anglesey's 18-h.p. Mors Pullman car will be offered for sale by auction at Anglesey Castle.

SPACE for the display of a petrol locomotive has just been taken for the Motor Car Exhibition at the Agricultural Hall, in March next.

AN echo of the Vanderbilt Cup race was heard in Paris on Saturday last, when Messrs. Panhard and Levassor gave a banquet in honour of Mr. Heath and his recent victory in the race on Long Island.

THE Hozier Engineering Co., Ltd., have recently taken possession of an extensive building, covering an area of 40,000 square feet, and now entirely devoted to the building of the bodies of the Argyll cars. There is ample accommodation for 300 men, and the company is in a position to turn out thirty finished bodies per week.

DURING the last nine months Messrs. A. Donaldson and Co. Limited, have had a new garage under construction in Westfield Avenue, Edinburgh. The premises cover half an acre, and include a large hall capable of accommodating 300 cars, as well as engineering, smiths', and coach-building workshops. The garage will be open night and day, and Messrs. Donaldson and Son will keep a full stock of petrol, oils, spare parts, etc.

A NOVELTY in the way of motor meets was the meet of motor-tricyclists held at Hill House, Mr. A. A. Padley's place at Market Rasen, a few days ago. There are still several of the De Dion type of motor-tricycle running in Lincolnshire. The idea was not taken up till a few days before the meet, but there was a good turn-out, though the weather was bad. Tea was taken at the White Hart, and Mr. Padley invited them to repeat the meet next year at a more seasonable time.

MESSRS. WEBSTER AND BENNETT, of Coventry, who are devoting much attention to the subject of machine tools for motor-car builders, have lately introduced a special machine designed to produce multiple cams solid with their shaft for motors. It is known as a horizontal motor cam-shaft profile milling machine, and is not only designed for profiling cams solid with the shaft, but separate loose cams can also be easily profiled by means of adjustable mandrels. Another new machine is a 30-in. boring and turning mill, which is rapidly taking the place of the lathe for the boring and facing of cylinders, crank-chambers, and such like work.

AN excellent hand-book on the care and management of the Wolseley vehicle has been issued by the makers of these automobiles. Most conveniently arranged and clearly illustrated, the work, which extends to nearly 150 pages, should prove indispensable to all who possess Wolseley cars, and of considerable value to those motorists who do not. After each chapter dealing with a special feature of the mechanism, a page is devoted to a "summary" consisting of hints which should prove extremely serviceable to the mechanician as well as to the owner. Having carefully perused the work, we can all the more thoroughly commend the Wolseley Company on the service they have rendered to automobilists in the publication of such a hand-book.

MR. C. G. WRIDGWAY, who has still many friends in this country, but who has been in the motor business in the United States for some years, met with a nasty accident at a track race meeting at Brighton Beach, near New York, on the 22nd ult. It took place at the end of the second heat of a five miles handicap race, in which he was driving a 24-h.p. Peerless, with temporary racing body. The competitors had completed the last lap, but were making another circuit of the track at speed, apparently uncertain whether they had finished, when, as he rounded the turn into the final straight, the seat of Mr. Wridgway's car came off and he was thrown out of the machine, falling on the track on his shoulder and the side of his head. The car cut diagonally across the track and plunged through the outer fence, coming to a stop against the inner wall of one of the sheds, the front wheels and the radiator being smashed up. As Mr. Wridgway passed the judges he stated he was not hurt, although blood on his face showed that he had received a nasty fall.

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CORRESPONDENCE.

THE LUXURY OF APPEAL.

To the Editor of *The Motor-Car Journal.*

Sir,—About six months ago I was summoned at Hastings Police Court for furious driving. I was unable to get down there in time for the Court. On my way, however, I sent a telegram to the magistrates from Victoria Station informing them that I was *en route*. When I arrived at Hastings I discovered that despite my telegram I had been convicted in my absence and fined £10 and costs. On the advice of my solicitors I appealed against the conviction, with the result that the second hearing was fixed for the June Quarter Sessions. Owing to an unavoidable accident the counsel who held my brief was not there in time, and nothing could be done without the notice of appeal which he had in his possession. The Recorder of the Court (in spite of the fact that the police had given formal notice that they were not going to oppose the appeal, thereby giving me the day) expressed his opinion that I had treated the Court very disrespectfully, and intimated that he would only adjourn the case on condition that I asked for no costs against the police. Seeing that there was no other way of gaining justice, to which I thought I was entitled, I consented to this arrangement, and the case was accordingly adjourned until the next Quarter Sessions. On October 28th, the date of the next Court, I again appeared, with counsel, and within three minutes from the reopening of the case gained my appeal, and the conviction was quashed. But as I had agreed to "conditional justice" on my previous visit to the court, which robbed me of costs against the police, the appeal, though won, cost me something over £70. I suppose that I have only received justice, because I hardly think it likely that any motorist in the year 1904 will receive more; and, after all, justice was only conditional. All the same, it seems to me that the appeal of which we hear so much is a luxury beyond the reach of the average motorist.—Yours truly,

R. F. Dickerson.

OVERHEATING TROUBLES.

To the Editor of *The Motor-Car Journal.*

Sir,—I have a 9-h.p. single-cylinder Rex car, and have much trouble with the exhaust valve overheating. The water pipes, in my opinion, are of too small a bore, being only ½ in. in diameter. The pump is a rotary cog-wheel pattern, chain driven. Would a centrifugal pump improve matters? Would it be any advantage to fit larger pipes, taking into consideration that the bore of the connections with the radiator is only ½ in. diameter? The ignition is make and break with trembler coil. Would it be an improvement if I fitted a wipe contact, as the inlet valve does not overheat?—Yours truly,

A. E. Coleman.

A NOISY ENGINE.

To the Editor of *The Motor-Car Journal.*

Sir,—I have a 6-h.p. (Dion engine, Panhard gearing), new six weeks ago. When I am in top gear, and have to apply foot brake down hill, there is a clattering, just like a lot of tin cans, in the second and third speeds. When I apply foot brake there is really no noise at all; whatever noise there is comes from the clutch somewhere, but where I cannot find out. I should feel obliged if you could help me in this matter.—Yours truly.

H. W. P.

[With reference to "H. W. P.'s" letter, it is rather a difficult matter to state trouble, as there are so many different methods of connecting clutch to gear box. Having had similar trouble with a car that was connected by means of a claw, it was found to be fitted rather slack, and when brake was applied at top speed the rattling commenced. This we remedied by fitting small steel plates to the sides of the claw, and found this to overcome the nuisance.]

THE STORAGE OF PETROL.

To the Editor of *The Motor-Car Journal.*

Sir,—The following brief description of the system of storing petroleum spirit I have adopted may be of interest to those motorists who are so far away from petrol depots as to find it necessary to lay in a large store. I procured a strong galvanised iron tank having a capacity of 120 gallons. Into one side of this I inserted three pipes, one an inch and a quarter in diameter, through which, by means of a funnel and an ordinary oil pump, the petrol is drawn from the barrel and conveyed into the tank. Near this is a small quarter-inch pipe. Then a three-quarter inch pipe extending down within half an inch of the bottom of the tank. All three of these pipes are screwed in, and made secure against leakage under pressure. I then buried this tank about eighteen inches under ground in front of my stable, the aforesaid pipes being long enough to extend up to six or eight inches above the surface. A piece of rubber hose is attached to the three-quarter-inch petrol pipe, and a box with hinged cover on top, with hasp and staple for lock, encloses all these pipes. Into this tank I put something over a hundred gallons of petrol at one filling. When I wish to draw out petrol, I simply attach an ordinary bicycle pump to the air pipe and force air into the tank until the petrol runs out. This is quickly and easily done, and the entire arrangement is found to be both a safe and convenient way of storing petrol, and is secure against a possibility of waste by evaporation, provided the valves are kept closed when not in use, and the enclosing box kept securely locked.—Yours truly,

Up-Country Motorist.

THE RULE OF THE ROAD.

To the Editor of *The Motor-Car Journal.*

Sir,—It is all very well for "Cockney" to say that "the only side on which trams should be passed is on the near side between the car and the kerb of the footpath," but I should like to ask him what he would do on the road between Isleworth and Twickenham, and on many of the other routes of the electric tramways on the west side of London where the tram lines are laid within a few inches of the footpath, rendering it impossible for any vehicle to pass on the near side? I consider the way the tramway company has been allowed to monopolise the roads in these districts is simply scandalous.—Yours truly,

A Twickenham Motorist.



The Chief of the Fire Brigade of Brooklyn, U.S.A. on his 24-h.p. Locomobile Petrol Car—one of the few vehicles legally permitted to exceed the speed limit.

EXPERIENCE WITH THE REXETTE.

To the Editor of *The Motor-Car Journal.*

Sir,—One of your correspondents in the *Journal* of the 29th ult. inquires for information *re* the Rexette. My experience, which has extended over 10,000 miles, may be of value to him. The machine has been running consistently well since last March, and I have had no trouble other than an intelligent amateur could put right. The engine, gear box, and transmission have given no trouble, nor do I expect any in that direction. The gear box I look upon as practically indestructible, and seems to have an overplus of reserve force out of proportion to the strain likely be borne. I have the same clutch leather as when I had the machine, and it has received no attention except a dressing of hot bird lime, which acts well when the leather gets polished and preserves the same from wet and too much oil. The speed of my machine is over that which the makers claim (O *rara avis*), and I have ascended all the principal hills in the midlands with a passenger up. The parts are very accessible, and it is only ten minutes' work to remove the back body, and the engine, gear box and clutch can be easily removed by quite an unskilled person. The

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consumption of petrol works out at about thirty-eight miles per gallon for two persons.

The comfort of the machine is very marked, and many degrees removed from the every day tri-car, though in price the matter is not so apparent.

After a Rexette comes at least a ten-horse car in point of speed; five and six h.p. cars are passed on the road with great ease. The general finish of the machine and workmanship are very good and I must say quite different from some of the earlier machines. I am perfectly satisfied, and so are several friends who also have Rexettes. I should be pleased to answer any further queries through your popular *Journal*.—Yours truly,

FOSSE ROAD.

BRITISH v. FOREIGN CARS.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—I am entirely in accord with the remarks of Mr. Charles Jarrott upon the subject. One of the chief reasons why the English-made motor-car is not to the fore as much as it might be, outside trade circles, is that we have as yet no factories in this country turning out cars so well, to standard patterns and in such quantities as, for instance, Panhards or the German-Daimler Company.

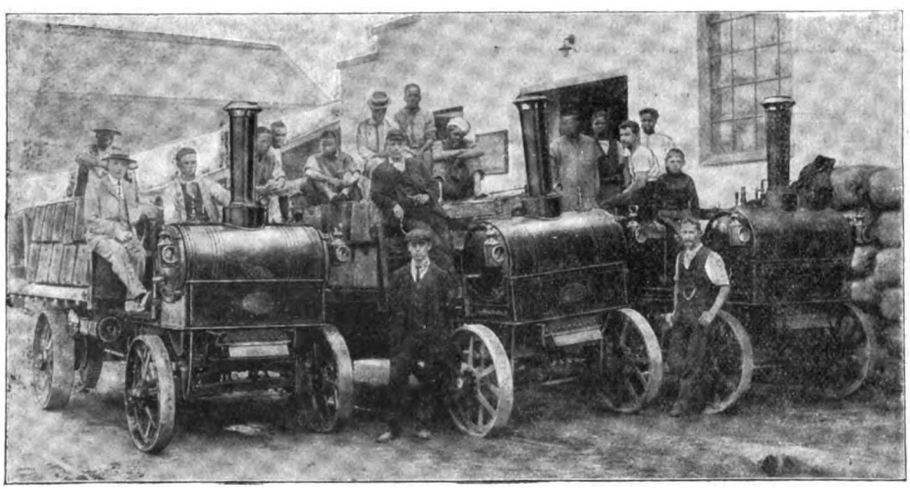
Even in the case of the much-discussed light car movement, the number of cars that are of entirely English design and construction is insignificant. Their names are legion, but they constitute the product of the foreigner, with very few exceptions.

In my opinion, we have in the automobile industry too many recruits from the ranks of the cycle trade, who fondly imagine they can design as well as the continental manufacturer. This is a business where mechanical ingenuity of a very high order is necessary to success. Give me, therefore, a locomotive or marine engineer in preference to any cycle maker.

There are those who may think I am straying from the point, but this is, I am convinced, at the root of the matter. Simply owing to lack of knowledge large sums of money have been wasted upon inefficient and faulty types of automobiles, but in France very few firms indeed have had, as here, to continually raise fresh capital—or "go under." Look at the ever-increasing numbers of "motor-experts" in this country who do more damage than anything else in repair work, and who cannot mend a perambulator, much less an expensive motor-car. Again, when one goes to the various automobile exhibitions, the dapper attendants are often quite unable to furnish correct information upon even the smallest details connected with the vehicles they wish to sell.

There are a few excellent cars designed and manufactured throughout in England by experienced engineers, but we require efficient organisation, no figure-heads, and standard types to make British vehicles the success they would then deserve to be.—Yours truly,

E. H. OWEN.



The Yorkshire Patent Steam Wagon Co. have lately supplied no less than seven steam vehicles to the South African Breweries Co. The above illustration depicts three of the vehicles in use at Durban.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—Mr. Charles Jarrott's instructive letter in your last issue again demonstrates the apathy of English manufacturers towards the motor industry. He tells us that Continental factories, in order to meet the big demand for cars, have trebled—nay, quadrupled—their outputs, whilst the outputs of the various English companies are ridiculously insignificant. So successful are the French firms that five agencies have been established in London, who together have sent no less than 1,200 cars into this country this year. Long before, and since, the motor industry took root in this country the daily Press appealed in its strongest language to capitalists and manufacturers to seriously review the commercial statistics of the world, which were specially prepared for them by experts, to show them how far they were being left behind. With drowsy indifference they read them, and with the same drowsy indifference they put them on one side. Germany was our first great rival, then America, and now, alas! France. And let it be said at once that every one of these countries are holding on with the greatest tenacity, not only to the advantages they have already gained on us, but are making supreme efforts to oust us altogether and wrest from us our world-wide prestige. Everyone knows the value of prestige! Whatever may be said of racing, a big success has an incalculable influence for good, not alone on the particular firm which obtains it, but also on the country's products which it represents. The Gordon Bennett Cup, the Gaston Menier Trophy, and the International Trophy for Motor-Boats were won by Mr. S. F. Edge; and, although he is reviled by many for taking his defeats too seriously, he has undoubtedly done more than any other man in England to obtain that prestige which she now enjoys.—Yours truly,

OWEN JOSEPH.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—I notice a letter from Mr. Charles Jarrott in the *Journal*, which appears to be written with the idea of belittling and running down, in every possible way, the big efforts that are being made by the British manufacturers to hold their own in the motor business. If he had carefully studied the recent competitions held in this country, both on land and water, he would have plainly seen that English manufacturers did more than hold their own. I need only refer him to the Sun-Rising Hill Climb, where English manufacturers decisively beat cars of all makes manufactured abroad, including those of greater horse-power. The same thing took place in the Automobile Club's Reliability Boat Trials in Southampton Water, English boats and English engines carrying off the majority of the honours. Again, what about the International Cup? This was won by an English boat—admitted technically it has gone to France, but the real merit and victory belongs to England.

What about the Bexhill speed meeting? Here again successes for English cars. Then let us refer to Portmarnock; again all the big races there were won by English cars. Then remember Blackpool; as is well known, an English car here did the fastest time at the meeting, and most of the events, if the rules had been adhered to, would have fallen to English manufacturers.—Yours truly,

GERALD FARQUHARSON.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—Referring to Mr. Jarrott's letter on the above subject in your issue of November 5th, it appears to me that he has taken an entirely erroneous view of the whole question.

My figures were taken from the Board of Trade returns, and these, through a mistake, as I pointed out, apparently indicated that the British manufacturing motor trade was going back instead of, if the returns were taken correctly, that it is on the upward grade. It seemed to me as one interested in this country's manufactures, that any Board of Trade return which did not do our country justice should have the error pointed out.

Your correspondent apparently looks at the matter principally from a professional racing point of view, and whilst no doubt being exceedingly interesting it is not quite the view that the country must look at it from. I dealt with the matter in a far broader way than merely the question of which country has had the greatest sporting success during the current

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year. I sincerely hope that Britain will have better success next year on the sporting side of motoring, but I see no reason, because its success has not been overwhelming this season, that mis-statements as to its actual trade should appear uncontradicted in the public press.—Yours truly,

S. F. EDGE.

NON-SLIPPING TREADS.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—Would some of your readers who own light cars kindly advise me if they know of any non-slipping treads or covers that will not slow the car? Having tried two kinds, I am reluctant to keep on buying and trying. The Walwork covers are very good where there is a reserve of engine-power. The Wilkinson treads are, according to my experience, somewhat weak at the sides. Mine is an 8-h.p. M.M.C., and hitherto I have found that covers take about six to eight miles an hour from the ordinary speeds.—Yours truly,

NORFOLK.

STEAM CARS.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—In view of the treatment of steam cars in the Blackpool speed contests held last month, I notice that up to now the committee in connection with these trials have not given any answer to the various letters on the subject which have appeared both in the automobile and other periodicals. It would certainly be more satisfactory if the authorities would give some explanation through the medium of your valuable paper.—Yours truly,

F. WILKINSON.

FRAME CONSTRUCTION.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—There has been very considerable variation in the construction of frames for motor-cars, and a final type has not yet been arrived at. The forms of construction which have received extensive trial include the following:—Tubular steel, angle steel, channel steel, steel flitched wood, plain wood, pressed steel, and steel tube with wood filling. All these forms are still more or less in use, but some are declining in popularity, while others are gaining. As regards the tubular frame construction, the main objection to it is the difficulty of properly fastening the mechanism to it. Plain angle steel is also rarely employed, as angle steel lined with wood furnishes a construction better able to withstand shocks and weighing less for a given strength. The steel flitched wood frame was almost universal with leading French makers until a year or so ago, but now pressed steel construction seems to be in the lead with these same makers. Pressed steel frames necessitate a more expensive manufacturing equipment than any of the other forms of construction, and if such frames should prove mechanically superior to the other kinds, they are likely to gain in popularity as motor-cars are manufactured in greater number after the same pattern.

The conclusion to be drawn from the results of experiments so far and the various changes made is, I think, that a combination of wood and steel in some form makes the best frame for motor-cars, the steel providing the necessary rigidity for connections, making it impossible for the parts attached to the frame to be displaced therefrom, and the wood giving the whole frame a certain elasticity, which is beneficial alike to the life of the frame and to the proper operation of the machinery placed on it. That a combination of wood and steel makes the most durable structure for a road vehicle had already been discovered by carriage builders, and has now been re-affirmed by the experience of motor manufacturers. There are, however, a great many possible variations in the combination of wood and steel for this purpose, and the problem now is to determine the most suitable combination, having regard to cost of manufacture, strength for a given weight, and durability.—Yours truly,

A. C. ARMSTRONG.

THE CONTROL MECHANISM OF MOTOR-CARS.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—It is the duty of every motorist to strengthen, as far as he is able, the just claims of the motor-car to be the safest means of road transportation, and it is essential that as little basis as possible be furnished for the exaggerated reports of automobile accidents which go the rounds of the daily press. One occasional cause of accidents which throws entirely undeserved discredit upon the motor lies in the attempts which motorists sometimes make to drive vehicles of makes other than the one to which they are accustomed. There would be very little danger in this were it not for the fact that each make of car possesses a control system varying from almost every other.

Variations exist, among cars from different factories, in the most fundamental and vital control functions, and not infrequently a certain motion upon the part of the driver may result in exactly opposite effects upon cars of two different makes. In a sudden emergency the motorist handling a strange car, although he may know, after an instant's deliberation, just what he should do, will, in the absence of time for consideration, very likely fail to do it and an accident may result. He is more likely to act subconsciously and perform the act which a long use of his own car has taught him is appropriate to meet the conditions at hand, and this act, performed on another car, may be just the wrong thing.

The purchaser of a new car is seriously embarrassed for a time, and his driving rendered less safe than it otherwise would be, on account of the fact that his new car, unless of the same make and type as his old one, will probably possess entirely different methods of control. He will have to unlearn the habits of driving which have become almost second nature to him, and the difficulty of so doing will be greater in proportion to the length of time that he has driven his former vehicle. During the process of transition he will be a less safe driver than he previously was. Standardization of systems of control, even if only carried out partially, would do much to reduce the danger and inconvenience of changing machines, and it would seem that the manufacturers should get together and agree upon some uniform practice as to what operations should be performed by the hands and what by the feet, where the mechanisms controlling certain functions of the control should be placed, and in which directions these mechanisms should be moved to produce certain effects. There seems to be no obvious reason why some approach toward uniformity in these and perhaps other features of the control may be hoped for; at all events, it is certain that there is no shadow of reason for the diversity of methods for accomplishing identically the same results which motor-cars now present.—Yours truly,

SIMPLICITY.

REPAIRS.—"Amateur" would be glad to hear of a large firm of motor-car repairers characterised by reasonable charges.

FOOTWARMER FOR MOTOR-CAR.—In answer to several enquiries, the makers of the footwarmer described in a recent issue are Messrs. Desponts and Godefoy, 136 bis, Rue Victor Hugo, Levallois-Perret, Paris.

STEAM CARS.—Mr. W. T. Warne writes that he will be glad to exchange notes with Mr. E. F. Calland. His address is 24, Great Sutton Street, E.C.

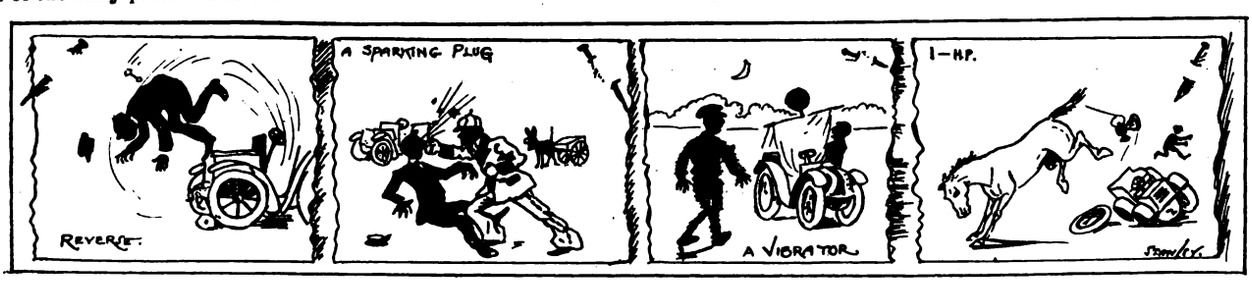
NON-SKIDS.—Replying to D. Millar, full particulars of the L'Empereur Non-skids can be obtained from Messrs. Mann and Overton's, Victoria Garage, 7a, Lower Belgrave Street, London, S.W.

WOLVERHAMPTON CLUB'S HILL CLIMB.—With regard to the treatment of steam cars in this competition, Mr. J. B. Dumbell writes to suggest that a mistake was made in the method adopted by the committee.

STEAM v. PETROL.—"Bishopsbourne" writes:—Would some of your correspondents kindly give particulars of their experience of the relative cost of working steam cars v. petrol and cost of mileage on a gallon of oil? A friend of mine, an engineer, bought a good second-hand petrol car, and says it cost him £50 for twelve months in repairs. I do not think steam can come up to that.

THE VANDERBILT CUP RACE.—The Packard Motor Car Company, of Detroit, Mich., U.S.A., write us pointing out that in the report of the Vanderbilt Cup Race in the *Journal* of the 15th ult. their Packard car driven by Mr. Schmidt is by an oversight referred to as a Panhard. With reference to the statement that "out of the five American entries only one was classified," they write, "Our 24-h.p. "Gray Wolf" was immediately behind and in close proximity to the Pope-Toledo car when the race was declared off."

NON-SKID BANDS.—The "Otto Bennett" Motor Company write us as follows:—"We beg to call your attention to an article in your paper of the 5th Nov., whereby you illustrate a detachable non-skidding device which is supposed to be put on the market by the Shaw Motor Tyre Tread Company. We beg to inform you that this band is the Otto detachable band, of which the Shaw Motor Tyre Tread Company have been granted the license to sell."



Some Motor Terms Silhouetted.

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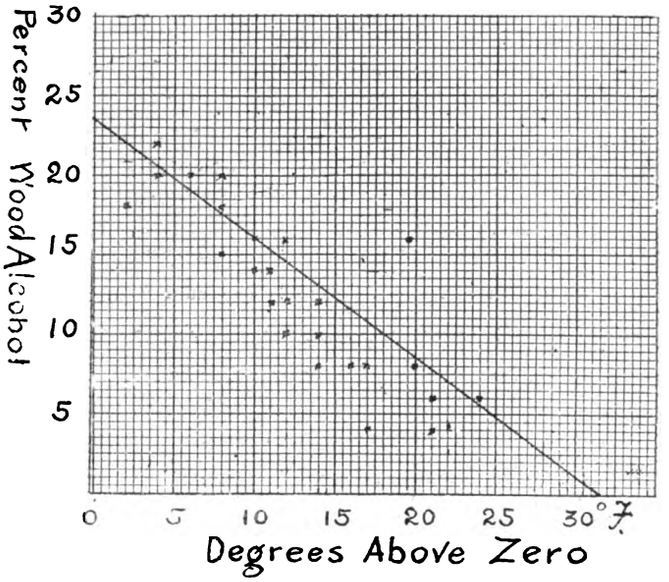
COLD WEATHER PRECAUTIONS.

A NEW ANTI-FREEZING MEDIUM.

By Henry Souther.

During the last severe winter the writer made some practical experiments in the way of finding out what mixture could be used in the cooling system of motor-cars that would prevent freezing and at the same time not be in any danger of injuring any part of the automobile. Various salts, glycerine and wood alcohol were considered. Wood alcohol was chosen for the first experiment because there was not the slightest chance of its injuring any machine. The success was such and the duration of the test was so long that nothing else was tried. For the benefit of those, however, who care to run a vehicle during cold weather, the writer gladly gives the results of the experiments. Perhaps the most valuable use that can be made of these results is from now on, at a season of the year when riding is very acceptable during most of the day, but with light frosts at night and a sufficient degree of cold to ruin a cooling system if containing water only.

The character of the experiment conducted was this. First—A set of laboratory freezing experiments to determine what percentages would freeze under artificial conditions. This showed at once that it was possible to use wood alcohol and water and resist almost any degree of cold. Second—The next question to answer was whether or not the wood alcohol would separate from the water and waste away so fast that the scheme would be too expensive. Of course, this possibility amounted to but very little in extremely cold weather, but in mild days it was felt that considerable alcohol might be lost. To demonstrate this point a water-cooled car was taken, and about 18 per cent. of wood alcohol was added to the water. The whole system contained



about seven gallons. Various experiments were made by connecting a bottle with the top of the radiator into which a pipe led from above the water level, the idea being that any vapour formed would rise into the cold bottle and condense. It was found that, except under extreme conditions, no vapour at all arose. By extreme conditions, I mean any mild day, allowing the engine to run standing still, there being no fan for cooling.

This immediately led to the thought that it might be possible to entirely close the system in cold weather, thus obviating any chance of loss by boiling away. This was done and a pressure gauge put on and connected with the system. The highest pressure obtained at any time and under very severe conditions was six pounds. This means that there are some vehicles that can be run with the use of alcohol without any loss whatever, there being a certain number of types that run with a closed system. It is also quite possible that many cars can be run with a closed system that now have relief tubes. The safest way to find this out in an inexpensive manner is to take a small bit of rubber tubing, fitting the end of the blow-off pipe, put a wooden plug in one end of it, and slip the other over the tube lightly. Any pressure that would injure the car at all would blow this off and prevent injury.

Later in the season, when the temperature was as low as 15 degrees F. below zero, 33 per cent. of alcohol resisted freezing perfectly, even when the machine was left out of doors over night. Within the last week or two the writer has been using 32 per cent. of alcohol, with the temperature about 50 and 60 degrees F., with a result that the mixture did boil slightly, but not enough to be dangerous. This simply shows that at this season of the year it is not necessary, nor is it wise, to add much alcohol. It is not probable that the temperature, just now, or up to the 1st of December, will drop below 10 degrees F., in which case 15 per cent. of alcohol is enough. As the season progresses and December is reached, and zero temperatures are possible at any time, nothing less than 25 per cent. would be safe.

The question will be asked at once how to know whether or not the per cent. of alcohol is diminishing in the water system. With nice laboratory instruments, it has been easy for the writer to study this matter, and easy to tell just how much loss there has been. For the ordinary motorist it is not easy, as the specific gravity varies very little from pure water, and it takes a finer instrument and better conditions than are likely to be found under ordinary circumstances. After all, the best and easiest way is by the odour. If the motorist will mix up, say, a 20 per cent. and a 10 per cent. solution, put them in bottles and keep, he can have a standard of comparison that will really be quite accurate, with the assistance of his nose. Even with the open system, the circulation and the cooler becoming quite hot in mild days, the loss of alcohol by boiling is extremely small. It is apparent that the alcohol does not go away by itself, but that the mixture of alcohol and water goes together, so that the percentage left remains practically the same.

Simultaneous with this practical using test another freezing experiment was carried out. A number of test tubes were made up containing varying percentages of alcohol from 4 up to 30 per cent. in steps of 2 per cent. These were placed in a basket outside a window in a very cold place, and in the basket also a maximum and minimum thermometer. At 7 o'clock each morning the tubes were examined and the highest percentage of alcohol frozen noted. The results from slow and natural freezing like this, and duplicating the condition of actual use, were a little different from the artificial laboratory freezing experiments. The results obtained are shown on the accompanying curve. In drawing this curve the writer has been conservative, and the results possible are a little better than the table. By consulting this the motorist will be able to see at a glance about what percentage of alcohol it is necessary to use, the only caution being not to add any more than is necessary. Alcohol is not dangerous in any way.—*The Motor World.*

CLUBS AND ASSOCIATIONS.

YORKSHIRE.

On Thursday of last week this club held a successful smoker in its Rooms at the Great Northern Hotel, Leeds, being the first social event of the winter programme. Mr. Hepper was in the chair and presided over a gathering of nearly a hundred. In his address Mr. Hepper remarked on the rapid growth of the club, and pointed out that it was the most powerful provincial club existing, and that it was considerably extending its powers by the formation of branches in other towns of the county. He also mentioned the general meeting on the 10th inst., and the fourth annual dinner on the 2nd prox. Following a musical programme came the distribution of the certificates and prizes given in the recent Wentworth Woodhouse speed trials. The silver afternoon tea service was won by Mr. Alf. Masser, Leeds, and the silver sugar and cream service by Mr. Underwood, Hull. The silver cup presented by Mr. Winn, and held last year by Mr. Faiers, Bradford, was awarded to Mr. Norman Bayless for the meritorious performance of his Renault car. Mr. Farnell attended to take away the massive bronze trophy "Pro Merite," presented to the club by Mr. Kirk for cars in Class 5 and held by Mr. Walter Jackson, Bradford, and won this year by Mr. Farnell, who spoke a few words in reply thanking the club for the trophy. The presentation of a large and handsome case of cutlery and a gold stop watch was made by Mr. King (Vice-President) to the hon. sec., Mr. Alf. W. Dougill, on the occasion of his marriage. Mr. King said that the club were very pleased to thus mark their approbation of the energetic and laborious work entailed in connection with the club. In replying Mr. Dougill thanked the club very much for their present, but thought that the work would be much harder if it were not for the valuable assistance given by the Committee, Vice-President and Hon. Treasurer. A hearty vote of thanks was accorded to Mr. Hepper for his duties in the chair, the whole company joining in the singing of "He's a jolly good fellow."

MANCHESTER.

The members of the Manchester Automobile Club held their first house dinner this season at the Midland Hotel, Manchester, on October 31st, about sixty members and friends being present. After dinner Mr. Frederic Smith, the chairman of the club, read a paper entitled "Some Reminiscences of the Road."

Mr. Smith described some adventures and impressions which he himself had experienced on the road, and warned fellow motorists against dray horses drawing heavy loads, and especially against the chain horse, which in its panic might swing across the road and thus block the only portion left to the motorist. Mr. Smith then referred to the methods of the stolid policeman who controls the traffic, and in many instances seemed to evince a partiality for slow-moving traffic and to hold up the quicker vehicles. It was suggested, as a possible explanation, that the policeman himself must at one time or other have been a drayman, and therefore fully familiar with the practice of draymen, which, now he had become empowered with the majesty of the law, he sought to enforce. Whilst on the question of controlling the streets, Mr. Smith referred to the dangers and delays on the roads caused by draymen driving their vehicles in the centre of the road, which meant that the motorist, to pass, must either drive into the teeth of approaching traffic or into the gutter. He suggested that it would be better for all parties concerned if it were the rule of the road for slow vehicles to keep to the kerb and to leave the

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centre of the road free for fast traffic, and it would certainly save much of the *volapuk* one sometimes hears from drivers of horse vehicles.

In regard to the ubiquitous bicyclist the lecturer thought that motorists should be considerate towards them. They ought to remember that the bicyclist came before they did and had suffered much persecution, and it was just as times were improving that the motorist came along and insisted on sharing the road with him, which naturally caused the bicyclist to be rather lukewarm in his affection, more especially as he knew that by giving way he would shortly be eating the dust raised by the motorist. In conclusion the claims of the dog were considered. The claims of the dog to intelligence were disappointing. He has always been credited with almost human powers of observation and deduction, and yet he will barely take the trouble to get out of the way of the wheels of the motor. Other times he will hurl himself furiously at us, evidently under the impression that a vicious bark will stop the car. How can a motorist blame himself if, after a severe trial of springs and tyres, or risk of damage by swerving round a curve or into a telegraph pole, the dog yet defeats our efforts and immolates himself under the wheels? If this is to be the end, however deeply we regret it, it may lie lightly on our conscience. Let him rest in peace as an example of foolhardiness and misplaced energy.

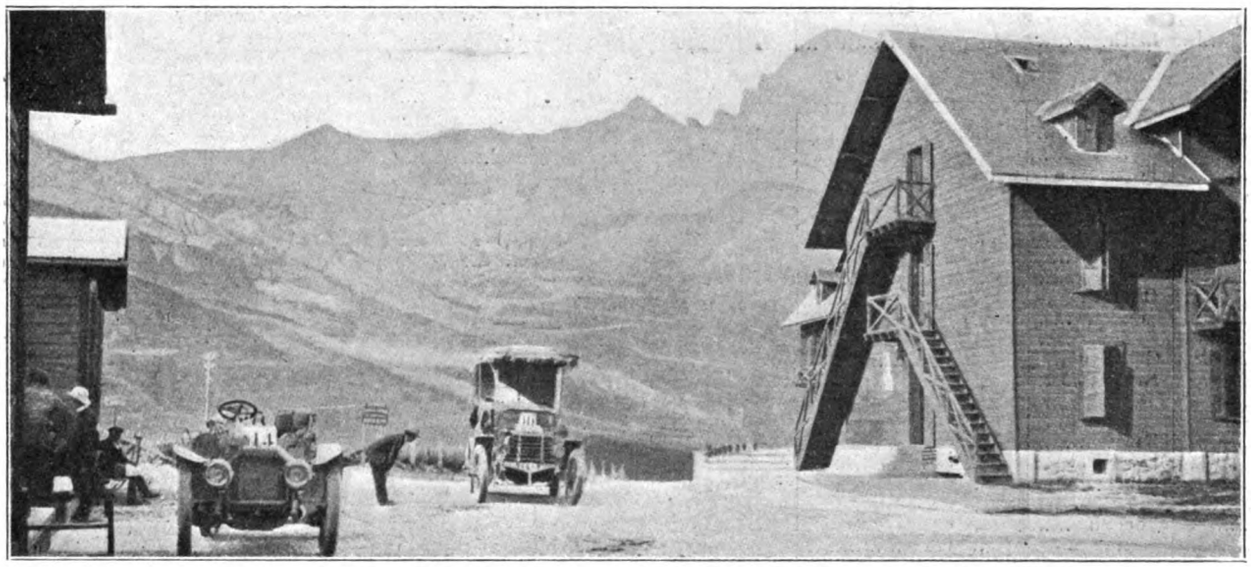
MOTOR-CAR FATALITIES.

THE Winchester City Coroner has held an inquiry into the circumstances of the death of Mrs. Hester Condon, who died at the Royal Hants County Hospital through falling beneath a motor-car in Kingsgate Street. Mr. C. E. Godwin represented Mr. Slade, the driver of the car; and Mr. Alfred Bowker appeared for Mr. Boyd, the owner. After hearing evidence, the coroner said in the present case there was some discrepancy as to the speed of the car. He generally took the two extremes that were given, and drew his own conclusions. Mr. Slade passed Mr. Northall's shop at eight miles an hour, and he said that the road was clear, and there was nobody about. That observation would have been a proper one if it had been a country road, but in the narrow streets of Winchester an answer like that, even if the evidence was different, would not satisfy him. The narrowness of Winchester streets and the fact that people often suddenly stepped across from one side to the other must be taken into account, and it must not be assumed that because nobody appeared to be about a driver of a car was justified in going along at anything like a good pace. Winchester was full of narrow streets and sharp curves, and the people had to rely upon the help of the motorist, who should be extremely careful how he proceeded. He believed in that case they could take it as a fact that the hooter was properly sounded, and he thought that if the deceased had known what she was about there would have been no inquest. Whatever the result might be he hoped it would be an additional warning, if warning were needed, to those who drove motor-cars, especially in the narrow streets of the city, and that every care would be taken. Proper care seemed to have been exercised in that case, and it was unfortunate that the deceased acted as she did. The jury handed in a verdict of "Accidental death," and expressed their unanimous opinion that no blame whatever attached to the driver. The Coroner said he entirely agreed with that remark.

THE Berks coroner held an inquest at Hurley on Monday on the body of Thomas Edwin Overall, a little boy who was knocked down by a motor-car and killed near Hurley on Friday of last week. Mr. Noble, of Bayswater, said he was with his son in the car alleged to have knocked the boy down. He had made a statement to the police and signed it, which bore out in every detail the evidence given by some children who were on the spot. He now contradicted the statement and said he did not know of any accident. His son, who was driving, also gave somewhat contradictory evidence, on which the coroner commented. After half an hour's deliberation the jury returned a verdict of manslaughter against Stanley Monro Noble, the driver of the car, and he was liberated on bail.

CLAIM AGAINST MOTOR-CAR BUILDERS.

THE Lord Chief Justice and a special jury, sitting in the King's Bench Division, on Tuesday concluded the hearing of a claim by Mr. Assheton Leaver and Mr. Thomas A. Callum, motor-car engineer, to recover damages from Humber (Limited), of Beeston, Notts., for breach of warranty in regard to a motor-car. After the hearing of expert witnesses, the Lord Chief Justice, in the course of his summing up, said that Mr. Leaver was not entitled to return the car, but if the jury found that either from bad workmanship or the use of bad material it was not reasonably fit for use as a motor-car, then he would be entitled to recover such reasonable damages as they might decide on, in view of the fact that he had given £570 for the car. It would also follow that the company could not recover on their counter-claim. The jury returned a verdict for the plaintiffs, with £100 damages. Judgment was entered for the plaintiffs accordingly on the claim and counter-claim.



Motoring in the French Alps. 6,800 feet above Sea Level. *[L'Automobile.*

A MOTOR-CAR CONVICTION.

BEFORE the Lord Chief Justice, Mr. Justice Kennedy, and Mr. Justice Ridley, in the case of "The King v. the Justices of Berkshire (ex parte the Earl of Craven)," Mr. Horace Avory, K.C., applied on behalf of the Earl of Craven for a rule calling upon the justices of one of the petty sessional divisions of Berks to show cause why a writ of certiorari should not issue to bring up a conviction under the Motor Car Act of last year with a view to its being quashed. The learned counsel said the grounds of his application were that the conviction was bad on the face of it, and that the justices had no jurisdiction at all to convict. The magistrates proceeded ex parte, and although that was not a ground for certiorari it was a ground for criticising their action. After hearing further explanation a rule was granted on two points in reference to the conviction not being good on the face of it.

AN inquest was held at Bournemouth on Saturday concerning the death of a young French governess, who was fatally injured by coming into collision with a motor-car while cycling down Boscombe Hill on October 29. After hearing the evidence the jury returned a verdict that the young lady met her death from contact with a motor-car brought about by the negligence of the driver in leaving his correct side of the road. They also recommended that the authorities should limit the speed of motors to eight miles an hour through town thoroughfares.

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IMPORTS OF AUTOMOBILES.

BELOW we publish our monthly official list of the imports of motor-cars, motor-cycles, and the parts thereof, into the United Kingdom during the month of September, 1904 :—

BELGIUM.

Shipped from	To	Description.	No.	Value. £
Antwerp	Harwich	Motor-cars	2	350
,,	,,	,, cycle	1	50
,,	,,	,, car parts	—	181
,,	,,	,, cycle ,,	—	385
Brussels	London	,, car	2	690
,,	,,	,, ,, parts	—	198
Ghent	,,	,, car	1	500
,,	,,	,, ,, parts	—	31
Ostend	,,	,, cars	21	10,590
,,	,,	,, cycle	1	30
,,	,,	,, car parts	—	1,002
,,	,,	,, cycle ,,	—	394

Total value of imports from Belgium in September, 1904 £14,401
Total value of imports from Belgium, Jan.–September, 1904 £184,306

CANADA.

				£
Montreal	Glasgow	Motor-car	1	500

DENMARK.

Copenhagen	Leith	Motor-cars	1	240

FRANCE.

				£
Bordeaux	London	Motor-car	1	150
,,	,,	,, car parts	—	350
Boulogne	Folkestone	,, cars	36	17,910
,,	,,	,, car parts	—	7,719
,,	Goole	,, cars	8	5,010
,,	,,	,, car parts	—	1,170
,,	London	,, cars	108	44,874
,,	,,	,, car parts	—	3,214
Calais	Dover	,, ,,	—	148
,,	London	,, cars	5	1,290
,,	,,	,, ,, parts	—	386
Dieppe	Grimsby	,, cars	2	560
,,	Newhaven	,, ,,	106	63,090
,,	,,	,, cycles	14	480
,,	,,	,, car parts	—	10,274
Dunkirk	Hull	,, car	1	270
,,	Liverpool	,, car parts	—	750
Havre	Southampton	,, cars	8	2,300
,,	,,	,, car parts	—	24
,,	London	,, cycles	2	40
Nantes	,,	,, car	1	250
Paris	Glasgow	,, ,,	1	280
Rouen	,,	,, car parts	—	6
Treport	Leith	,, ,,	—	3,222
,,	London	,, cars	14	4,012

Total value of imports from France in September, 1904 ...£167,779
Total value of imports from France, Jan.-Sept., 1904 ... ...£1,654,763

GERMANY.

				£
Bremen	London	Motor-cars	13	4,834
Hamburg	,,	,, ,,	2	650

Total value of imports from Germany in September, 1904... £5,484
Total value of imports from Germany, Jan.–September, 1904 £50,208

HOLLAND.

Amsterdam	Goole	Motor-car parts	—	£7
,,	London	,, car	1	350
Flushing	Queenboro'	,, ,,	1	200
Rotterdam	Harwich	,, car parts	—	189
,,	,,	,, cycle ,,	—	130
,,	Hull	,, car ,,	1	60
,,	London	,, ,,	2	2,510

Total value of imports from France in September, 1904 ... ... £3,446
Total value of imports from France, Jan.–September, 1904 ... £34,091

NORWAY.

				£
Christiania	London	Motor-cars	2	350

RUSSIA.

				£
St. Petersburg	Hull	Motor-car parts	—	145

SWEDEN.

				£
Gothenburg	London	Motor-car parts	—	35

UNITED STATES.

				£
Boston	Liverpool	Motor-car	1	123
,,	,,	,, car parts	—	5
,,	London	,, ,, ,,	—	33
New York	Glasgow	,, cars	14	1,700
,,	,,	,, car parts	—	4
,,	Liverpool	,, cars	11	2,090
,,	London	,, ,,	15	2,790
,,	,,	,, car parts	—	299
,,	Southampton	,, ,, ,,	—	9

Total value of imports from the United States in Sept., 1904 £7,053
Total value of imports from the United States, Jan.–Sept., 1904 ... ... £116,214

CASES AGAINST MOTORISTS.

Place.	Summoned for	Fine.
Highgate	Driving dangerously	40s., etc.
Ayr	Reckless driving	£5, etc.
Lincoln	Dangerous speed	14s.
Guildford	Assaulting a carter	£2, etc.
S.W. London	Furiously driving unregistered motor-cycle	40s., etc.
Bow Street, London	Reckless manner	40s., etc.
Bradford	Dangerous speed	£5, etc.
Kensington	Dangerous speed	Dismissed.
Highgate	Dangerous speed	40s., etc.
Barnet	Beyond legal limit	30s., etc.
Bolton	Furious driving	£5, etc.
Shap	Negligent driving	40s., etc.
Winchester	Dangerous speed	20s., etc.
Bradford	Negligent driving	Dismissed.
York	Dangerous speed	20s., etc.

THE Horstmann Gear Company, Limited, has been registered with a capital of £1,000 to acquire from Messrs. S. A. Horstmann, A Horstmann, E. H. Horstmann, G. O. Horstmann, and W. T. Edgar the benefit of a certain existing invention relating to the speed gear of motor-cars.

REFERENCE is made in the "Motor Age" to a model motor-car built at Sharon, Minn., U.S.A., in which common white lime is used as fuel. The lime is said to be placed in an iron tank having a capacity of a quarter bushel, and water is dropped upon it from an iron receptacle on top of the tank. The resulting vapour, which is produced in great quantities and at a high pressure, is conducted to a small engine which works similarly to a steam engine.

TO CORRESPONDENTS.

All communications intended for insertion in this Journal or relating to Editorial matters should be addressed to THE EDITORIAL DEPARTMENT, MOTOR-CAR JOURNAL, *39 and 40, Shoe Lane, London, E.C., and must be written on one side of the paper only. Letters must in all cases be accompanied by the name and address of the writer, as no notice will be taken of anonymous communications.*

The Editors cannot undertake to return MSS. or drawings, although every effort will be made to do so in the case of rejected communications. Where such are regarded as of value, correspondents are requested to retain copies.

To insure insertion communications and contributions must be in the Editor's hands by Tuesday forenoon of the week in which the same are intended to appear. Disappointment may be caused by non-compliance with this rule, and to avoid this earlier receipt, if possible, is necessary.

The Editors do not hold themselves responsible for the opinions expressed by their correspondents, or for statements and facts which do not appear in the editorial columns.

The Editors and Publishers beg also to state that they will accept no responsibility for unsolicited contributions, even if used, unless payment for same is directly specified in forwarding, and the terms arranged before publication.

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THE

Motor-Car Journal.

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COMMENTS.

MONDAY last was the anniversary of the adoption of the Act which is often called the "Magna Charta" of British automobilism, and the founder members of the A.C.G B.I. celebrated it in characteristic British fashion by dining at their headquarters. Time was when the event was celebrated by a run to Brighton, and we remember the early adventures, when, commencing early in the morning, passengers on the cars thought themselves extremely fortunate if they reached Brighton in time for the evening dinner. In connection with the event, the Club have issued a special pamphlet, giving the history of the official organisation and some early incidents in connection with its inception. This will have some sort of historical interest, and form an interesting contribution to the growing literature of the subject. While the great tour has been abandoned, and having regard to the weather of the past few days, we may consider ourselves fortunate in that, the idea of a long distance tour under official club auspices was carried into effect on Monday, Captain Deasy having been the first to request the attendance of official observers under the new regulations of the Club, which has now consented to take long distance runs under its own observation.

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Captain Deasy's New Exploit.

CAPTAIN DEASY'S run of 4,000 miles under Club observation will thoroughly test the Martini car, which has already achieved triumphs on the Continent. He will be relieved on the daily runs of 200 miles by Mr. E. G. Williams, and everyone will hope for their success in accomplishing the heavy task. The day's work will extend to thirteen hours, two hours for cleaning, replenishment, and adjustment, an hour for luncheon, and ten hours for driving at the rate of twenty miles an hour. Not only will due notice be taken of all stops, etc., but the consumption of fuel will also be recorded, so that some useful data should be secured.

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An Indiscretion.

AN interesting correspondence has lately passed between the committee of the A.C.G.B.I. and Mr. Frederic Coleman, whose association with the White steam car is well known. In the official organ of the club there recently appeared a reproduction of the drawing by Mr. Linley Sambourne for the special certificate issued to the winners in the Reliability Trials. In this the first vehicle in the procession is labelled "To-day," the second vehicle "Yesterday," and further to the rear is a vehicle labelled "Steam," a very indiscreet reference which was quite unnecessary to the purpose in view. Seeing that two of the certificates on which such a sketch appeared were awarded to one particular make of steam vehicle, it undoubtedly detracts from their value for publicity purposes to that firm. It was not the purpose of the club to make such distinction, and surprise has naturally been expressed that such a reflection on steam-cars should have been allowed to have official sanction.

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Advocate of Steam Cars.

THE incident is all the more regretable, in view of the efforts that are now being made on thoroughly scientific and workmanship lines to perfect the steam vehicle. In several competitions, such cars have made splendid records; they are frequently to be found going well on the road, and their reliability is being attested by users. In view of the feeling engendered among makers of steam automobiles by the system of handicapping adopted in some recent competitions, it is a pity that by an unfortunate oversight anything should have been made public likely to embitter the situation. But, after all, those interested in the steam car industry may take hope, for, as our correspondence columns have lately shown, they are not without advocates ready to come forth and testify to the satisfaction given by many modern vehicles in which the motive power is the agency of steam.

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The Welsh Club.

WITH a practical enthusiasm that should be imitated by some of the older automobile clubs, the organisation concerned with South Wales and Monmouthshire is developing local interest in the movement, and also proving of tangible advantage to its members. Reference was recently made in our columns to the new motor-house and club-rooms for the convenience of members, as well as those associated with other provincial clubs who are prepared to reciprocate the privilege. The charge for cleaning the cars of members has been fixed at 6d. per hour, and a handbook is being prepared giving details of distances and other information required by local motorists. The new motor-house has become exceedingly popular with the owners of local cars, who use it for both business purposes and pleasure. Several new members have been enrolled, among them being Sir William Thomas-Lewis, Bart., and Principal Griffiths, of the Cardiff University College.

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Motor-Buses in London.

ANOTHER motor-omnibus has been given a trial in the streets of the Metropolis between Hammersmith and Oxford Circus. The London Road Car Company, Limited, is now running a vehicle fitted with a 16-20-h.p. Germain motor, which, from the experience of the early trips, promises to be a formidable competitor in the race for popularity in such services. Motor-'buses are becoming familiar objects among the traffic of the West End, and it would appear that, practically for the first time, real efforts are being made to introduce the motor as a means of popular locomotion. Hitherto such attempts have been spasmodic and transitory; now, however, several types of vehicles are on the London roads, and many different financial interests are concerning themselves with the experiments that promise a real motor-'bus service in the end. The introduction of the Germain 'bus in this connection is valuable as giving our

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London public an opportunity of riding in a vehicle that for ease of running and general appearance merits well.

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Pistols for Motorists.

HISTORY repeats itself; so do the foolish utterances of persons usually credited as leaders in their communities. Not only has an American magistrate shown a marvellous degree of prejudice against motorists, but a member of a southern urban district council has lately exhibited a similar ignorance of the inevitability of the motor-car. "If we have no other remedy," remarked Mr. T. Young at a recent meeting of the Southwick Urban District Council, "I shall recommend that everybody keep shot guns and shoot them"—"them" being innocent unsuspecting motorists travelling in the district where Mr. Young is regarded as a man of some importance. Mr. Young has declared what he would do with motorists; he had better not hear what motorists would do with him.

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Armoured Motorists.

CLAD wholly in clothing of armour plate, and looking like knights of the fifteenth or sixteenth century, two coloured drivers recently created much amusement and amazement in the streets of New York and Brooklyn. Had it not been for streamers attached on the sides of the tonneaux—bearing



the inscription "Friends of Magistrate M. Corneli, do not shoot"—the two fellows might have been taken for crazy men. It was all the result of a combination made by the vice-president of the Standard Automobile Company and Messrs. Smith and Mabley, who thought of playing a joke on the officer who recently suggested that a man who shot a reckless driver was justified in doing so.

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A Touring Committee.

A NEW committee of the A.C.G.B.I. has recently been formed at the suggestion of Earl Russell, which should be of great value to members of the Club contemplating touring in any part of Great Britain. The programme which has been suggested for their work is an extremely comprehensive one, and will require much careful organisation if it is to be carried out in anything like its entirety. The point with regard to recommending hotels and repairers is one that seems to have practical interest, in view of the discontent that has been expressed by many motorists with regard to the high charges that are constantly being made by some of the leading hotels in the country. Similarly, with regard to repairers, there is, unfortunately, as great a diversity in the scale of charges as in the amount of fines which magistrates seem to inflict upon motorists. These are subjects which the new committee propose to deal with, and we hope that the difficulties of settlement are not beyond their capacity.

An English Mission to Germany.

ON the morning of the 26th inst. Mr. Shrapnell Smith will, on behalf of the Automobile Mutual Protection Association, leave London for Germany in order to make a thorough investigation into the system of road construction that has been developed in that country. He will be accompanied by Mr. John A. Brodie, the City Engineer of Liverpool, and by Mr. H. Schofield, the County Surveyor of Lancashire, so that every confidence will be felt in the report that is brought back Starting from Cologne the party expect to make a very comprehensive survey, and the mission should have a very far reaching influence on the progress of the automobile movement in Great Britain. For, as we have always urged, the improvement of the road must be carried on simultaneously with the development of the car.

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Motorists in London.

STEADILY the census of motorists within the metropolitan area mounts up, and the figures are becoming formidable enough to bring the most prejudiced opponent to a reasonable frame of mind. Up to the 5th inst. no fewer than 11,558 licences to drivers had been issued by the London County Council, the registrations of motor-cars and motor-cycles to the same date being 4,791 and 3,238 respectively. Two hundred and ninety-three general identification marks had been issued to manufacturers or dealers, showing the continual growth of the industry in London. Of course in these figures no account is taken of the authorities on the outskirts who issue licences to drivers and who register cars which are frequently to be found running within the jurisdiction of the London County Council. These statistics, however, reveal a growth of the trade which indicates a permanent and expanding prosperity.

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Fog and the Motor.

THE weather of the last few days has been trying indeed to venturesome motorists who have sought to travel by motor-car. Fog has not only rendered open-air driving an unpleasant experience, but it has, as usual, completely disorganised traffic. Among the motorists inconvenienced by the wretched weather conditions prevailing was Prince Arthur of Connaught, who had the disagreeable experience of being held up for the night by a dense fog, which overtook him while motoring in Surrey. He was on the main road at Egham on Sunday night about eleven o'clock when his motor-car driver found that it was unsafe to proceed owing to the fog. With much difficulty they descended the hill leading to the village, and roused a cottager, who guided the Prince to the Catherine Wheel Hotel. After some delay the landlord was awakened, and His Highness supplied with refreshments and sleeping accommodation. The Prince, who seemed much amused at his experience, rose very early yesterday morning and proceeded to London. It would be interesting to have other experiences from motorists who were similarly inconvenienced, or who observed any effects on the driving of their vehicle from the same cause.

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Inquiries in Scotland.

HITHERTO somewhat inclined to rely on the interest in motors shown by Mr. Graham Murray, the Secretary for Scotland, the motorists north of the Tweed are now likely to be converted to the advisability of the energetic policy pursued on this side of the Tweed, for several county councils are appealing to the Local Government Board for Scotland for the restriction of motor-car speeds within their areas, and inquiries have just been held at Ardrossan and Ayr. In one of these, Mr. Rees Jeffreys made a characteristically clear defence of the automobilists' position, but we are afraid that the opposition on the part of the local authorities will be strong enough to throw over the most reasonable attitude. Apparently the Scottish Club will have to give its most earnest attention to the opposition that is

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developing against motor-cars in the North of Scotland, and frustrate it by an energetic campaign.

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Cases against Motorists.

In our correspondence columns this week will be found some letters with reference to the cases against motorists which we have published from time to time. One of our friends seems to think that, in thus giving publicity to the way in which motorists are fined in different parts of the country, we are helping the authorities somewhat; but, as a matter of fact, having regard to the large number of motor-cars now in daily use, we cannot see that the information thus given is likely to render harm to the growing industry. As a matter of fact, the weekly record we publish is useful from two points of view; first as indicating those localities where the police are unusually active, and where magistrates are apparently prejudiced in favour of the ancient form of travel; and, in the second place, it reveals far more adequately than any mere writing could do the unfairness with which fines are inflicted in some parts of the country as compared with what happens in others. As another correspondent points out, what is treated with severity in one part of the country is dismissed with a small fine in another. Thus one of those anomalies which the present year has brought into existence is exposed in an effective way, and we are greatly assisting those who are still dissatisfied with the present state of things. They, after all, undoubtedly constitute the majority of those who are in the habit of frequently using their vehicles.

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Index Letters.

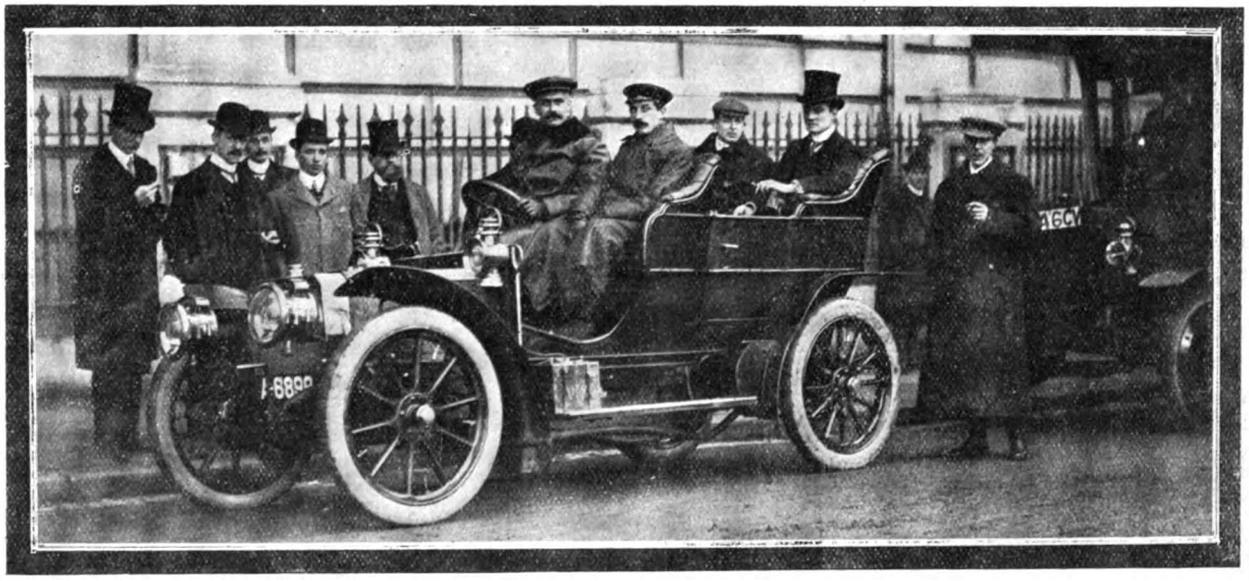
The senseless, or perhaps we ought to say the haphazard way in which index letters were assigned to the various counties and county boroughs was the subject of much comment months ago, and it has again been brought into prominence by the letter which Lord Portman has written to the Dorset County Council with regard to the letters B F, which have been assigned to that district. It appears that the county funds have suffered and that many motorists have preferred to register their vehicles in other counties, with advantage to the exchequers of those districts. Bearing this in mind the Dorset County Council have decided to ask the Local Government Board to give the matter further consideration with a view to amendment. Under a proper system of classification Dorsetshire would have been D O, and the Holland, the division of Lincoln to which those letters had been assigned, might have been H O; S X might have indicated Sussex, S Y Surrey. and so on, so that the letters should form a distinct clue to the name of the county.

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Stopping Motorists.

Within the last few weeks it has been made apparent that the Motor-Car Act is even now imperfectly understood. Just as a certain Parliamentary leader once declared that the only way to learn the rules of procedure at Westminster was to break them, so it is becoming increasingly demonstrated that only by contravening the Act can motorists get acquainted with its provisions. But that is an expensive process, as Mr. Dickerson pointed out in our correspondence columns last week when relating his own experiences in connection with a case at Hastings. Similarly Mr. J. R. Gray, of Dalkeith, has discovered that defending a case against him in Yorkshire where the summons was dismissed has resulted in heavy expense. This is one of the weaknesses of the Act; even when they prove they have committed no offence, motorists are seriously out of pocket. If such dismissals also carried the right to costs with them the police would soon become careful as to instituting proceedings. But the present practice rather encourages persecution.

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Captain Deasy Starting on the 4,000 Mile Run of the 16-20-h.p. Martini Car.

By Ordinary Wayfarers.

At the Marylebone Police Court a motorist has been fined for refusing to give his name and address to a gentleman who was riding in a cab when the car driven by defendant crashed into it, resulting in an accident. The defence was that he was under the impression that no one but a policeman had a right to demand his name and address. Mr. Curtis Bennett, the magistrate, soon disabused his mind of such a notion by fining him 40s., with three guineas costs, and declaring that anyone had a right to demand the name and address of the driver of a motor-car and the name and address of the owner after an accident. This is a point to bear in mind, for although some writers have supposed there is some ambiguity, the omission of the words "police constable" from Sub-section 3 of Section 1 seems to indicate that anyone may demand the name and address of a motorist who has committed an offence.

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By Policemen.

A point upon which the police, notably Superintendent Marks, of the Surrey force, need enlightenment is as to the powers of a policeman to stop a vehicle. Mr. A. E. Macdonald has just been summoned at Kingston for refusing to stop when a police-sergeant in plain clothes called upon him to stop

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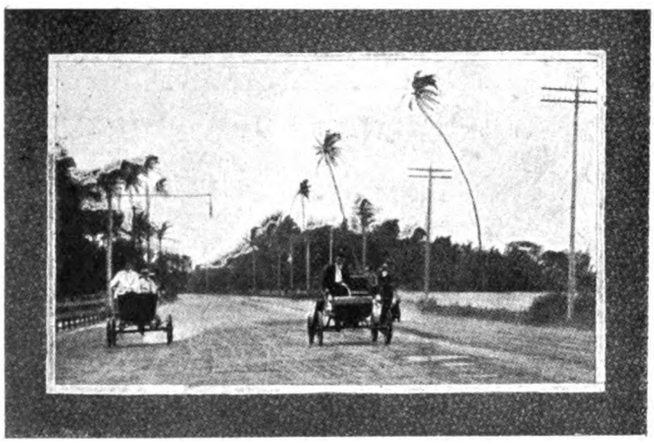
when he was travelling on the Fairmile at Cobham. Relying upon the early regulations with regard to light locomotives, the superintendent was apparently unaware of the regulation of the Local Government Board issued this year by which a motorist "shall, on the request of any police constable in uniform, or of any person having charge of a horse, or if any such constable or person shall put up his hand as a signal for that purpose, cause the motor-car to stop and to remain stationary so long as may be reasonably necessary." Even Mr. Cockburn, the chairman of the Kingston Bench, could not convict, and seeing it was clear that the policeman was not in uniform, had to dismiss the case.

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Notice of Summons.

THE fact that a policeman can take out a summons against a motorist for exceeding the legal limit at any time within three weeks of the committal of the alleged offence is hardly a fair provision. There is thus no need to warn the supposed delinquent, provided notice is sent within the twenty-one days' limit, and hence the difficulties of defence are seriously increased. In France the matter has attained very serious proportions, so much so that the Automobile Club de France is preparing a petition to present to President Loubet at the Salon on the subject of the summoning of motorists by the police after merely taking their numbers and without giving any warning that an offence was to be alleged. The French police have adopted this practice to an extent which has greatly alarmed automobilists, and some of them have been fined, although they were not near the place where the offence was alleged to have taken place.

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A Typical Road in Honolulu.

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In the Court.

NOT often do the trials of the Automobile Club bring that organisation into the law courts, but those of 1903 have given the central organisation of automobilism great prominence in the King's Bench Division in this week and last. The facts of the case are fairly simple, and the Lord Chief Justice seems to have ruled that the jury had mainly to consider the question of damages suffered by Mr. Weigel and the British Automobile Commercial Syndicate by the refusal of the Club to allow the former to compete in the Reliability Trial from the Crystal Palace last year. The facts are familiar to all who take an interest in these events. Mr. Weigel ran a Clement car on the first day, but it was decided that he should not be officially started on the second by reason of the fact that he was not on the Club's register of trials. As, however, we understand that the Club have decided to appeal against the decision of the Court of King's Bench, comment on the case must be left till the final settlement.

Electrical Timing.

ELSEWHERE we give the paper that was read at the Automobile Club last week, when the attendance showed a lack of interest that was really surprising Col. H. C. L. Holden was in the chair, and pointed out that all accurate measurements of high velocity were done entirely by electricity—mechanical first and electrical afterwards—but the registration was, as a rule, electrical. There were two ways of registering electrically; one was by spark, which was not very practical, because it was not always possible to make a spark go straight, and therefore it was very difficult to make it mark really definitely and properly. The other method was by moving a lever with a pen on it. There was another system of electrical clocks, whereby it was quite easy to work up to one-thousandth part of a second by means of a balance wheel. The French Club was the first to adopt a system of electrical timing for motor-cars. With regard to the English method, they had taken the precaution to duplicate the records, so that they were practically proof against any breakdowns, unless caused by some unruly person or by a thunderstorm. With present-day racing cars, at the highest speed they travelled six inches in a three-hundredth part of a second, and unless, therefore, they could time them to that degree of accuracy it would not meet their requirements. The Club's system did that, and, further, it gave them the power of checking that record at any time afterwards, both as regarded the time and the point at which the car crossed the line, and these records could be put into the archives of the Club, and, in the case of any foreign competitor saying that the records were incorrect, there were the records which would remain as long as the Club remained.

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Wisdom on the Bench.

MR. JUSTICE DARLING seems to combine judicial acumen with a layman's levity in summing up matters where motor-cars are concerned. The other day, in the hearing of a case in which a motorist was the defendant, he urged the jury to have no feeling against him because he owned a motor-car. The judge did not know whether any juror possessed such a vehicle; for his own part he did not, nor did he want to. People who had horses disliked motor-cars, not only because of the smell and dust associated with them, but also the "look of the people in the cars." Really this is a point of observation which we had hardly expected from a judge, especially one who has had experience of election methods in Hackney and Deptford ere he assumed a judicial position If Judge Darling commences to criticise the look of the people in the cars he must expect the latter to take notice of the looks of judges on the bench, and the question then to decide will be as to which will have the advantage.

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Motor-Car Imports and Exports.

THERE was again a falling off in the number of foreign motor-cars imported into this country during the past month, although, on the other hand, a slight increase is shown in the value of the imports. The number of cars imported in October is returned at 282, of a value of £117,296. Parts were responsible for £22,521, bringing up the total for last month to £139,817, as against £120,065 in October, 1903. So far this year, that is to say, for the first ten months, the imports stand at £2,176,978, or approximately £399,000 more than in the same period of last year. Passing now to the exports of British automobile productions, the returns continue somewhat disappointing, only 67 vehicles being shipped last month, these, with the "parts," being valued at £22,275, while for the ten months ending with October the exports are returned at £240,047, or about £2,200 below the total recorded for the corresponding ten months of last year.

AT the Horse and Jockey Hotel, Luton, Mr. H. Burrows has a large yard and inspection pit for motor vehicles.

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MOTOR-BOATING DOWN RIVER.

[By One of the Party].

NEVER heeding the sailor's prejudice against setting sail on a Friday, Mr. J. W. Stocks, Mr. H. T. Arnott and a small party motored down river from Oxford to Maidenhead on a recent Friday, on board the 6-h.p. single-cylinder thirty foot launch "De Dion."

Old Father Thames lay very dark on the weather bow as, at 5.30 a.m., we cast off from Salter's, started up the engine and headed the "De Dion" down stream.

The reason of the early start was a sporting desire to know what mileage could be covered in a boat of this type in the twelve hours between dawn and dark. The "Admiral" reckoned upon doing a steady six miles an hour, locks included, and we consequently expected to reach Maidenhead by the time 5.30 p.m. chimed.

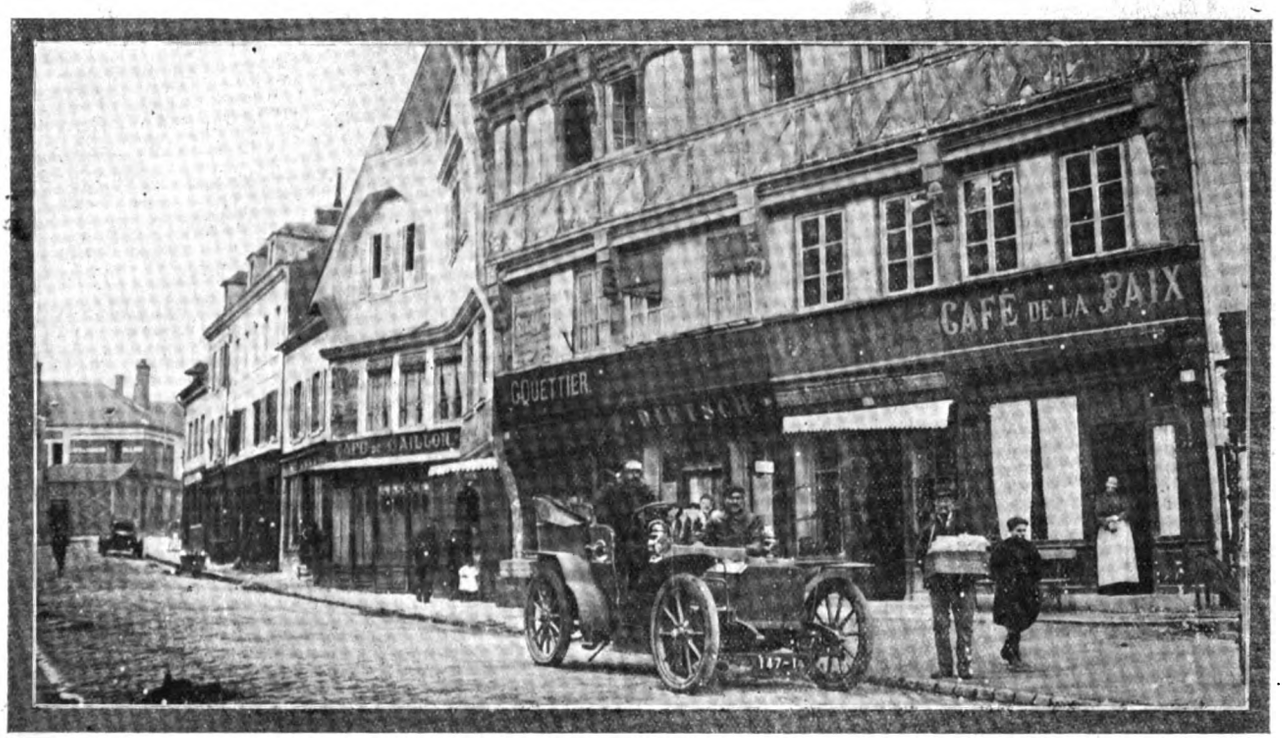
This reckoning of the "Admiral's," notwithstanding that it had been cast in the prosaic atmosphere of Gt. Marlborough-street, proved that theory and practice may on occasion go hand in hand, for darkness settled down upon the face of the waters shortly after hazarding the perilous passage through Boulter's Lock, and practically the object of our journey had been accomplished. We had even found time to sample the seductive attractions of "The Lamb" at Wallingford, the "Red Lion" at Henley, and to take out the clutch an appalling number of times on behalf of people in punts, who apparently followed the gentle art without other result than the raising of supercilious smiles among the fish with which the river is alleged to abound. The lock keepers *en route*, under the persuasive summons of a large motor horn, overcame for the moment the state of ineradicable inertia in which they are supposed to exist, and treated us very fairly.

The round of the clock was completed as the Ray Mead Hotel was sighted by the man on the lookout, and this juncture being critical, an immediate adjournment thereto was made, a hurried consultation held, and a resolution passed to temporarily abandon the good ship "De Dion" and conclude the journey to town by rail.

According to the "Admiral's" charts, dead reckoning and log, to say nothing of a very serviceable guide book containing tabulated distances from lock to lock, we had completed exactly 62 miles 1 furlong 6 yards, and had occupied just one round of the clock in so doing. Of course we at no time harboured even the slightest intention of exceeding the legal speed limit had there been one about, and as we waited the convenience of the G.W.R. in a comfortable smoking room we were able to scrutinise the reports handed in by the various officers who had been on duty throughout the day with a calm consideration born of clear consciences.

The Navigating Lieutenant reported that, despite the unusually large number of fishing craft encountered upon the banks and shoals of the upper reaches of the river, he had not found it necessary in a single instance to order the Senior Ordnance Officer to discharge his gun. The Chief Engineer for his part had absolutely no mechanical troubles to bewail, the motor having upheld its reputation for reliability in the most exemplary manner on a very limited consumption of petrol.

The Purser, in reporting a clean bill of health, made a gratifying announcement that the chief steward had not yet exhausted his supplies, and the Admiral, with so satisfactory a series of reports before him, was pleased to bestow a well-merited word of commendation here and there, and to defray the expense of conveying passenger, officers, and crew to the railway station in a single horse motor and wagonette.



A Street in Gaillon—a typical old-world town in France.

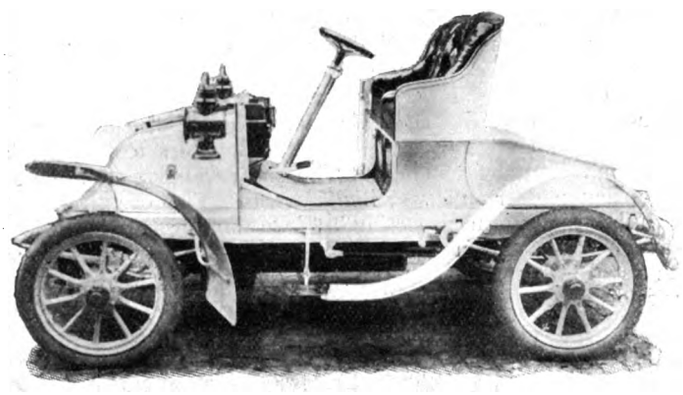
The Kelsall and Lostock Graham (Cheshire) parish councils have asked the County Council to apply for a reduction of the legal speed limit of motor-cars passing through their areas.

Thery, with his 1904 Gordon Bennett Richard-Brasier racer, Paul Sartori, with a 90-h.p. Fiat, Bernin, with a 60-h.p. Renault, and Barney Oldfield, with the Peerless "Green Dragon," came together in a ten-mile race at the Empire City track Yonkers, U.S.A., on the 29th ult. The event was run off in three heats, two preliminaries and a final, with two cars in each heat. In the first heat Sartori and Thery were competitors. The latter lost ground at the turns, Sartori steadily increasing his lead and finishing nearly a quarter of a mile ahead. His time for the ten miles was 9 min. 45 4-5 sec. Oldfield won the second heat against Bernin, his time being 9 min. 20 sec. In the final between Sartori and Oldfield the latter won by half a lap, finishing in 9 min. 12 3-5 sec

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THE PROSPER-LAMBERT 8-H.P. CAR.

A CAR which attracted much attention in the recent Small Car Trials was the 8-h.p. Prosper-Lambert, introduced into this country by the Holland Park Motor Company, and of which an illustration is given herewith. The frame is of channel steel construction. The motor is of the single-cylinder type, 110 mm. diameter by 120 mm. bore, and, although



rated at 8-h.p., is stated to develop 10-b.h.p. at a speed of 1,300 revolutions per minute. An automatic governor acts on a throttle valve, which is also controlled by a throttle lever on the steering column. A float feed carburettor furnishes the mixture, and the electric ignition is by means of accumulators and high-tension coil. For cooling purposes a water tank is fixed to the dashboard under the bonnet, the circulation being maintained by a centrifugal pump attached to the *chassis*, and driven direct by the engine shaft. The clutch is mounted on ball-bearings and is arranged to give a gradual engagement and to be easily adjusted. Three forward speeds and reverse are obtainable by the provision of a sliding gear enclosed in an aluminium box. The power is transmitted by means of a universally-jointed shaft and bevel pinions to the rear live axle. The latter has large ball-bearings to take up all strains on the bevel pinion. The cups are easily adjusted, and the wheel hub bearings have double rows of balls in grooved cups, with rings of hardened steel. The small bevel pinion on the end of the cardan shaft is also mounted on adjustable ball-bearings. A pedal-operated metal to metal brake is mounted on the driving shaft, while a hand lever actuates internal expanding brakes connected with the hubs of the rear road wheels. The weight of the car is about 12 cwt., while the leading dimensions are, length 9 ft. 4 in. and width 4 ft. 10 in. The car is supplied either as a two-seater, as illustrated, or can be furnished with a tonneau in place of the sloping tool box at the rear.

THE American mail this week brings the news that the Winton Motor Carriage Company, which has hitherto pinned its faith to the horizontal engine, announces the introduction of cars with four-cylinder vertical motors for the 1905 season. Three sizes will be made, 18-h.p., 30-h.p. and 40-h.p.

MESSRS. W. WATSON AND CO., of Liverpool, have, we learn, been appointed British agents for the Berliet petrol cars, of which they intend to keep a stock of spare parts. The vehicles, which are made at Lyons, are built on Mercedes lines, ball bearings being used throughout, including those in the gear box.

A WINNIPEG correspondent writes that in Western Canada, where the thermometer often falls forty degrees below zero, the question of a non-freezing solution for use in the water-circulating system is agitating the minds of motorists. It is, however, hoped that the difficulty will be overcome by the use of a new compound, which Professor Kenrick, the Government Analyst, and secretary of the Winnipeg Automobile Club, has prepared. The formula for the preparation is at present a secret, but it is stated to have stood numerous tests made at 40 degrees below zero without showing any signs of freezing.

CONTINENTAL NOTES.

The Gordon Bennett Race.

At a meeting of the sporting committee of the French Automobile Club last week the various suggested courses for next year's Gordon Bennett race were considered. It was resolved that ere arriving at a decision the various courses should be closely inspected by a sub-committee.

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The Vincenzo-Florio Cup.

The rules governing the International Cup, presented by M. Florio, a well-known Italian motorist, have just been issued. Cars of less than 1,000 kilogs. are eligible for entry, and, except in certain particulars, the race will be run under the same rules as the Gordon Bennett cup race. The cup will be competed for seven years consecutively, the manufacturer whose cars win the most times finally securing the cup, a tie requiring a further race to decide the final owner. The race must always be run in Italy over a distance of 800 to 1,000 kiloms. The entry fee is £10 per car; the number of entries is not limited, so that any maker wishing to enter a car may do so. The first race will probably be held in August, 1905, on a circuit in the Brescia district.

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Changes in the French Trade.

The "Automobile" announces that M. Georges Richard has retired from the motor car company which bears his name, and is about to start a new factory on his own account. From another source we learn that he has formed a company with a capital of £16,000 to construct a new type of car to be known as the "Ajax."

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Record Breaking at Ostend.

During the past week the Darracq Company have been subjecting several of their cars to record breaking attempts on the Nieuport-Snaeskerke road, near Ostend. Hemery, with a light racer, made several attempts at the flying kilometre. In the first his time was 26 sec., the second run he achieved in 25 1-5 sec., equal to over 89 miles per hour, falling back to 25 4-5 sec. in the third attempt. The previous record for this class of car was 26 1-5 sec., and was held by Hanriot on a Clement-Bayard. On Saturday last, on the same road, he succeeded in setting up new figures for the standing mile, covering the distance in 51 2-5 sec.

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Foreign Attaches at the French Military Manœuvres.

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A New World's Record.

Baras, with his 100-h.p. Darracq, has also been record-breaking at Ostend, covering the flying kilometre on Sunday last in 21 2-5 sec., 1-5 sec. better than the previous best, held by Rigolly. The speed attained is equal to over 104 miles an hour. The Darracq cars now hold the world's records for the standing mile and the flying kilometre for each of the three classes—voiturettes, light racers, and heavy cars.

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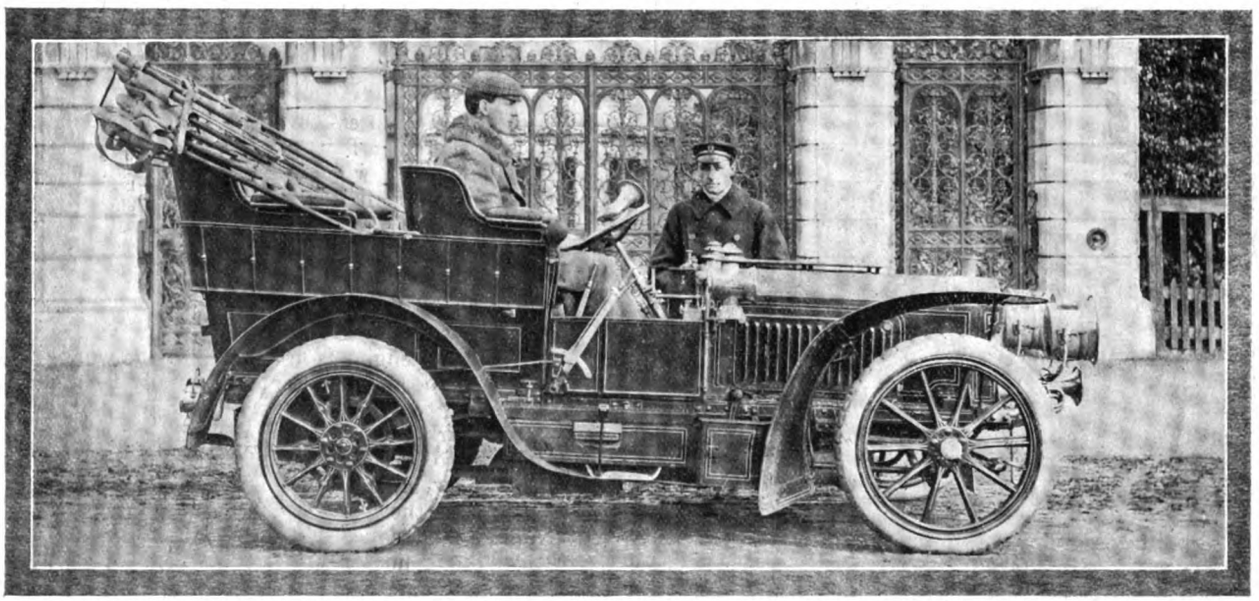
Motor-Boating on Lake Geneva.

The municipal authorities of Evian are arranging to hold a motor-boat race meeting on Lake Geneva on September 1, 1905. The programme will include events for cruisers and racers.

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A Motor-Car Body Competition.

The latest competition to be organised in Paris is one for motor-car bodies. The rules are not yet fixed, but it is understood that the vehicles are to be divided into classes according to price. The idea of the trial is not so much for carriage builders to enter specially-made vehicles as for private owners to enter their cars.



Mr. Basil Johnson at the wheel of the 20-h.p. Napier he will drive in the Delhi-Bombay Reliability Trial.

Automobilism in Russia.

That steady progress is being made by the automobile movement in Russia may be judged from the fact that 657 motor-cars and cycles have been duly licensed in St. Petersburg. A new regulation with regard to automobile traffic in Russia is at present under consideration. It provides for a speed limit of 12 versts per hour in towns, the affixing of a number plate, and a tax of three roubles per horse-power of the car. The Russian Automobile Club has protested against the proposed regulations, urging that a speed of 20 versts should be permitted, and that the tax on cars of 15-h.p. and over should be 20 roubles, and one rouble per horse-power for cars under 15-h.p.

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Motor-Cycle Touring.

The example set by the De Dion-Bouton Company in sending Cormier on a long tour on the new 15-h.p. De Dion car is now being followed by makers of motor-cycles. From Paris early last week M. Baron set out on a 3,000-kilometre tour round France on a 3-h.p. Bailleul motor-bicycle, while on Wednesday of this week Osmont, who was a prominent rider of the motor-tricycle a few years ago, left the A.C.F. club house in Paris on a more ambitious tour. His mount is one of the 1905 F.N. motor-bicycles, and on it he is visiting all the leading towns in France. After reaching Nice, his route is Turin, Milan, Lucerne, Basle, Baden, Mayence, Cologne, Amsterdam, Antwerp, Brussels, and back to Paris. The test is therefore a varied one, and if successfully accomplished will give the machine an excellent send-off in the motor-cycling world.

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Motor-Boating at Monaco and Cannes.

The International Sporting Club of Monaco is organising a big motor-boat meeting at that Mediterranean resort for the 1905 season. The Grand Marine championship race, over a distance of 125 miles, will be open to motor-boats of every description. The meeting will be held in April next. Arrangements are also in hand for a number of motor-boat races at Cannes, to follow the Nice automobile week. Mr. Alexander Burton has just offered a special cup to the Cannes Automobile Club for competition between boats entered in the racer category.

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Public Services in France.

It is announced that a Grenoble syndicate proposes to organise a public service between Moutiers, Salins, Bozel, and Pralognan, at the foot of the Vanoise Glacier, in Savoy. The journey would be made in two hours, as compared with the five hours at present taken by horse-drawn vehicles. Commencing with the new year, a service is also to be started between Tarbes and Trie (Hauts Pyrénées); it is intended for the transport of both passengers and mails, and is subsidised by the Conseil General of the Department.

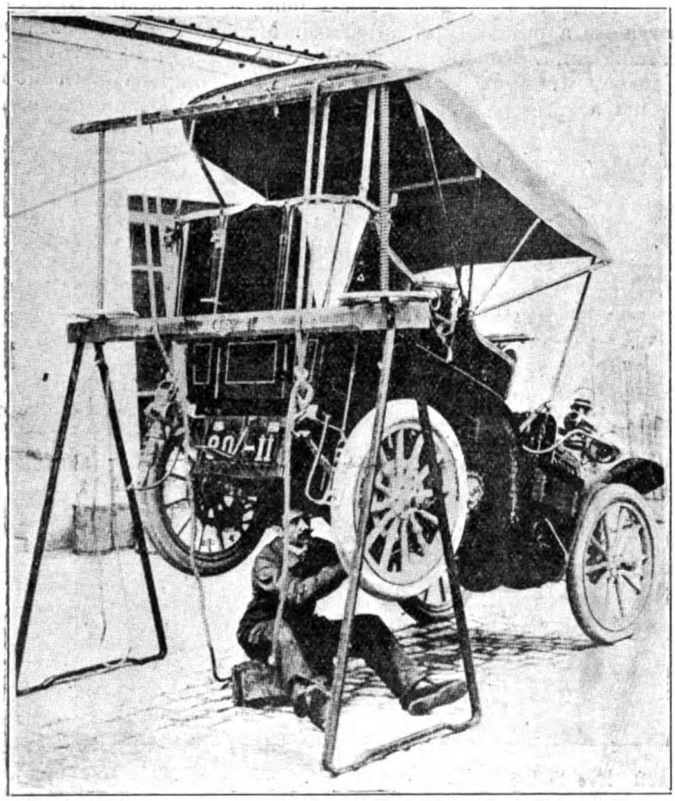
THE Ace Motor Syndicate, Limited, has been registered with a capital of £5,000 to acquire the business of Messrs. F. C. Meyer and L. S. Bidwell, hitherto carried on by them at Hammersmith Road and elsewhere. Mr. F. C. Meyer is the first managing director and Mr. L. S. Bidwell the first technical director. The registered office is at 122, Hammersmith Road, W.

MR. T. H. HOLDING, the well-known motorists' tailor, has had the misfortune to break one of his legs. The accident happened when he was passing through Ripley on his motor-cycle, and occurred through a cart closing in on the near side of the road and not allowing sufficient room for the motor-cyclist to pass through. The driver of the cart, instead of retaining his position, closed in, and it was in avoiding the horse that the motor-cycle just grazed a standing vehicle which was being passed on the right side. This caused the machine to rebound against the wall and the other cart. The consequence was that it was thrown over, the machine falling on the left leg of the rider.

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A MOTOR-CAR SUPPORTING TRESTLE.

A FRENCH firm, M. Henri Edeline, of Paris, has recently introduced a car-lifting device which should prove a useful substitute for inspection pits, not only in large motor-repairing establishments but in the private garages of many motorists. As will be seen, it consists of a stand about 5ft. 9in. high and 6 ft. 6 in. wide. Parallel with and above the crosspiece is a second cross bar having long screw-threaded legs. The latter pass through corresponding holes in the cross piece, and by means of the two hand wheels can be raised or lowered at will. Stout ropes with hooks are provided, and by passing these over the crossbars and securing the ends to the dumb-irons, either end of a motor-car can be raised, by means of the hand wheels, from the ground, as shown in the illustration, enabling



the various parts to be got at without it being necessary to lie on one's back, never a comfortable position in which to effect adjustments at the best of times. There is no danger of the car being accidentally let down, as it requires force to turn the hand wheels downwards as well as to raise the car. The whole car can be raised bodily, if desired, by means of two such trestles, one in front and one at the rear, enabling a vehicle which is not to be used for some time to have its weight taken off the tyres. The apparatus appears to possess advantages over the pit in that the latter usually necessitates the use of artificial light, while the trestle may be used on the shop floor or in the yard, while its relatively light weight enables it to be readily taken to breakdowns on the road. It is made in various sizes, suitable for supporting cars weighing from 10 cwt. to 2 tons.

FROM Messrs. J. I. Thornycroft and Company, Limited, comes a copy of an extensive new catalogue of Thornycroft steam wagons they have lately issued. The list, which extends to over 100 pages, gives full particulars of the standard four-ton vehicles, five ton wagons, municipal vehicles, and the colonial type, a number of full page illustrations of each being included, rendering it a useful book of reference to all intending users of heavy motor vehicles.

SOME USEFUL NOTES.

IT must never be forgotten that, even for two engines of identical size and make, there exists no arbitrary standard of the amount of lubrication required. This depends essentially upon two factors: (1) the work performed by the engine, and (2) the efficiency of cooling. With regard to the first factor, generally speaking, less oil is required on a smooth, level, dry road than on a rough, hilly one, this being dependent on the fact that less mixture is used, less heat is generated, and less oil, therefore, consumed in the former than in the latter case. But the variation required is never great.

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THE aspect of the subject from the point of view of the efficiency of cooling is especially important to motor-cyclists, who mostly use air-cooled engines, and to drivers of engines cooled on the thermo-syphon system ("natural" or gravity circulation). Air-cooled engines which are in a favourable position for cooling use up far less oil than those less fortunately placed. Again, taking two engines of identical make and size, one cooled by pump, the other by natural circulation, the former, according to the writer's experiments, will require just double the amount of lubricating oil of the latter.

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AN important point, and one which is frequently overlooked even by quite experienced *chauffeurs*, is the relationship of lubrication to compression. When an engine is being efficiently lubricated there is a film of oil between the piston, piston-rings, and cylinder wall which makes the joint sufficiently tight to prevent escape of mixture to the under-side of the piston, and so serves to maintain compression. If this film is absent or incontinuous, there will be loss of compression, and since the oil is being continuously used up it must be replaced at the same rate at which it is consumed.

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WHEN an engine is first tested at the works before the car is delivered to the purchaser it is literally "swamped" with oil, a proceeding to which we owe the discovery of the action of the external spark gap. It is an excellent practice, and one which cannot be too strongly recommended, for the owner of a new car to also swamp his engine with oil until the plug becomes foul, utilising the spark-gap to obtain regular firing. He should then gradually reduce the quantity of oil until a point is reached when the plug no longer becomes foul. The ideal lubrication point for ordinary conditions of work has then been found—that is, the point at which the engine is taking all possible oil without danger of sooty deposit on the valves, piston, or plug. But it must be remembered that, for maximum efficiency, the amount of oil supplied to the engine should vary somewhat, as already stated, in proportion to the work.

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MOST makers prefer to recommend some particular brand of oil for their engines, and an extended experience has convinced the writer that their advice should always be followed. Never run an engine without oil. If the supply gives out on the road, get any kind that is obtainable; even salad oil will do, in lieu of anything better. Finally, it may be stated that it is better to over than to under lubricate.

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DURING very cold weather a considerable amount of trouble is caused by frozen carburettors. In many cars the carburettors are jacketed with a branch from the exhaust or from the water-tank, and in such, of course, no trouble is experienced. The symptoms of a freezing carburettor are: (1) Gradually decreasing power in the engine; (2) little or no response when the throttle is opened. Treatment: (1) Hot rags applied to the carburettor; (2) if there is need for haste a few drops of petrol may be poured on the carburettor (the tap between it and petrol supply being closed) and a light applied. Needless to say this method is only applicable where the carburettor is suitably situated, and should not be adopted by the novice. It requires exceedingly careful handling, or the cure may be worse than the disease.

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THE DE DION 15-H.P. FOUR-CYLINDER MOTOR.

(*Concluded from page* 762.)

THE ignition is of the high-tension system with non-trembler coil, a single trembler at the contact maker, that is in the primary circuit, being employed to effect the ignition in the four cylinders. Fig. 1 shows details of the contact maker, in which N is the insulated platinum-pointed screw. Contact is established every time that the four-bossed cam C pushes against the oscillating piece F, that is to say, every half-turn of the motor shaft; the tension spring R draws it back immediately in the opposite direction. The tension of this spring can be easily regulated by the nut S, in which the tail of the spring engages (the other end is joined solidly to F).

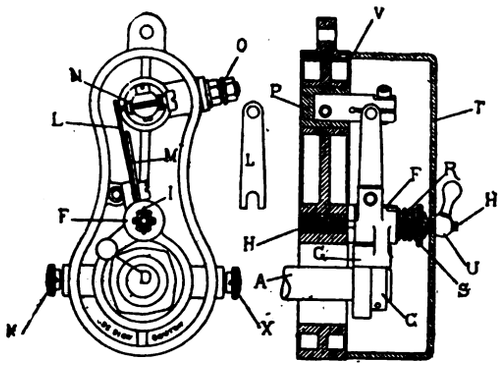


Fig. 1.—Elevation and Section of Contact Maker.

The advantage claimed for the single trembler in the primary circuit is the certainty of synchronous ignition in all four cylinders. The current distributor is arranged in the secondary or high tension circuit. Referring to Fig. 2, on the cam shaft, 2, is fitted a worm wheel, 3, which drives the vertical spindle actuating the oil pump. This spindle, which runs at one-fourth the speed of the crank shaft, supports a porcelain cap, 8, surmounted by the moveable piece of the distributor. The latter comprises a blade, 10, slightly flexible, on which two metal

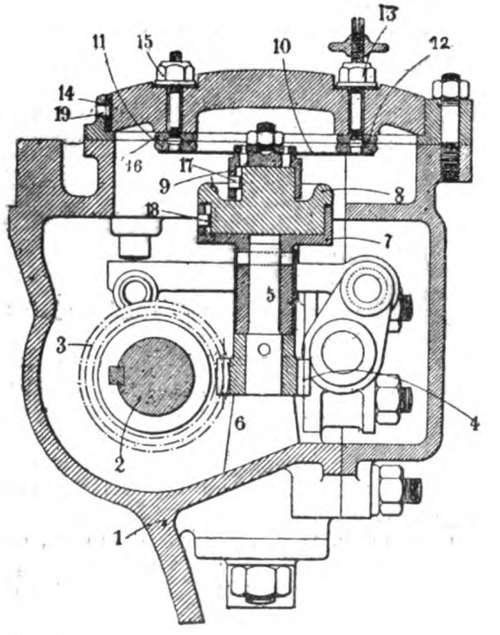


Fig. 2.—Section of Secondary Current Distributor.

stops, 11, are riveted. Each of these stops can touch, during the rotation of the blade, either a fixed sector, 16, connected to the secondary circuit of the coil or one of the contacts which are in circuit with the sparking plugs. The sector, 16, and the terminals, 12, are carried by a porcelain cap, 14, cemented into a cover bolted on to the box containing all the mechanism; metal rods fixed to the sector and to the four contacts pass through the porcelain and are supported at their upper end by terminals to which the wires are fixed. Only one of the terminals, 15, 15, is connected to the coil; the wires going to the sparking plugs start from the terminals, 13, and, to avoid any chance of error, the number of the cylinder to be connected to the terminals is printed on the porcelain itself. The method of operation of the distribution is as follows: the sector, 16, is of such a length that one of the two stops, 11, carried by the blade, 10, is always rubbing against it; the other stop, diametrically opposed to the first, touches successively during the rotary movement of the worm wheel, 4, each of the contacts corresponding to the four cylinders.

A regular distribution is thus obtained, which the working of the advance or retarding of the ignition does not affect, for the contacts have a width and intervals between them suitably calculated with a view to this result. Although the distributor has to fulfil delicate functions with precision, the parts are simple-strong, and not numerous; and it is claimed that the arrange, ment is economical, the trembler absorbing relatively very little

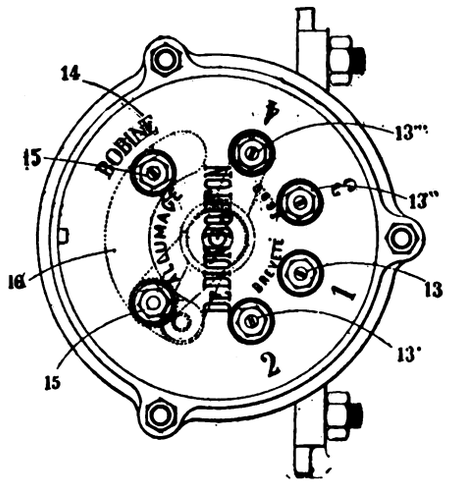


Fig. 3.—Plan View of Secondary Current Distributor.

current. Although rated at 15-h.p., we are informed that the engine is capable of developing 20-h.p., the bore of the cylinder being 90 mm and the stroke 100 mm.

LADY MARGARET STUART has just bought a motor-car, which will be the first automobile on the Island of Bute, an island from which her brother, the Marquis of Bute, not only takes his title, but owns.

THE Prince Hatzfeldt and the Duchess of Westminster have recently acquired Hotchkiss cars from the British Automobile Commercial Syndicate, Ltd., and are now using them at their large shooting parties.

THE Continental Caoutchouc and Guttapercha Co. announce that their motor tyre repair factory at 104-108, Clerkenwell Road, London, E.C., is now ready, and they are in a position to repair covers and tubes in three to four days' time.

THE non-skidders made by M. Beau, of Lyons, and described in a recent issue of the *Journal*, can be obtained from Messrs. A. W. Gamage, Limited, of Holborn. Messrs. Lemaire and Thackthwaite, 289, Oxford Street, W., also keep them in stock.

IN referring to the 1905 Serpollet steam car in our issue on the 5th inst. we referred to the fuel used as being petrol. This was of course a slip, as M. Serpollet has never used petrol—always paraffin. The Speedwell Motor Engineering Co., Ltd., expect to shortly receive one of the new models.

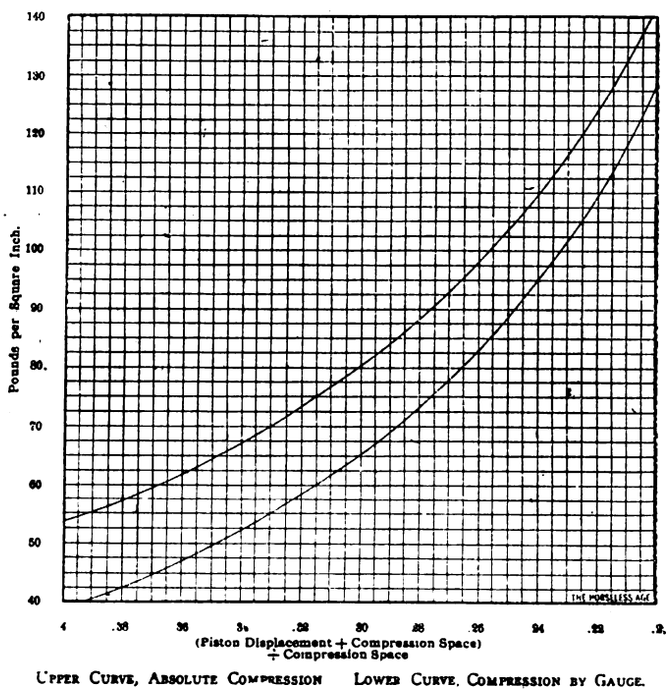
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COMPRESSION IN PETROL MOTORS.

MANY novices with petrol engines imagine that the compression pressure rises in the same proportion as the volume decreases, and we were somewhat surprised recently to see this rule for finding the compression recommended. Gay Lussac's law, that with a perfect gas, pressure and volume vary in inverse proportions, is often thought to apply to compression in petrol engines, but it does not, as this law only holds for thermostatic compression or compression at constant temperature. When air or gases are compressed there are two distinct causes for the pressure to rise. The reduction of the volume of the gas naturally results in a rise of pressure, but it also causes a heating of the gas, and the heat thus generated produces a further increase in pressure. That is to say, for a given reduction in volume the rise in pressure will be greater if the heat generated by the compression remains within the gases than if some cooling means are employed to keep the compressed gases at a constant temperature. That heating causes the pressure of a gas to rise, if the volume remains constant, is a phenomenon familiar to everyone. The heat, of course, has the same effect if the volume of the gas is changed at the same time that the heat is imparted.

If the compression pressure of the gas varied in inverse proportion to the volume when a certain quantity of gas at atmospheric pressure was reduced to one-half its original volume, the absolute pressure would be 29·4 pounds per square inch; if reduced to one-third its original volume, the pressure would be 44 1 pounds per square inch, and so on. Instead we find that if the volume is reduced to one-half, the pressure rises to practically 40 pounds per square inch; if reduced to one-third, to 69 pounds, and if reduced to one-quarter, to 104 pounds absolute pressure.

The accompanying diagram, taken from the "Horseless Age," permits of easily finding the compression pressure for any proportion of compression space to total volume of piston displacement and compression space employed in practice. The abscissas represent this ratio of compression space to piston displacement plus compression space, and the ordinates represent



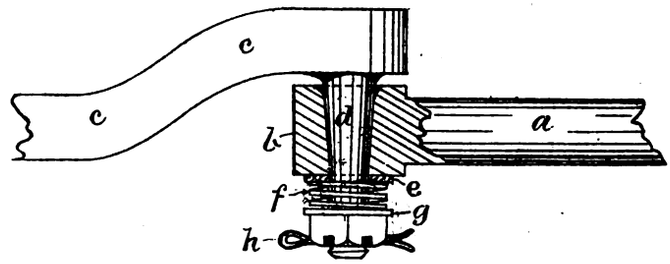
UPPER CURVE, ABSOLUTE COMPRESSION LOWER CURVE, COMPRESSION BY GAUGE.

pounds per square inch. The upper curve gives the absolute compression pressure and the lower curve the gauge pressure. For any given compression space the gauge pressure is less than the absolute pressure by the pressure of the atmosphere, 14·7 pounds.

These curves give the compression pressure that would be obtained if the cylinder at the end of the suction stroke was filled with gases at atmospheric pressure and if there was absolutely no leakage from the cylinder and no interchange of heat between the cylinder walls and the charge during the compression stroke. None of these conditions are completely satisfied, and in practice the compression is probably always slightly below that given by the curves.

AN ADJUSTABLE STEERING JOINT.

THE accompanying illustration depicts an improved steering joint which has lately been brought to our notice. It is the invention of Mr. A. E. Wynn, of Harrogate, the object being to provide a means of taking up any slackness due to



wear, and also a joint that will not work loose by any vibration or shock to which it may be subjected. One of the pieces or arms *a*, is provided with a socket hole *b*, and the other *c*, with a plug piece *d*; both the hole and the plug piece are formed to one and the same taper, which, however, is not so acute as to cause any risk of the plug binding in the hole. The plug piece is made longer than the hole to allow for wear and to prevent the adjoining faces of the ends of the arms *a* and *c* touching. On the end of the plug is mounted a washer *e* bearing on the end of the socket piece *b* where the hole is narrowest, a spiral spring *f*, and a nut *g*, on the extreme end, which is screw threaded to receive the same, by means of which the compression of the spring can be adjusted. By means of a spring pin or cotter passed through the nut and through the extension the nut can be fixed in the position to which it has been adjusted. Mr. Wynn informs us that he has had the joint in use on the ends of the cross rod of the steering gear which connects the front wheels for about two years, and that they are still as tight and free from play as ever.

MESSRS. CARLESS, CAPEL, AND LEONARD have reduced the price of their standard petrol one penny per gallon.

AT a meeting of the Industrial Storage Battery Syndicate Limited, the chairman has stated that during the past few weeks small carriages had been driven sixty-five miles with a single charge in less than two hours, and a large brougham and other vehicles had been driven forty-five miles without recharging, a new battery made by the company having been employed in each case.

AS an example of the use to which a motor-car can be put in the pursuit of business, Mr. J. H. Lee, manager to Messrs. Rowland Hill, of Coventry, informs us that on the afternoon of a recent Wednesday he left Coventry on a 15-h.p. Duryea for a business journey in the North of England. Travelling *via* Lutterworth to Leicester, he visited a customer in that town, and successively called on others in Nottingham, Beeston, Lincoln, Saxilby, Gainsborough, Goole, Pontefract, Leeds, Halifax, Manchester, and Rochdale, and, returning via Altrincham, Whitchurch and Cannock, was back again in Coventry on Sunday evening, covering altogether some 450 miles. Such a journey could not possibly have been accomplished with a horse-drawn vehicle, and we question very much whether, in view of the difficulty of making railway connections and working in with time tables, the work could have been accomplished by any other means than by a motor vehicle.

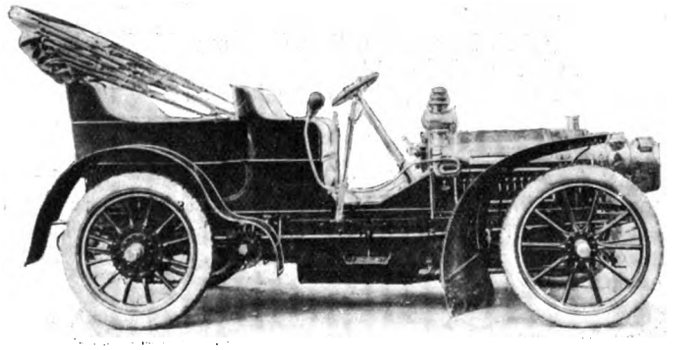
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HERE AND THERE.

A MOTOR-CYCLE club has just been formed at Cannes, France.

MESSRS. J. E. HUTTON, LIMITED, have just brought out a new 10-h.p. four-cylinder gear driven car.

THE Earl of Radnor has lately acquired a Wolseley 12-h.p. Berkeley wagonette.



The above illustration depicts one of the latest Crossley cars, fitted with a detachable tonneau body. As a two-seater the car has a racy aspect and is both speedy and silent.

ASTER, Limited, have been awarded a gold medal at the St. Louis Exhibition for their exhibit of motor-engines.

DAVOS-PLATZ, the great Swiss health resort, is to be provided with a motor-car service connecting it with the town of Davos.

MESSRS. E. KALKER AND COMPANY, insulated wire dealers, have removed to larger premises at 141, Much Park Street, Coventry.

MESSRS. FRISWELL, LIMITED, have supplied Messrs. Clark, Nicholls and Coombs with a motor-van for the conveyance of their confectionery.

THE Highways Committee of the L.C.C. are recommending the purchase of two motor-vans for the further equipment of their tramways department.

LORD DUDLEY, who is an enthusiastic motorist, last week underwent the examination of the Association Generale Automobile in Paris to qualify for a French driving certificate.

A COMMITTEE of the Ripon Rural District Council is inquiring into the width of roads in their locality, with a view to making suggestions as to motor-car traffic to the County Council.

WE learn that the rights in the non-puncturable tyre devised by Mr. H. Meadows, and briefly described in the *Journal* on October 8th last, have been acquired by the Croxted Motor and Engineering Works, Herne Hill, S.E.

IT was stated at the Cheshire County Council's last meeting that there were now registered in the county 327 motor-cars, 315 motor-cycles, 893 licences to drive cars, and 148 to drive motor-cycles, the receipts from these being £724 5s.

THE Traction Corporation, Limited, has been registered with a capital of £100 to acquire any patents and rights relating to the production, treatment, storage, and use of any motive or mechanical power and any apparatus therefor.

THE Pfluger Accumulator Works have decided to establish a factory at Much Park Street, Coventry. They have also acquired commodious offices at Albany Buildings, 39, Victoria Street, Westminster, S.W., for the use of their engineering department.

THE Britannia Motor Garage, Limited, High Street, Marylebone, W., have, we learn, been appointed London agents for the Horbick cars of Messrs. Horsfall and Bickham. A new model of the Horbick Minor for the 1905 season is a 9-12 h-p. three-cylinder vehicle.

MR. F. B. WILKINSON, of Cavendish Lodge, Edwinstowe, near Newark, has adopted an agricultural motor. He ploughed eight acres the other day at a cost of 16s. for petrol and labour. Had he ploughed with a pair of horses, it would have taken eight days at a cost of £4.

THE Erster Badische Automobile Club has just been formed at Carlsruhe.

EXTENSIONS of the motor-'bus service at Hastings to Ore, Silverhill, and Hollington are in contemplation.

GREAT damage has been done by fire to Messrs. Connah and Company's garage and motor works at Rhyl.

THE A.C.G.B I. have appointed a Touring Committee to give information to members wishing for information on tours, etc.

AN inquiry is to be held at Leigh (Lancashire) into an application for restricting the speed of motor-cars in the borough to ten miles an hour.

THE Tasmanian Motor Transport Company has been registered at Hobart. Steam vehicles are to be put upon the road by the company.

TWO 6-h.p. Wolseley cars were recently despatched to Buenos Ayres, Argentina, to the order of La Capital Traction and Electric Company.

THE prizes won by members of the Hull Automobile Club on the recent non-stop run were awarded at the club's smoking concert on the 17th inst.

AMONG the foreign visitors to Blackpool was M. J. Hautier, of Paris, who drove a new 20-h.p. Hautier car from Newhaven to the popular Lancashire resort.

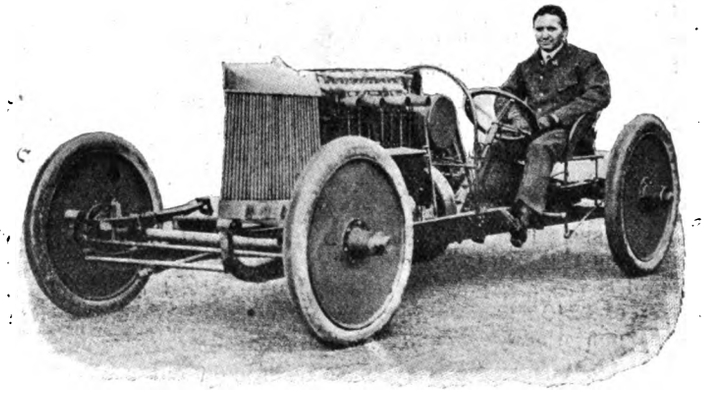
IT will be remembered that a few months ago her Serene Highness Princess Said Toussoun purchased a Baby Peugeot. She has now acquired a 25-h.p. Peugeot, which she drives herself.

THE exports of automobiles and parts from the United States during September last amounted to £24,696, bringing up the total for the first nine months of the year to £289,197, as contrasted with £238,565 in the corresponding period of 1903.

CONSIDERABLE interest is being shown in the forthcoming Delhi-Bombay reliability trial. The entries of British cars so far include a 20-h.p. Thornycroft and a 20-h.p. Napier. The latter, of which an illustration is given on page 777, will be driven by Mr. Basil Johnson.

THE Rossleigh Motor Company, of Edinburgh and Glasgow, have been appointed sole agents for Peugeot cars for these two cities. They have now in stock ready for immediate delivery the new 1905 landaulettes, and the new 10-12-h.p. carriages, besides the standard pattern Baby Peugeot.

A LIMITED liability company has been registered with a capital of £30,000 to acquire and carry on the business of the Duryea Company, Widdrington Road, Coventry. Mr. Henry Sturmey will be chairman. Mr. H. H. F. Hyndman, another of the directors, is a well-known electrical engineer.



Barney Oldfield at the wheel of the new "Green Dragon" racer, built by the Peerless Motor-Car Company.

The car, which is rated at 50 h.p., has a four-cylinder engine, the cylinders being cast in one piece, with one copper water-jacket surrounding them. All valves are in the cylinder-heads, and mechanically operated in order to enable a free exhaust and free intake of gas. The frame is of a new type, and hung below the axles, which gives the lowest centre of gravity possible. The cooler is pointed in shape, so as to reduce the wind resistance to a minimum. The wheel base of the car is 9 feet 8 inches, and the tread 4 feet 8 inches. The car weighs 1,730 pounds; it won a ten mile track race at Cleveland recently in 9 min. 17 1-5 sec.

AT the Tudor Works, Daventry, Messrs. Reynolds Bros. have opened a garage fitted with an inspection pit. They can also undertake the re-charging of accumulators.

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Two motor-vans have collided on Kingston Hill. The drivers, jumping from their vehicles, escaped serious injury.

To carry on the business of motor-car manufacturers, Messrs. Crawshay-Williams, Limited, have been registered with a capital of £6,000.



MESSRS. H. W. VAN RADEN AND CO. are placing on the market a cheap and simplified form of small and compact high-speed trembler coil, suitable for either a motor-cycle or car. It takes very little current and vibrates so fast that immediately the contact is made a spark is obtained at the sparking plug. The trembler works at such a speed that it is not necessary to use a wipe-spark contact breaker, an ordinary breaker with a point contact for non-trembler coil allowing sufficient current to pass to serve the coil and give several vibrations.

A NEW motor-'bus service has been started at Worthing, the mayor and other prominent local men taking part in the inaugural proceedings.

THE Farman Automobile Co. have been appointed London and district agents for the engines and cars of the Coronet Motor Co., Limited, Coventry.

THE Worshipful Company of Coachmakers and Harness Makers are offering prizes for a design for a motor-car to carry four persons, including the driver.

MESSRS. DIXON BROS. AND HUTCHINSON have established motor-car and motor-boat works at Woolston, on the Itchen, near Southampton, where they will be able to undertake all kinds of repair work.

THE Doherty Motor Accessories Company, Limited, have removed to large and commodious premises in Earl Street, Coventry. The factory is newly built and equipped with all the latest appliances for the manufacture of bonnets, radiators, &c.

THE Caledonian Motor Car and Cycle Company, Ltd., have sold their cycle department, and are concentrating efforts on their motor branch at Bon-Accord Street, Aberdeen. A dividend of 5 per cent. on the capital of the company has just been declared.

THE King and Queen of Portugal, who are at present on a visit to this country, are both keenly interested in motoring, evidence of which is shown in the fact that at an automobile gymkhana recently held at Lisbon both were present, His Majesty acting as one of the judges.

FOLLOWING close upon the opening of a branch in Manchester, 283, Deansgate, the "Otto-Bennett" Motor Company have acquired premises at 24, Rue Brunel, Paris, which are being equipped with all the necessary appliances for vulcanising and fitting "Otto" detachable bands.

MESSRS. FRISWELL, LIMITED, have just supplied the Edmonton Union with a motor-'bus for the purpose of conveying imbeciles. The Edmonton Union assume that there will be a saving of £240 per annum by discontinuing the present system and running the motor-car.

MESSRS. HOLDING AND SON have brought out several new motor garments for the current winter season, including the Westmeath ulster, which is made in four colours, and is cut for either motor driving or ordinary travelling. Their new list also contains illustrations of their standard garments which have long been familiar to motorists.

FROM Mr. F. Bennett, of Sherborne, comes a "Motor Car Diary," arranged with one week to a page, wherein the motorist can keep a record of his trips, the state of the road, the weather, etc., for a year. A summary is also provided for totalling the mileage, and the volume should prove of utility to all who do much motor touring. Messrs. Simpkin, Marshall and Co. are the London publishers of this excellent diary.

MESSRS. HARPER AND CO. have opened a commodious garage in Canal Street, Wolverhampton. Skilled mechanics are employed to execute repairs, and a stock of petrol and spare parts kept on hand. Being in the centre of the town, this garage is supplying a long-felt want.

THE Imre Engineering Company, Limited, has been registered with a capital of £6,000, to carry on the business of manufacturers of motors and motor vehicles, and accessories for the same, etc., and to adopt an agreement with Messrs. O. F. Viola and I. Viola.

THE Immisch Launch and Boat Company, Limited, has been registered, with a capital of £10,000, to acquire from the Immisch Electric Launch Company, Limited, their electric launches, boats, charging stations, property, etc., and to carry on the business of electrical and mechanical engineers.

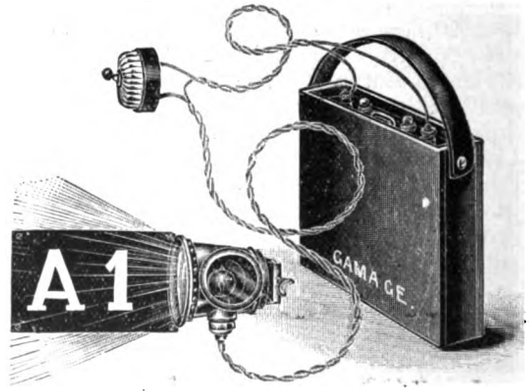
AN American motorist of a somewhat sarcastic turn of mind is responsible for the statement that motor-cars are of two kinds —those which are well taken care of, and those which have to take care of themselves. You can always tell which is which as they go along the road, making their respective noises.

ON the 15th ult., Delormier Park, Montreal, was the scene of the first automobile races held under the auspices of the recently-formed Automobile Club of Canada. The track is not banked, and is only a half-mile in circumference. The best time of the day was 8 min. 18 sec. for five miles, made by Mr. L. D. Robertson, on a 16-h.p. Rambler.

"ABSTRACTS of British Patents," relating to cycles, motor-vehicles, and attachments and accessories taken out from January to June of the present year, is a new volume issued by the Cycle Trade Publishing Co., Ltd., and extending to 130 quarto pages. It includes all that has been done in this department during the six months, and should be of great value for reference purposes.

FOLLOWING on the case at the West London Police Court, in which a motorist succeeded in securing a dismissal of a summons against him for furious driving, owing to the silent evidence of the speedometer on his car, comes the news of a similar victory in America. A motorist at Salem, Mass., was charged with having violated the speed law. Several officers swore that the motorist was going much faster than the law permits, but the latter and his companion both testified that the car was running within the legal limit. They were backed up by a Jones speedometer fitted on the vehicle, which at no time showed the rate to be too high. The magistrate thought that the officers must have been mistaken, and that the motorist and his friend were in a better position to judge how fast they were travelling than were the policemen.

OWING to tail lamp troubles, there is a growing tendency to adopt an electric lamp to illuminate the back number plate and to show a red light to the rear. With the view of meeting



the demand, Messrs. Gamage, Limited, have just introduced the neat little set illustrated herewith, consisting of a slow-discharging accumulator, switch, wiring, and lamp.

MR. HERBERT SMITH, of 9, Strand, W.C., and 42, Avenue Mansions, Finchley Road, N.W., has arranged for the sole London agency of the Rexette.

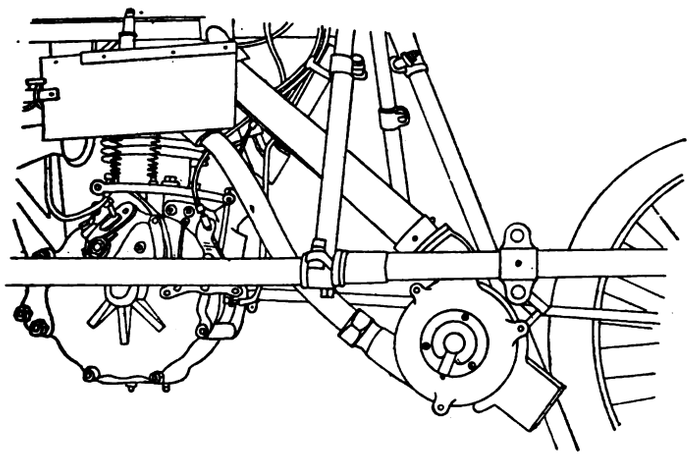
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MOTOR CYCLING NEWS.

A FEATURE of German cycle club life has long been the songs in praise of their pastime which are indulged in at the winter meetings, and, indeed, at any festive gatherings of the members; and as the ranks of motor-cyclists have been largely recruited from the vast army of cyclists, it is not surprising that the song of the motor-cycle should now be the order of the day. As the movement is yet young, suitable songs are none too plentiful, and with the view of filling this "much-felt want" the German Motor Cyclists' Union of Stuttgart is offering a series of prizes ranging from £5 to 10s. for the six best songs relating to the pastime of motor-cycling. A committee of experts is being appointed to consider the songs sent in, and it is hoped, as an outcome of the competition, which closes on the 31st December next, to publish a motor-cyclists' song book for circulation among the various motor-cycle clubs in the Fatherland.

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WE illustrate herewith an arrangement introduced by Messrs. E. G. Young and Co., of Nottingham, to assist in the cooling of the engines of motor-cycles. The silencer is not of the usual type, but takes the form of an enclosed fan driven by the exhaust gases. As the exhaust fan revolves, a second one, mounted on the same spindle, is caused to rotate and discharge a current of cold air on to the radiating ribs of the engine. A shield is also fixed close to the cylinder head, to direct the air on to the latter when



the machine is running. The fans, which run on ball bearings are claimed to be most effective, the one for silencing the exhaust and the other for cooling the engine.

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A DISTANCE of 7,000 miles has been completed upon a pair of Palmer motor-cycle tyres by Mr. F. T. Heighton with his "Vinco" motor-cycle. This same pair of tyres were used when he competed successfully for the gold medal in the 300 miles reliability trial of the Peterborough and District Motor Club.

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THE arrangements for the Delhi-Bombay motor trials promoted by the Motor Union of Western India are proceeding satisfactorily. Sufficient entries have been received to warrant a contest for motor-cycles. It has been decided to run this trial in conjunction with that for motor-cars, but the smaller machines will only have to traverse between Agra and Mhow, a distance of 389 miles, to be covered in seven days. The motor-cycles will arrive in Gwalior on the same day as the cars, and will consequently be able to take part in the Motor Gymkhana which will be held by H.H. the Maharajah of Gwalior on December 27th.

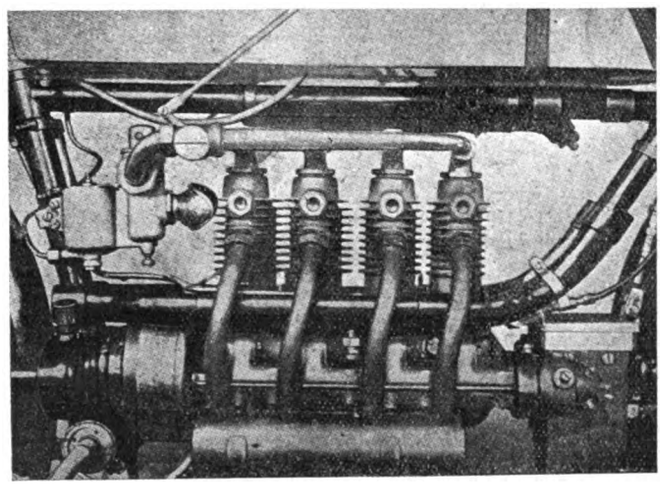
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AT a meeting of the Motor-Cyling Club last week Mr. J. Van Hooydonk read an interesting paper on "The Club Competitions of the past Season, and Suggestions for those of Next Year." The author considered that, however successful the competitions during the past season have been from a general point of view, something better would have to be done in the future to keep the interest of the competitors, judges, and others alive to the vast amount of work that the organising of these events demands, and also to eliminate the element of luck which has hitherto been too great a factor in deciding the competitions. In a 100 miles reliability trial he suggested that those who suffered from punctures should be given a second chance, and that at the end the petrol consumption should be measured. Some test of skill might also be introduced as the deciding factor in the event of a tie as regards the reliability of the machine.



Motor Cycling in India.

Thus a rider might be asked by the judges to remove a certain part of his machine and replace it in the minimum of time, or he might be asked to locate a "fault." In the discussion which ensued, Mr. Candler suggested that for next year a competitive run from Land's End to John o' Groat's should be organised, the distance to be covered in forty-five hours running time, two stops of six hours for rest to be made. Mr. Hooydonk, however, considered 150 miles a day sufficient for any man, and that an excellent competition might be made out of a twenty-four hours'



View of Engine of 1905 F.N. Four-Cylinder Motor Bicycle.

run. Checkers might be stationed every ten miles, the time taken to cover this distance not to exceed 30 min.

WE learn that the Victoria Carriage Works, Limited, of Long Acre, W.C., have been appointed sole agents for the Bollée cars in Great Britain and Ireland.

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CORRESPONDENCE.

BRITISH v. FOREIGN CARS.

To the Editor of *The Motor-Car Journal*

Sir,—After reading Mr. Jarrott's letter *re* the position of the English manufacturers, I cannot help remarking that if your correspondent had taken the trouble to inspect some of the foreign-made boats with which the extensive marine victories he mentions had been won, and had compared these boats with the motor-boats that were produced in England last year, he would not have committed the error of stating that the Continental manufacturers were in every way ahead of the British. It was only last week that I came in contact with a beautiful English boat that had just had its engine changed from French to English, because the French motor was entirely unsatisfactory. With regard to the importation of American cars and motors, no doubt, as far as the cheap articles go, the Americans are far ahead of us. They seem to be able to turn out motor-cars which look very pretty, and are very nice for one season of week-end trips. My experience is that this is about their limit.—Yours truly,

S. C. Smee.

To the Editor of *The Motor-Car Journal.*

Sir,—As one who has had a varied experience with both British and foreign cars, and who is not interested in the trade in any way, permit me to express my views on this controversy. At present I own a 12-h.p. four cylinder French car, which was purchased early this season and has given little trouble though in almost daily use. Of course I look after it well, do all small repairs myself, and take an intelligent interest in its upkeep. There is not an English-made car of the same class or power that I would to-day exchange it for, and I am certain there is not one obtainable at the price I paid for the car (*i.e.*, when new). I am referring, of course, to English-built cars, not those fitted with French engines and French made throughout with the exception of the carriage work and, perhaps, tyres. An English car of similar make to my own would cost nearly twice as much as my car did, and I doubt whether it would show better workmanship or the number of refinements that my car has. Motorists, *i.e.*, those who know the points of a car, select the French vehicle because it is cheaper and is better value than the English car. I may say I can obtain replacements from Paris from the London agents in a few days, never more than a week. On the other hand, when I owned an English car I sometimes had to wait weeks, even months, for a replacement.—Yours truly,

A. S. Wilson.

To the Editor of *The Motor-Car Journal.*

Sir,—The correspondence which has recently appeared in the *Motor Car Journal* concerning the motor industry seems to me to strike a very vital point, bearing as it does on the future of our nation and British industries in general, and thereby on the future prosperity of the British Empire. Every true British subject should support this comparatively new British industry, which employs thousands of Englishmen, and should feel ashamed to drive in a car of foreign manufacture.

Mr. Jarrott has written pointing out that British motors have not this year won international honours. This is incorrect, and cannot be taken as a proof that they are not as good as those of foreign manufacture, seeing that during the last three years the Napier motors have competed against the productions of all nations and won three international races. Not even Mr. Jarrott can expect British motors to win all the international races every year, but should rather for the present feel satisfied and proud that his country has won so many laurels against such fierce competition.—Your truly,

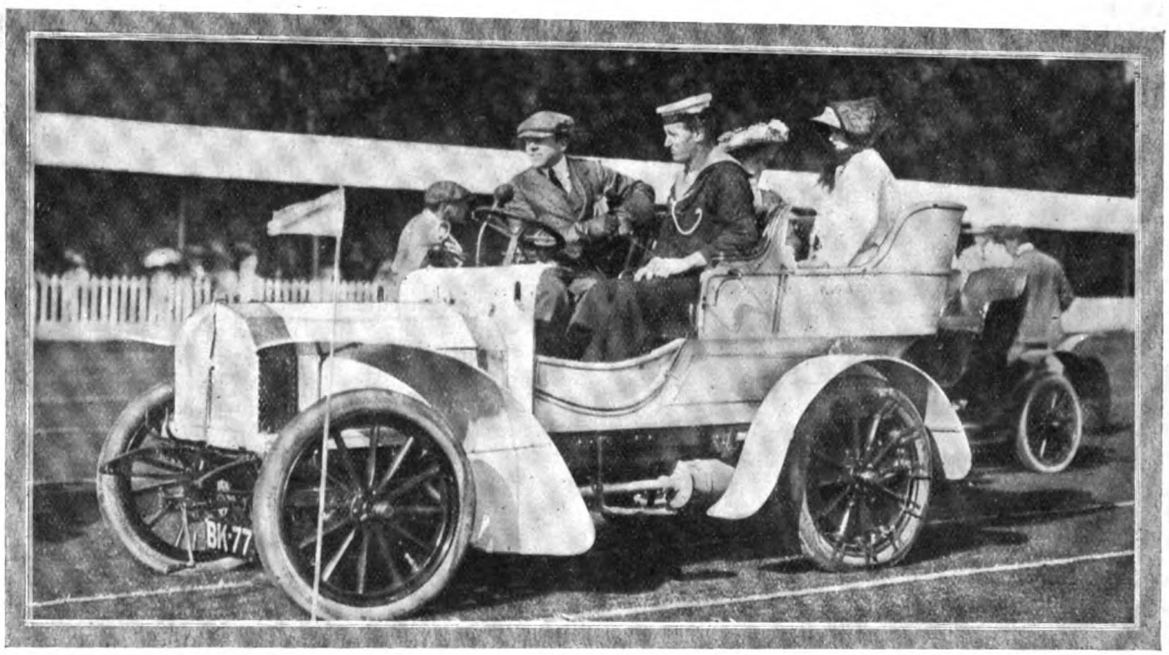
M. Billingham.

NEWLY METALLED ROADS.

To the Editor of *The Motor-Car Journal.*

Sir—The way stones and new metal are left exposed and unrolled in many places at this time of the year is simply disgraceful, and is a great danger, not only to motor-cars, but to all classes of traffic. A stretch of unrolled metal on a dark night means ruination sometimes to motor tyres, and the practice of lighting up with red lamps a piece of road that is undergoing repair should always be adopted. In particular, I would, with your permission, draw the attention of the road surveyor of Wimbledon to the condition of Gap Road, where, to my knowledge, a big patch of loose stones was left unrolled for at least a fortnight. My first experience of this patch was when driving home from Teddington in the dark one Sunday night recently, the stones being so loose that my little car was actually brought to a stand. A couple of weeks later I came home the same way and found the road in the same rough condition. Not wishing to convert my car into a road-roller, I have since given the road a wide berth, so cannot say if the loose stones are still there, but this letter may serve as a warning to other motorists going that way, and also as a hint to the Wimbledon authorities.—Yours truly,

Claphamite.



Captain Blackett, R.N., on his 12-h.p. Dennis Car. The Misses Fisher, daughters of Admiral Fisher are in the Tonneau.
Photo by [*Stephen Cribb.*

THE USE OF THE ACCELERATOR.

To the Editor of *The Motor-Car Journal.*

Sir,—With reference to the letters by "A. T." and "Foot Control," I certainly am in favour of driving on the accelerator, as it seems to me a much better method than the use of the throttle. The control is solely by the feet, leaving one's hands free for the steering wheel, brake and change speed levers. Its use was favourably impressed on me recently, when I was in one of the new 24-h.p. Fiat cars, and whilst proceeding along the High Street, Southampton, we came dangerously near being wedged between a tram and a heavily-laden dray, and it was only the instant use of the accelerator that enabled us to shoot by one of the posts supporting the overhead wires and between the tram and the dray, well out of harm's way. There is, as "Foot Control" states, the objection to this method of control, in that with the modern four-cylinder engine and automatic carburettor you have such a flexible engine, entirely controlled by the accelerator pedal, that the inability to keep the foot quite steady, more especially on bumpy roads, causes a surging action

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on the gears, which is minimised where the control is mainly by the positive throttle. But there is a much greater feeling of confidence, by the use of the accelerator, which causes intervention of the governors and the engine speed is varied by the compression and relaxation of the governor spring, more especially when operated by a pedal, which the positive throttle independent of the governors fails to give.

There is no doubt that control will in time be more by the feet, and I for one will be pleased to see this, as, being cognisant of both methods, I am quite convinced of the superiority of that by the accelerator, and were this system more generally adopted, it would do much to reduce the danger and inconvenience of changing cars, which "Simplicity," in his letter under the heading of "The Control Mechanism of Motor-cars," calls attention to.—Yours truly,

R. G. PRIEST.

NON-SLIPPING TREADS.

To the Editor of *The Motor-Car Journal*.

SIR,—In reply to "Norfolk," there is no non-slipping tread that does not to some extent slow a light car. Those of the See or Pullman pattern are better as far as this goes than the Wallwork; I should put their loss at about three miles an hour, when they have become flexible after a few dozen miles' running. Personally I have had the greatest satisfaction from the "Eyre" non-skid, which has no retarding effect, does not injure tyre, and is easily put into and out of action. I have had them on a somewhat heavy 10-h.p. car, that was a bad skidder, since last June, and have never found them fail in their effect. They are, moreover, cheap, especially as regards renewal, and seem to be the only choice at a moderate price where there is no engine-power to spare. They are, of course, not "treads," but I do not think any tread will quite fill the last requirement.—Yours truly,

R. W. BUTTEMER.

To the Editor of *The Motor-Car Journal*.

SIR,—As I see your correspondent "Norfolk" enquires about non-skids for light cars, I should advise him to try the Parsons non-skid device, which I have used on a 10-h.p. single cylinder four-seated car with grand results. They entirely do away with sideslip, and do not slow the car to any appreciable extent.—Yours truly,

B. TURPEY.

A GOOD SUGGESTION.

To the Editor of *The Motor-Car Journal*.

SIR,—Theory has sometimes to yield to practical experience, and it is, therefore, to those who are using motor-cars day in and day out that would-be motorists must look for practical information with regard to motor-cars. A record of the facts and things met with would be very interesting and very helpful to novices if only motorists would take the trouble to make the same public.

It is on the broad plane of imparting useful knowledge that I venture to suggest that owners of motor-cars should write frequently to the *Journal* about the practical points that come up in their several experiences. Some of the things that beginners desire to know about are: (1) The consumption of fuel. (2) The cost of repairs; the kind of repairs most common and the methods taken to carry out the work and prevent recurrence of the trouble. (3) The life of tyres under varying conditions. (4) Useful accessories; that is, all those adjuncts to the car in the shape of lamps, tools, and the like, which are not an actual part of the vehicle. (5) Experiences with various forms of motors, gearing, lubricators, bearings, carburettors, ignition, pumps, etc. (6) General happenings in operation, breakdowns, their causes, results, and repair.—Yours truly,

A. FISHER.

WITNESSES OF ACCIDENT.

To the Editor of *The Motor-Car Journal*.

SIR,—If the gentleman who had the misfortune to run over a child at Cricklewood on Saturday afternoon, the 12th inst., should want any witnesses, I should be pleased to give him the addresses of three persons who saw the accident from the top of an omnibus.—Yours truly,

H. R. PARTON.

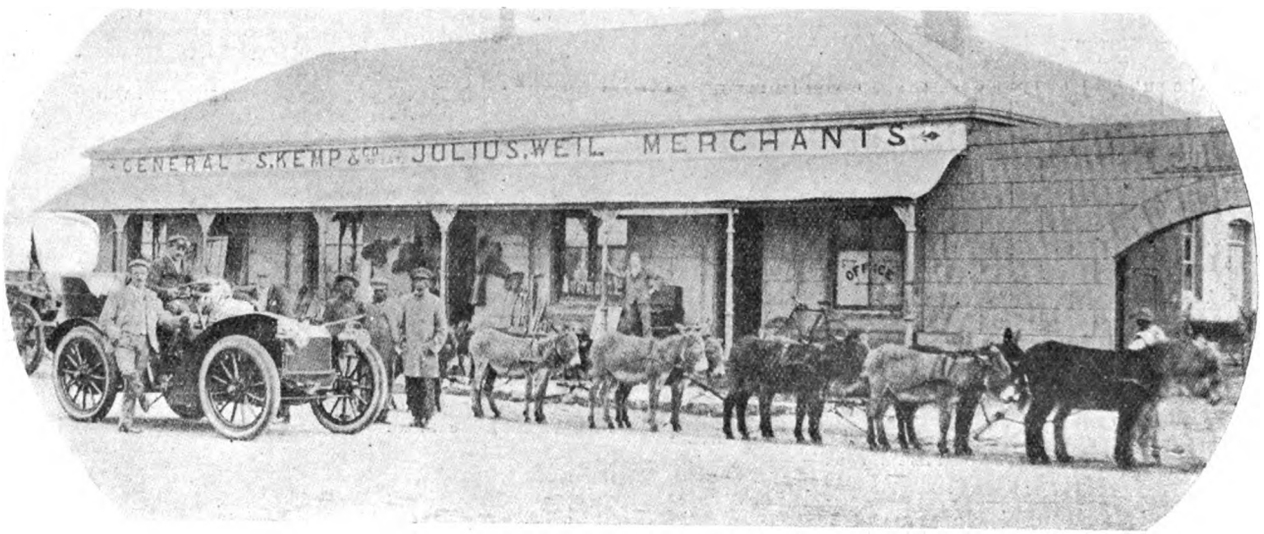
[Should the motorist interested see this announcement we shall be pleased to put him into communication with Mr. Parton.]

THE CONTROL MECHANISM OF MOTOR-CARS.

To the Editor of *The Motor-Car Journal*.

SIR,—"Simplicity," in his letter in the last issue of the *Journal*, is quite correct in considering that simplicity of control should be the *sine qua non* of all designers and makers of motor-cars. A great improvement in this respect has taken place during recent years, and each fresh batch of motorists finds the problem a less difficult one to solve. Opinions differ, however, as to the direction the efforts to obtain simplicity and at the same time retain efficiency of control should take. Practically all designers are agreed on the desirability of supplying a foot-operated brake, the application of which in some way or other disconnects the engine and the transmission gear. Among drivers it is felt, too, that the brake that is most used as well as most effective should be foot operated; but on some cars the contrary is the case, and the driver, should he be called on to stop suddenly, makes use of a hand lever for the purpose, thus necessitating the removal of one hand from the steering wheel—a practice obviously dangerous at such time. There is likewise a growing feeling that cars should be so constructed that the driver's hands need never be removed from the steering wheel while running, except to make speed changes. The practice of operating the throttle and the sparking advance levers from the wheel is now in fairly general use. It not only permits the driver to keep his hands on the wheel, but avoids the necessity of taking his eyes from the road; for a fleeting glance can be cast at the appliances on the wheel without really losing sight of the road.—Yours truly,

F. BARTON.



The Old and the New at Mafeking, South Africa. [*Automobil Welt.*

ECONOMICAL RUNNING.

To the Editor of *The Motor-Car Journal*.

SIR,—In the *Journal* of November 5th a correspondent refers to the amount of petrol consumed by the 7-h.p. Clyde in the recent small car trials, viz., 47·3 miles per gallon. This does not represent the true capabilities of the car under ordinary conditions. During the ascent of Frome's Hill, the Clyde car (as reported at the time) was run into by a large non-competing car, which bent one of the steering spindles and also the steering gear. The driver made a temporary repair in order to continue the trials, and the car ran to the end with both front wheels running inwards, which consequently acted as a brake. The effect on the tyres was shown at the end by both treads on the front tyres being worn flat. Both before and after the trials, the same car has run from fifty to fifty-three miles per gallon, and this performance is also equalled by other cars of its type. This is accomplished simply through a special

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means of effecting perfect mixture, and also by arranging the transmission so that friction is reduced to the lowest possible point.—Yours truly,

G. H. WAIT.

THE DEVELOPMENT OF THE TRI-CAR.

To the Editor of *The Motor-Car Journal.*

SIR,—In view of the growing popularity of the tri-car, and the many new machines of this type that have lately been introduced, it is interesting to note what a resemblance these bear to certain vehicles which were apparently before their time. One of these was the Century tandem, and the other was the new Courier "Motoret." The latter was brought out just five years ago by a Wolverhampton concern, and, although almost identical with the modern tri-car, met with but a brief adoption. The machine had a 2¼-h.p. De Dion engine, chain drive, and a clutch, enabling the rider to disconnect the motor at will from the driving mechanism.—Yours truly,

C. W. BAXTER.

CASES AGAINST MOTORISTS.

To the Editor of *The Motor-Car Journal.*

SIR,—On looking through "Cases against Motorists" week by week I am puzzled to know why one man who has had the misfortune to have his rear lamp either jolted or blown out should be fined 5s., whilst another man, hauled up at another police court for precisely the same offence, should be fined 10s., and yet another man at another court be fined £1. In this country we like to boast about the justice we get as Englishmen, and I should like to know why it is possible for a stated offence that varied fines should be imposed.—Yours truly,

JUSTICE.

To the Editor of *The Motor-Car Journal.*

SIR,—*Re* your weekly "Cases Against Motorists," I would respectfully ask you if the publication of same serves any useful purpose. In my opinion you are simply keeping and publishing a record of offences and convictions against motorists, which authorities and others, interested in retarding the automobile industry, may produce as evidence, when the present Motor Car Acts come to be revised at the end of 1905.

I should be glad to know what other readers may think about this subject, and at the same time again express my opinion that such convictions had far better not be published.—Yours truly,

W. F. F.

[The publication of our list is useful as indicating places where official prejudice is still keen against motorists, and also as showing inconsistencies of "justice" throughout the country.]

STEAM CARS.

To the Editor of *The Motor-Car Journal.*

SIR,—I notice in a recent issue the formula of the handicap in the Wolverhampton Club's hill climb was given as follows :—

$$\frac{\text{Time} + \text{H.P.}}{\text{Total weight.}}$$

In some of your contemporaries it is given as :—

$$\frac{\text{Time} \times \text{H.P.}}{\text{Total weight.}}$$

Now if either of these formula is correct and no excessive handicap was imposed upon the steam cars as compared with petrol cars, the three 10-h.p. "Turner-Miesse" steam cars which ran in the competition would come out first, second and third in the open handicap.

I desire it to be distinctly understood that I do not wish to make it appear that the committee as a body or any individual member thereof have purposely treated the steam cars unfairly.

I can only conclude that a mistake has been made.

I should like to point out, for the benefit of those interested in steam cars, that no particulars were asked from myself or the other drivers of the "Turner-Miesse" steam cars in the competition as to the steam pressure. Every steam engineer knows that it is impossible to rate a steam engine without knowing the steam pressure, but for the benefit of the public I beg leave to quote the following letter receive from Mr. Stephen Watkins, A.M.I.C.E., of Wolverhampton :—

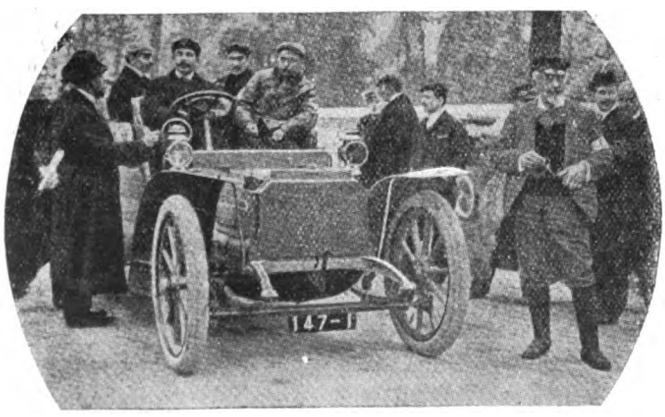
"In reply to your question addressed to me to-day whether it is possible for anyone to rate the actual horse power of a steam engine without knowing the steam pressure which is used, I have to say that it would be impossible to do so."

I am given to understand that the handicapping was in the hands of Mr. F. Straight, of the A.C.G.B.I., and I take the liberty of asking Mr. Straight to inform me :—

1. If there was a penalty on the steam cars ?
2. What was this penalty ?
3. Who fixed the penalty and on what information or grounds ?
4. When was this penalty fixed ?
5. How did Mr. Straight arrive at his estimate of the horse power, when no data was given as to the steam pressure ?

If any particulars were given Mr. Straight as to the steam pressure, will he be good enough to state from whom he received same ?—Yours truly,

J. BURNS DUMBELL.



Cuchelet on the Peugeot Car—the winner of the £600-£720 Class in the Gaillon Hill-Climbing Competition.

To the Editor of *The Motor-Car Journal.*

SIR,—I have just returned from the United States, where I had the pleasure of witnessing the Vanderbilt Cup Race, the first automobile road race of any importance which has ever been held in America.

The action of the Americans in connection with this race in allowing the entry of foreign cars, although such action practically prohibited an American car from winning the cup, stands out in considerable contrast to the action of gentlemen at a race meeting in which steam cars were barred from participation for the sole reason that their speed made them dangerous competitors.

As an American who has resided in England for some years, I must confess to too high an opinion of British sportsmanship to allow an action like this one to take place without dropping a word of warning to the effect that a good reputation for sportsmanship must not only be made, but must be maintained.

During the past year I have been barred from participation in many hill-climbing contests because I drive a steam car. Even in hill-climbing contests in which steam cars were allowed to compete my car was obviously at a disadvantage owing to the rules enforced with regard to standing the car in line for such a time that it would become cold and be compelled to climb under other than ordinary road conditions. In view of this fact I can hardly be blamed for coming to the conclusion that fair play has one definition for petrol car owners and another definition for steam car owners.—Yours truly,

FREDERIC COLEMAN.

TYRES.

To the Editor of *The Motor-Car Journal.*

SIR,—I am about to take up motoring, and propose to use a 10-h.p. car of the Wolseley type. Being undecided as regards tyres, I shall be glad if any of your readers will inform me on the following points :—What is the average mileage life of the following tyres when used with such a car :—(a) Michelin, (b) Palmer Cord, (c) Continental, (d) Dunlop ?

Would anyone also kindly inform me, apart from this, which he thinks would be the best tyre for my purpose, viz., for touring ?

Thanking you in anticipation.—Yours truly,

F. M.

OVERHEATING TROUBLES.

To the Editor of *The Motor-Car Journal.*

SIR,—Referring to Mr. A. E. Coleman's letter in the last issue of the *Journal*, the trouble would appear to me to be owing to the space around the exhaust valve being furred, or there may probably be a faulty cylinder casting. Sometimes in the casting the small cores round the valves become broken, allowing the metal to be solid, hence the overheating Mr. Coleman mentions. The size of the water-pipes should be quite large enough for the engine, and the connections, also, are correct.

With reference to the ignition, this would not make any difference to the overheating of the exhaust valve.—Yours truly,

H. J. S.

JACK FOUND.—Messrs. E. T. C. Morriss and Company, 137a, Finchley Road, N.W., have found a motor-jack near Swiss Cottage Station, which they will be pleased to return to the rightful owner.

GOGGLES FOUND.—Messrs. G. Candler and Sons, 258, Brixton Hill, S.W., have found a pair of goggles on Upper Tulse Hill, which they will be pleased to return to the owner.

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ELECTRICAL TIMING APPARATUS.*

By C. W. S. CRAWLEY.

THE ordinary method of timing races is, of course, by stop-watch, and this has drawbacks, for two reasons—the watch and the user. The watch, even a theoretically perfect one, only registers the results to 1-5 second. This is not close enough for a short race. Take a flying kilometre, run in 25 secs., there are only 125 fifths in 25 secs., so that the result is only given correct to 1 part in 125. To look at it in another light; in 1-5 sec. a car travels 8 metres. We measure the course with great accuracy, say, to half a metre or less, and then time it as if 8 metres did not matter. Another way of putting it is that at a speed of 100 miles per hour, 1-5 sec. means a difference of well over half a mile per hour.

Racing against the clock is even worse. Say a watch registers 2 1-5 sec., this merely means that the button was pressed somewhere between 2 1-10 and 2 3-10 sec. Say the car passed really at 2 1-10. The watch at the finish may register 31 1-5 when it should really have been 31 3-10. The real time is 31 3-10—2 1-10=29 1-5, whereas the watch gives it 31 1-5—2 1-5=29, so that its time is given 1-5 too long. The opposite may occur for the next car, so that its time is given 1-5 too short. The two cars may have really run a dead-heat, and yet absolutely perfect stop-watches, absolutely perfectly pressed, may show 2-5 difference in their times. This is the extreme error which can occur; the probable error is only 1-20 sec. The odds against an error of 1-5 in the above case would be, perhaps, 5 to 1, and against anything like 2-5 very much greater, but the uncertainty is always there. You never know, or can find out, than an error of 2-5 has not crept in.

Now, there is another source. Watches are nearly perfect, but not quite. There are watches belonging to Mr. Woollen and Mr. Straight which did not show any difference at the Small Car Trials after eight hours. This is a perfect triumph of watchmaking, regulating, and handling; and we cannot hope for better, I think. But it merely shows that at the end of that time one had not gained quite as much as 1-5 on the other; if one had gained 99-100 of 1-5, the result would have been the same. So from this source alone there is an uncertainty of another 1-5 between the first and last cars, making 3-5 uncertainty.

Then we have the personal element. Mr. Woollen has suggested that it takes a very good man to press accurately to 1-5. I hope to test Mr. Woollen and Mr. Straight some day, and I shall not be surprised if they are generally nearer 1-50 than 1-5.

Still, even the best men are capable of making a mistake, and there is no means of finding it out. What we want is that the car shall, by passing the tape, make its own mark, and that if a mark is made at all it shall be incapable of an error which can be of any importance; that we now have. I have spoken of perfect watches and perfect men. When we get away from them, instead of being uncertain to the extent of 3-5, we must put on another 1-5 each at least for watch and man. And, to come down to the lowest class of timing, how many fifths we must add for the imagination of a constable on promotion is beyond the range of calculation.

Lastly, there is another serious drawback; errors cannot be corrected. When the watch is read and the knob pressed all real record is wiped out; all that remains is the written statement on a piece of paper of a fallible man. In the case of our own and many other timekeepers, they would probably be safe in betting each race 100 to 1, perhaps much more, that they made no error of pressing, reading, or writing. Still, even they are human, and there is no means of checking afterwards.

Now, Mr. Phillips, in 1887, got out this apparatus, which gets rid of some of the errors. The starting pistol closes a circuit, causes a magnet to press the knob of a stop-watch, and, similarly the breaking of the tape or other means at the finish presses it again. This use of one watch is a great advantage, as the extreme accuracy is only required when two are used. Say a watch gains 1 minute per day, which would be very bad for a common pocket one. There are 1,440 minutes in a day, so the error is only 1-1,440; so that in a 30 sec. race the error is only 30-1,440, or 1-50 sec. In addition to this, the human element is eliminated in pressing the button. It still has the human element of error as far as reading and writing go, and the watch still only reads to 1-5, so that there is still an uncertainty of 2-5 as at first, but no more. The record, however, is still wiped out, and cannot be checked.

* From a Paper read at a meeting of the Automobile Club, on the 10th inst.



An Automobile Procession at the St. Louis Exhibition.

CLUBS AND ASSOCIATIONS.

NORTHAMPTONSHIRE.

THE first of a series of lectures under the auspices of the Northamptonshire Automobile Club was given at headquarters, the Great Northern Hotel, Peterborough, on Friday evening, the 11th inst., when Mr. J. Montgomery, of the Peterborough Motor Company, gave a practical demonstration on a petrol engine. In the discussion, the respective merits of the automatic inlet valve and the mechanically operated valve were dealt with. The lecturer pinned his faith to the latter. For one thing, he said, the mechanical valve would keep the engine cooler than the automatic valve, and admittedly gave less trouble. The reason the mechanical valve was kept back was that there was 50 per cent. more trouble in making it, while it had to be sold at the same price as its automatic rival. Dealing with the question of vibrating and non-vibrating coils, the lecturer gave an opinion in favour of the former, although he admitted that far greater speed could be got out of the non-vibrating coil, and the consumption was less, but the latter gave a great deal more trouble. The lecturer advised them not to file their platinum points; if they gently hammered them it would make them all the harder. Nor should they let their accumulators run below 3·8, or better still, not below 4 volts. One motorist in Peterborough never had any trouble with his accumulators, because he had them recharged every week, whether they wanted it or not. If they put their motors away for the winter, or even for a short time in a damp atmosphere, they should take out the coil and keep it dry in the house, but the best thing to do was to ride the machine all through the winter. A vote of thanks to the lecturer for his lucid and entertaining remarks brought the very instructive evening to a close.

YORKSHIRE.

A WELL-ATTENDED general meeting of this club was held at headquarters, and ably presided over by Mr. Wilson. The principal business was to consider a proposal of the committee that an entrance fee be charged to all new members joining the club on and after January 1st, 1905. The alteration was put forward by Mr. Hey (Hon. Treasurer), who briefly outlined what was done by other clubs, and said that many new members

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who had lately joined expected having an entrance fee to pay. Mr. Winn seconded the proposal. Mr. Exley moved an amendment that one guinea entrance fee be charged, but subsequently withdrew it, as it would prevent the matter being settled at the meeting. Ultimately the proposal was put to the vote and carried unanimously.

A discussion was then commenced by Mr. Pepper "On how to increase the attractiveness of the club," socially or otherwise. After mentioning the fact that club runs to different places did not seem to be a success, Mr. Pepper suggested that a few picnics be arranged to different places of interest, historical parks, moors, etc., and that members each take all their own refreshment outfits. Mr. Wilson supported this, and thought he could get permission for the club to visit two or three places of interest in the country.

Mr. Steel suggested that more use might be made of the club-room, and that a special club night be arranged on one evening each week, probably Thursday; a committee of six or twelve members be formed, two of whom would promise to attend on a certain evening, so that any member might be certain of meeting someone he knew on such night. Then again a suggestion board might be hung up, on which papers asking advice might be posted, or on which a member might notify that he would be pleased to hear of others to join in a special run or tour. Mr. Armitage suggested an arranged run each week during the summer.

All these suggestions were unanimously supported, and the committee will endeavour to have a busy programme arranged for the winter and following summer.

The fifth annual dinner, to be held on the 2nd prox., promises to be a great success. Mr. A. W. M. Bosville, of Bridlington, will occupy the chair.

THE SOUTHERN MOTOR CLUB.

THE committee of this club have arranged that the subscription of any gentleman wishing to join between now and March 31st, 1905, will entitle him to all the privileges of membership till the end of 1905. The club has decided to meet at the George Hotel, at Morden, Surrey, on fine Sunday mornings throughout the winter season. The annual dinner and distribution of prizes will take place at the Trocadero, W., on the 1st prox.

CLAIMS AGAINST MOTORISTS DISMISSED.

BEFORE Mr. Justice Darling and a common jury, the case of "Field and another v. Batstone has been heard." The action was brought by two brothers named Field against Mr. S. C. Batstone, of South Norwood, to recover damages for personal injuries, etc., sustained through the alleged negligence of the defendant. On the evening of Sunday, May 24, last year, the plaintiffs were proceeding in a pony trap from Ewell to London, and they alleged that when they reached Currey's-corner, Station-road, Ewell, a motor-car driven by the defendant, without any warning, dashed out of Monger-lane and struck the trap, which was overturned and smashed. The plaintiffs said they also received injuries which prevented them from following their employment for several weeks. The defendant denied negligence, and pleaded that the accident was due to the negligence of the plaintiffs. Judgment was given for the defendant, with costs.

IN the Belfast Recorder's Court, Henry Hutchinson brought an action against James M'Cammond to recover £19 19s., damages for personal injuries sustained by the plaintiff through the alleged negligence of the defendant or his servants in managing a motor-car on the Holywood road. The plaintiff stated that on the 20th September he was riding a bicycle along the Holywood road in the direction of Belfast. It was about 5.30 o'clock in the evening. A motor-car passed him going towards Holywood. Witness had a friend with him who was also riding a bicycle. He slowed up and went behind his friend, but subsequently came abreast of him. When in this position he heard a motor horn blowing, and on looking round the motor-car hit the right wheel of his bicycle, knocking him off and smashing his bicycle. H. W. M'Cammond, defendant's son, said the motor-car belonged to his father, but witness was driving on the occasion. He had been at Bangor that day with a friend, and was returning home, driving at a rate of eight miles an hour. He had the motor-car under complete control, and was in the centre of the road. He saw four cyclists—three on their proper side and one on the wrong side. Witness blew the horn half a dozen times before he came up. As he came up the man on the wrong side, who was the plaintiff, swerved round and turned right across witness's car. He turned a second time, and witness then struck him with his motor. Witness made every effort to avoid the accident. Dr. Watt, who came up, said the defendant was on the wrong side of the road. His Honour said the person on the bicycle was at first on his proper side, but he attempted to pass in front of the motor-car. If he had remained on his proper side the car would have passed, and no accident would have occurred. The action could not be sustained, and it would be dismissed.

THE Scottish Motor Garage Company, Limited, of Glasgow, have recently held what was, we believe, the first motor-car auction that has yet taken place in that city. These sales are intended to be held every month, and, from the attendance and number of lots which were sold on the first occasion, promise to become an important feature of Scottish automobile business.

CASES AGAINST MOTORISTS.

Place.	Summoned for	Fine.
Dunblane	Driving on prohibited road	£5.
Wilmslow	(1) negligent driving; (2) refusing to give name after an accident	(1) £10; (2) £10.
Bow Street, London	Beyond regulation limit in Green Park	42s.
Kingston	(1) driving dangerously; (2) refusing to stop	£10; £10.
Huddersfield	Exceeding legal limit	36s.
Birmingham	No rear light	20s.
Coventry	Excessive speed	Dismissed.
Marlborough St., W.	20 miles an hour in Hyde Park	20s.
Ayr	Driving round a corner without sounding horn	£5.
Ingleton	Unilluminated rear number	£2.
Harlow	Driving dangerously	40s., etc.
Cheshire	(1) Driving negligently; (2) refusing to give name after an accident	(1) £10; (2) £10.
Exmouth	Driving without licence	£2.
Brynmawr	No light	2s. 6d., etc.
Thames	Unilluminated rear plate	10s., etc.
Pollokshaws	No rear tail light	£3 3s.

ACTION OVER RELIABILITY TRIALS.

THE British Automobile Commercial Syndicate, Limited, sought to recover damages from the Automobile Club for alleged breach of contract in respect of a motor-car competition, which contract was denied by defendants, and the case has just been heard before the Lord Chief Justice in the King's Bench Division.

In the summer of last year the plaintiff company received an entry form and a copy of the rules and regulations relating to a 1,000 miles' reliability competition for motor-cars, arranged by defendants. It was to extend from September 18th to 26th, and each car was to start from and complete each day's run at the Crystal Palace. Plaintiffs paid the fee of £20 odd, and entered a 12 h.p. Clement car, to be driven by their managing director, Mr. D. M. Weigel. The latter drove the car to the Palace, and on September 17 was allotted a position for the following day's trial. On the 18th he drove the car to Margate and back, but was prevented by the officials, acting on behalf of the defendant company, from completing the trial the following day, on the ground that he was not on the club register.

Mr. H. Terrell, K.C., and Mr. Lynch (instructed by Mr. John Hands) appeared for plaintiffs; and Mr. Lawson Walton, K.C., Mr. Montague Lush, K.C., and Mr. A. Paget (instructed by Messrs. Firth and Co.) for defendants.

The case having been opened by counsel, Mr. Weigel gave evidence as to the facts of the case. Mr. Lush submitted that there was no case to go to the jury. So long as the club committee had acted bona fide they were entitled to act as they had done, and the plaintiffs could not recover.

The Lord Chief Justice pointed out that the revised rules of the competition contained no reference to the club rules at all. He ruled as a matter of law therefore that there was an unlawful breaking of the contract, because the competitions took place under special rules which did not incorporate the club rules.

The case resolved itself into a question of damages, and after some discussion these were fixed by the jury at £150.

Judgment was accordingly entered for the plaintiffs, with £150 damages and costs.

TO CORRESPONDENTS.

All communications intended for insertion in this Journal or relating to Editorial matters should be addressed to THE EDITORIAL DEPARTMENT, MOTOR-CAR JOURNAL, *39 and 40, Shoe Lane, London, E.C., and must be written on one side of the paper only. Letters must in all cases be accompanied by the name and address of the writer, as no notice will be taken of anonymous communications.*

The Editor cannot undertake to return MSS. or drawings, although every effort will be made to do so in the case of rejected communications. Where such are regarded as of value, correspondents are requested to retain copies.

To insure insertion communications and contributions must be in the Editor's hands by Tuesday forenoon of the week in which the same are intended to appear. Disappointment may be caused by non-compliance with this rule, and to avoid this earlier receipt, if possible, is necessary.

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THE

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COMMENTS.



ONE of the most interesting features of the automobile year has hitherto been the Glasgow to London Reliability Trial of the Western Section of the Scottish Automobile Club. In the early stages of the industry this test was regarded as something to try the merits of cars and test the endurance of drivers. But in these days of lengthening long-distance trials it has been thought desirable to invite the views of the trade as to what the Scottish Club may reasonably be expected to do in the organisation of a trial north of the Tweed next year. Hence the appearance in our correspondence columns of a suggestive letter from Mr. R. J. Smith, whose enthusiasm and powers of organisation are likely to prove equal to anything that may be suggested. In view of the antagonism which is developing in some parts of Scotland towards the motor-car, it seems eminently necessary that something should be done in the direction of converting the local authorities as well as testing the vehicles. That idea should be borne in mind by motorists writing direct to the Scottish Club or making their views known through the columns of the *Journal* in order that full discussion may be elicited.

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Progress at Leicester.

IN inaugurating their winter session by a lecture on "Motor-cars," by Mr. E. Shrapnell Smith, the Leicestershire Automobile Club did well, and he, on his part, gave them an address full of information with regard to the history and development of automobilism. Mr. E. G. Mawbey, M.I.C.E., the president, was in the chair, and said that the automobile club had been a great success in Leicester. They had a large number of members, owning 70 motor-cars. There were 76 motor-cars and 106 motor-cycles in the town, and in the county of Leicestershire 107 cars and 187 cyclists, so that they would see the number of motorists was increasing. He urged all motorists to join the club, for "union was strength," and it was principally owing to the affiliated clubs that automobilists had the advantages they now enjoyed.

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Tests in South Africa.

So much has lately reached us concerning the advance of automobilism in South Africa, that the proposition for a series of trials in that country does not come as a surprise. Already some excellent long distance runs have been made in South Africa with various makes of motor-vehicles, and the inquiries that have been made as to the possible organisation of automobile services, both for passengers and goods, prove that the time is coming when reliability trials can be organised without insuperable difficulties.

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Lessons for Ladies.

IN arranging a series of technical lessons on the automobile for the benefit of its members, the Ladies' Automobile Club has done well, and Mr. Currie may be congratulated on the syllabus he has prepared for their edification. Many ladies are expert drivers and many more would rapidly become so if they felt the confidence which comes from knowledge of mechanical matters. These lessons should give them an adequate idea of technical terms, and the only suggestion we would make is the inclusion of an extra lesson dealing with the main features of steam and electrical vehicles. By this means a completeness would be given to the course and interest increased, in view of the popularity of these quietly-moving vehicles in society circles.

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A Club for the Argentine.

THE international aspect of automobilism receives further testimony in the formation of the Argentine Automobile Club. This has recently been inaugurated at Buenos Ayres, the capital of the Argentine Republic, and already has a membership of well over a hundred of the leading residents of the city. The hon. treasurer of the organisation is now on a short visit to England and has made application for the affiliation of his club with the A.C.G.B.I., a matter which is the subject of consideration in Piccadilly. The address of the club is "Automovil Club Argentino, Calle Maipu 1,241, Buenos Aires," and a reading room is being supplied with automobile literature from all parts of the world. Catalogues of English makers of motor-cars will be particularly welcome. An automobile show is also in contemplation by the club.

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Local Bye-Laws.

LOCAL bye-laws are often strangely worded and curiously devised to hinder progress. In Staffordshire there is one concerning motor-cars, which must not be stopped within 10 feet of the abutment of a county bridge—a piece of information which strangers are likely to ignore in their innocence of the existence of such a provision. A victim of such regulation has just been fined twenty shillings and costs for stopping his vehicle on the top of a bridge at Rushall. It might be well if notices were exhibited where such provisions exist, unless there is too great a danger of making our hoardings veritable motorists' guides.

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Motor Traffic on Roads.

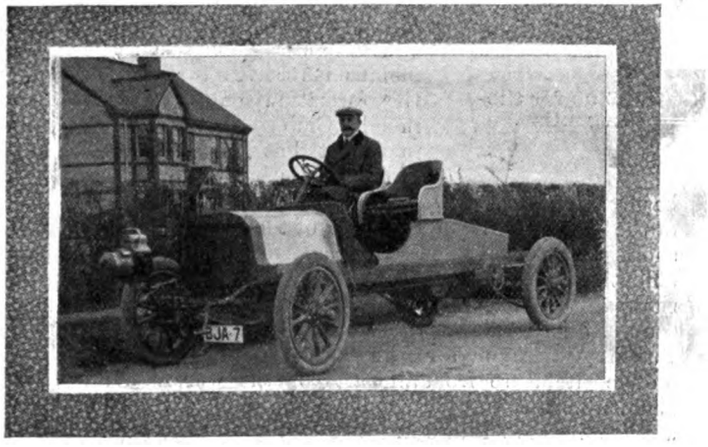
SIR WALTER GILBEY has international reputation in connection with matters relating to horses, and his reflections on motor traffic and the public roads, as given out in this month's "Nineteenth Century," naturally deserve kindly consideration. He recognises that the initial difficulty to be got over in dealing with the problem is that of reconciling the conflicting interests of swiftly driven passenger motor-cars with those of other users of the highway. In coming to a conclusion Sir Walter recognises that the new traffic will necessitate both the widening and the improvement in methods of construction of the roadways. Firstly, swiftly driven cars on winding roads between high hedges are a source of danger to strolling live stock, wandering pedestrians and lumbering wagons. Heavy motor-wagons, on the other hand, built up to the maximum allowed by the regulations of the Local Government Board, would in many places practically close the lanes to other traffic. These two factors combine to make the work of reorganising British roadways a very expensive business, and Sir Walter Gilbey suggests, without answering, the question, "Who pays?"

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Who Pays?

MOTORISTS can approach the question without any qualms. They have already contributed something to the county revenues in fees for registration and licensing; they have provided many districts with various fines unjustly inflicted, and they have thus contributed their quota to the expense of local government. But indirectly the automobile movement has revived the prosperity of many rural districts, given a new lease of life to numerous hotels, and generally re-awakened an interest in country life. What are the ratepayers to give in return? Surely Sir Walter will be quick to recognise that these, too, have a responsibility in the matter, and that the authorities must not expect motorists to pay to exist. This is a new philosophy of taxation, and one that is not likely to find much acceptance in an age in which philanthropy is not practised merely for the fun of the thing. Apart from this, however, the article is one that motorists should study, the historical information contained therein being particularly interesting.

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Mr. Max Pemberton on a 16-20-h.p. Brooke Car.

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Motor-Car Insurance.

MR. FREDERICK THORESBY, the general manager of the Car and General Insurance Corporation, Limited, has written a useful pamphlet on the insurance of motor-cars, in which he points out that the cost of insuring vehicles depends almost entirely upon the amount which an insurance company has to pay to or on behalf of its assured. There are four great directions in which an improvement in this respect can be effected, viz., removing the prejudice felt against motorists by abating the dust nuisance, reducing the risk of side-slip to a minimum, giving prompt notice of any likely claim that may arise, and regarding the policy as a deed of partnership between the insurance company and the assured. Mr. Thoresby's explanations of the various points that may arise in connection with insurance matters are extremely lucid and pointed.

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Horses as a Source of Danger.

SOME time ago we noticed the remarks of a coroner in Kent, who expressed his view that the automobile was not nearly the murderous machine that some would be inclined to regard it. Now comes similar testimony from the Halifax coroner, Mr. E. H. Hill, who, at an inquest in that borough arising out of a trap fatality, stated that there was a good deal of correspondence in the newspapers about motor-cars. Whilst, however, he had not yet had a case of death from a motor-car, this was the sixth or seventh accident from a horse-driven vehicle that he had investigated. This is a fact which cannot too frequently be urged. The horse-drawn vehicle is by no means free from danger, for here we have an animal of uncertain temper, likely to shy at any unfamiliar object which may come within its range of vision. On the other hand, the automobile is propelled by something of a mechanical nature conformable to certain laws and only requiring a steady, careful driver to secure absolute reliability of control.

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Where Roads are Narrow.

MOTORISTS can do something to secure better roads for next season's touring if they will continue to make, throughout the winter, urgent representations to the various local authorities. A resident of Sevenoaks has just drawn our attention to the narrowness of the main road from the bottom of Farnborough Hill through the village of Green-Street-Green onwards to Sevenoaks, and to the great danger to life arising therefrom. An enormous motor traffic has arisen along this road, and in fine weather as many as 400 outward-bound motors and five times as many bicycles have been counted on a single day. The roadway is only some twenty feet in width, whereas it should be at least forty feet to secure any measure of safety. It is impossible for motor-cars running at high speed in opposite directions to pass without the most imminent risk to the lives and limbs of their occupants on so narrow a roadway. Steps should certainly be taken to widen the road, at any rate in the most dangerous portions of it, for example, from Polhill to Green-Street-Green. Residents in other parts of the country where roads are narrow should be prompt to similarly indicate points of danger to motorists.

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Scottish Opposition.

IN connection with the renewed activity in Scotland against the motor-car, two or three incidents have lately been brought to our notice which seem to indicate a distinctly antagonistic attitude on the part of Scottish authorities. Broughty Ferry is taking a lead with the object of securing for burgh authorities the power to regulate the speed of motor-cars while driving through burgh streets. On learning that they were without power in the matter, and that the power rested entirely with the Scottish Secretary, the Town Council resolved to bring the question under the notice of the Member of Parliament for the county, with the view of impressing upon him the necessity of making some arrangement by which they could legally enforce an adequate rate of speed. Captain Sinclair, M.P., has consequently been interviewed, the Town Council being represented by Provost Gray and Councillors Lindsay, Scott, and Mackay.

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Possibility of Further Legislation.

CAPTAIN SINCLAIR indicated that personally his opinion was that burgh authorities should have full control in such a matter, and it was desirable that a reduced rate of speed should be enforced in burghs. After conversation it was agreed that the best method of having the subject raised would be by calling attention to the question at the Convention of Royal Burghs in April. A definite proposal might then be formulated, and Captain Sinclair pointed out, by way of suggestion, that a return showing the number and nature of accidents that had occurred would be of considerable importance, and perhaps of value in leading to the realisation of their wishes. Reference was also made to the confusion that would be caused in the event of different rates of speed being fixed in different burghs, and it was thought desirable that a standard should be agreed upon. Captain Sinclair gave no pledge to support any measure that might be brought forward without being fully aware of its provisions, but promised if a Bill on the reasonable lines indicated by the deputation were prepared and submitted that it would have his cordial support. Does this mean that a Scottish movement to restrict even the small advantages of the Motor Car Act is about to be initiated? In such an event the Scottish Club will have to be reckoned with, a fact of no small encouragement to motorists.

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In India.

THE article by Mr. F. J. E. Spring in another page should be seriously considered by automobile engineers. Mr. Spring is the chairman of the Madras Harbour Trust, and asks whether English makers will not do their utmost to secure a carburettor working with paraffin in a thoroughly satisfactory way. Much attention has already been bestowed on this problem; more will have to be given if the great eastern markets are to be held by our manufacturers.

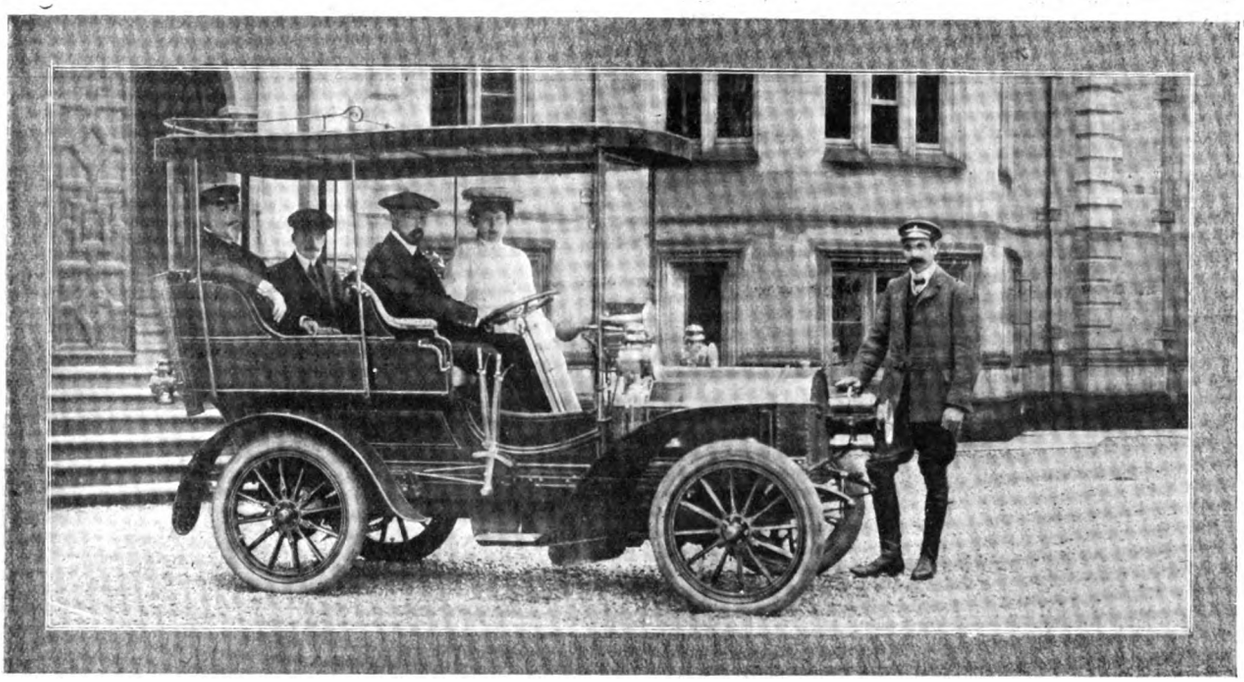
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In Twenty Years.

IN proposing the toast of the Motor Industry at the annual dinner of the Society of Motor Traders at the Hotel Cecil, London, on Tuesday, the Hon. Scott Montagu assumed the mantle of a prophet, and gave the horse another twenty burdensome years on the roads of the country. When two decades have passed he expects to see all the traffic that is now drawn by horses in the hands of automobilists, and the horse finding pleasant exercise in the hunting field, and for the delight of man—

Kent apparently satisfied.

IN two southern counties the question of new regulations with regard to motor-cars has lately been discussed by their respective County Councils. At the Kent County Council, the Hon. and Rev. E. V. Bligh moved, "That it be an instruction to the Bridges and Roads Committee to consider and report to the Council whether any regulations can advantageously be made for the better protection of infants and children upon highways near schools and wayside houses, and generally for the greater safety of human life in streets or on roads of a populous and semi-urban character" The motion was discussed



The Grand Duke Michael of Russia and the Countess Torby on their 14-h.p. Dennis Car.

[Photo by] [Harry F. Phillips, Leek.

rather than in toiling wearily with heavy loads. Such an advance means that a whole crop of interests will have to be encountered, all the trades allied to matters affecting the horse recognising that they will have to find fresh avenues of employment. In view, therefore, of the growing opposition that is coming, motorists must be careful to do nothing to prejudice their case in the eyes of the public. Such was the strain running through most of the speeches at the celebration of the existence of a Society which, with the Automobile Mutual Protection Association, and other organisations, is naturally interested in the development of the motor-car industry.

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Another Trophy.

NEXT summer will probably see the first touring competition for the Charles J. Glidden Touring Trophy (a 2,000 dol. silver one), which has been offered by Mr. C. J. Glidden for a tour of not less than 1,000 miles, the deed of gift of which was accepted at the meeting of the board of governors of the American Automobile Association. By the Glidden deed, the tour must be held in the United States for three years, beginning in 1905. The contest must be not less than 1,000 miles and not less than 500 miles a week. All rules governing the contest shall be fixed by a committee of seven, consisting of the president of the American Automobile Association, who shall be the chairman, the donor, and the Presidents of the Automobile Club of America, of Great Britain and Ireland, of France, of Germany, and the President of an Automobile Club in Canada, to be recognised by the American Automobile Association, or representatives selected by them.

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Signposts in Hampshire.

THE Hampshire County Council has decided to erect warning boards where dangerous places are likely to cause accidents to motorists, and in submitting such a suggestion the chairman of the committee which made itself responsible for the idea said they had received £350 for motor car licences, and he had no doubt the amount would be doubled ere long. So that it would appear that these county councillors rightly recognise the valuable source of revenue that motorists have become to the local authorities. There must be some sort of reciprocity, even if it only amounts to warning motorists where they stand a chance of breaking their necks. During the last nine

and defeated—a very satisfactory conclusion. This is a matter in which teachers and others who come into constant contact with children can do much good by emphasizing the necessity for the roads being left to vehicular traffic as far as possible and not to be used as public playgrounds. If children would realise that fact the risks of danger would be considerably lessened not only so far as motor cars are concerned but general traffic as well.

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months there have also been eighty-three prosecutions in Hampshire, convictions being obtained by the police in sixty-six cases.

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Horseman v Motorist.

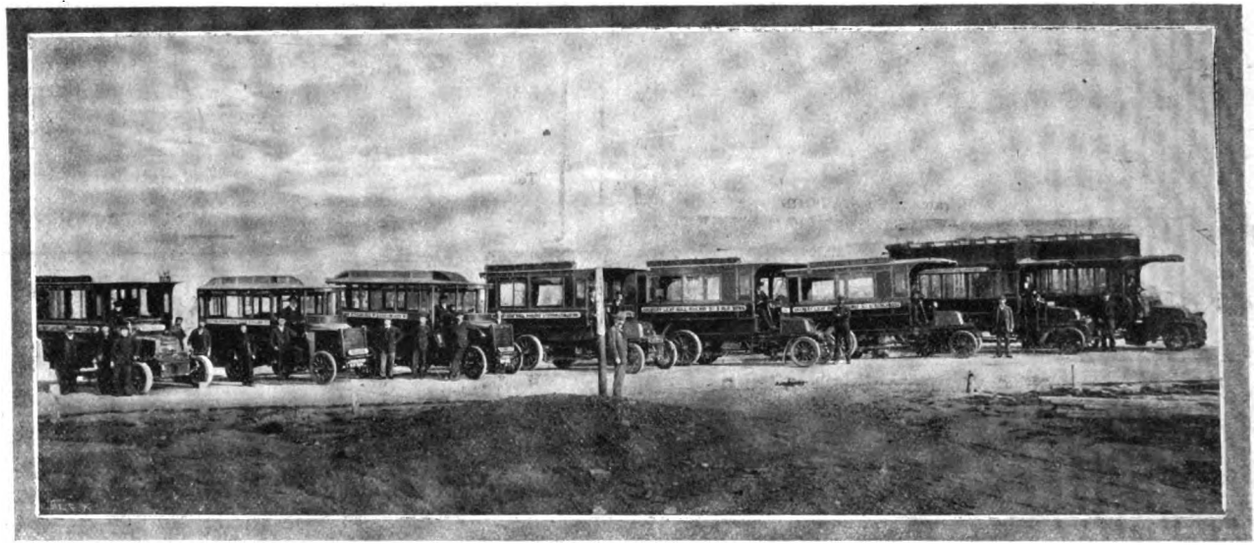
OFTEN have motorists been threatened with personal violence by infuriated drivers of ordinary vehicles, and cases in Scotland and at Guildford have been the subject of magisterial investigation. Scores of others would have been equally the object of inquiry, but difficulty of securing the offender and obtaining reliable independent testimony has generally stood in the way of prosecutions. At Epsom, however, Mr. Montague Jones, of Croydon, has been able to administer a salutary warning to a gentleman of Hook who slashed a whip about the occupants of a car and hurled various epithets at the motoring party. In the police-court Mr. G. Bird, the defendant, was fined the maximum penalty of £5, and some useful advice given with regard to the advisability of keeping his temper in future. But apparently £5 is the maximum penalty in such a case—a very small amount compared with the fines which may be inflicted on motorists; even those who do not constitute themselves a nuisance and annoyance to other people.

Dewar, M.P. This new trophy will be put up for the international record mile race, and teams representing the different countries will compete for it. Heats will be run by countries, the winners of the heats coming together in the final. Besides presenting this trophy, Sir Thomas has promised to be present at the tournament and to act as associate referee with Mr. A. R. Pardington, of the American Automobile Association racing board, and Mr. S. A. Miles, of the National Association of Automobile Manfacturers. The programme will include twenty-five events, and it has been decided that all entries will be by invitation only.

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In Central Africa.

IN his report on the trade and general condition of the British Central Africa Protectorate, H.M. Commissioner and Consul-General at Zomba (Sir A. Sharpe, K.C.M.G., C.B.) writes:—"On our main roads there is, I think, little doubt that motor-cars and motor-cycles will be used to a considerable extent before long. During the eight dry months of the year there is nothing to prevent light motor vehicles from travelling the whole distance between Chiromo in the south and Lake Nyassa in the north. An enterprising cyclist last year travelled by motor-bicycle from Matabeleland to Fort Jameson in North-Eastern Rhodesia, most of his journey being over native paths. Bicycles are largely used in British Central Africa; and when baggage can be sent ahead, provide one of the best means of locomotion over a great part of the Protectorate." Hardly a week passes when we do not hear of the interest with which the automobile industry is now regarded in Africa—north, south, east, west, and central.



The Fleet of Municipal Public Service Vehicles at Eastbourne.

Photo by] *[G. and R. Lewis.*

Contract for Ceylon.

FURTHER evidence, if such were needed, of the growth of automobiles in distant parts of the Empire comes in the announcement that the Government of Ceylon desire to receive sealed tenders for the conveyance, during a period of ten years from July 1st, 1905, to June 15th, 1915, of mails and passengers by motor-car between:—(1) Bandarawela and Badulla (18 miles); (2) Badulla and Batticaloa (105 miles); (3) Metale and Trincomalee (97 miles); (4) Colombo and Chilaw (50 miles); (5) Chilaw and Puttalam (32 miles). Forms of tender and particulars of the proposed services, together with the conditions on which tenders will be received, can now be obtained on application to the Crown Agents for the Colonies, Whitehall Gardens, S.W. Tenders (in duplicate) should be sent to the Hon. the Colonial Secretary, at the Secretariat, Colombo, on or before 12 noon on the 1st February, 1905.

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An American Tournament.

TOWARDS the end of January, the Ormond Daytona motor tournament will be held under the management of the Florida East Coast Association, for which Mr. W. J. Morgan is looking after the organisation. Additional interest will be given to the tournament by the donation of a trophy by Sir Thomas

THE "Auto" announces its intention of organising a trial of electrical motor vehicles early next year.

ON another page we give an illustration of a group of Peugeot cars used in the recent military manœuvres in Holland. The vehicles were supplied by Messrs. Verweij and Lugard, of the Hague, the Dutch agents for the Peugeot Company.

THE Local Government Board's inquiry in connection with the application of the Middlesex County Council for the issue of a regulation prohibiting the driving of motor-cars upon the road known as Grove Hill will be held at Harrow on the 29th inst.

THE Chadwick Engineering Company, Limited, has been registered with a capital of £2,000 to acquire the business, assets, and liabilities of Messrs. Hirst, Pryke and Company, and to carry on the business of motor manufacturers. The registered office is at 47, Queen's Road, Peckham, S.E.

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AUTOMOBILISM IN INDIA.

By F. J. E. Spring, C.I.E.

TO the English maker of cars India is a very far-away place. Doubtless; but in a half-hearted kind of way he tries to get a footing in the Indian market. But the impression his spasmodic effort leaves on the mind of the average Indian motorist is that the English car-maker is too busy supplying the needs of the home country, and too insularly ignorant in regard to Indian conditions, to make a business-like bid for the Indian trade. The consequence is that French and American cars are cutting him out; and, just as the French have already pretty well captured the car trade in the Federated Malay States, where the De Dion-Bouton reigns supreme, so they and the Oldsmobile and Locomobile people will get a real footing in India if English makers do not soon realise the position. It must be recognised that the British merchant at the chief cities does not very much mind what agency he takes up, English or foreign, so long as he gets his commission, and that the world of Indian purchasers is very much in the hands of the local agent.

What we users of cars in India have chiefly to complain of is that the makers of internal combustion engines will insist on forcing on us an engine with a carburettor suited only to the use of petrol. Now India is a biggish place, just about the size of all Europe including the British Isles, with Russia cut off. It is a country of rich men of the native land-owning class, and of fairly well-off English officials, who, as a class, are sportsmen, and would like to use motor-cars, as well as their stables full of horses, if only the makers would take the trouble to learn the local conditions, and supply what is required. What is wanted will be understood from the following:—

The temperature inside an iron-covered goods wagon during several months of the year may run as high, for some hours of each day, throughout great tracts of India as large as France and Germany, as 150° F. Similarly, in the towns, or in private houses, where petrol is likely to be stored, the temperature may run up, for like periods, to anything between 105° and 125°. Now, these are not very nice temperatures for petrol, and the consequence is that the Government, who practically own the 27,000 miles of Indian railways, and who, moreover, are responsible for the public safety in general, whether on the railways or elsewhere, find it necessary to place such onerous restrictions on the carriage of petrol that, except in a few large towns, the motor-car owner is practically unable to replenish his tank. Throughout India there are probably hundreds of officials, with administrative areas the size of an average English county, who would be only too glad to take to motoring for their everyday business but for this trouble about petrol.

At this moment a conference of all the railway managers of India is sitting in conclave, and one of the subjects under consideration is the possibility of permitting consignments of ten gallons of petrol to be despatched by passenger trains. At present the motorist can only carry two gallons at a time, and he must be himself a traveller in the same train. In other words, as a convenience to motorists travelling by train, they are allowed to be accompanied by a two-gallon tin of petrol. If they want any further supply it must be sent ahead of them by goods train, and in this country of magnificent distances that may mean that it must be arranged for weeks ahead. Now there is not the smallest use in the stay-at-home British maker of cars thinking to himself, "This is all wrong, it ought to be altered." Doubtless it ought, but it will not be altered to suit his convenience. Meanwhile he is losing his trade to Americans and others, who, instead of saying "The conditions of a country of 300 millions of people must be altered because my drummer has not put me up to the tip to meet these conditions," say, "How can I adapt myself to the conditions of the country"?

I have explained what these conditions are as regards petrol. There is no trouble, except the cost of it, two to three shillings a gallon, in certain great cities; but throughout the rest of this vast country there simply is not any petrol, and there is not going to be any, whatever the British car-maker may think. Then he will doubtless ask, "What is there to take its place?" There is paraffin oil to take its place—kerosene we call it—in unlimited quantities. There is probably not a petty hamlet of half-a-dozen huts along the roads of India, throughout the length and breadth of the land, where kerosene cannot be bought. Not high-flashing oil that is only burnt in rich people's houses, but low-flashing Russian, or Burma, or Borneo oil, say 120° flash point, most of it imported in bulk and run all over India in bulk oil cars, to be stored in tanks near the railway stations for sale to the villagers either in bulk or re-canned; much of it also imported in cases. Anyhow, there it is, in practically unlimited quantities, and of universal consumption, distributed evenly and cheaply all over the country.



Motoring on a South African Veldt. *Automobil Welt.*]

But the English car maker *will* insist on putting carburettors on his car, chiefly of the float type, which do not permit of kerosene being used. We owners of cars are curious to know *why* he does this. Is it his insularity? or is it cussedness? or is it the intensely British idea, "Take my goods or leave them"? For the last month an American Oldsmobile has been running about Madras, some twenty to thirty mile daily, on common kerosene (paraffin) oil. The carburettor, not a float one, serves equally well for petrol and for kerosene when once warmed up. Therefore, the owner starts his car for about 100 yards on petrol and then changes over to kerosene. While petrol here—in a seaport where it is comparatively cheap—costs 3s., kerosene costs only 6d. per gallon. Therefore if, as appears to be the case, both do the same mileage per gallon, the saving on 6,000 miles in a year, at thirty-six miles to a gallon, will be about £20 in a year, or enough to provide the owner of the Oldsmobile with a new set of tyres annually.

But the saving in cost is a trifle compared with the car's ability to take its owner practically everywhere, throughout the length and breadth of India.

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CONTINENTAL NOTES.

A Marine Motoring Congress.

It is announced that a Congress on Marine Motoring is to be held during the course of the Salon in Paris next month. The congress, which will probably be under the patronage of the French Admiralty, is being organised by the Association Générale Automobile, and already the arrangements for it are well advanced. One of the principal objects of the conference will be to attempt to arrange the differences between the various societies of encouragement which have arisen as a result of the great development of marine motoring as a sport and pastime.

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Public Services in Austria.

A public service of motor-cars was recently established between Tetschen and Bodenbach. The results have proved so satisfactory that a proposal to organise a similar service between Leipa and Reichenberg is under consideration.

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Nailsion Roads.

At its meeting last week the committee of the Automobile Club de France decided to offer a reward of £20 to any person giving information that will lead to the discovery of the individuals who maliciously spread nails on the Dourdan road during the progress of the international motor-cycle race in September last.

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A Group of German Military Motor-Car Drivers.

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The Renard Motor Road Train.

Some trials with the Renard motor road train, which attracted so much attention at the 1903 Salon in Paris, were carried out at the military depot at Schoeneberg, near Berlin, last week, in the presence of several leading Prussian military officials.

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A Motor Racing Track for Berlin.

According to the *Berliner Tageblatt*, arrangements are in hand for the establishment of a large motor racing track at Ruhleben, between Charlottenburg and Spandau.

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A French Motor Union.

As a result of the persecution of motorists by the police which has recently taken place in many parts of France, the *Auto* announces that it is taking steps to form a "Ligue des Chauffeurs," somewhat on the lines of the Motor Union in Great Britain.

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The Delhi-Bombay Reliability Trial.

Considerable interest is being shown by French motor-car builders in the forthcoming reliability trial in India. The Richard-Brazier Co. have sent out a car for the competition, and the De Dion-Bouton have despatched one of their 12-h.p. vehicles. It is probable also that the Darracq, Clement-Bayard, and De Dietrich companies will be represented in the contest.

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A Flying-Machine Exhibition.

The Aero Club of France has applied to the authorities for the use of the huge Galerie des Machines in Paris, in February next, to enable it to hold an exhibition of flying machines. The building, which is one of the largest in the French capital, formed part of the great Exhibition of 1900.

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Automobile Regulations in Holland.

It is stated that the Dutch Parliament has agreed to a Bill which entirely removes the speed limit in Holland, and permits motorists to drive at any rate, with the reservation, however, that the responsibility of so doing lies entirely with the driver of the car.

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Another Long Tour.

Quite an epidemic of long tours appears to have broken out in Paris. Cormier is away on one on a 15-h.p. De Dion car; Baron is touring France on a Bailleul motor-bicycle; and, as recorded last week, Osmont is submitting one of the new F.N. four-cylinder motor-bicycles to an extended trial. It is now the turn of the Oldsmobile, one of which, with M. Maurice Fournier, brother of Henri of that ilk, at the wheel, set out on Saturday last on a 4,000 kilometre tour of Europe. The route is:—Bordeaux, Marseilles, Genoa, Rome, Venice, Budapest, Vienna, Dresden, Berlin, Hamburg, Amsterdam, and Brussels. It is expected that the trip will be completed in twenty days.

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The Automobile Industry in Belgium.

The Cockerill Company, of Seraing, the great Belgian iron and steel concern, has taken up the construction of steam motor-wagons, several of which have already been sent to the Congo. A department has also been added for the building of motor-boats. The one lately completed is 30ft. long, and is fitted with a 35-h.p. Germain petrol motor.

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Another Heavy Vehicle Competition.

The Automobile Club of Marseilles proposes to organise a heavy vehicle competition next year. The trial will be carried out on somewhat novel lines, each vehicle entered being put into practical service with a firm of carriers for at least a fortnight.

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The Liedekerke Cup.

The race for the Liedekerke Cup, organised by the Belgian Automobile Club, for tourist vehicles, classed according to their cylinder capacity, will be run off at the end of April or the beginning of May over a 104 kilometre course, starting from and returning to Dinant.

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New Cars for 1905.

Three of the largest French engineering concerns will make their *début* in the motor world at the forthcoming Salon in Paris—Niclausse, Delaunay-Belleville, and the Westinghouse Company, of Havre. The last-named concern has lately turned out its first petrol car—one of 28-h.p. For the coming season Messrs. Chenard and Walcker are introducing a 12-h.p. and an 18-h.p. car, each with four-cylinder engines. Messrs. Vinot and Deguingand will also confine their attention to four-cylinder cars, these being of 10-h.p., 14-h.p., and 20-h.p. respectively.

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The Gordon Bennett Race.

It is reported that no less than five firms which did not compete for a place in the French team for the 1904 Gordon Bennett race will take part in the eliminating contest for next year's team, among these being Renault, Berliet, and Charron, Girardot and Voigt. It is also rumoured that the Mercedes car which Baron de Caters will drive for Germany will be of no less than 140-h.p.

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THE ROVER 8-h.p. LIGHT CAR.

THE details of the car designed by Mr. E. Lewis and put on the market by the Rover Cycle Co., Ltd., are of such an original and novel character that a description of the vehicle will, no doubt, be of interest.

It will be seen, on referring to Fig. 1, that the *chassis* is a departure from usual practice, and that in the ordinary sense of the word there is no frame, the engine crank case, the gear box and back axle being so coupled up in one continuous aluminium case as to serve the purpose of both frame and mechanism receptacle, forming one continuous girder, and at the same time allowing of flexibility of movement between the front and back axles, which accommodate themselves to the varying surfaces of the road.

This girder and the back axle are coupled up as one whole, while the front axle is provided with a transverse spring suspended at each end by links from the castings forming the steering brackets. In the centre of the spring is clipped a bracket forming a seating for a link bracket on the front of the crank case of the engine, both being held together with one bolt, thus forming a kind of swivel joint, while to keep the front axle in line with the back axle two flexible-jointed stays are connected to clips on the front axle and the girder part.

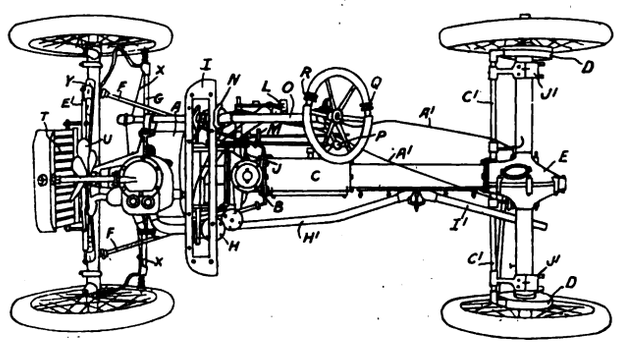


Fig. 1.—Plan of Chassis of Rover Car.

A Engine crankcase.
A 1 Steel Cables for Foot Brake.
B Clutch Case with Inspection Lid.
C Gear Case.
C 1 Rear Brakeshafts.
D Rear Brake Bands.
E Bevel Gear Case and Rear Axle Case in two half castings.
E 1 Swivel Bar for front part of body.
F Compression Rods for front axle.
G Cross Connecting Rod for steering levers.
H Carburettor.
H 1 Exhaust Pipe from engine to forward part of silencer.
I Aluminium Bracket to make up dash and support various parts.
I 1 Exhaust Pipe from rear part of silencer to the atmosphere.
J Foot Lever to operate cams on the engine half-time shaft.
J 1 Brackets to carry the rear body springs and brake bracket.
L Foot Lever for rear brakes.
M Clutch Pedal.
N Quadrant for change speed gear.
O Steering Column.
P Gear Changing Lever.
Q R Throttle and Ignition Control Discs.
T Radiator.
U Fan.
X Wire Steering Connections.
Y Cross Spring for front part of chassis.

The dashboard, which is separate from the body, is made up in two parts, the lower one consisting of a cast aluminium skeleton framework, having deep curved corners and lined outside forward with sheet aluminium, the part facing the seats forming recesses in which are placed the carburettor, the coil and the accumulators. The two-seated body is made up in a special way, the sides being each a cast aluminium skeleton frame secured at their bottoms to ash side members, and having panels of wood filled in at the sides, while the seats secure the frames at the top, thus forming the body, to which the rear dumb irons and springs are attached, and which in turn are clipped on to special brackets on the rear axle. As no part of the machinery is connected to the body except through the front spring, little or no engine vibration is felt. The motor is of the single-cylinder vertical type, having a bore and stroke of 4½ in. by 5-in. respectively. The cylinder is amply water-jacketed, as also are the valves, the top of the jacket above the combustion chamber being provided with a removable aluminium cover to allow the jacket to be examined and cleaned when required. The valves are both mechanically operated from the half-time shaft by cams of special taper formation, and a second pair of cams are also provided, the whole capable of being moved to and fro along the time shaft and operated by a foot lever. When this lever is in its normal position, the valves are performing their work, but by gradually depressing the lever the engine can be slowed down to a very low rate of speed, owing to the decreasing lift of the valves by the taper-faced cams, until at a certain point the cams are thrown out of operation, and the second set of cams is brought into play, converting the engine into an air compressor, the air being taken in through the exhaust valve, compressed, and then released as the piston reaches the top of its stroke, this air compression taking place at every revolution of the crank shaft, the inlet valve meanwhile remaining closed. The result is a very powerful check on the speed, but without any jar, enabling the driver to steady the car downhill or in traffic with the utmost ease. In addition to the cam control of the valves, there is also provided a throttle control to the carburettor, and a control of the ignition by means of Bowden wires operated by knurled fibre discs built in with the rim of the steering wheel, at opposite points, and by twisting or rotating these discs the wires are either drawn up or slackened as required. The crank shaft is of the solid block type cut from a solid steel forging, and has fastened to the outsides of its webs two internal flywheels, which are secured thereto by machined guides, by which the fixing bolts are relieved from all driving strains. The crank shaft—as also the half-time shaft—runs on special ball bearings. The water circulation is by a pump, the rotating body of which resembles a double-bladed propeller, and is driven direct off the half-time shaft of the engine. The radiator is placed in the front opening of the bonnet, and has a top and bottom tank, which are connected together by gilled copper tubes against which the air impinges. There is in addition a belt-driven fan placed behind the radiator to produce a draught of air through it. The usual form of electrical ignition is adopted, the accumulators and coil being contained in a box in front of the driver.

(To be continued.)

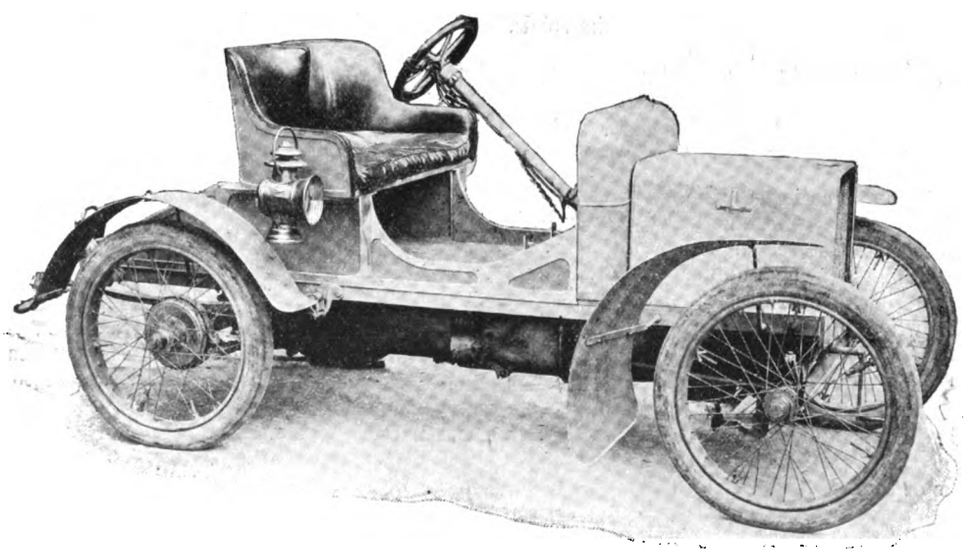


Fig. 2.—General view of Rover Light Car.

IN Poland-street, W., the Lacre Motor-Car Company, Limited, have vast premises, to which reference was made some months ago when first occupied. They are now thoroughly equipped and organised for a business which grows practically every week, and is becoming a very comprehensive one. In this large building of five floors repairs of a general character are carried out, and a large amount of body-building is going on. In addition to being the London agents for the Wolseley and Lanchester cars, the company does a general garage business, and has opened a motor clothing show-room, which should further extend its favour among motorists.

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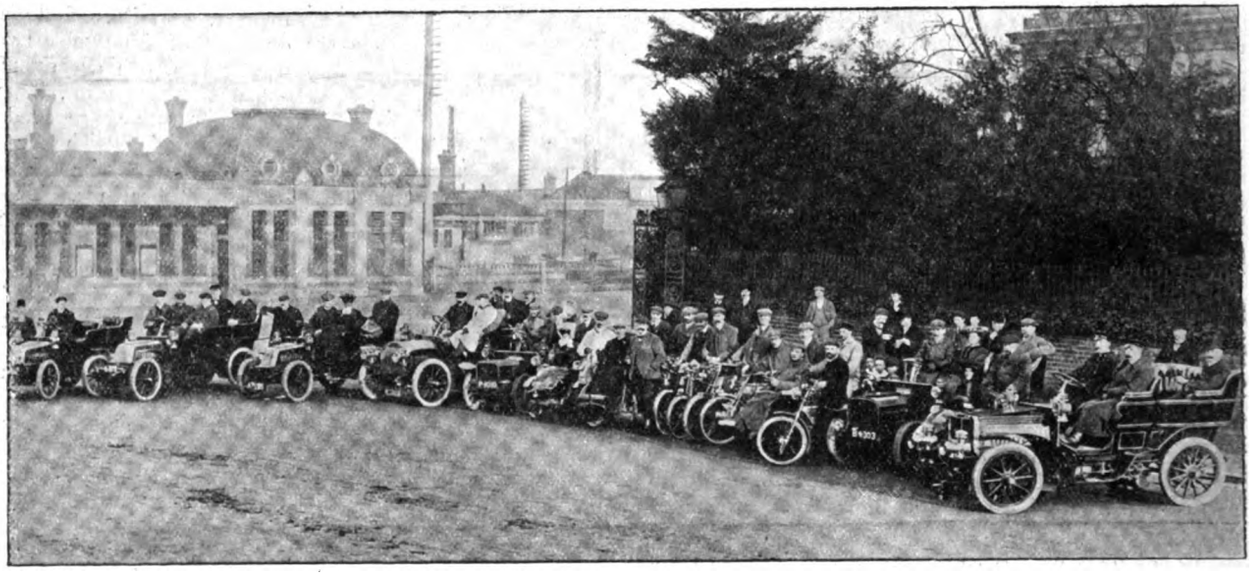
MOTOR CYCLING NEWS.

THE motor-cycle section of the Austrian Automobile Club proposes to hold a reliability competition for two-seated motor-cycles early next year. A trial of non-skidding devices for motor-bicycles is also to be held.

FIVE firms are reported to have responded to the invitation of the motor-cycle section of the Austrian Automobile Club to enter machines for the 1905 International motor-cycle cup race. As each firm will enter three machines, there will be altogether fifteen in the eliminating contest which will have to be held to select the Austrian team.

IN the recent motor-cycle race from Pretoria to Johannesburg a new time record was established by Mr. A. Murkett, who rode a 2¾-h.p. Vindec Special fitted with ordinary Palmer motor-cycle tyres. Mr. Murkett won the silver challenge cup and beat the previous record by 16 min.

TAKING advantage of the many provincial motorists at present in town for the Stanley Show, the Motor-Cycling Club organised an invitation run to Slough and district on Sunday last. Notwithstanding the somewhat greasy state of the roads, a fair number turned out both on cars and cycles, as will be seen from the accompanying illustration. Lunch was taken at the Royal Hotel, Slough, and short spins indulged in to Windsor, Eton, and other places of interest in the neighbourhood.



The meet of motorists at Slough organised by the Motor Cycling Club.

Photo by] [*E. W. Ashworth.*

IT has been reported at a meeting of the Surrey County Council at Kingston-on-Thames that since the 1st of January this year 826 motor-cars have been registered in the county, and that 2,483 drivers have been licensed. The number of motor-cycles registered was 804, the number of manufacturers registered was 22, and the changes of ownership registered 16. The receipts from these sources were £1,733 5s., which, added to the fines imposed on motorists in that county, should make a goodly total.

MESSRS. HUDSON AND KEARNS' Blotting Pad Diaries are familiar objects on office desks, and, being strongly made and filled with blotting paper of better quality than usually appears in such annual reminders of the flight of time, are likely to retain a permanent place on the office requisition list. The pads are made in several sizes with different features, including calendars, writing paper, date remembrancers, memo. tablets, etc.—all well adapted to the requirements of busy men.

THE CONSTRUCTION OF SILENCERS.

SILENCERS consisting of concentric cylindrical chambers are still used a great deal on motor-cars, the usual arrangement being to lead the hot gases into the central chamber at one end and allowing them to pass through fine perforations in the walls from one chamber to another, and finally to escape into the atmosphere. Usually the chambers increase in size from the inner to the outer one, the theory being that as the gases pass from one chamber to the next they have a larger space to occupy, consequently expand and lose pressure. It is well known, however, that this type of silencer is not particularly effective, unless the perforations are very fine and small in number, so as to introduce a great deal of resistance to the escape of the gases. A more logical arrangement of the concentric-chamber silencer is, remarks the "Horseless Age," to lead the hot gases from the engine into the outer chamber first, and let them escape from the central chamber. The outer chamber is naturally the larger one, and the gases should be allowed to expand to the greatest possible volume before encountering any obstruction. Of course, the passage of gas must be obstructed to a certain extent, if noise is to be effectually reduced, but the obstructions should be placed as near the point of discharge to the atmosphere as possible, and far removed from the inlet from the engine. Another even more important advantage of passing the gases through the silencer from the outer to the inner chamber is that the cooling effect is thereby much improved. The only method of effecting a noiseless discharge of the exhaust gases, besides throttling the exhaust passage, is to deprive the gases of their heat, and the latter method is by far the preferable one, as the pressure of the exhaust can in this way be reduced without causing any back pressure on the engine. When the gases are led directly into the outer chamber almost the entire exterior surface of the silencer is available for radiating purposes, and much heat is abstracted from the gases before they leave this chamber. In this connection it will readily be seen that lining or covering the silencer wall with asbestos or other heat-insulating material is inadvisable, unless the silencer is so located that a person is liable to burn his fingers on it while making adjustments on the motor. Another factor that deserves attention in designing silencers is the possibility of the small perforations becoming clogged with lamp-black or carbon dust. With a concentric chamber silencer in which the gases pass from the outer to the inner chamber, the perforations may be made so large that clogging is practically impossible.

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THE IMPORTANCE OF ALIGNMENT.

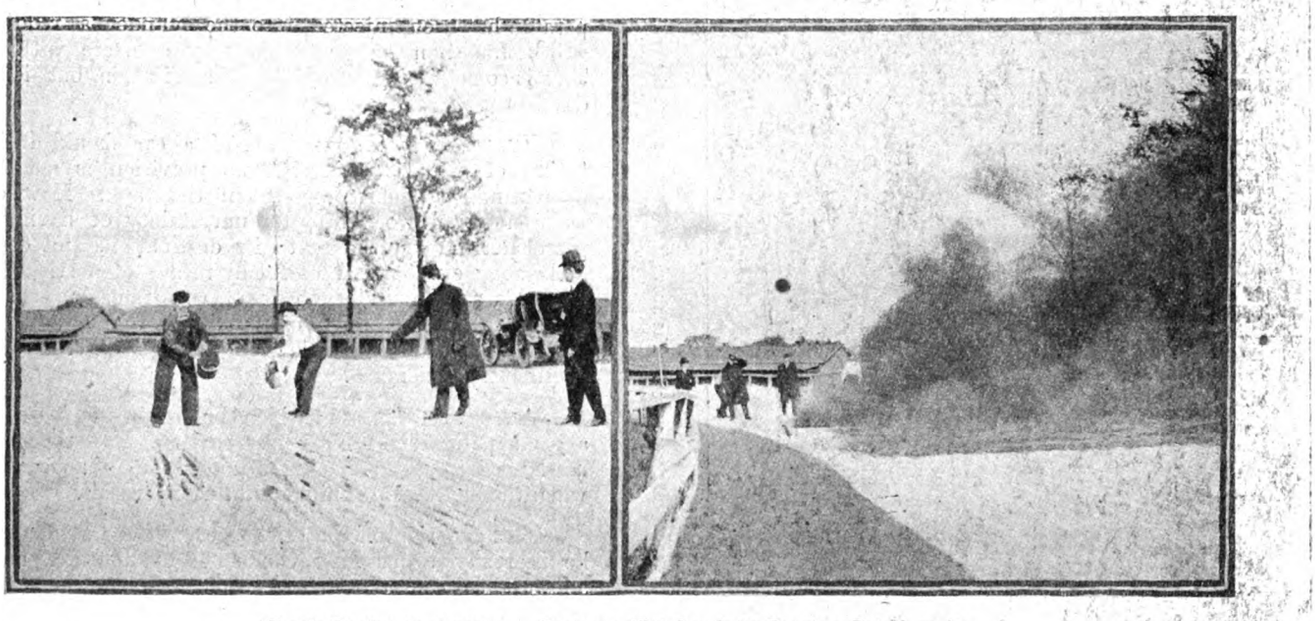
STRIPPED of all the technical language it is covered with, briefly the engine of a motor-car is the power maker, the gear is the distributor, and the hind wheels are the means of giving effect to the power generated by the motor. In the course of the transfer of this power some portion is lost through mechanical causes, which is best understood by the term frictional resistance. It should therefore be the aim of all mechanical design to reduce to the lowest possible amount this loss of power, and so to get a final output approximate to the initial one. The results shown are termed the mechanical efficiency of the machine. Judged from this standpoint, it is to be feared that the motor-car falls far short of the ideal. This, in a sense, explains what is difficult to the comprehension of the ordinary man—why a car to do even moderate work at a fair speed requires such a large horse power. To approximate or proportion the amount of loss between the several parts that convey the motor power would be too difficult, and of a variable quantity, differing with the types of transmission, as, say, between a simple chain-driven gear and a bevel gear drive, or a fixed axle and a live or rotating one.

By the term "alignment" is understood the setting out, or levelling, of the component parts of the car whereby all possible causes for undue friction are removed, and the power is distributed in as direct a way as is mechanically possible. In engineers' shops the practice is invariably to work from a centre line. In the case of engines, this runs fore and aft the cylinders; in machine work it is drawn on the casting, and then centre-punched to retain its presence, and any material to be removed is carefully divided by means of the centre line used as a gauge. The importance of this is so marked that the smoothness in running when the whole engine is assembled is to be measured by the carefulness with which this lining out has been done. When one considers that a deviation of but one-sixteenth of an inch per foot on a total length of, say, six feet will mean an error of upwards of a quarter of an inch, some idea, remarks a writer in the "Automobile Magazine," may be gathered of the important bearing this point has on mechanical construction.

Applying this idea to motor-car construction, we know that not only is there a thrust on the propelling parts in one direct line, but it is in a transverse direction also. That is to say, at the point on the gear where the direct action of the motor ceases the power is further transmitted by the transverse line, or, in other words, to the road axle, which may be said to run at right angles to the centre line of the drive. Therefore, an error of one-quarter of an inch in a length of six feet will make a very considerable difference in an alignment or disposition of the driving wheels or axles. Its effects will, no doubt, appear only a little at first sight on the pitch line of the teeth, say, of a bevel gear, but if looked at a few months after use the results will begin to be more marked. It will be somewhat the same where chain transmission is used, only not quite so evident, as the elasticity of chain will take up some of the ill effects, but all the same, the the sprocket teeth will show a corner-wise wear, and so continue until the chain has stretched sufficiently to give the required amount of play.

Makers no doubt think, and perhaps with some reason, that the cardan shaft, with its flexible, or give-and-take, knuckle joints, should correct any of these errors. Within limits it no doubt will, but it is to be feared, judging by appearances, that some of the cars in use are put together with far too much dependence on the possibilities of this flexible shaft. Otherwise how can one explain the building of a *chassis* where the engine and gear box appeared to be set square to the frame, but with the propeller shaft tilted to an angle of quite 45 degrees from the horizontal plane. The amount of power such an arrangement will absorb would no doubt be interesting to test. With such well-constructed gear boxes and motors as are now the rule, extra labour involved in accurately setting them into position on the *chassis* should not be grudged.

This labour might be still further lessened if the practice of building engine and transmission gear on a self-contained base was more largely followed. It would not impair the flexibility of the structure, but would rather prove a means of bracing together the frame, and tend to prevent the whole getting out of alignment when in use. With a sensible wheel base, semi-elliptic springs, not too rigidly held either in fixed scrolls or equally useless shackles, but having a free means of expansion under stress, and fitted with pneumatic tyres of suitable size for the weight to be carried, distortion of the frame should not be possible, even if the frame itself was made more rigid than at present. But one thing is quite certain: unless all the moving parts, engine, gear, and axles, are mechanically constructed at the outset, and equally well set out on the *chassis*, no car so built will prove other than a failure and a disappointment.

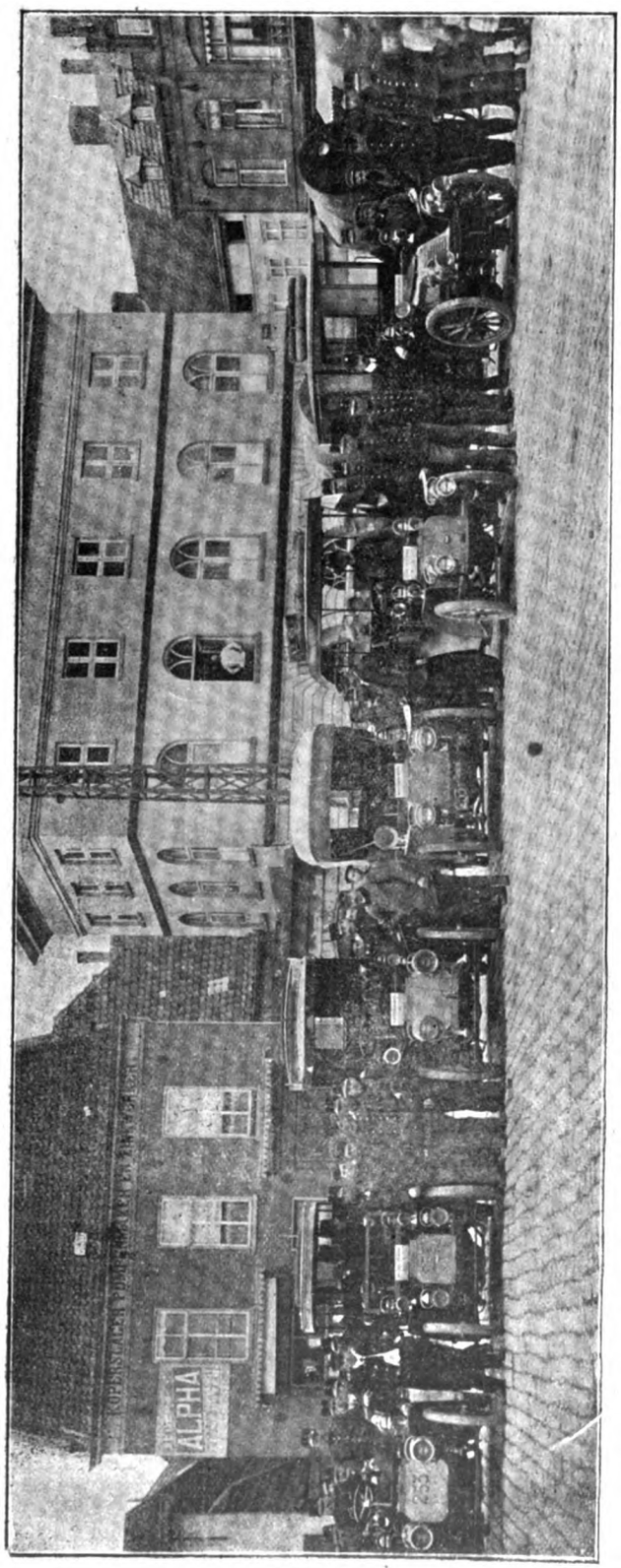


Track Racing in America. Drying a Wet Track by Burning Petrol on it. [*Motor Age.*

MESSRS. PETO AND RADFORD, LIMITED, have purchased the business of Messrs. Sutherland and Marcuson, makers of the "Umpire" accumulators, and intend to carry on the business at 61, Chandos-street, Strand, W., where a stock of their own electric ignition accessories will also be kept, as a convenience to the trade in the West End and vicinity.

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In the recent Dutch Military Manœuvres a number of Peugeot cars were used. The above illustration shows the vehicles lined up in the Market Square at Eindhoven.

SOME USEFUL NOTES.

AFTER a car has been in continual use for some time, it is not a bad plan to thoroughly overhaul the cooling system, wash out the water tank and the jackets, and thoroughly cleanse the pipes and coils by means of a hose. It is astonishing what a lot of dirt accumulates after a season of continual use.

ALWAYS carry a lamp showing a good red light on the back of the car, on the right side facing in the direction of forward motion. This red light may prevent another driver from running a car into yours from behind. When stopping on the road at night for repairs, or other causes, move the car as much as possible to the left side of the road, and see that the rear lamp shows clear and bright.

SOMETIMES it happens that the piston-rings of a petrol motor work round until the slits in them are opposite one another. When this occurs there is sudden loss of compression. The remedy consists in injecting a few drops of paraffin oil into the cylinder while the engine is running. One or more of the rings will work round after a time and compression will be restored.

WHEN an engine has been running for a short time after paraffin has been injected into the cylinder a reddish deposit will be found on the plug which may interfere with the firing. This is sometimes ascribed to over-lubrication, but is in reality due to the paraffin.

EVERY intending purchaser of a car should insist on the fitting of a petrol gauge, if no provision is made for easily estimating the quantity present in the tank. How often have we seen drivers worried by the uncertainty of having sufficient petrol left to carry the car to its destination, and compelled to make some crude measurement by means of a stick thrust into the tank, at the imminent risk of contaminating the spirit, or driven to the necessity of making a rough and frequently inaccurate calculation based on mileage covered and average consumption of engine.

ALTHOUGH a plug in which the packing is loose may yield a good spark when the car is standing at rest, the current may be short-circuited in the plug under the influence of vibration when the engine is running, and misfires result.

THE experienced motorist does not start his motor until he is ready to actually commence his journey, nor does he allow it to run idle except when stopping but a very few minutes. Some makers consider that running idle is harder on the motor than running under load; but, be this as it may, it cannot do the mechanism any good, and shortens the life of the bearings. Above all, the motor should not be allowed to race, or run at an abnormally high speed without load, as overheating will soon result, in addition to the severe racking.

TO those who have recently joined the ranks of motorists the advice may be given that it is well to train the ear to be on the alert for any variation from the usual sounds made by the motor and transmission mechanism. Every sound indicates something—either that the source from which it proceeds is doing its work under normal conditions, or that something is wrong. A motor rarely stops without giving warning, and an unusual noise should be heeded at once. It may indicate an incipient evil that can be readily cured in a few moments, but which, if neglected, may develop and spread and run into time and money. It is generally the motorist who knows his car intimately and knows the meaning of every sound and every vibration who gets through a season with but few stoppages and a small repair bill.

IF a Michelin valve leaks in spite of the tight screwing-up of the dustcap, remove the central wire of the valve and apply a little grease to its conical rubber extremity. In most cases this will establish a permanent cure.

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HERE AND THERE.

A MOTOR-OMNIBUS service has just been started between Utrecht and Harmelen, Holland.

THE Express Cycle and Motor Works have an extensive motor garage in the Stockport Road, Manchester.

A GRAND prize, taking the form of a banner, has been awarded to the White steam car at the St. Louis Exhibition.

A SERVICE of motor-'buses between Horncastle and Spilsby has been suggested by a correspondent familiar with the district.

THE Duryea Power Company has received a bronze medal for its exhibit of Duryea Power carriages at the St. Louis Exhibition.

THE balance-sheet of Messrs. A. Darracq and Company, Limited, shows a net profit of £112,213 for the past year. An extension of the works at Suresnes has been decided upon.

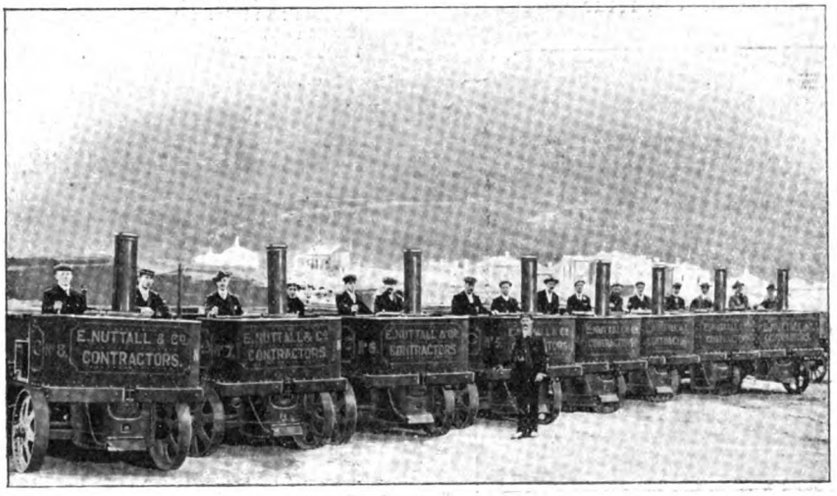
AT Nottingham, Messrs. A. R. Atkey and Company are erecting a new motor garage in Trent Street, and Messrs. C. Binks and Company have a similar establishment in Goldsmith Street.

A MOTOR CAR is about to be purchased by the Chicago Public Library for delivery purposes. Some tests were recently made, and it was found that an automobile did the work of two horse-drawn vehicles in half the time occupied by the latter.

MESSRS. GLOVER BROS., LIMITED, van builders, Cleveland Street, London, W., are introducing a new petrol lorry designed to carry loads up to three tons.

THE LONDON MOTOR GARAGE COMPANY, LIMITED, inform us that they keep a stock of the Beau non-skidding bands described in a recent issue of the *Journal*.

MR. ALBERT E. NEWTON, who was compelled, owing to pressure of business, to resign the hon. secretaryship of the Reading Automobile Club, has taken over the management of the Automobile Lubricants Department of the Vacuum Oil Company, Limited.



A Group of eight "Colonial" Steam Tip Wagons recently supplied by the Lancashire Steam Motor Company, Ltd., to Messrs. E. Nuttall and Co., Contractors, Cape Town.

MOTORISTS have been using the cycle track on the Esplanade at Dundee, and reference to the matter was made by Mr. David Mathers at a meeting of the Works Committee of Dundee Town Council. The members were all of opinion that such could not be allowed in the future, as the practice was objectionable and unsafe. The subject was remitted to a sub committee for their consideration.

THE White Steam Car Company have sent us a copy of No. 7 of their bulletin, which contains an interesting illustrated account of the part played by White steam cars in the recently concluded manœuvres of the United States Army in Virginia, and the New York-St. Louis automobile tour, organised by the American Automobile Association, which took place in the months of July and August last.

MR. MAX PEMBERTON, the well-known author, has ordered a 16-20-h.p. Brooke car. The illustration on another page shows him at the wheel of one of these vehicles with testing body. The other Saturday afternoon this particular car was driven from the works of Messrs. Brooke at Lowestoft, never having been run before, to Cambridge and back, a distance of nearly ninety miles, without a single adjustment or alteration of any kind whatever and was handed over directly to the coach-builder.

SIR A. CONAN DOYLE is among the latest additions to the ranks of motor-cyclists.

THE motor-'bus service from Knott End to Pilling, Lancashire, has been discontinued for the winter season.

THE Marquis of Anglesey's Pullman motor-car has been bought by Mr. Ramsden, of Middleton Tower, Norfolk.

THE Collier Tyre Company held an inaugural luncheon at their new premises, 127 to 130, Long Acre, W.C., on Wednesday.

A NEW fire engine fitted with a 30-h.p. four-cylinder petrol motor has been supplied to the Finchley Urban District Council Fire Brigade.

MESSRS. A. and C. PAYNE, of the Queen's Motor Works, Queen's Road, Peckham, S.E., are letting cars on hire and have every facility for the repair of vehicles.

CAPTAIN DEASY and Mr. E. G. Williams are continuing the even tenour of their way on the Martini car now engaged on its 4,000 mile run. So far the vehicle has behaved so uniformly well that there are no incidents to record.

MESSRS. DELAMOTTE AND FOSTER, of Birkbeck Bank Chambers, London, W.C., have been appointed representatives in Great Britain and Ireland of the Société des Usines Prunel. They are making a speciality of motor-car *chassis* ranging from 9-h.p. to 24-30-h.p., these being fitted with either Prunel or other standard engines.

THE automobile school of the West Side Y.M.C.A., New York, was officially opened on the 9th inst. The class numbers 136 students, some of whom are owners of cars.

DR. ORMANBY, of Messrs. Crossfield and Son, Warrington, has given evidence this week before the committee appointed to inquire into the use of duty-free alcohol for industrial purposes.

MUCH excitement prevailed at the Empire City track, New York, on the 8th inst., when Kulick, on a 20-h.p. Ford car, covered five miles in 4 min. 48 2 5 sec., beating Bernin, on a 60-h.p. Renault, and Sartori, on a 90-h.p. Fiat.

AMONG new motor services contemplated by the Great Western Railway Company for next season is one from Newquay to Truro station, and from Truro station to Malpas.

MESSRS. A. DARRACQ AND CO., LIMITED, are sending out to India, for the reliability run from Delhi to Bombay, two Darracq cars of 15 and 30 h.p. Mr. E. J. Robertson-Grant has sailed from Liverpool with a 12-h.p. Argyll car, which he will drive in the Indian races.

IN order to meet the requirements of increasing trade, Messrs. Hodson and Co., Limited, have removed into more commodious premises at 20, Lytton Street, Everton Road, Liverpool, where they have added a department for motor-cars. Facilities have been obtained for executing any kind of repairs, and also for cleaning and storing cars, as well as supplying petrol, etc.

THE Automobile Mutual Protection have instructed Mr. Shrapnell Smith, F.C.S., M.R. San Inst., M. Soc. Chem. Ind., to represent them before the Committee appointed by the Chancellor of the Exchequer to enquire into the use of duty-free alcohol for industrial purposes. Mr. Shrapnell Smith advocated the use of alcohol in an address to the Lincolnshire Automobile Club more than two years ago, and his training as a chemical engineer should stand him in good stead in giving helpful evidence before the Committee.

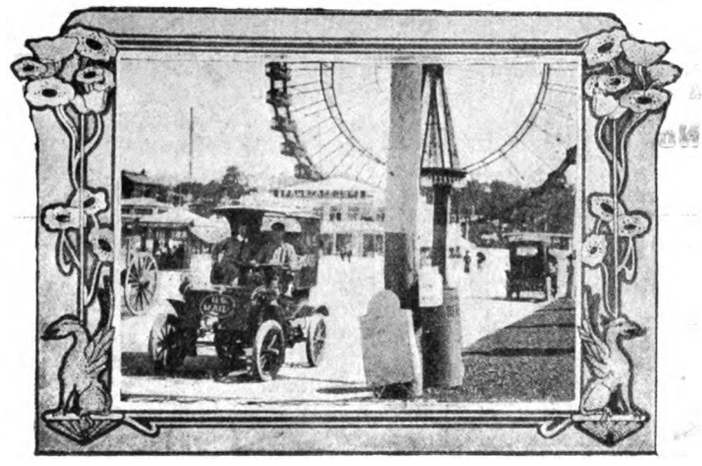
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THE two Oldsmobiles which recently made such a creditable tour of the country were fitted with the Fisk detachable tyres. Despite the severe weather and the bad stretches of road which were met, only two punctures occurred, these being on each of the hind tyres on the big car.

FROM the Lancashire Steam Motor Company, Limited, Leyland, comes a copy of their new catalogue of steam-wagons, which includes full page illustrations of the different types of vehicles turned out. Particulars are also given as to the cost of upkeep of the wagons and also of the company's "composite" and "colonial" road wheels.

MR. STANLEY W. ANDREWS, the patentee of the "Stanley" silencer, has just returned from Belgium after having appointed M. C. Meuffels, of 59, Rue des Vennes, Liege, the sole manufacturing agent for that country. The improved form of silencer known as the "Stanley Perfect" is, we understand, to be placed on the market at an early date.

A 6-H.P. motor-car is making a record for itself in the postal service at the St. Louis Exhibition as compared with the horse service. One automobile and one horse are employed to gather and distribute letters at the Exhibition. With the former six daily collections are made through the Plateau of States and the part of the grounds which includes all the exhibit palaces. In the morning, at eight o'clock, the motor-car takes carriers to the several points where they begin distribution. Four men are carried on the first trip and three on the second. This occupies half an hour. At 8.30 the car, returning from its



second trip, stops for the first collection at the Inside Inn. The automobile conveys 800 letters to this place at each delivery five times a day. Each motor-car collection through the grounds requires from fifty minutes to an hour, there being fifty boxes on the route.

THE Advance Motor Starter Company, Limited, has been registered, with a capital of £1,500, to acquire the business carried on at 185, Princess-street, Manchester, as the Advance Motor Starter Company, and to adopt an agreement between Messrs. U. Horsfall and J. Crowther of the first part, Mr. A. G. Brown of the second part, and this company of the third part.

DIARIES and calendars from Messrs. T. de la Rue and Co., Limited, remind us of the ending of the year and the need for thinking of portable diaries and the like for 1905. This firm has introduced a useful series of upright date cases, engagement cases, and the like, while their well bound and nicely arranged diaries are models of condensation and neatness. Their "handy" series is a charming assortment of booklets for ladies' use.

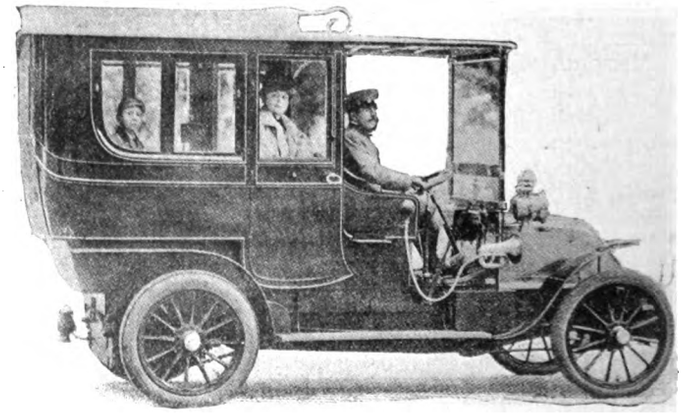
MESSRS. COXETER AND SONS, LIMITED, Abingdon-on-Thames, have sent us a photograph of a useful little accessory they have lately introduced. It consists of a small box intended to be mounted on motor dash-boards or the fronts of canopies The box is made of mahogany, dovetailed and polished, with pull-out bottom drawers and hinged-top lid, suitable for maps, gloves, small tools in the top box, and cigarettes, papers, tobacco and matches in the bottom drawer. The dimensions of the box are:—Depth 7 in., width, back to front, 3½ in., and length 12 in.

AN order for a 22-h.p. Crossley motor-brougham has just been placed with Messrs. Jarrott and Letts, Limited, by Lady Alwyne Compton. The carriage work is being built by Messrs. Rothschild and Co., of London, and will be of a most luxurious description.



The above illustration depicts a 12-h.p. Duryea Dog-cart Phaeton lately sent out to Selangor, Straits Settlements. The car is fitted with double fuel tank and Cremorne carburettor arranged to run on either petrol or kerosene at will. The front wheels are shod with Collier pneumatics, and the back with De Nevers solids.

AT a recent meeting of the Manchester Literary and Philosophical Society, Dr. W. A. Bone read a paper on "The Mode of Combustion of Hydrocarbons." In it he gave an account of researches carried out by himself, in conjunction with Messrs. R. V. Wheeler and W. E. Stockings, at Owens College, on the slow combustion of hydrocarbons below their ignition points. The older theories that in a defective oxygen supply either the hydrogen or the carbon is preferentially burned are shown to be based on misrepresentations of the facts, and must be abandoned. The authors' results led them to conclude that when a hydrocarbon is burned in well-defined stages, oxygen initially enters the hydrocarbon and is distributed between the carbon and hydrogen, giving rise to unstable hydroxylated molecules, which, sooner or later, according to the rapidity of the process, undergo thermal decompositions into simple products. It is therefore necessary carefully to distinguish between the purely chemical and the thermochemical changes which occur during combustion.



Madame Rejane, the well-known French actress, in her 15-h.p. C.G.V. Limousine, which is superbly fitted up as a saloon, and can be converted into a sleeping compartment.

THE Isle of Wight Express Motor Syndicate, Limited, has been registered with a capital of £10,000 to provide an express motor-omnibus and parcel service in the Isle of Wight. The first directors are Sir A. Onslow, Mr. A. G. Millward, Lieut-Colonel Hamilton, Mr. A. Angrove, and Mr. C. C. Macklin. The registered offices are at Market Street, Ryde.

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THE STANLEY SHOW.

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During the week the Stanley show has been in progress at the Agricultural Hall, London, the attendance of the trade and agents again testifying to the popularity of that familiar place for such displays. The feature of the show is undoubtedly the large number of tri-cars, some of which are sufficiently similar in design to the Bollée of eight or nine years ago to warrant the suggestion that they are really a "revival," rather than an innovation. The illustration on page 804 is reproduced from "Industries and Iron"—the immediate predecessor of the *Motor-Car Journal*, which thus sustained its continuity with the "Mechanics' Magazine" of the early years of last century—of 1896.

Pressure of space prevents the completion of our report this week, and we have been compelled to hold over reference to several novelties to our next issue.

The Siddeley Autocar Company display three different types of cars. First we find a *chassis* and complete vehicle of the popular 6-h.p. Siddeley two-seater, which has already been illustrated in the *Journal*. The engine is of the single-cylinder horizontal type, 4½ in. bore, by 5 in. stroke. Three speeds and a reverse are provided, the transmission throughout being by means of chains. Fig. 1 illustrates a handsome 12-h.p. landaulet with Mulliner body. The engine is of the vertical type, comprising two cylinders, 4½ in. diameter by 4½ in. stroke; the inlets and exhaust valves are mechanically operated, the former being provided with a variable lift device by which the speed can be regulated. Four speeds and a reverse are provided, the transmission being by side chains. The finish both of the *chassis* and the body is of an excellent character, and although only a double-cylinder, the car is unusually quiet in operation. A side-entrance double phaeton on a 12-h.p. *chassis* is also to be seen, as well as one of 18-h.p., the latter being similar to the 12-h.p., except that the engine has four cylinders. In order that motorists may inspect the quality of the workmanship, specimens of the engines, gear boxes, etc., fitted to the Siddeley cars are included in the exhibit.

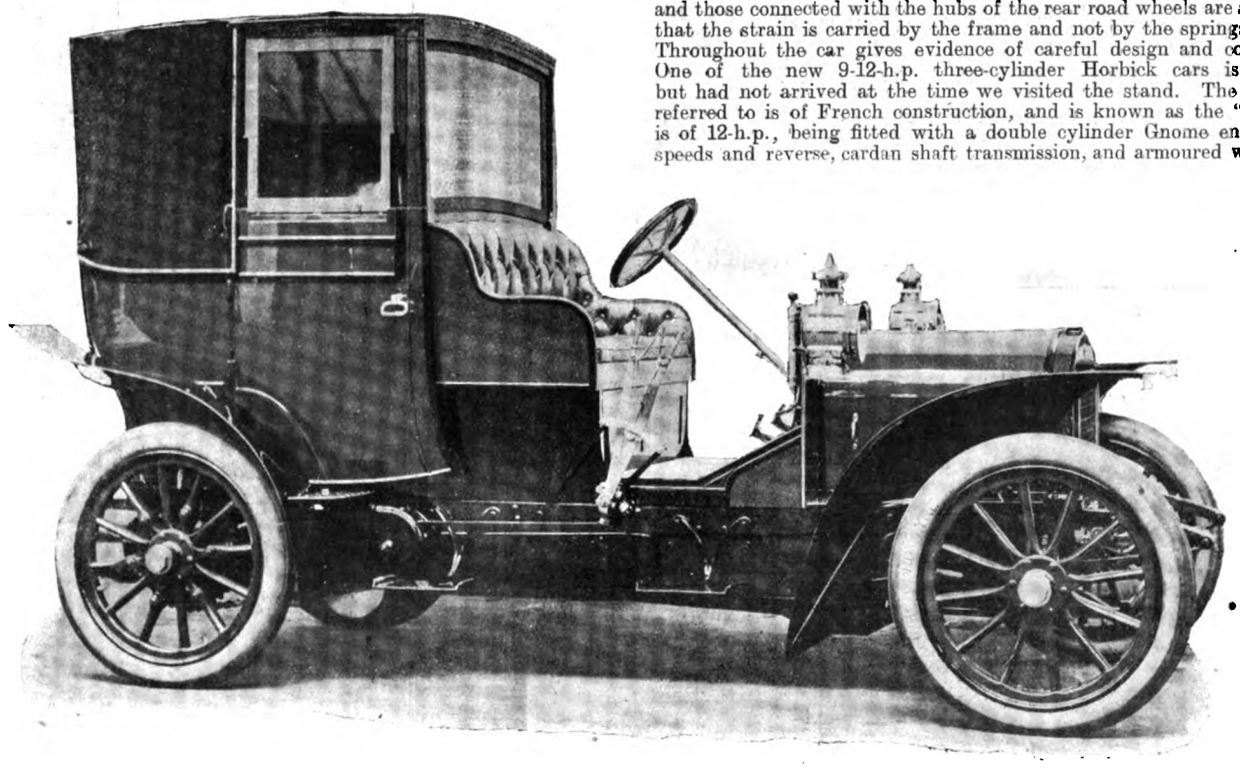


Fig. 1.—The Siddeley 12-h.p. Landaulet.

The East London Rubber Co. have on view a new two-seated motor-car known as the Kerry. This is on standard lines, having a tubular frame, and 8-h.p. double-cylinder engine with mechanically-operated inlet valves. The water circulation is maintained by a friction-driven pump and a radiator with draught-inducing fan. Three speeds and a reverse are provided, the drive from the gear-box being by means of a cardan shaft and bevel gear on to a live axle. The car appears to be of sound construction, ample accommodation being provided for two passengers and a large amount of luggage.

The Crypto Car and Cycle Co., in addition to a neat motor-bicycle fitted with a 4-h.p. Antoine engine, have on view a complete 8-h.p. *chassis*, representing one of a series they are supplying to carriage builders and others, who may fit their own bodies thereto. The frame is of wood and steel construction, while the engine, set forward as usual, is an 8-h.p. De Dion. Three speeds and a reverse with a direct drive on top speed are provided, the power being conveyed to a rear live axle by a cardan shaft and bevel gear. The brakes are all of the metal-to-metal expanding type. On the same stand is to be seen a big display of motor-car components, a new sparking plug with steatite insulating material, the Parsons non-skid device, and a range of Crypto accumulator charging dynamos.

The Regal Motor Car and Launch Co., Limited, exhibit several Regal cars, including a two-seater with 6½-h.p. De Dion engine; a 12-14-h.p. tonneau,, with Aster motor, a 16-20-h.p. landaulet, with Brouhot engine, and a 24-h.p. tonneau with Mutel motor. All the cars are of the live axle type, being driven through a cardan shaft and bevel gear.

The Britannia Motor Garage, Limited, exhibit two distinct types of petrol cars. The first we examined was one of the Horbick cars made by Messrs. Horsfall and Bickham, for whom they are now the agents in the home counties. The vehicle is of 15-20-h.p., and has a double-phaeton side entrance body mounted on a pressed steel frame. The engine comprises four cylinders, 90 mm. diameter by 105 mm. stroke, and develops 21 b.h.p. at a speed of 1,200 revolutions per minute. The valves are all on one side of the engine, both the inlets and exhausts being mechanically operated off a single cam shaft. The water cooling is effected by a friction-driven pump and a honeycomb radiator and fan. Three speeds and a reverse are controlled by one lever, the drive being through a leather-faced internal cone clutch and cardan shaft on to a live axle. The brakes are of the internal expanding metal-to-metal type, and those connected with the hubs of the rear road wheels are so arranged that the strain is carried by the frame and not by the springs, as usual. Throughout the car gives evidence of careful design and construction. One of the new 9-12-h.p. three-cylinder Horbick cars is expected, but had not arrived at the time we visited the stand. The second car referred to is of French construction, and is known as the "J. P." It is of 12-h.p., being fitted with a double cylinder Gnome engine, three speeds and reverse, cardan shaft transmission, and armoured wood frame. The valves of the motor are mechanically actuated, and the mixture is furnished by an automatic carburettor. The wheel base is 8 ft. 6 in., enabling a roomy side entrance double phaeton body to be fitted. On this stand the Thor Motor Car Co. exhibit one of their 6-8-h.p. two-seated cars, of which a description was given in the *Journal* of October 15th. A leading characteristic of this vehicle is the method of suspension, which enables solid tyres to be used in place of pneumatics.

Messrs. Watson and Oliver, Ashford, Middlesex, display an interesting tri-car, known as the Greyhound. It is fitted with a 3½-h.p. engine, with Oppermann three-speed gear and clutch, chain drive, and a specially-designed frame, with particularly comfortable seating for both passenger and driver. They also show the Greyhound tri-car fitted with 3-h.p. Fafnir engine and Bowden two-speed hub, bucket seat for driver, comfortable footboard, special boxes for tools, etc. An ingenious three-wheel runabout for a single passenger is displayed by Messrs. Jackson and Kinnings, of Southport. It is known as the Ribble, and is built on the lines of a car. The motive power is supplied by a 8-h.p. M.M.C. engine with mechanically-actuated inlet valves; it is water-cooled on the thermo-siphon system by means of a combined tank and framed radiator set in the front of the frame. Two speeds are provided, the power being transmitted by a chain to a countershaft on which is mounted a two-speed gear, each being provided with its own chain connecting it with the rear road wheel. Steering is controlled by an inclined hand wheel, on which the control levers are mounted. Both

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foot and hand-operated band brakes are provided. The makers claim that under favourable conditions this machine is capable of attaining a speed of 50 miles an hour. A somewhat similar machine, but arranged for two passengers, is also shown. This has a 4½-h.p. motor, with a radiator arranged under the footboard of the front seat. Steering is controlled by a wheel, and the transmission is by chains, two speeds being provided.

Fig. 2 depicts the attractive little Jackson dog-cart exhibited by Messrs. JACKSON and COMPANY, which has been improved in many of the details for the 1905 season. The motor is a 6½-h.p. single-cylinder De Dion. The power is transmitted to the rear wheels through a clutch,

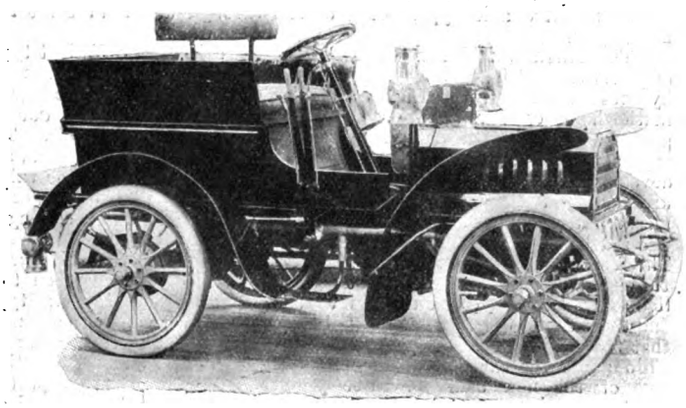


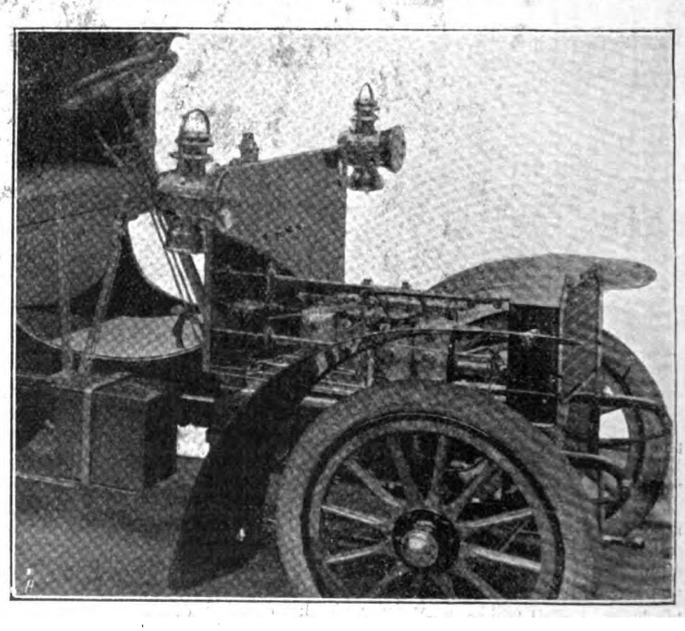
Fig. 2.—The Jackson Dogcart.

gear-box, giving two speeds and one reverse, with direct drive on top speed, by a cardan shaft and bevel gear to the rear live axle. The frame is of tubular construction strengthened by a superimposed auxiliary armoured wooden frame. The water-circulating pump is driven by friction off the fly-wheel. Pneumatic or De Nevers solid tyres are fitted to the artillery type road wheels, which run on ball bearings. A feature of the car is the ease with which the whole body can be detached from the frame, enabling all parts of the transmission to be easily reached when adjustments are necessary. The car, which is exceedingly moderate in price, is arranged to carry four persons, or the back seat may be folded up to form a touring car with two persons, with ample accommodation for luggage.

The exhibit of Messrs. J. A. PRESTWICH AND CO., of Tottenham, is attracting notice by reason of the somewhat novel tri-car shown. It is known as the Dual car, the two seats being placed side by side. The engine is of the air-cooled type, of 4½-h.p., with the inlet and exhaust valves on the top of the cylinder head and mechanically-actuated by a single rod; it is placed at the extreme front of the machine, and a special clutch is fitted on the engine shaft. The latter consists of a number of circular discs made in two sizes, the smaller having square holes, and fitted on a square shaft; the larger discs have round holes, which clear the square; they are, however, provided with notches on their edges, into which engage ribbed projections on the clutch casing. The discs are pressed together by a pedal-operated spring which causes the plate to grip and lock the clutch. The transmission from the latter is by means of a long shaft and a roller-worm drive, for which a high efficiency is claimed. On the hub of the rear wheel is mounted a small wheel, carrying a number of radial pins, on which revolve conical rollers. These rollers engage with a hardened steel worm, which is cut in such a manner that they bear on the worm all the time they are in gear. Wheel steering is provided, the control levers being mounted on the wheel. A hand lever actuates a band brake on the rear wheel, while a foot lever operates two front wheel brakes. A well-designed tri-car is shown by the MARS MOTOR AND CYCLE CO., LIMITED, Finchley. This is fitted with a 4-h.p. White and Poppe motor, with water circulation by a belt-driven pump. The front wheels are covered by large steel wings with leather flaps on the inside to protect the rider from mud. The front is fitted with a coach-built body, and the back rider has a coach-built bucket seat. The transmission is by chains through a neat form of friction clutch and two-speed gear.

The chief object of interest at the stand of Messrs. A. DARRACQ AND CO., LIMITED, is the new model of 8-h.p. car which is being introduced for the 1905 season. The one on view is fitted as a four-seated car, with tonneau body, but it is also supplied as a two-seater. The vehicle has a pressed steel frame, in the forward part of which is set an 8-h.p. single-cylinder engine 112 mm. bore by 120 mm. stroke. The inlet valve is mechanically operated, and is provided with a device in conjunction with the governor whereby its lift, and consequently the speed of the engine, can be regulated. The water circulation is maintained by a pump driven off the half-speed shaft. The power is transmitted through the clutch to the change speed gear-box, which is adapted to give three forward speeds and a reverse controlled by, as usual in Darracq practice, a lever on the steering column. On the top speed the drive is direct through the cardan shaft and bevel gear to the live axle. The brakes are of the metal-to-metal type. There are a number of detailed improvements in the car, among which may be mentioned the fitting of side panels to the front mudguards, which prevent the splashing of mud on to the front wheels. The exhibit also includes a 30-h.p. four-cylinder *chassis*, and examples of the 12-h.p. and 15-h.p. cars, among the latter being a handsome landaulet. The vehicles are on similar lines to the 1904 models, but comprise a number of changes in detail. Among these are the adoption of forged steel axles of H section. The steering column is now sloped considerably more, and magneto ignition can be fitted at the option of the purchaser, either alone or as a secondary ignition. The brakes are of the very latest design, being internal expanding, metal-to-metal, and holding equally backwards and forwards. A new type of governor has been adopted, working on an eccentric controlled by hand and foot, and an improved form of pump is being used which makes it impossible for the water to leak, and at the same time is much more efficient than previous patterns.

The centre of attraction at the stand of Messrs. HUMBER, LIMITED, Beeston and Coventry, is the new 8-10-h.p. three-seated car, introduced to meet the demand for a four-cylinder vehicle at a popular price. The frame is, as usual in Humber practice, of tubular construction As will be seen from Fig. 3 the four cylinders are cast separately; they are 3 in. diameter by 3 in. stroke. The normal speed is 1,200 revolutions per minute, but at 1,500 revolutions the engine has been tested to develope 10·3-h.p. The inlet valves are located over the exhaust valves and are readily accessible. To take out an inlet valve it is only necessary to remove one nut and swing round the inlet pipe. The water circulation is maintained by a chain-driven pump and a combined tank and radiator with draught-inducing fan. The ignition is by coil and accumulators, the contact-maker being arranged at the side of the motor. The ignition wires are short and neatly arranged, a flexible connection being obtained between the ends of the wires and the sparking plugs by the use of short pieces of link chain. A governor is provided, this acting on a throttle on the inlet; an accelerator pedal is also fitted, as also a hand-operated throttle lever acting on the carburettor. The clutch is of the leather-faced cone type, of aluminium, arranged to give a gradual engagement. Three speeds and a reverse are provided, with direct drive on the top speed, the transmission being by a cardan shaft on to a live axle. The steering-wheel is adjustable as to height, while the hand-brake lever is of the pull-up type. The car complete weighs about 11 cwt. and has a long wheel base—6 ft. 8 in. The body is comfortably upholstered, and side-doors are fitted to the front seat. Altogether the new model is an interesting production, likely to meet with a large adoption at the hands of motorists. We understand that one of these 8-10-h.p. cars, fitted with a van body, is at present being experimentally tried by the G.P.O. authorities in London. On this stand are also to be seen examples of the Humber 6½-h.p. single-cylinder two-seated car, a 7½-h.p.



g. 3.—View of Engine of Humber 8-10-h.p. Four-Cylinder Car.

double-cylinder vehicle, with hood and front glass, similar to the one which competed in the Small Car Trials, and a 10-12-h.p. twin-cylinder car with side-entrance double phaeton body. In the tri-car section the Humber Company introduce a novelty in the "Olympia," in which the two riders sit one behind the other. The engine, of 5-h.p., is located under the rear seat, which is so fitted that it can be readily removed. The water circulation is maintained by a pump and radiator. A clutch and two speeds are provided, the transmission being by chains. Steering is controlled by an inclined hand wheel, and both foot and hand brakes are provided. Special attention has been devoted to the support of the seats, which are mounted on springs to reduce vibration to a minimum

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the vehicle having both a comfortable and speedy appearance. A tri-car fitted with a 4½-h.p. water-cooled engine is also exhibited.

Interest in the exhibit of the STAR ENGINEERING Co. is largely centred in the new 10-h.p. four-cylinder Star car, which was only completed in time for the Show, the body work even now being not quite finished. The car is largely on Mercedes lines, the frame being of pressed steel. The four cylinders are cast in two pairs, the cylinder dimensions being 3 in. bore by 4 in. stroke. The inlet valves are located in the cylinder head, and are mechanically actuated off a cam shaft which also works the exhaust valves. The cam shaft is enclosed, but is so arranged that it can be withdrawn by removing four nuts. The water circulation is maintained by a gear-driven pump and a honeycomb radiator. No fan is used, the fly-wheel instead having its arms so formed as to act as a fan to draw a current of air through the cooler. The ignition is by means of a gear-driven magneto; the governor, which is mounted on the ignition tappet shaft, is adapted to act on the inlet. The power is transmitted through a leather-faced internal cone clutch to a gear box giving three speeds and a reverse and a direct drive on the top speed to the countershaft, from which the power is transmitted to the road wheels by side chains. The hub brakes are of the metal-to-metal expanding type, controlled by a pull-up hand lever; a push pedal actuates a metal contracting brake on the cross shaft. The control levers are mounted on top of the steering wheel, as in all modern large cars, while other features of note are the fitting of ball bearings in the gear-box, the countershaft brackets, and to the road wheels. The latter are 810 mm. diameter, shod with 90 mm. pneumatics. The car is built low, with long springs, and is equipped with a neat tonneau body. Altogether the Star Co. are to be congratulated on the production of the popular Talbot cars, which for the coming season are being offered at considerably lower prices than have hitherto ruled. A noticeable feature of the new models is the abolition of the automatic governor, the speed of the engine being controlled by a pedal-operated throttle and a device working in conjunction with the clutch pedal whereby when the clutch is withdrawn the speed of the motor is also cut down. We first inspected the new 10-12-h.p. car; this has a pressed steel frame and a double-cylinder engine, 106 mm. bore by 120 mm. stroke, developing its power at a speed of 1,000 revolutions per minute. The valves are all mechanically-actuated and interchangeable. The water circulation is maintained by a pump gear driven off the half-speed shaft, and a honeycomb radiator with fan. For the ignition a new type of high tension magneto working with ordinary sparking plugs is being employed. In conjunction with it is an ingenious yet simple contact maker, having a single contact blade. The ignition is controlled by a small lever on the inclined steering wheel. The power is transmitted through a leather-faced cone clutch to a gear-box, giving three speeds and a reverse, with direct drive on the top speed. A cardan shaft and bevel gear connects the gear-box with the rear live axle. The brakes are of the internal expanding type, and entirely protected from dust and mud. A comfortable form of body for four passengers is provided, the rear tonneau being detachable. The 12-16-h.p. car has a four-cylinder engine, the cylinders being separate and each 85 mm. bore by 120 mm. stroke. The general arrangement is similar to the 10-12-h.p. vehicle, but four speeds are provided, and the *chassis* is of such a length as to allow of a very roomy side entrance double phaeton body to be fitted, with ample luggage space at the rear. A new model is to be seen in the 35-50-h.p. car, the engine having four cylinders, 120 mm. bore by 140 mm. stroke.

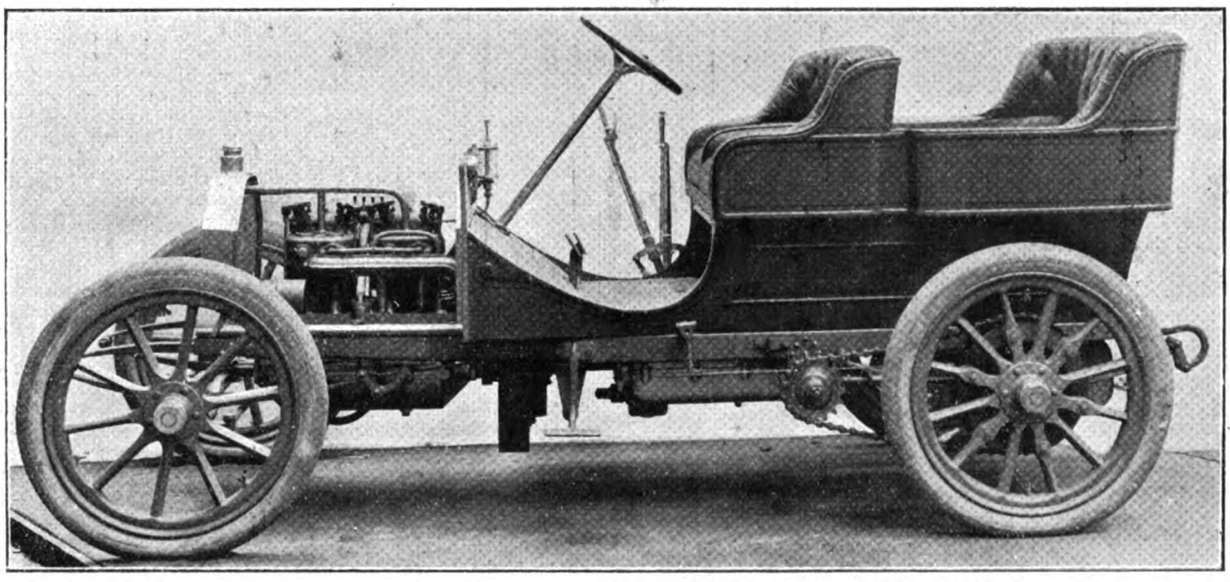


Fig. 4.—The Star 10-h.p. Four-Cylinder Car with Bonnet removed to Show Engine.

of the vehicle. Several examples of the popular 7-h.p. double-cylinder Star car are to be seen, including a *chassis*, enabling the various details to be inspected. The cylinders are 3½ in. diameter by 4½ in. stroke. Three speeds and a reverse are provided, the transmission being by means of side chains. In addition to one of the standard two-seated cars, painted red and upholstered in leather, are to be seen a three-seated car, painted cream, and fitted with a Cape cart hood, and a Victoria, painted blue, and provided with hood and front glass, this being eminently suitable for the use of doctors.

At the stand of Messrs. BROWN BROS., LIMITED, is to be seen an example of the latest type of Brown 8-10-h.p. car. This has a frame of wood and steel, in the fore part of which is set a twin cylinder engine, 90 mm. bore by 110 mm. stroke, and running at a normal speed of 1,000 revolutions per minute. The inlet valves are mechanically actuated off the same shaft as the exhaust valves; they are provided with a variable lift device, so connected with the clutch pedal that as the clutch is withdrawn the speed of the engine is cut down. The various control levers are mounted on the inclined steering wheel. Three speeds and a reverse are provided, the drive on the top speed being direct on to the live axle. The latter is enclosed in a casing, on which the rear road wheels are mounted, the power being conveyed to the latter through jaw clutches on the ends of the axle. The brakes are of the metal-to-metal type. A two-seated body, with ample luggage space, is provided, rendering the car eminently suitable for touring purposes. Great attention appears to have been devoted to the details, especially to the bearings and the lubrication of the same.

Messrs. CLEMENT TALBOT, LIMITED, have on view several new types Four speeds and a reverse are provided by a gear of the sliding pinion type, the transmission in this case being by means of side chains. For the man of moderate means an 8-9-h.p. car, with detachable tonneau body, has been introduced. This has a pressed steel frame, and a double-cylinder engine 85 mm. bore by 100 mm. stroke. The ignition is by high-tension magneto as on the larger cars, and the water-cooling and controlling arrangements are on similar lines. This is a very attractive model, and should become a popular type in the 1905 season. Finally, we may refer to an example of the 7-8-h.p. double-cylinder tonneau car with accumulator ignition, which has proved so successful during the past season.

A well-finished tri-car is included in the exhibit of the CENTAUR CYCLE Co., LIMITED. It is fitted with a 5-h.p. water-cooled engine. The water circulation is maintained by a chain-driven pump and a radiator under the front seat. The transmission of power is by a single chain to the driving wheel. Chain transmission is adopted, the machine having a two-speed gear and clutch contained in an extension of the crank case, both controlled by one lever.

Messrs. BAYLISS, THOMAS AND Co., LIMITED, is another concern exhibiting a tri-car on the lines of a small car, being fitted with wheel steering and coach-built front and rear seats. It is fitted with a 4½-h.p. engine, water-cooled by means of a gear-driven pump and a radiator. A friction clutch and two-speed gear are provided, the transmission being by means of chains. The change speed and ignition levers are both operated from the steering column, while the Longuemare carburettor is controlled from the steering wheel. Large metal-to-metal band brakes act on the hubs of the front by means of a pedal, while the back wheel

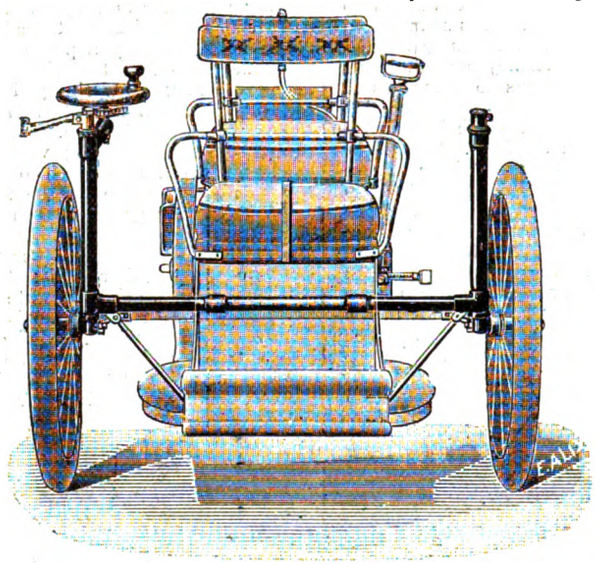
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brake is actuated by a hand lever. The footboard is "trapped" to allow of easy access to the gear-box and for the adjustment of the chains. The driver is accommodated with an aluminium bucket seat, supported on elliptical springs, while the forecarriage is mounted on C springs.

Messrs. BRADBURY AND CO., LIMITED, Oldham, exhibit a novelty in the shape of a tri-car, the fore part of which is fitted with a governess body, thus protecting the passenger from the wind. The engine is a 4½-h.p. single-cylinder, water-cooled, with mechanical valves. The contact maker is of the wipe type, and a Longuemare carburettor of large size is used. The machine is chain-driven, and is fitted with a free engine clutch operated by a foot lever. A spring lever operated by the left heel catches the foot lever when depressed, and keeps the clutch released. A two-speed gear-box of the De Dion type is fitted to the machine, the gear wheels running in an oil bath. The body is mounted on C springs, and the frame is carried in the front on elliptical steel springs. Two powerful hand brakes are fitted to the front wheels, and a Bowden to the back wheel. Large foot plates are fitted, so that the driver is not cramped in any one position. For steering a handle-bar is used, although wheel steering can be supplied if desired.

CHASE MOTORS, LIMITED, have on view a tri-car, with 4½-h.p. twin-cylinder air-cooled motor. It is chain-driven, and is provided with a three-speed gear, the the pinions of which are always in reach. The STAR CYCLE CO., LIMITED, in addition to a range of motor-bicycles, display a tri-car fitted with a 4½-h.p. water-cooled motor, wheel steering, chain drive, two speeds and free engine.

The stand of the BAT MOTOR MANUFACTURING CO., LIMITED, is attracting much attention, the cause being the display of the new Bat-Kar, which is a tri-car on entirely new lines. The forecarriage is coach-built, and is fitted with sides and doors, practically forming a small tonneau body for two persons. The engine is a 6½-h.p. two-cylinder Fafnir, driving through a clutch and chain on to a gear-box, giving three speeds. From the latter a single chain drives the rear road wheel. The latter is supported on special springs in such a manner as to ensure stability in rounding corners. Ample brake power is provided, while the steering is actuated by an inclined wheel on which some of the control levers are mounted.



The Bollee of 1896. The Progenitor of the Tri-car of 1904.

THE ROVER CYCLE CO., LIMITED, Coventry, make their *debut* as exhibitors of motor-cars, having on view a *chassis* and complete car of the Rover 8-h.p. vehicle, built to the designs of Mr. E. W. Lewis. As we commence a full description of this vehicle on another page, it need only be mentioned that it comprises a number of interesting features which have already met with the approval of a number of motorists. In the motor-cycle department the chief exhibit of interest is the Rover two speed motor tandem, a view of which is given in Fig. 5 The motive power is supplied by a 4-h.p. engine water cooled on the thermo-siphon system, a combined water tank and radiator being mounted in front of the steering column. From the engine the power is conveyed through a friction clutch to a small gear box giving two speeds, and thence by a second chain to the rear road wheel. The machine is steered by means of an inclined wheel as in a car, while both foot and hand controlled brakes are provided. Specimens are also shown of the Rover 3½-h.p. air-cooled belt-driven motor tandem, of the 3-h.p. chain and belt driven motor-bicycles, and of a new specially light machine; the latter is fitted in a 2½-h.p. air cooled engine, and has belt transmission. The frame of the machine is of a new design, with the idea of combining lightness with strength: the complete motor-bicycle weighs 100 lbs. It is almost unnecessary to add that the machines are all of high grade construction, special attention having been devoted to the details.

A big display is made of the Princeps motor-cycles, made by Messrs. J. E. HUTTON, LIMITED, these ranging from 2¾-h.p. single cylinder to 5-h.p. double-cylinder, with both chain and belt transmission. There are a number of interesting points in these machines. The engine runs smoothly even at slow speeds, owing to the large diameter of the fly-wheels. The piston-pin is hollow, and secured in the piston by a special method. The carburettor is a new design, the air adjustment being automatic. Another feature is the needle-valve adjustment to regulate the size of the spray, which can be adjusted from the outside without removing any part and while the engine is running. The inlet valves are also fitted with an arrangement whereby the tension of the springs can be adjusted. A number of 3½-h.p. motor-bicycles are to be seen at the stand of Messrs. A. MABON AND CO., Clerkenwell, a feature of which is the provision of a light enclosed fan for assisting the cooling of air-cooled motors.

The chief feature of interest in the motor-cycle exhibit of Messrs. HUMBER, LIMITED, is the new light machine, which turns the scale at only 72 lbs. It is fitted with a 1¾-h.p. air-cooled engine and chain drive, the cylinder dimensions being 2½-in. by 3 in. Duplex front forks are used, and, although exceedingly light, the machine appears to have been designed to have the necessary strength in the requisite parts. The Standard Humber 2-h.p. and 3-h.p. motor-bicycles are also shown. These have been improved in various details, and the weight slightly cut down. Both types are chain-driven, and on one a free-engine clutch is fitted.

For the 1905 season, the WERNER MOTORS, LIMITED, are making three sizes of motor-bicycles, viz., 2½-h.p., 3-h.p., and 3½-h.p., in which a reversion to the ordinary suction valve is noted. Among the changes that have been effected is a new method of inlet valve control, the inlet valve being opened instead of the exhaust, and the throttle simultaneously closed to avoid a back-fire. The carburettor is now placed outside the tank, and increased petrol capacity is provided. The 3½-h.p. machine is an entirely new departure. The engine has two cylinders, 55 mm. diameter by 76 mm. stroke, fitted parallel with the crank bracket. The belt system of transmission is retained. The new Werner models have an attractive appearance, the tank work being enamelled French grey with crimson lining, and the wheels and belt rim a buff colour, which does not show up dust or mud.

Although the RILEY CYCLE CO., LIMITED, show two or three tri-cars of 4½-h.p., interest at their stand is chiefly centred on the new twin-cylinder three-wheel machines for two persons. It is provided with a 6-h.p. V-shaped engine the cylinder being 80 mm. by 80 mm., the inlet valves being mechanically operated by a single cam. The motor is water-cooled, the circulation being effected by means of a pump driven by gearing direct from the engine-shaft. A Longuemare carburettor furnishes the mixture and a make-and-break contact works in connection with two accumulators, coil, and a two-way switch. The transmission is through a chain drive, two speeds and a free engine being provided, all of which are actuated by a single side lever. A metal-to-leather friction clutch is controlled by a pedal. The comfort of the passengers has been well considered, the driver being provided with a luxuriously upholstered spring seat, attached to a body carried by the frame, and which by the removal of two wing-nuts swings back on the rear axle, so giving access to the engine and gear. Three powerful band brakes are provided, the

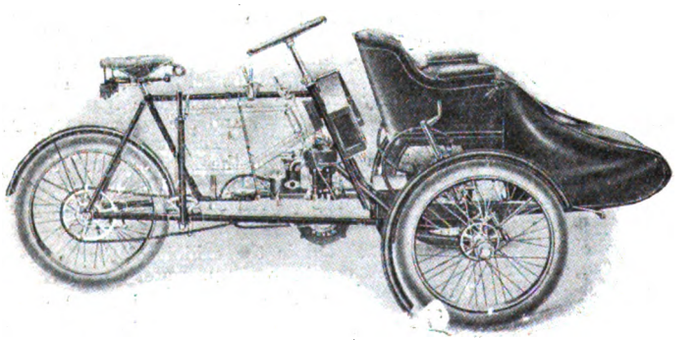


Fig. 5.—The Rover 4-h.p.-Tri-car.

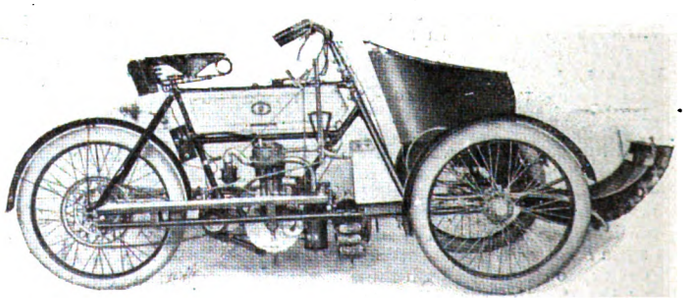


Fig. 6.—The Riley 4½-h.p. Tri-car.

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front pair being manipulated by a pedal and the rear one by a side lever. Steering is by an inclined hand-wheel, on which the control levers are mounted. Altogether the new machine strikes us favourably as being both speedy and reliable.

In addition to their standard motor-bicycles, fitted with a 3¼-h.p. engine in an inclined position, Messrs. Bayliss, Thomas and Co., Limited, have now brought out a 3-h.p. Excelsior belt-driven machine, weighing 130 lbs., with the engine in a vertical position. A two-way switch is attached to the top of the frame and works in connection with two accumulators, which, with a trembler coil, are carried in a neatly-designed tank under the saddle.

The Raleigh Cycle Co., Limited, Nottingham, in addition to examples of their 3-h.p. motor-bicycles, exhibit one of their latest two-seated Raleighettes. This has a trussed girder frame, the tanks being so arranged that a lady can drive. The power is supplied by a 3½-h.p. water-cooled engine governed on the exhaust, and driving through a clutch and chains on to a two-speed gear. The machine is fitted with powerful brakes to all three wheels.

The exhibit of Mr. George A. Barnes, of Lewisham, includes a 4-h.p. motor-bicycle, a 4-h.p. single-seated three-wheel "runabout," and a 5-h.p. water-cooled two-seated fore-car; the latter is chain-driven, and is provided with two speeds. At this stand Mr. R. W. Curtis, of Holbeach, exhibits Cooke's patent cycle seat, which made its appearance at the Motor-car Exhibition in April last, and was illustrated in these columns at the time. The seat has been somewhat improved, and can be supplied with various forms of seat pillars for attachment to different types of machines.

The Quadrant motor-bicycles are shown in two sizes—2-h.p. and 3-h.p. The machines are belt-driven, and are noticeable on account of the spring front forks provided, which considerably reduces the vibration. The Quadrant Cycle Company, Limited, also have on view one of their new "Carettes." This is supplied as a two-seated machine; the front seat is, however, so made that it can be readily converted into a single-seated runabout, this latter form being illustrated in Fig. 7.

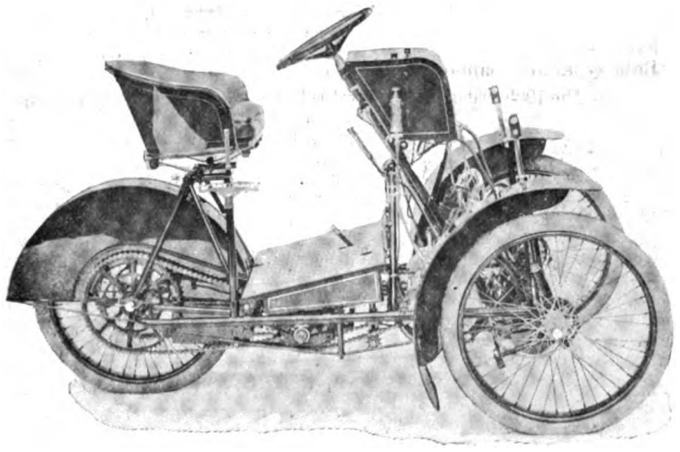


Fig. 7.—The Quadrant 5½-h.p. "Carette" without Front Seat.

The motive power is supplied by two entirely separate air-cooled engines giving together 5½-h.p., and driving by chains on to a countershaft, which in turn is connected by chains to the rear road wheel. The machine is open at the back, with spring-supported bucket seat and wheel steering, so that it can be driven by a lady, both driver and passenger being isolated from vibration and entirely shielded from mud splashings.

The new Rexette exhibited by the Rex Motor Manufacturing Co., Limited, is the latest development of the tri-car, having, however, more the appearance of a three-wheel car than a motor-cycle, and, judging from the interest which is being shown in the machine, it will apparently be a very popular type in the 1905 season. A feature is the "live" tubular frame, this being suspended by long springs on the road wheels. The motive power is supplied by a 5-h.p. water-cooled engine set a little behind the centre of the frame. The water circulation is on the thermo-siphon system, no pump being used. Two speeds are provided, and, as will be seen from the sectional illustration given in Fig. 8, the engine crank case and gear box are combined in one casting. A and C are two pinions keyed to the engine shaft T, and in constant mesh with the two gear wheels B and D on the countershaft S. On the inside of B and D are fixed jaw clutches F and H, separated by sliding jaw clutches E, J, G, which engage with either the high speed pinion D or low speed pinion B, as required. The clutch M and N is fitted at the extremity of the change speed or countershaft S. On this clutch a chain wheel K, is fixed, which imparts motion through a strong roller chain to the chain wheel on the rear road wheel. The engine is started by a handle which is always in position. Ignition is by accumulators and trembler coil. The rear band brake is 9 in. in diameter, with a 1¼ in. face, and is put into action by a side lever with notched quadrant. One pedal actuates the two front band brakes, and a second one controls the clutch. The seats, both for driver and passenger, are of larger proportions; the petrol and lubricating oil are carried beneath the front seat. Ample mudguard accommodation is provided, and the method of covering in the rear portion gives the car a striking appearance while adding greatly to the rider's comfort. One of the Rex Simplex 12-h.p.

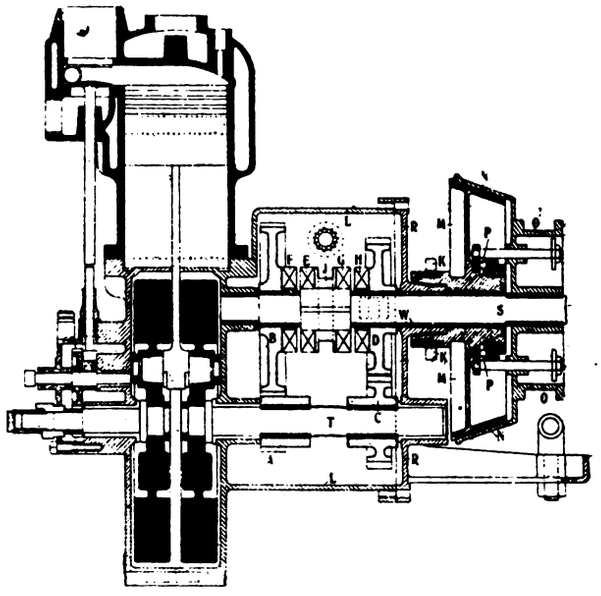


Fig. 8.—Section through Engine, Change-speed Gear and Clutch of Rexette.

A. Low speed pinion.
B. Low speed gear wheel.
C. High speed pinion.
D. High speed gear wheel.
E. F. G. H. Jaw clutches.
J. Groove in clutch.
K. Chain wheel.
L. Gear box in aluminium.
M. Male portion of friction clutch.
N. Female portion of friction clutch.
O. Groove for clutch fork.
P. Thrust ball-bearing.
R. Gear box cover.
S. Countershaft.
T. Engine shaft.
V. Low speed gear wheel sleeve.
W. High speed gear wheel sleeve.

double-cylinder tonneau cars with cardan shaft transmission is also to be seen at this stand.

The Enfield Cycle Co., Limited, which are at work on a chain-driven machine, confine their exhibit to a display of well-finished belt-driven machines fitted with a 2¼-h.p. engine having mechanically-

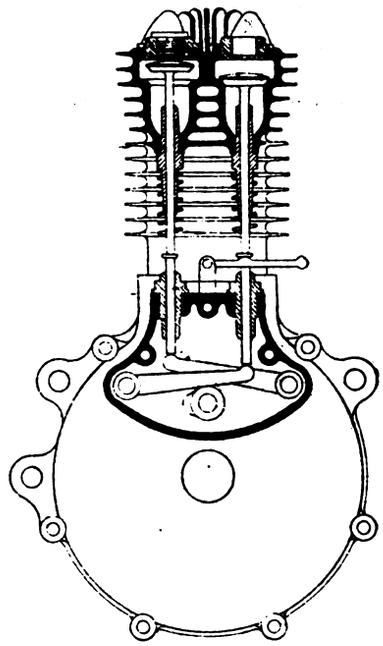


Fig. 9.—Section of Enfield 2¼-h.p. Motor-Cycle Engine.

operated inlet valves. The cylinder is 70 mm. bore by 72 mm. stroke. A sectional view of the motor is given in Fig. 9, in which the method of actuating the mechanically-operated valves by means of rocking levers working on cams is clearly shown. The mixture is furnished by a Brown and Barlow carburettor.

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Messrs. Alldays and Onions, Limited, Birmingham, exhibit specimens of their 2½-h.p. and 3½-h.p. motor-bicycles in which the engine is fitted vertically on a special cradle, the power being transmitted by a V-belt to a light pulley attached to the rear wheel. A novel two-seated motor-sociable, in which the riders are seated side by side, is shown by Mr. John L. Thomas, of Barnet. This is fitted with a 3½-h.p. air-cooled engine located right in front, and transmitting its power to the rear road wheel by a flat belt. The steering is controlled by a wheel, while both foot and hand brakes are provided. The Eclipse Motor and Cycle Co., Birmingham, exhibit a number of motor-bicycles, including one fitted with a 5-h.p. double-cylinder engine, the cylinders being arranged in the form of a V. Here may also be seen the XL All puncture stops and spring terminal clips, illustrated in recent issues of the *Journal*.

One of the novelties in the motor-cycle section is to be seen at the stand of the Barry Motor Co., where is exhibited a motor-bicycle fitted with a 4-h.p. rotary petrol motor weighing only 15 lbs. In the absence of drawings it is somewhat difficult to describe the engine, which comprises two small cylinders, 2 in. diameter by 2 in. stroke, set opposite to one another in such a way that the connecting rods work on to a fixed central crank shaft. The explosive charge is not taken direct into the combustion chambers, but first of all is led into a pressure cylinder at right angles to the working cylinders, which it reaches under pressure. The silencer is arranged opposite to the pressure chamber in such a way that the whole—the two cylinders, the pressure chamber, and silencer—rotate at a speed of about 1,500 revolutions per minute. Suitable arrangements are made for the admission of the gas, ignition, lubrication, etc., while the high speed at which it rotates is stated to be sufficient to keep the engine thoroughly cool. The arrangement is certainly ingenious, but we are somewhat doubtful as to whether it can be successfully adapted to motor-cycle propulsion. The International Electrical Engineering Co. display the C.I.E. motor-bicycle, which is made in two sizes, 3 and 4-h.p. The vertically-set engines have mechanically-operated inlet valves and magneto ignition, and transmit their power by V belting.

Two sizes of the well-known Griffon motor-bicycles are shown by the Griffon Motors, Limited—2¾-h.p. and 3½-h.p. In both the belt system of driving is adopted. Among the details we noticed that an improved form of carburettor is fitted, in which an auxiliary air inlet is opened or closed automatically according to the position of the throttle lever. Examples of the Zedel motor-cycle engines are also to be seen, including the 2¾-h.p. and the 3½-h.p. single-cylinder, and a new V-shaped double-cylinder motor of 5½-h.p. The engine has cooling ribs to the head and upper part of the cylinder only. The lower part has a number of holes pierced in it, these being covered by a movable collar in which holes are also drilled, so that when the collar is turned so as to bring the holes opposite to one another, the engine can exhaust directly into the air.

One of the great novelties in the motor-cycle section of the Show is the new F.N. 3½-h.p. four-cylinder motor-bicycle exhibited by Messrs. W. R. McTaggart, Limited, and of which the first illustration in this country was given in the *Journal* last week. A general view of the machine is given in Fig. 11, while details of the transmission are shown in Fig. 10. The motor is formed of four air-cooled cylinders, 45 mm. diameter

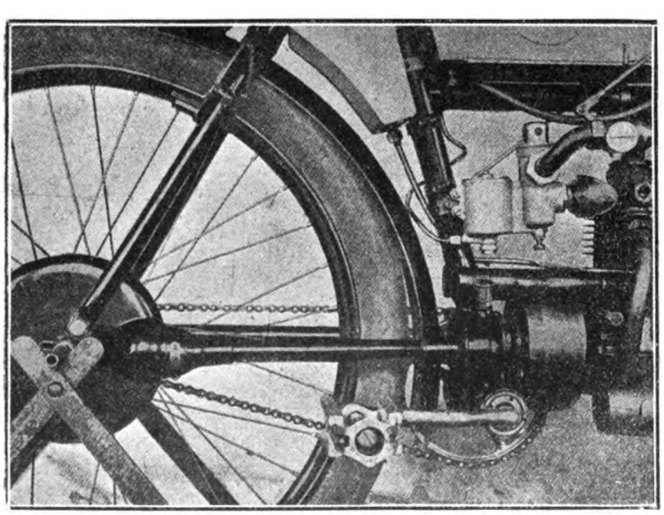


Fig. 10.—The Transmission Gear of the F.N. Four-Cylinder Motor Bicycle.

by 57 mm. stroke, fitted with automatic inlet valves and high-tension magneto ignition. The driving arrangement comprises two bevel gears, one of which is driven by the motor, and the other fixed on the rear wheel hub, both being connected together by a transmission shaft. The whole gear is protected by a dust proof case filled with grease to insure sufficient lubrication of the various parts. To avoid the shocks, due to the explosion in the motor being transmitted to the bevel gears, an elastic coupling contained within the fly wheels is interposed between them. The frame is built 22 in. high, and has a long wheel base, and a spring front fork is employed to absorb road vibration as much as possible. Two powerful brakes are fitted, while, for easy starting, an exhaust valve-lifter is provided.

Phœnix Motors, Limited, has always strongly favoured a reasonably light type of machine, and exhibit a 2-h.p. belt-driven machine, fitted with two-speed gear, weighing only 120 lbs. Another new machine is one of 2¾-h.p., with two-speed gear and chain drive, and fitted with magneto ignition, also chain-driven, while a 2¾-h.p. tricycle on similar lines is also shown. Special attention has been devoted to the details, the driving chains, for instance, being provided with light guards, which

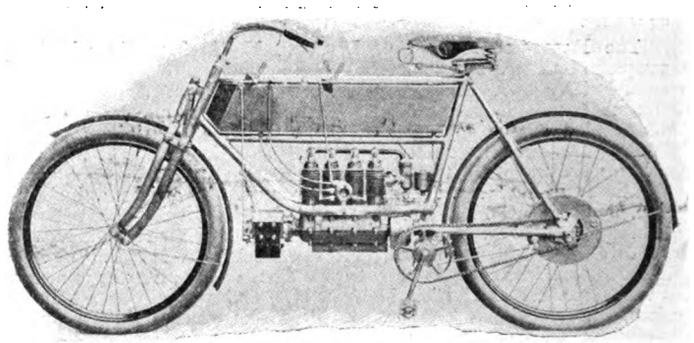


Fig. 11.—The F.N. Four-Cylinder Motor Bicycle.

protects them from mud and dirt. A working model of the Phœnix two-speed gear is also to be seen. This consists of a train of epicyclic gearing combined with a special form of clutch, actuated by a wire cable. Altogether, the 1905 models should fully uphold the high reputation the Phœnix machines enjoy in the motor-cycling world.

A tri-car with a detachable canopy and front storm screen forms the most novel exhibit on the stand of Phœnix Motors, Limited. The machine is known as a Trimo, and, so far as the general arrangement is concerned, the changes are to be found mainly in the details. No pedals are fitted, and this permits of wide footboards being provided, these being hinged to give access to the engine, a 3½-h.p. fan-cooled Phœnix, specially made by the Minerva Co., with mechanical valves and magneto ignition. The carburettor is the new Phœnix automatic—a very efficient and economical device. The drive is by Reno!d, ⅝ in. pitch, roller chain from a clutch on the engine to a countershaft, and thence by chain to the two-speed gear on the rear axle, the chains being well protected by covers. The silencer, which is of large dimensions, is provided with a cut-out operated by a small foot lever. Ample brake power is provided, pedals controlling two band brakes acting on the drums of the front wheels, and a fibre-covered circular solid steel rod working on a grooved drum on the rear wheel. The whole of the mechanism is protected from dust and dirt by a leather apron hung from the frame. The rear seat is of a large pan shape, such as is used on agricultural machines; it is mounted on flexible springs, while the front seat is also spring suspended, thus rendering the machine practically free from vibration.

The well-known Brown motor-bicycle is shown by Messrs. Brown Bros., Limited, in two sizes—3½-h.p. and 2¾-h.p.—both engines having mechanically-operated inlet valves. The machines are belt-driven, and we noticed that one is provided with the B.S.A. spring frame, to reduce vibration, and another with magneto ignition. Two sizes of the Bat motor-bicycles are to be seen at the stand of the Bat Motor Manufacturing Co., Limited—2¾-h.p. and 3½-h.p.—these being fitted with either rigid or spring frames. Arrangements have now been made whereby these machines can be fitted with high-tension magneto ignition, and, in the case of spring-frame machines, with pedals. A 3½-h.p. two-seated forecarriage is also displayed, this machine being interesting on account of the wind-scoops and fan provided to assist in the cooling of the engine.

A three-wheel two-seated car on novel lines, and known as the Wolf, is exhibited by the Wearwell Cycle and Motor Carriage Co. It is fitted with a 6-h.p. water-cooled Fafnir engine, placed longitudinally in the frame. The latter is built of steel tubing, well stayed, and is carried on the front wheels by two elliptical springs. Steering is controlled by an inclined wheel, and all the controlling levers are brought well within reach of the driver. The power is transmitted from the engine through a clutch to a gear-box which gives two speeds, the pinions of which are always in mesh. From the gear-box the power is transmitted by a longitudinal shaft and bevel gear to the rear road wheel. The water circulation is maintained by a pump driven off the half-speed shaft and a radiator. The body is coach-built, with aluminium panelling, while the bucket seat for the driver is provided with springs. The wheel base is 5 ft. 2 in., and the track 3 ft. 7 in.

A tri-car on exceedingly novel lines is shown by the Sharp Air Spring Co., Limited, Hammersmith. Not only is the frame of special construction, but each of the three road wheels is carried in forks provided with what is known as an "air spring," this consisting of a cylinder to which the upper part of the frame is connected, and a plunger attached to the lower portion. Air is pumped into the cylinder, so forming a cushion which takes up all vibration due to the engine

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or bumpy roads. The motive power is supplied by a 4-h.p. V-shaped double-cylinder engine, transmitting its power to the rear road wheel. There are a number of other features in this machine which cannot be dealt with in the brief space at disposal in a show report, these including a differential fly-wheel, the special claim for which is that it absorbs the shocks of the explosions even at very slow speeds. The fly-wheel is made in two parts, with a hollow interior, having a series of radial springs and a set of gear wheels which act in such a way as to gear down the fluctuations of the impulses. The steering is also of what is known as the castor type. The machine, which has been built to the designs of Professor Sharp, is exceedingly light, weighing complete only 180 lbs.

Some excellent specimens of petrol motors both for use on motor-cars and launches are displayed in the Gallery by Messrs. DEAN AND BURDEN BROS., LIMITED, of Salisbury. They range from a 3-h.p. single cylinder to a 20-h.p. four-cylinder. Dealing with the latter, it has four separate cylinders 90 mm. bore by 115 stroke. The inlet valves are of the suction type, and are readily accessible. The cam shaft is entirely enclosed, the cams being solid with the shaft. The water circulating pump is driven direct by the engine; a governor is fitted, this being adapted to act on the admission. Large hand holes are provided in the aluminium crank case. The engines throughout appear to be of sound construction, a special quality of red anti-friction metal being used for the bearings. The 3-h.p. launch motor is provided with a speed reduction gear in the crank case, the propeller shaft being coupled, not to the engine shaft, but to a short one running at a third of the speed of the latter.

Quite a new design in motor-cycle engines is to be seen at the stand of Messrs. A. W. WALL, LIMITED, Guildford. It forms part of the new "Roc" machine, and its characteristic feature lies in the fact that there is no cam shaft in the usual sense of the term. The machine is driven by a chain from the engine to the countershaft, and thence by a belt to the rear road wheel. The countershaft runs at half the speed of the engine, and advantage is taken of this to fit to it the cams operating the inlet and exhaust valves, the stems of which, as will be seen from Fig. 13 are arranged at an angle. The valve and explosion chamber can, as a result, be readily opened out for inspection. The ignition is by the Eisemann high-tension magneto, which is also driven by the half-speed countershaft.

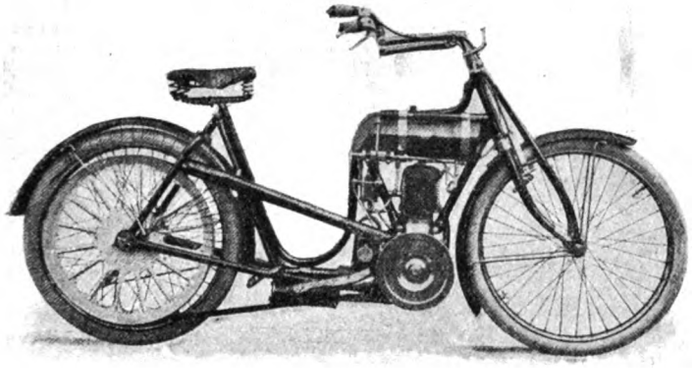


Fig. 12.—The "Roc" Lady's Motor Bicycle.

The engine, which is of 4-h.p., has a cylinder 85 mm. bore by 85 mm stroke and is provided with two large outside flywheels. The cylinder and top portion of the crank case, which is divided horizontally, are in one piece, whilst the lower half of the crank case forms an integral part of the frame. A special form of fibre clutch is fitted in connection with the rear wheel, so that the engine can be started before the rider mounts the machine. Altogether the "Roc" is to be counted amongst the most interesting motor-bicycles in the show. Fig. 12 depicts the lady's motor-bicycle, which is also to be seen at this stand. This is a 3-h.p. machine with belt drive and magneto ignition.

Quite a new departure in induction coil construction is to be seen at the stand of Messrs. COHEN BROS., West Kensington, W. These coils are so arranged that any one bobbin (or cylinder) can be removed without taking off the coil from the car or disturbing any connection. Each bobbin is enclosed in a separate ebonite case, thus ensuring complete freedom from damp, and so thoroughly insulating the same. Should the coil, or, in the case of a multi-cylinder coil, any one of the coils fail to work properly, it can be pulled out of position without loosening any of the connections, and if a spare coil is carried this can be substituted. The new coil is made for one, two, three, or four-cylinder engines, and is fitted with a single trembler. The latter is mounted on an ebonite base, and is so fixed to the coil that it can be easily detached and instantly replaced by a spare one should it get out of adjustment. The condensers are made separate from the coils, and are arranged together in the centre of the coil-box. Those who have suffered from induction coil troubles in connection with the ignition of their motors should make a point of inspecting Messrs. Cohen Bros.' new arrangement. The exhibit also includes a display of ignition accessories and a range of specially-strong accumulators.

A number of interesting novelties to motorists are shown by Messrs. FLEMING AND CO., of Paris, including the Simplicity and Eclair nail catchers for tyres, which were recently illustrated in the *Journal*, and "Pneu Cure." The latter is a new preparation for repairing cuts in outer covers of pneumatic tyres, and if the specimens of repaired tyres on view are any criterion, it should prove a useful adjunct to all tyre-repairing outfits.

A motor-bicycle stand or jack, known as the Vim, is shown by Messrs. THOMAS SLACK AND CO., LIMITED. This is put in action as a stand by pushing a lever forward, thus also raising the back wheel. Rapidity of movement is a feature of the appliance, which folds up automatically

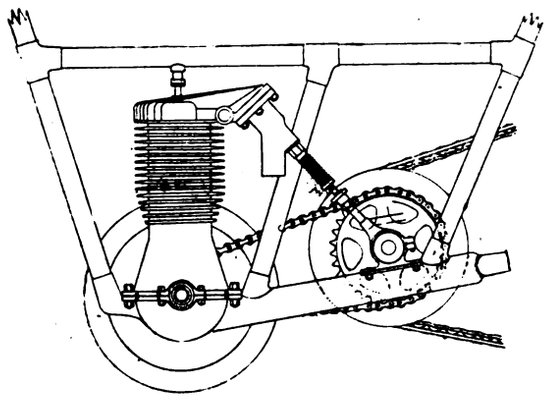


Fig. 13.—The new "Roc" Motor-Cycle Engine.

when collapsed, being held rigid by springs so that the machine can be started without dismounting.

The Grose non-skidding and puncture-proof bands are exhibited by Messrs. GROSE, LIMITED. The features of these well-known bands are the intermediate leather, which prevents the rivets from injuring the rubber cover, the leather cover vulcanised on the ordinary tyre, which is taken down over the beaded face, and a leather tread with steel studs, the whole going to form a band which prevents punctures and skidding, and does not interfere with the resilience of the tyre.

Mr. E. J. HARDY, of Coventry, has a representative display of motor parts and accessories, including the Guenet coils, the Lithanode accumulators, Stevens' engines, and other well-known specialities. Some of his own manufactures are also on view, including well-made steering gears. A good voltmeter on this stand is the Glorius, fitted with a two-way switch and interrupter, which can be operated at the same time.

On the stand of the SOUTH BRITISH TRADING CO., LIMITED, is the Vindex Special motor-cycle for 1905. The regular model has a 2¾-h.p. engine, a larger size being of 3½-h.p. The frame is built lower than formerly, and a novel feature is introduced which allows the rear wheel to be removed from frame without detaching the stand. The oil tank and pump are fitted in the front of frame, and all that is required to put oil into engine crank case is simply to raise and lower the pump plunger. On the same stand the Fisk motor tyres, which have been previously described in these columns, are also attracting considerable attention.

MINERVA MOTORS, LIMITED, are making three sizes of motor-bicycle for the 1905 season—2-h.p., 2¾-h.p., and 3½-h.p.—the engines being in each case equipped with mechanically-operated inlet valves and fitted in a vertical position. The belt system of transmission is still retained, while some of the machines are provided with Eisemann high tension magneto ignition. The method of driving the magneto is somewhat novel; it is illustrated in Fig. 14, from which it will be seen that the machine is

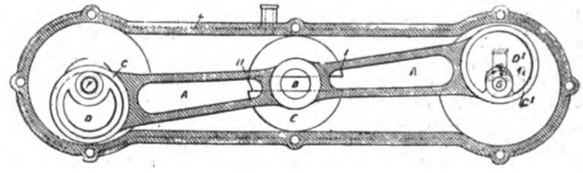


Fig. 14.—The "Minerva" Magneto Driving Gear.

supported by a bracket fitted to the front of the motor. Two eccentrics are employed, D and D 1. D is attached directly to the half-speed shaft of the motor, and D 1 to the spindle of the magneto. The two eccentrics are coupled together by means of eccentric straps A and A 1. The whole is enclosed in an aluminium case L, which ensures perfect lubrication. The case in the centre carries a guide E, for the rod connecting the two eccentrics, the guide oscillating slightly when the device is working, the two eccentrics revolving in opposite directions. A two-speed gear, already illustrated in the *Journal*, is fitted to some of the 2¾-h.p. machines, while another new departure is the provision of a spring front fork to reduce vibration.

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As usual, Messrs. ALFRED DUNHILL, LIMITED, have a varied display of "everything but the motor." In clothing is a very representative range of well-designed garments, including coats and rugs specially intended to withstand the cold winds of the winter season. Ladies' garments are quite a special feature of the display, some of Mr. Lovegrove's



Fig. 15.—Dunhill's Front Glass Screen as fitted to a Panhard Car.

well-known designs having now been added to the selection. Hoods and veils are also included in that department. But the great novelty consists in the development in acetylene work which has been made possible by the firm's acquisition of the sole rights to make dissolved acetylene in a suitable form for lighting automobiles. A container is provided giving a supply of gas sufficient for a headlight for forty hours, either continuously or intermittently. This, fully charged, weighs only 23 lb., and all that has to be done to secure a light is to turn the tap and light the gas. By placing the tap immediately in front of the driver the light may be lowered to any degree as desired. By allowing the gas to be turned down when the full light is not required a great saving is secured and the new development will be regarded with interest by motorists. We illustrate Messrs. Dunhill's glass shield for use in all weathers. As will be seen, the upper portion is hinged, and when not wanted in that position may be folded down, the lower portion still affording an efficient screen and apron guard. The method of fixing is well designed to secure rigidity; at the same time it can be easily removed or attached. The "Kennard" valise, the Elliott motormeter, petrol gauges, sparking plugs, and accessories of every kind complete a very representative display of general interest.

PEARSON'S special 5-volt accumulators are to be seen in the Arcade, these securing a powerful spark and exact ignition. A great advantage is that these accumulators may be carried as spare cells, and when required, the electrolyte, supplied in bottles, is poured in and a full voltage and capacity obtained at once.

Castings for small petrol motors form a prominent feature of the display of the MOTOR CASTINGS CO., LIMITED, which also exhibits a Blake 6-h.p. twin-cylinder engine for a motor-launch, and a 4-h.p. engine arranged to work with paraffin, complete with propeller and reversing gear. An ingenious yet simple free engine pulley for use on motor-cycles is to be seen at the stand of Messrs. OSBORNE BROS., Lincoln. No springs are employed in the device, the grip being obtained by steel balls; it enables the engine to be started by hand and to be disconnected at will from the driving gear when riding in traffic. It is also being supplied combined with a two-speed gear.

A steering wheel made in aluminium is one of the automobile attractions on the stand of Mr. R. W. COAN, whose specialities in that metal are familiar enough to all engaged in motor-car work. The idea of the new steering wheel, the rim of which is hollow, is to allow the hands to be warmed while operating the wheel. By means of a flexible tube the water from the engine head is circulated through a hollow spoke and thence round the wheel, it being claimed that no more than half a minute is occupied in securing sufficient heat for the purpose.

The OTTO-BENNETT MOTOR CO. show the well-known "Otto" band, a detachable, non-skidding leather band which has already won distinction in the motoring world. Unlike many such devices, the Otto band does not present an unsightly appearance, while the security of the attachment fastens it to the tyre as tenaciously as if it were solid with it. With it in use the fear of skidding is absent, while the risk of punctures is overcome. The chrome leather of which it consists is cut out at the inner and outer faces of the band, which is surmounted by a narrow tread, on which are fixed tempered steel rivets. By means of a flexible wire it is easily detached or attached to the tyre, thus providing a means to economy which is being regarded with increasing favour by motorists. The "Sée" unpuncturable bands are also on the stand, and their neat, strong, and durable qualities will be appreciated by those who do not object to a permanently fixed band. This band is made of toughened leather fitted with a strip on the tread carrying steel studs in interspersed rows. The Stepney detachable wheel and the Avon tri-mobile, a three-wheeled motor-vehicle of great efficiency, the features of which have already been described in the *Journal*, are other specialities of the Otto-Bennett Motor Co., which has also taken up the agency for the Force carburettor illustrated and described in our issue of May 23rd, 1903. This is designed to give a correctly-proportioned mixture, and obviates the presence of the levers and connections usually necessary.

The display of lamps is fairly comprehensive. The 20TH CENTURY MANUFACTURING CO. have a good show of headlights, sidelights, and tail-lights, and take advantage of the occasion to circulate a catalogue of considerable practical value to all motorists, the directions for use and the drawings of the various parts of lamps being useful information for the amateur.

A very interesting display of the Fafnir petrol engine for motor-cycles and cars made by the Aix-la-Chapelle Steel Works is to be seen at the stand of Messrs. STRAUS and COMPANY, London, E.C., the British agents. The motors range from 3-h.p. to 24-h.p. The air-cooled motor-cycle engine is a new model with mechanically-operated inlet valve arranged in the cylinder head, with adjustable tappet rods. The speed of the engine is regulated by varying the lift of the inlet valve, this being accomplished by means of a wedge piece which may be inserted between the cam and the side rod operating the valve. A device for lifting the exhaust valve is also provided to facilitate starting. The engine is of 3-h.p., having a cylinder 75 mm diameter by 88 mm. stroke; it is supplied either for accumulator and coil or magneto ignition; in the latter the magneto is driven by an enclosed train of three spur wheels mounted on the side of the crank case. Fig 16 illustrates the Fafnir 6-h.p. double-cylinder

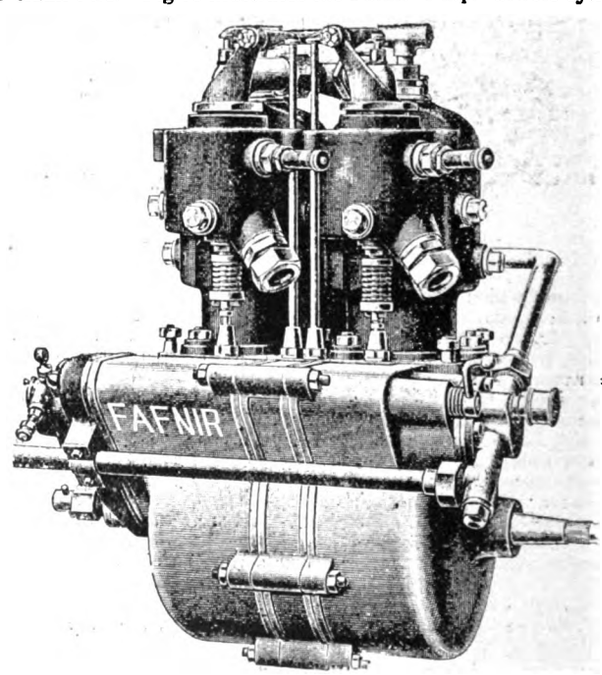


Fig. 16.—The Fafnir 6-h.p. Double-cylinder Engine.

engine for light cars; this is, as regards the inlet valves and cylinder dimensions, on similar lines to the motor just described, an interesting feature being that the pump is combined with the engine. It is driven off the crank shaft and is seen at the right of the illustration. Other engines on view comprise examples of the 10-h.p., 16-h.p. and 24-h.p. four-cylinder type, while reference should be made to the Fafnir change-speed gears, differential shafts and other motor components.

(To be concluded.)

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CORRESPONDENCE.

ELECTRICAL v. WATCH TIMING.

To the Editor of *The Motor-Car Journal.*

Sir,—Considering the free use Mr. Crawley made of my name on a recent Thursday at the A.C.G.B.I., I am surprised that he did not take the trouble to advise me of the meeting—it would have been an act of courtesy had he invited all the timekeepers. I received a most courteous note from Colonel Holden at noon on the same day, unfortunately too late for me to arrange to get up from Birmingham. In the first place, may I ask what became of the paper, as only an ill-advised argument against the present system of timekeeping appears. Mr. Crawley says that supposing "a watch registers 2 1-5th sec., this merely means that the button was pressed somewhere between 2 1-10th and 2 3-10th sec."; such a case is impossible with the split seconds chronographs used by Mr. F. Straight and myself. If our watches register 2 1-5 sec. that time has elapsed.

In mentioning the equal running of the watches he argues from the same standpoint, which is erroneous. It is unfair to assume that one watch gained on the other when they both registered the same fifth exactly. These watches have now been used on nineteen occasions in club events, totalling 163¾ hours, and every time when stopped at the close of the day's events they have registered the same fifth exactly—there is no *if* about it.

Mons. Tampier, the French timekeeper, is credited with knowing something about timekeeping, and I take it as a great compliment that he was so convinced of the accurate running of my three chronographs in the Irish Gordon Bennett race that he purchased the only other similar chronograph on sale last year, and he actually started and timed this year's Gordon Bennett race with it.

Watches have been made and tested to time to 1-300th sec., but the speed at which they have to run soon wears them out, and 1-5 sec. has been found to be the smallest interval to which a watch can be cut to give accurate results for any length of time.

If some method of timing finer than 1-5 sec. is required, let it be got by all means, but there is no need to try and discredit instruments which are at the moment the best and most reliable in existence, and, whether the distance be one mile or 1,000, will record the time accurately to 1-5 sec. It should not be forgotten that the owners may be required to time events for which the electric apparatus is altogether unsuitable.

May I mention, in proof that I have no axe to grind, that I am not interested in the manufacture or sale of watches, and have never accepted from the club a fee or cent towards my out-of-pocket expenses?

In conclusion, I should like to make a suggestion *re* the electric timing apparatus, viz., that Kew-tested clockwork be used to bring it into line with the Kew-tested chronographs employed by the club timekeepers.—Yours truly,

T. H. Woollen.

A SCOTTISH RELIABILITY TRIAL.

To the Editor of *The Motor-Car Journal.*

Sir,—My committee have been considering the desirability of announcing a Glasgow to London Reliability Trial similar to those so successfully conducted by them in each of the last three years.

While they are assured that this would again meet with a gratifying amount of support, there is a general feeling that such a trial is not now sufficiently severe or conclusive, and that the interests of the automobile trade would be better served, and an even greater public interest excited, were the test more exacting and comprehensive.

They have accordingly resolved, should their proposal meet with encouragement from manufacturers and agents, to organise a reliability trial occupying say three days, in Scotland, embracing in its itinerary the principal cities and towns and some of the most mountainous roads and passes in the Scottish Highlands, and including not less than three hill-climbing tests of lengths and severity unequalled in any reliability trial or hill tests yet held anywhere.

My committee are of opinion that a trial of this nature would command wide-spread public notice and would test the capabilities of touring cars to an extent not yet attempted.

My committee would esteem it a favour to have the opinions of any of your readers interested in the matter, and to know whether, subject to their approval of the conditions of entry later, they would be prepared to make any entries.—Yours truly,

Robert J. Smith,
Hon. Sec. Scottish Club (Western Section).

BRITISH v. FOREIGN CARS.

To the Editor of *The Motor-Car Journal.*

Sir,—I consider the English firms can account for the increased importation of foreign cars by the greatly increased popularity of the motor, which has come along so rapidly as to open a market in England that could not possibly be filled by the home factories; but I do not think any reflection can be saddled on the British manufacturers, who, judging from the recent correspondence, seem to have made phenomenal progress. Mr. Jarrott points out the immense growth of French firms, with which he is more intimately acquainted, and, with a true Englishman's feelings, wishes to encourage English firms to follow, offering his support when he can obtain his requirements in England, and in reply I ask him to wait a very little while, probably next year, and he will realise his desire.

Under the English manufacturers' surface of nonchalance there is activity little dreamt of. Going back two years, I am pleased to say our 1901 business was doubled in 1902; 1903 trebled 1902; and although we have gone away this year from the usual slavish imitation of the foreigner, by adopting a principle of worm gear unheard of in connection with motor-cars on the continent, yet I have every confidence that when my company's balance-sheet appears for 1904 it will be quite as satisfactory as hitherto.

This general increase must account for an enormous reduction in foreign importation, and I believe if Mr. Jarrott renews the subject at the end of 1905, he will be pleased with the position of the English makers, realise them as powerful competitors, and decide to sell well-finished English cars in preference to foreign.—Yours truly,

Raymond Dennis.

THE LANCHESTER CAR.

To the Editor of *The Motor-Car Journal.*

Sir,—I shall be glad if any readers of the *Journal* can give me information about the "Lanchester" car. I have read their descriptive book and watched cars running, but should like to know from a disinterested owner, preferably one who has also owned or driven the usual type of car; with wheel steering, water cooling, high tension ignition, etc., the following:—

1. Is tiller steering as fitted by Lanchester preferable to the wheel? 2. Is air cooling on these cars a success? 3. Is range of speed variation on any particular gear as great with the Lanchester fixed ignition as with the usual variable point of ignition? 4. Do the governor levers give as great a range of control as the throttle lever on ordinary cars and can one or both cylinders be cut quite out? also what happens if one lever is set to cut out the governor oftener than the other lever? 5. Are control levers and speed levers between the front seats as convenient both for daylight and night driving as when arranged on column of a wheel and at off side of car? 6. Is Lanchester *less* or *more* trouble to keep in good running order, adjust, &c.? 7. Is the arrangement of change speed, clutch, &c., hand operated as Lanchester as safe in emergency as the usual clutch and brake pedal and lever at side of car? 8. How does the Lanchester compare for hill climbing, speed and comfort with ordinary type same power?



Mr. Luff-Smith on a 96-h.p. Wolseley, fitted with Touring Body.
Photo by [*Mr. A. E. Newton.*

If any one will give above and any other information he can *re* these cars, he will, I am sure, receive not only my own but also the thanks of many other would-be motorists who are interested, but cannot, like myself, get disinterested advice.—Yours truly,

Enquirer.

MOTOR BOATING.

To the Editor of *The Motor-Car Journal.*

Sir,—Your description of the run of the Mercedes IV. from Dover to Putney, while it forms yet one more achievement for the motor-boat and demonstrates its great possibilities under varying conditions, is, I think, rather inclined to lay too much stress upon the dangers and perils attending such a cruise.

I think that one may fairly consider that recent events have removed the small motor-driven craft from the experimental and hazardous stage, and that the public need no longer look upon these attempts as attended with perils, except under the most unfavourable

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conditions. In support of this may be cited the recent performances of the Napier Minor, a boat which my syndicate had the pleasure of constructing under my supervision.

Although the boat has made several trips from Dover and Brightlingsea to Southampton without stopping, taking the weather as it came, I have never heard Mr. Evans, her helmsman, on these occasions, or anyone on board, say anything that would lead one to believe that a trip, say from Brightlingsea to Southampton, was anything more than an ordinary pegaway run. I have heard of the boat leaving Dover Harbour at a time when the cross-channel boats were having a very bad time of it. The foregoing goes to demonstrate that a properly designed and constructed motor-boat, fitted with a good engine, forms one of the safest and most comfortable craft one can have.—Yours truly,

S. E. SAUNDERS.

FOLDING BICYCLE WANTED.

To the Editor of *The Motor-Car Journal*.

SIR,—I have been considering that it would be a very handy thing to be able to carry a bicycle on my motor-car. Now I remember reading some time ago of folding bicycles which were recommended for military use. The ordinary bicycle is, of course, too long and awkward to put on a car.

One point of value in the ability to conveniently carry a bike would be, when one came across rough roads or newly metalled ones, one might finish the journey on selected parts of the road or on the footpath. Can any of your readers give me names and addresses of makers of such bikes?

J. TEARE.

A NOISY ENGINE.

To the Editor of *The Motor-Car Journal*.

SIR,—The following notes may possibly be a reply to "H. W. P.'s" letter in the *Journal* of the 12th inst., being cases of noise in cars that came under the writer's notice:—1. Due to slightly worn, too soft gear, that ran fairly quiet when engine was driving, but made a fearful noise when second shaft wheel was driving first down hill with clutch out. 2. In an old car which had little brake pads to slow down clutch cone when withdrawn—these caused noise from mal-adjustment. 3. Too much end-play in first motion shaft; when clutch was withdrawn shaft was pressed endways, and, as there was little clearance between gears, one of them fouled a projection in gear-case.—Yours truly,

R. W. BUTTEMER.

ENGINE TROUBLES.

To the Editor of *The Motor-Car Journal*.

SIR,—A friend of mine had considerable trouble lately with a 12-16-h.p. four-cylinder Peugeot. Only two cylinders would work anything like well, and as soon as the throttle was fully opened, the engine would set up a noise just as if there were water in the cylinders. These were, however, tested hydraulically and found all right. The engine was taken down and examined thoroughly; timing, ignition, compression, etc., were all right. We were at our wits' end, when it was suggested to examine the exhaust pipes and silencer. These were simply choked through over-lubrication, and thus the cause of all the trouble. I had often warned my friend, but, as he never had had any trouble from the magneto ignition, he did not care. Perhaps you will kindly publish this letter, as it might assist fellow motorists.—Yours truly,

P. ROELOFS.

OVERHEATING TROUBLES.

To the Editor of *The Motor-Car Journal*.

SIR,—Referring to the letter of Mr. A. E. Coleman on the above in the *Journal* of the 12th inst., I have had some eighteen months' experience of a 10-h.p. single-cylinder Rex car, and may possibly be able to help. I should not advise him to alter the water pipes (½ in. bore), as I have found these quite large enough for the purpose. He will probably find that the trouble is due to the guide being a little too tight for the stem of the exhaust valve; this would have the effect of holding the valve up a little during the explosion and so allowing the exhaust gases to burn the stem of the valve. The remedy for this is obvious.

The pump may possibly need attention, as the cog-wheel type of pump requires careful adjustment to get the best results. I should also advise the fixing of a small screw-down grease lubricator in some convenient position on the pump; this makes a surprising improvement in the running of the pump.—Yours truly,

ARTHUR S. M. BEST.

To the Editor of *The Motor-Car Journal*.

SIR,—One of your correspondents, Mr. A. E. Coleman, inquires for information regarding his Rex car. As an owner a 10-h.p car of the same make, my experience may be useful to him. My only trouble from overheating has been through the water-pipes, and occasionally by the radiators becoming blocked up. I strongly advise your correspondent not to alter the contact-breaker or pump, but to thoroughly clean out his circulation pipes.—Yours truly,

P. TURPEY.

COST OF RUNNING.

To the Editor of *The Motor-Car Journal*.

SIR,—As you have expressed a wish that motorists would state the cost of driving their cars, I venture to send you details relating to my 10-12½-h.p. car. The expenses cover the period from 17th November, 1903, to 21st November, 1904, and the car has been driven 2,870 miles:—

	£	s.	d.
Insurance	10	0	0
Registration and licences	2	5	0
Clothing	0	16	0
Rent	13	15	0
Repairs and overhauling	23	15	1
Accessories	5	16	11
Oil, petrol, and carriage of same	11	0	5
Man cleaning car	3	1	0
Batteries and charging	2	10	10
Tyres, solution, tubes, repairing bursts	15	4	6
Sundries	2	4	6

I should like the opinion of your readers as to whether £10 for insurance is worth it. I pay £15 per annum for rent and 2s. 6d. per week to a man for cleaning the car. Repairs include cost of new piston rod, due to stupidity of local repairers, who screwed the old rod so tightly that it seized.

Accessories include a Salsbury tail lamp, to take the place of one which was "thrown in" with the car when I purchased it, and which was therefore useless. The battery also turned out a failure and another one had to be purchased.

My rear wheels are protected by Samson non-skidding bands, but, notwithstanding, I had a burst a short time ago. I think, however, they save the tyres a good deal and are worth the extra expense. I also had a burst in August last caused by a canvas patch which was badly solutioned on inside the cover. A wrinkle in it gradually chafed the tube until it burst and destroyed the cover. The local repairer again!

Without allowing anything for depreciation I think you will find this works out at over 7½d. a mile.—Yours truly,

S. C. G.

MOTOR-CAR REPAIRS.

To the Editor of *The Motor-Car Journal*.

SIR,—Motor-car repairing establishments are opening up in every city of the land, but competent automobile repairers are still scarce. Various tradesmen whose experience is entirely foreign to motor engineering have recently blossomed out into full-fledged motor-car experts, and are leaving unmistakable marks of their incompetence upon the vehicles entrusted to their care. It is not uncommon for an automobile which merely required some slight adjustment or replacement of parts to receive at the hands of these men a thorough "overhauling," with the result that serious and complete derangement follows, and the owner is put to much trouble and expense to have his car set to rights again. No man is competent to make a specialty of repairing motor-cars unless he is familiar with their construction as well as their operation. I would advise my fellow motorists to endeavour to select some mechanic of reputation in their town who will become interested in their car and be able to make such repairs to it as may be needed. If there is a newly-opened repair shop in the vicinity, an automobilist would be well advised to assure himself of the competence of the repairer before he entrusts his car to him. The little adjustments he should learn to make for himself, and, above all, he should remember that "an ounce of prevention is worth a pound of cure."—Yours truly,

L. P. DARBY.

A USEFUL HINT.

To the Editor of *The Motor-Car Journal*.

SIR,—The following little incident may be of interest to some of the readers of the *Journal*. Whilst out on my car the other day I had the bad luck to get a puncture. I removed the tyre, and was about to mend it, when I found I had no solution in the repair outfit. Being about five miles from the nearest village, I was in despair until I suddenly remembered that petrol was a rubber solvent. Finding a piece of electrical binding rubber, I put it in a tin box, poured some petrol on it, which readily dissolved it. This making some very fair solution, I mended the tyre, which is still holding up well.—Yours truly,

J. C. FAIRCLOUGH.

THE HITCHON-WELLER GEAR.—Xenophon writes:—Would any reader of the *Journal* who has tried the Hitchon-Weller gear give his experiences and opinion of the same?

PANHARD IGNITION.—R. H. H. writes that he would be glad of any hints with regard to the adjustment of the ignition of the latest type Panhard cars from users of these vehicles.

[Owing to the pressure on our space this week a number of interesting letters have had to be held over.—ED. *M.-C. J.*]

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CLUBS AND ASSOCIATIONS.

THE LADIES' CLUB.

AT the last meeting of the committee of the Ladies' Automobile Club of Great Britain and Ireland the following ladies were elected to membership :—Lady Greenall, the Lady Margaret Compton, Mrs. Almeric Paget, and the Viscountess Southwell.

The committee have arranged with Mr. R. Sedgwick Currie (consulting engineer to the L.A.C.), to give a course of lessons, to members of the club, on the internal combustion engine as applied to self-propelled vehicles. The first of these will be given at the club on Tuesday, the 22nd November, at 3 p.m. In all, there will be six lectures, the following being a general outline of same :—Lesson I. : Principle of internal combustion engine. Different types of engines (1, 2, 3, and 4 cylinders). General outline of all working parts. Lesson II. : Full description of all working parts and their uses. Lesson III. : Working of engine and governing gears, carburettors. Lesson IV. : Gears, brakes, transmission (belt, chain, live axle), differentials. Lesson V. : Clutches, water circulation, pumps (oil and water), silencers. Lesson VI. : Ignition (tube, coil, and magneto), commutators, tremblers.

Lieutenant Windham, R.N., will deliver a lecture on some of his motoring experiences, to members of the club and their friends, on Wednesday, December 7th, at 3.30 p.m.

SHEFFIELD.

UNDER the auspices of the Sheffield Automobile Club, Mr. S. F. Edge has been lecturing on motor-car racing in the cutlery centre. Alderman W. E. Clegg was in the chair, and among those who were present were Mr. Harvey Foster, Dr. Thorne, Messrs. A. S. Fawcett, J. W. Fawcett, J. H. Pickford, James Barber, F. Mellowes, C. A. Clarke, J. R. Wade, and others. In concluding his address, Mr. Edge spoke of the great influx of trade which followed the victory in the Gordon Bennett contest. At one time it was impossible to get springs in England which would stand the tremendously rapid movement, but they could now obtain them in Sheffield second to none in quality. They had only to prove to the world that the best springs were made in Sheffield, and it would mean hundreds of thousands of pounds for springs alone to that city. The same thing applied to tyres, and wood for the wheels, both of which they could now get in England as well as on the Continent. The amount of capital locked up in horses was enormous, and mechanical traction must therefore be adopted gradually. He then presented the cups given to the Sheffield Automobile Club by Mr. Harvey Foster to the winners in the hill-climbing competitions held at Padley Wood some time ago. The cup for cars was won by Mr. Frank Churchill, with his 14-h.p. Hallamshire, whilst the motor-cycle competition fell to Mr. F. Oates, with his 2¾-h.p. De Dion tricycle. Subsequent to this a series of bioscope pictures were thrown on the screen, illustrating the Gordon Bennett race in Germany last summer, motor-boat racing, motoring in the clouds, and other interesting scenes. At the close a vote of thanks to Mr. Edge was heartily carried on the motion of Ald. Clegg, seconded by Mr. J. H. Pickford, and a similar courtesy was extended to the chairman on the motion of Mr. F. B. Cawood, seconded by Mr. A. S. Fawcett. About 600 members and friends of the Sheffield Club were present.

HULL.

THE Hull Club is developing the social side, and automobilists have enjoyed a social event at the Imperial Hotel, Hull. An incident of the proceedings was the presentation of badges to the winners of the non-stop run to York on September 29th. These awards were decorated with the City arms in enamel, with a sparking plug and a steering wheel worked into the design. The winners were Mr. J. H. Nicholson, on a 2¾-h.p. Humber; Mr. J. F. Freeman, 3½-h.p. Rex; Mr. A. E. Hagestadt, 2¾-h.p. Riley; Mr. G. H. Parker, 2¾-h.p. De Dion; and T. C. Philipson, 2-h.p. Minerva. Mr. G. H. Strong presented the badges.

Colonel Broadly, Mr. W. Glossop, and Dr. Coates, members of the club, wrote regretting their absence. Mr. G. M. Heald is the secretary of the club, success to which was proposed by Mr. W. C. Dawson. The next meeting of the club will take place on the 1st prox.

A BINDING AGREEMENT.

AT the Brompton County Court, on Friday last week, before Mr. Stuart Sankey, Messrs. William Cole and Sons, motor-car builders, etc., High-street, Kensington, W., sought to recover £29 1s. from the Motor Car Emporium, Limited, Addison-road, W., the claim being in respect of work done and goods supplied.

Plaintiffs' counsel stated that in March last Mr. Frentzel gave an order for the plaintiffs to paint and varnish and upholster certain motor-cars. The price was agreed at the time, and as to this there was now no dispute. The work was properly done, but when application was made for payment the defendants commenced to raise objections as to the quality of the work. Evidence for plaintiffs and defendants having been given, his Honour considered that the defendants must be bound by the agreement. One or two small items, amounting to £1 18s. 6d., were struck out of the account, and judgment was given for the plaintiffs for the balance—£27 2s. 6d., with costs.

MILITARY MOTORS IN THE MANŒUVRES.*

MY paper necessarily centres round the work of the Motor Volunteer Corps, and very complete elaborate training had taken place previous to the manœuvres with the object of keeping the members of the corps tuned up to their duties. During the whole of this year tuning up has been taking place, and there has scarcely been a day during the year when no member of the corps had been requisitioned for duty. The announcement of the manœuvres was made in the month of June, and one might almost say that as far as the Motor Volunteer Corps was concerned their work in connection with these manœuvres began on the instant, for the various staff officers and others immediately began to requisition cars to carry them round about the proposed military area, which was to be in Essex. The actual manœuvres took place on September 14th, and, as far as the Motor Volunteer Corps are concerned, there were in all thirty-one cars and twenty-five cyclists, the various makes of cars which took part being as follows :—20-h.p. Peugeot, 18-h.p. Mercedes (two), 45-h.p. Mercedes, 28-h.p. Daimler, 14-h.p. Daimler, 24-h.p. Darracq, 30-h.p. Wolseley, 18-h.p. Wolseley, 10-h.p. Wolseley, 15-h.p. Darracq, 15-h.p. Panhard, 16-h.p. Napier, 18-h.p. Wilson Pilcher, 7-h.p. Star, 12-h.p. Richard, 12-h.p. Minerva, 10-h.p. De Dion, 9-h.p. De Dion, 10-h.p. White steam car, 12-h.p. New Orleans (two), 12-h.p. Wilson Pilcher, 20-h.p. Clement, 10-h.p. Clement, 10-h.p. Rolls-Royce, 10-h.p. Humber, 10-h.p. Thornycroft, 10-h.p. Argyll, 8-h.p. Brush, and 12-h.p. Mors.

This year a new departure took place, inasmuch as it was decided that the corps should go under canvas. For this purpose the old parade ground in the Meanee Barracks, Colchester, was secured. Every accommodation was found in the camp for ninety people, including motor



The Headquarters of the South Wales and Monmouthshire Club.

(*See page 771, last issue.*)

men and servants. On the night preceding the manœuvres the camp was a scene of very great animation as the cars and motor-cycles began to arrive. All that was known in camp at that time of the manœuvres was that General French and the invading forces had left Southampton some days previously, and were about to attempt a landing somewhere on the east coast. Consequently a great buzz of excitement rose throughout the camp at a late hour on that night, when nearly the whole of the cars and cycles were ordered to be somewhere in the vicinity of Clacton-on-Sea at 6 o'clock the following morning.

At Clacton-on Sea, where I was quartered, to try to take charge of General Sir Neville Lyttleton, the Director of the Manœuvres, I paraded for duty some three days before the 14th to await the arrival of Sir Neville. The actual landing place of General French's force had been kept a profound secret from the public. I was instructed to telephone to my head-quarters at Colchester to have a certain number of cars at Clacton-on-Sea at six o'clock in the morning, when it was expected that General French would land. The actual extent of the landing area was some seven miles, and the motor-cars were of extreme use in allowing the Staff officers to drive from one part to the other in order to study and supervise the various landing operations.

The morning arrived, so also did the cars from Colchester at six o'clock, after a very cold journey, having been ordered to parade at the camp at Colchester at about four o'clock. As a matter of fact, it was quite nine o'clock before the first transports with their accompanying cruiser came into view. About this time a smart car arrived driven by

* From a paper read by Mr. J. F. Ochs at the A.C.G.B.I. Thursday, November 17th, 1904.

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Mr. Oliver Stanton, who had been deputed to drive General French, the Commander-in-Chief of the Invading Forces, throughout the manœuvres. He had accompanied the General as far as Southampton from Aldershot, and, instead of the car being taken on board the flagship, he had brought it round over land to Clacton, there to await his disembarkation. There was a general exodus of cars about mid-day back to Colchester.

Instructions were posted up every night in the ante-chamber detailing members to their various duties on the following day, and it was observed that for the next day's work the cars, instead of being sent to the coast, were to parade at various points either at Colchester or further inland. Few members seemed aware of the fact that during the night they had been massacred, since at 5 o'clock that morning Colchester had fallen into the hands of the enemy, nor did the painful operation seem to have spoiled their appetites for breakfast. I myself had remained at Clacton till ten o'clock the previous evening, and there was also a car waiting there driven by a much-esteemed member of this club, even more distinguished in the Irish Club, Captain Davies Goff. His car had the honour of carrying throughout the manœuvres H.R.H. the Duke of Connaught, the umpire in chief, and his staff.

After describing some of the detail duties of the Motor Volunteer Corps Mr. Ochs continued :—Breakdowns were few and far between ; but, to give an example of the organisation of the corps, I may tell you that I myself had a burst tyre close to a camp I had been taking my officers to. I managed to struggle on to the camp, and whilst a Pow Wow was taking place there, to my great satisfaction I saw in the distance Lord Russell, who had come on instructions received to relieve me, and to carry off my officers in triumph. I had, meanwhile, used the military telephone for communication with our camp at Colchester, to send me a new cover. Hardly had Lord Russell left with my freight than a car came dashing into the camp with the required spare cover.

About two weeks ago I was attending a discussion here as to inconsiderate driving, more especially in regard to fast cars on the road, and I was much struck by what appeared to be the opinion of members, that it was the fast cars that caused all the prejudice in this country. Now, during the manœuvres, although there were some forty or fifty cars generally rushing about in the manœuvre area, some at great speed, apparently no inconvenience was caused to the cavalry horses, nor to the great many people who were out every day. But it was a very curious fact that there was a little car belonging to an enterprising newspaper which was a fussy, noisy little car, and it caused the greatest inconvenience, and frightened, to my knowledge, several horses. I only illustrate this to show that the real inconvenience caused to other people is not necessarily caused because the car is a fast one.

As to the cars outside the corps, I am much indebted to Major Lloyd, the Secretary of the Mechanical Transport Department of H.M. War Office. He tells me that the heavy lorries were of extreme use in the manœuvres in bringing up supplies—in fact, in every way in which the lorries could be usefully employed. I am informed that at the present moment four heavy oil cars are on order for the Government and being built in this country. There is no doubt that if we do not yet compare favourably in the manufacture of touring and racing cars with our foreign neighbours, as far as heavy mechanical transport goes we are well ahead, but that must not be a reason for manufacturers of this country to mark time ; on the contrary, they will have to do all they can to compete with foreign made heavy transports. I believe I am not betraying a confidence when I tell you that in this respect some heavy lorries of foreign make were recently matched against two heavy lorries of recognised English make, and that the former in this particular case proved far more successful. Besides the heavy cars there were a great many of the dapper karki-coloured military cars seen running all over the place. It was a general experience of the members of the corps that, if anything, the officers assumed a rather too over-cautious attitude as to whether a car would go over a road or not. I personally think that a little excursion into a stubble field is not at all uninteresting. The old bugbear annoyance of being burdened with taking officers' luggage no longer exists ; express instructions have been issued to military officers that the cars are the private property of the drivers and must not be used without their consent for taking luggage.

All the members looked exceedingly smart and were careful of their uniforms, though one especially neat-looking gentleman spoilt the effect by wearing his leggings the wrong way round. I have said very little here about motor-cyclists, because I do not think there is anything that I can say about them that is new except that this year there were twelve used as combatants on either side. There is no official report so far, so one must conclude that the motor-car has become during the past year more and more an essential part of our military establishment. The same applies to France and Germany. When I was in Homburg this year I was eagerly questioned as to the position and status of the Motor Volunteer Corps ; since then I hear that a corps has actually been started. As to the future, it is either very easy or very difficult to prognosticate ; as far as I can see there is nothing to prevent the motor being used for the transporting of staff officers to the fighting line, provided there are roads. In this respect I was discussing with a staff officer the question of motors being used in actual warfare for staff officers—it being generally supposed that motors would only be good for manœuvres and staff rides—and he replied that surely transportation of officers from one quarter of the battlefield to another was employing cars in actual warfare. It is manifest that for ambulance work and telegraph service it is a model vehicle. Regarding the actual annoyance caused to troops on the march by motor-cars, of which we heard a great deal last year, I ventured at the time to rather believe that these reports were somewhat exaggerated. I think it will be gratifying to the corps in general, and to myself in particular, and I am sure to the members of this club, if I read you the following extract from a letter I have received from Sir Frederick Stopford and Colonel May on the subject :—"As it will be remembered, last year Lord Roberts honoured the corps by inspecting it at Marlborough after the work was finished, and this year the corps was if possible still more greatly honoured by being inspected at the conclusion of the manœuvres by H.R.H. the Duke of Connaught, and after the inspection, in complimenting Colonel Mayhew, he expressed his great satisfaction with the work that had been carried out by the cars."

A RUNNING-DOWN CASE.

At Liskeard County Court, Francis Bennett, of Pill, St. Stephen's-by-Saltash, claimed £50 of the Great Western Railway Company for injuries sustained through the negligent driving of a motor-omnibus by defendants' servants. Among the witnesses was Fredk. Tilford, the driver of the car, who said prior to June he had driven a motor mail-van in Liverpool for two years. The car in question could not travel more than twelve miles an hour, and he was driving about six miles an hour when the accident happened. The moment he saw plaintiff on horseback he blew his horn. He saw no signal made by plaintiff; if he had he should have instantly stopped. He allowed plaintiff sufficient room for a wagon to pass. The horse was walking quietly near the hedge on the other side as the car approached and was passing, when suddenly he felt the car bump. He at once stopped, and went back. J. Wright, leading motor-car driver for the Great Western Railway Company's service between Saltash and Callington, said the hedges on each side of the road were 17 feet 6 inches apart. The prints in the road made by the tyres of this car at the time were 9 feet from the hedge against which the accident had happened. The tracks of another car equipped with a different sort of tyre showed that in that case the car had kept to the middle of the road. B. Hawley, in charge of the G.W.R.Co.'s motor-car traffic in Devon and Cornwall, gave evidence as to the various speeds of the motor-car in question.

The jury found for plaintiff: £20 for injury to the horse, £3 for keep and attendance of the animal, £2 5s. for veterinary's fee, £1 for loss of use of the horse, and £1 for loss of time ; total £27 5s.

POLICE TRAP.

The Fairmile at Cobham has been again the scene of trapping motorists.

There is in active operation a police trap in the New Cross Road, London, S.E. It is mostly in respect to rear lights, and the police hold up all cars whose lights do not comply with the strict letter of the law. It is in operation mostly on Sunday evenings, and is located from New Cross Gate to the L.B. and S.C.R. station up the hill. This trap, being on the main outlet from London to the South-East corner of England, is naturally much used by motorists, and it behoves them to look after their lamps.

On the Great North Road at Finchley a trap is generally set for motorists going that way.

CASES AGAINST MOTORISTS.

Place.	Summoned for	Fine.
Bournemouth.....	Driving dangerously	£5, etc.
Welwyn	Furious driving	£10.
Ripley	(1) Dangerous speed; (2) driving recklessly ; (3) no rear light	(1) £2, etc.; (2) withdrawn : (3) 10s., etc.
Bristol	Driving dangerously	Dismissed.
Highgate.....	Beyond legal limit	40s., etc.
Kingston	Dangerous driving	£2.
Derby	No rear light	20s., etc.
Cupar	No rear light	2s. 6d., etc.

TO CORRESPONDENTS.

All communications intended for insertion in this Journal or relating to Editorial matters should be addressed to The Editorial Department, Motor-Car Journal, *39 and 40, Shoe Lane, London, E.C., and must be written on one side of the paper only. Letters must in all cases be accompanied by the name and address of the writer, as no notice will be taken of anonymous communications.*

The Editors cannot undertake to return MSS. or drawings, although every effort will be made to do so in the case of rejected communications. Where such are regarded as of value, correspondents are requested to retain copies.

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THE

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COMMENTS.



AS will be seen from the report on another page, Mr. W. H. Maudslay, of Coventry, has been elected chairman of the Mechanical Transport Committee of the Automobile Mutual Protection Association, whose membership is now close upon two hundred of the leading firms in the automobile industry, a fact which shows how rapidly the business has grown within a recent period. It is hoped that the regulations of the Local Government Board will be issued without further delay, so that the trade may know what they may do, and what they may not do. This is a section of the industry where Great Britain undoubtedly leads, and it is to be hoped that the Government department will not delay further progress by long postponement of the anxiously awaited regulations.

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Signing Licences.

THE steady growth in the popularity of motoring has not been a source of unmixed pleasure to the clerks of registering authorities, among whom is Mr. G. L. Gomme, the clerk to the London County Council. The duty of signing every licence issued in London under the Motor Car Act at present devolves on him, and some idea of the onerous nature of this task may be gathered from the fact that though the Act only came into operation at the beginning of the present year, nearly twelve thousand licences have been issued already. Many of the licences, moreover, will soon have to be renewed, and as it is important that there should be no delay in signing them the Highways Committee has decided to recommend that Mr. James Bird, the chief clerk of the department of the clerk of the Council, be authorised to sign the licences on behalf of the Council when necessary.

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Slower Speeds.

MISS BRADDON, the eminent novelist, who, from her retreat in the New Forest, is able to obtain some idea of the speed of the motor-car, has been writing her reminiscences. She comes to the conclusion that this is the age of locomotion, and that the chief desire of mankind is to get "from one place to another as quickly as modern science can achieve." Then follows a rapid picture of the City man of the present day who seems to spend his time in rushing from place to place, spoiling digestion and much else in the process, returning at length, "black with dust," to tell friends about the glories of an automobile expedition. But we would remind Miss Braddon that motorists do not wittingly go into danger, as her suggestion would seem to imply, and that only last week, in his exhaustive paper at the Automobile Club, Mr. Worby Beaumont urged the material advantages of a more moderate speed than makers of motor-cars have hitherto aimed at. As he pointed out, slower speeds than now practised would conduce to longevity of the car as well as to the comfort of the passengers.

Light Cars.

THE paper which Mr. Worby Beaumont contributed to the A.C.G.B.I. at last week's meeting was a careful record of the progress of the light car from the early days of Daimler, Levassor, Benz, De Dion and Bouton, and a careful examination of the principles of construction adopted in the modern vehicles participating in the light car trials It would be very interesting, and certainly instructive, if the designers and drivers of the various vehicles taking part in that event could be brought to the Club to discuss Mr. Beaumont's criticisms—from their respective points of view. In this way a really useful interchange of opinions would take place, which should have a good effect on the cars of the future.

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The Water Question.

IN our correspondence columns a London motorist calls attention to a piece of extortion which we hope will receive more than passing comment. It appears that in addition to the rate for the ordinary domestic water supply, he has been charged a guinea because he happens to keep a motor-car on the premises. The water company, or, we suppose, the Water Board, acknowledges that the charge for those who keep a carriage in this particular district is 8s. per annum, 8s. being also charged for each horse. Why then should 5s. above the rate for a horse and carriage be charged to a man who owns a small motor-vehicle? There is no more washing required with the body of a motor-car than with the ordinary brougham, whilst, because the car may be of six or seven horse-power, it does not follow that its water consumption is likely to be above that of a one horse-power animal. This is one of those new problems that have arisen in connection with the development of automobilism, and, like the question of heavy motor vehicles taking water from public troughs, should have consideration from the authorities who are working with a view of helping motorists in their difficulties.

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Motor-Boat Club.

IT was bound to come. The rapid voyage of the motor-boat into favour with British sportsmen made the formation of a British Motor-Boat Club absolutely necessary if development is to be as rapid as the progress of mechanical power on ordinary roads. Under the chairmanship of Mr. Noel B. Kenealy such an organisation has just been favourably discussed, while a practical turn was given the debate by the appointment of a large and representative provisional committee to draw up the rules and get the matter well forward for next season. There is no foretelling the effect of the new movement on our rivers and lakes and seaside resorts. Southampton Water may become agitated with the presence of scores of speedy craft, the placid Broads of East Anglia may be disturbed as they were never startled before; Henley may see new records, and a motor-boat meet on Windermere may be accompanied with a car tour among the surrounding hills, air-ships and balloons carrying passengers over-

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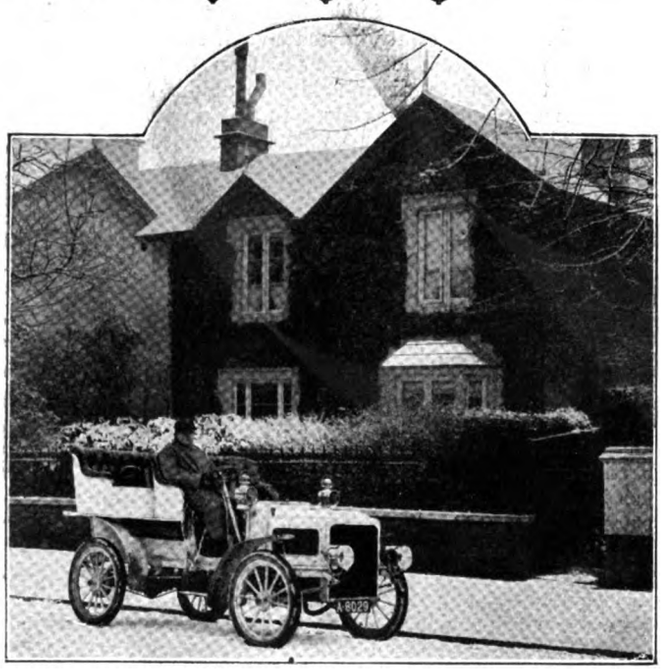
hill and dale far above the mountain summits. Meanwhile the Motor-Boat Club will be getting to work in a very practical fashion.

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The Value of Non-Skidding Devices.

THE streets of London have been strewn with snow, which, mingling with the ordinary refuse of the roads, has covered asphalte and wood paving alike with a substance of the consistency of butter, and there were many false prophets who expected to see motor-cars darting into the paths of other vehicles and generally showing a disposition towards waywardness dangerous to everyone within range of their track. But, thanks in great measure to the growing adoption of non-skidding devices, no accidents have been reported owing to this cause, and the behaviour of the hundreds of cars that have traversed the greasy London streets has afforded a demonstration of safety that should reassure those of nervous mind. The enterprise of the inventors who have seriously studied the problems associated with the skidding of cars has thus had its reward, for many who have hitherto been inclined to doubt the efficacy of such accessories are likely to become converts.

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A White Steam Car in the snow in Regent's Park, N.W. The vehicle illustrated is one of the first 1905 models to reach this country.
Photo by [*Argent Archer.*

Adventures in the Snow.

DURING the severe weather of the past few days some adventurous motor-car rides have been compulsorily undertaken by motorists in many parts of the country. Mr. Currer Briggs, the ex-Lord Mayor of Leeds, was among the number, and he is likely to remember an eventful ride he recently experienced in motoring from Windermere to Leeds. Silverdale was reached all right, but the snow began to cause trouble at Carnforth, and, urged by strong winds, was swept into large drifts. The first mishap occurred at High Bentham, the car becoming embedded in a snowdrift. A path was made after plenty of spade work, and the occupants of the car got away on their journey once more. They were not long in finding themselves in a worse plight. On Clapham Common the snow had obliterated all trace of the roadway, and, there being no hedge on either side, the car left the road and sank deep into another drift. Fortunately, however, a few men got the car safely on to the road again, only to encounter a third stoppage in another snowdrift. An hour's delay in the biting cold was experienced here, and, the journey resumed, all went well until near Settle the car was again stopped in a drift. This time there was no help at hand, and, the spade being broken, there was nothing for it but to rush the drift. The chauffeur backed the car and succeeded in boring a way through. Settle was reached at a quarter to five, the ride from Silverdale having taken nearly five hours. Half-frozen and hungry the party completed the journey by train, the driver remaining at Settle overnight.

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Scottish Experience.

MR. RONALD M'NEILL, a Parliamentary candidate for West Aberdeenshire, has also had an exciting adventure in the snow. His motor-car left Cluny Castle at mid-day on Monday week for Clatt. The layer of snow on the roads was sufficient to cause the wheels of the car to slip, and considerable difficulty was experienced in climbing hills. From Clatt the party motored to Rhynie in bitterly cold weather, and held their meeting. The following morning broke wild and stormy. All through the night and the early morning snow fell heavily, and the drifting snow made the roads almost impassable to vehicular traffic. Banks of drifted snow lay at intervals along the roads, three, four, and, at some places, six or more feet deep. Mr. M'Neill was due at Cabrach at two o'clock in the afternoon. An attempt was made to run the motor-car on the snow-covered roads, an attempt which was not unaccompanied with risk, for, in dashing into a bank of snow, the car swerved and turned, and at times almost upset, so difficult was it to steer. The car came to grief about a mile from Rhynie. Ascending a hill, it went into a snow drift and stuck there. It would neither go forward nor come back the way it went in, and there was nothing for it but to dig it out. The car returned to Rhynie, and a telegram was sent to Cabrach postponing the meeting there, as it was a physical impossibility to reach the place. From Rhynie Mr. M'Neill made an attempt to reach Huntly by motor-car. When the car left Rhynie the snow was drifting fast, and it had not got more than half a mile from the village when it stuck in a bank of snow. Helpers from a neighbouring farm, however, dug the car out. Half a mile further on the car again stuck, but it was extricated and sent on its way again. It had been deemed advisable to send on their luggage on a two-horse wagonette, and Mr. and Mrs. M'Neill and Mr. George Cruden had soon to mount beside the luggage, for about two miles from Gartly the car dashed into a heavy field of snow lying between two hedges, the drift being about a quarter of a mile in length, and from two to five or six feet deep at certain parts. The car was now almost completely buried, and the party left it there, and with difficulty reached Gartly Station in time to catch the train for Huntly.

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The 4,000 miles' trial.

THE second week of the Automobile Club's 4,000 miles reliability trial of the 16-20-h.p. Martini car entered by Capt. H. H. P. Deasy was completed on Saturday, when the total distance covered was 2,300 miles. The test was an exceptionally severe one during last week, owing to the roads being covered with snow and to the intensity of the cold, which made the task of driving (shared by Capt. Deasy and Mr. E. G. Williams) not only difficult but perilous. Especially was this the case on the Wednesday and the Thursday. On the first day Capt. Deasy had to drive on the North Road for three hours in a blinding snowstorm, whilst on the following day, over snow-covered roads, Mr. Williams had to make the ascent and descent of Sunrising Hill, between Banbury and Stratford-on-Avon. The cold was so intense that the lubricating oil froze and had to be continually thawed. Despite all these difficulties the car ran with regularity and with no involuntary stops, though naturally the speed was not kept up to the legal limit. The official observers were Messrs. Basil Joy and Spong, who found the task they had undertaken not of the most comfortable character. Though the weather has been much milder this week, the thaw has reduced the roads to a very heavy state.

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In the Floods.

BUT not only have light cars experienced some strange happenings; we are able to publish a photograph depicting what might almost be called the voyage of a heavy vehicle—a Coulthard lorry. This was out on test, and the driver encountered a flooded road, along which he journeyed with the water at one time over the axles of the vehicle. High tides, an exceedingly heavy rain coming down the river, and high winds were the cause of the floods, and the fact that the motor-lorry was able to make its way under such conditions is testimony to its reliability such as is not often obtainable.

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Application for Speed Limit at Leigh.

MR. E. P. BURD, inspector of the Local Government Board, has just held an inquiry at Leigh into an application by the Town Council to restrict the speed of motor-cars in the borough to ten miles an hour. Local motorists were represented, and Mr. Rees Jeffreys opposed the application on behalf of the A.C.G.B I. and the Motor Union. The Town Clerk said the streets of the town are narrow and have numerous by-streets running into them at right angles. Children make the streets their playgrounds, and, the footpath being small, people are in the habit of walking along the roadways. Works and collieries, also, are near the main roads, and at times the streets are crowded. The Borough Surveyor and the Superintendent of the Leigh police were called in support of the application. Replying to the supporters of the application, Mr. Rees Jeffreys said the matter was of more than local interest, for Leigh was in the centre of South Lancashire, and commanded some important thoroughfares. The tramcars that went through Leigh travelled at speeds of from 11 to 13 3-5 miles an hour, although the Board of Trade limit was eight miles. A well-defined warning of dangerous spots would be better for the motorist and the public than a ten-mile speed limit. The inspector will now report to the Local Government Board.



A Coulthard Steam Wagon traversing a road near Preston flooded by high tides and heavy rains. Although at one time the water was above the hubs of the wheels, the wagon got through without a hitch.

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The Aero Club Banquet.

ONE of the most fashionable functions ever held at the Carlton Hotel was that held on Friday of last week, under the auspices of this Club. Nearly a hundred members and friends sat down under the presidency of Mr. Roger W. Wallace, K.C., and there was a brilliant assemblage of ladies and gentlemen, the former being perhaps in a majority, their beautiful gowns and sparkling gems setting off the sombre garments of the gentlemen. The speaking was of a high order, amongst those proposing or responding to the various toasts being Mr. Wallace, Col. Holden, Sir Hiram Maxim, Hon. C. S. Rolls, Miss Annesley Kenealy, Mr. H. R. Graham, M.P., Hon. C. A. Parsons, and Mr. Schenck. Altogether a most pleasant evening was spent.

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Playing with Vowels.

DORSETSHIRE is evidently a fastidious county, and local motorists anxious not to become identified with its distinguishing letters have paid their fees to the councils of other counties rather than to that of the district made famous and familiar by Thomas Hardy. But, since the reforming zeal has come over the people, why not continue it further and improve the nomenclature of some of the hamlets that nestle in obscurity until venturesome motorists go their way? The dropping of a few I's, and the substitution of any other vowels, preferably, of course, "o" or "u," would effect a great change and save the looks of surprise and wonderment that must often arise when these strange-sounding names are heard or seen for the first time.

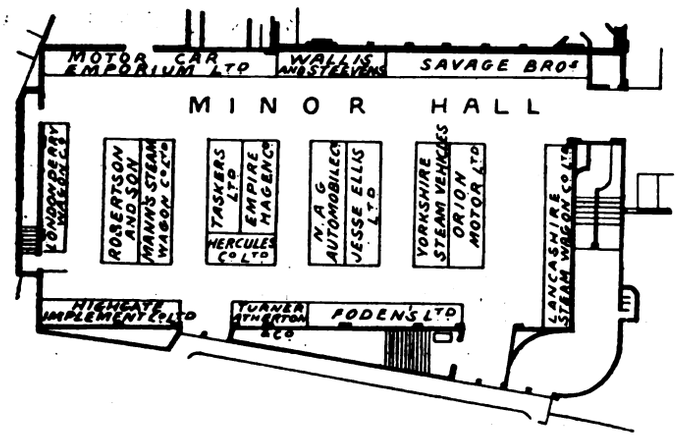
Parochial Visitation by Motor-car.

THE Bishop of Bath and Wells journeyed to Taunton the other day in his motor-car to open a bazaar at which he and Archdeacon Askwith made some of the usual jokes with regard to the automobile. On the same day, the Bishop of Thetford commenced a parochial visitation from King's Lynn in a motor-car lent him for the purpose. It would appear from these two instances, as well as several others which have been recorded in our columns from time to time, that the day is not far distant when the motor-car will become a familiar means of episcopal pilgrimage, just as General Booth lately popularised it in a good many towns throughout the country. While mentioning this subject, we would recall one or two interesting facts obtained from Commissioner Nicol, who accompanied the General of the Salvation Army on his memorable tour. As we surmised at the time, the idea of utilising the motor-car was suggested by the King on the occasion of his interview with General Booth. The tour was carried out at a cost of £500, and, during the journey of 1,300 miles from Land's End to Aberdeen, the collections taken on route amounted to £1,500. just over a sovereign a mile. Evidently all sects and denominations are recognising the utility of the motor-car as well as the economy of time that is associated with its use.

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The Exhibition of 1905.

THIS week we are able to publish the plan of the Minor Hall of the Agricultural Hall, London, where next year's international automobile exhibition will be held. From this it will be seen that the whole of the space in that section of the display has been let to firms engaged in the construction of



heavy motor vehicles, and that the thoroughly representative character of the Exhibition is already assured. Spaces in the large hall are being rapidly taken by firms engaged in that branch of the industry devoted to lighter vehicles, and plans of that important department can now be obtained for intending exhibitors who have not yet taken space from the offices of the Exhibition, 39-40, Shoe Lane, London, E.C.

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A Glorious Week-end.

ALTHOUGH dull and misty in town and foggy in South London, yet towards Sutton the atmosphere cleared; the roads were frozen hard and the trees covered in hoar frost, affording a picturesque sight now rarely seen in Great Britain. The view from Reigate Hill was grand, the sun was shining, and the snow was glistening like diamonds, the green patches forming an emerald setting only to be seen to be appreciated. Cars innumerable were on the road, and rarely have we seen the Brighton road so full of traffic, both vehicular and pedestrian. Brighton itself was bathed in sunshine, and the queen city of the South never looked fairer. The "Old Ship" Garage was, as usual, crowded to its utmost extent, and cars had to be left standing outside the hotel. Inside all preparations had been made for the accommodation of visitors, and those who were fortunate enough to have "window" tables found it most interesting to see car after car, with its four and five passengers, drive up to the hotel, disgorging the ruddy and happy passengers, most of whom were ladies. A run up the Front showed that other hotels were all well favoured with motoring guests, as proved by the cars outside, and it appeared to us, that if there were no motorists, the various Brighton hotels, nearly all excellent, would have fared badly indeed. A glorious run back was enjoyed, but care had to be exercised, as there were a lot of police on the road, mostly in couples. The air kept clear until near Streatham, when the fog zone was reached again, and lamps had to be lighted just after four o'clock.

Mem.—Motor-cyclists and others have taken to covering their ears, and as they do not seem to imagine there are vehicles behind them, they never look round, great inconvenience being consequently caused to other users of the road.

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Attempt to close Grove Hill, Harrow.

ON Tuesday the Local Government Board inquiry into the application to close Grove Hill, Harrow, to motorists was held by Mr. E. P. Burd. Mr. W. G. Austin, deputy-clerk of the Middlesex County Council, presented the case in support of the application. The council were of opinion that there would be no hardship whatever in requiring motorists to use Peterborough Road as an alternative route. The gradients of Grove Hill ranged from one in eight to one in twenty; the length of the road was only 1,860 feet, and the width varied from between fifteen and twenty feet. Peterborough Road, which commenced at the same point, and which had been made only a few years ago at a considerable cost, had no such steep gradients, and its length was only 2,060 feet, or about 200 feet longer to traverse than the dangerous hill. Then, again, at the foot of Grove Hill was a road running at right angles, thus constituting a really dangerous point not only to motorists travelling at high speed but to people approaching the foot of the hill. In 1899 a motor-car was wrecked at the bottom of the hill, two people being killed; and on Easter Sunday last another disastrous accident took place. Mr. W. Rees Jeffreys led the opposition, and the inspector will now make his report to the Local Government Board.

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Why Oppose?

IN connection with this particular case, it might have been well had the opposition been withdrawn, for there seems to have been some ground for the remark of the deputy clerk of the Middlesex County Council to the effect that the notice of objection was of the stereotyped character. The Automobile Club, the Motor Union, and the National Cyclists' Union seemed to have nothing to urge against such restrictions, he reminded the Inspector, but a claim to absolute freedom to go where they liked. Grove Hill has been notorious on account of its accidents, and one witness testified to the fact that 300 accidents, mostly to cyclists, had taken place on the hill during the last decade. An alternative route was suggested, which had no steep gradients and which is only about 200 feet longer to traverse. In view of this alternative it would have been good policy for the Motor Union to have fallen in with the proposal, and thus proved that they do not oppose everything for the sake of opposition—an impression sedulously cultivated by opponents. Here was a case of admitted risk and danger; an alternative route, involving no hardship, was suggested, and it would have been a gracious act if those responsible for the Club's policy had, by making no official opposition to the proposal, shown that where real danger is provable they are willing to acquiesce in anything reasonable.

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A Well-Fitted Car.

CAR No. A 1946 is a bit of a curiosity, and should any of our readers see it stationary in the street they should take a glance at its various fitments. First there is the folding glass screen (illustrated in our columns last week) and five powerful lamps lit by acetylene in the liquid form, which Messrs. Dunhill, Limited, have lately introduced. A "dog frightener" is worked from the dashboard, this consisting of an apparatus into which the exhaust is directed. Then there is an electric light so fixed that the clock face can be seen on dark nights, and, altogether, this particular vehicle is unique. A new horn has just been attached. This is to be worked by a pump, and instead of pressure being applied to a bulb, all that is necessary is to play a couple of stops similar to those on a cornet, when musical notes of a piercing tone are produced. They are a strong contrast to a wheezy horn, and the new device, we were informed by Messrs. Dunhill's representative when we were attracted to the car by the novel noise the other day, is proving popular, although only just introduced to the public.

THE Lanchester Motor Company, Limited, has been registered with a capital of £50,000 to acquire the undertaking of the Lanchester Engine Company, Limited. The first directors are Messrs. C. V. Pugh, J. V. Pugh, J. S. Taylor, J. Whitfield, and T. H. Barnsley.

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A TOUR IN SCOTLAND.

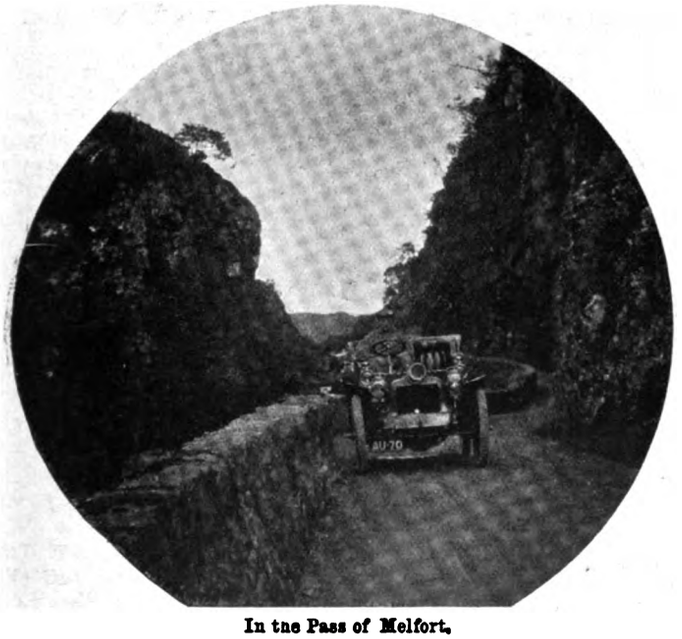
THE complaint of some of the railway magnates of Scotland that many of their whilom patrons are deserting the steel track for the common road is, doubtless, well founded. Every year sees a larger number of motorists from south of the Tweed advancing beyond Edinburgh, and finding



At John o' Groat's.

delight, not in going from place to place according to well-regulated time-table, but in touring as they please along some of the famous Scottish roads.

One of these motorists—and, as we have said, their numbers are a growing band—is Mr. Charles Hardy, of Bulwell Hall,



In the Pass of Melfort.

Nottingham, who for the last three summers has enjoyed the delights and the adventures incidental to a motoring tour in the Highlands. In 1903 he went northward to John o' Groat's, and towards the end of last July set forth, with his brother, on his 16-h.p. Georges Richard-Brasier car with the idea of renewing acquaintance with some of the scenes that had become familiar. From the city of the great market square and many lace factories he went by the Great North Road, touching at Newcastle, Berwick, and Edinburgh, where a few days' sightseeing added interest to the journey. Then by way of Stirling they went to the Trossachs, revelling in the glorious scenery and finding new vigour in the air. Alas! the road from Callender to the Trossachs—a narrow and dangerous one, be it faithfully recorded—is now closed to motor-car traffic, so that Mr. Hardy's third visit to that region will probably be the last—unless some enlightened Scots, recognising the prosperity that is associated with a goodly company of motorists, do something to ensure the provision of better roads in the district.

From the Trossachs our motorists went by Lochearnhead and up Glen Ogle through Shillin, and then had a glorious run of twenty miles along Loch Tay to Aberfeldy. Soon after, at Ballinluig, they struck the main road from Perth to Inverness, and the way then lay through the lovely scenery associated with the names of Blair Athol, Killiecrankie, and Pitlochry. To Inverness was a long pull from the latter place over the Grampian hills, by Dalwhinnie, Kingussie and Avienmore. Inverness is a convenient halting place for travellers by road in the north of Scotland, and there Mr. Hardy enjoyed a stay which afforded opportunity of realising the variableness of Nature.

The run to John o' Groat's was along the Cromarty and Dornoch Firths via Tain, Dornoch, Golspie and Helmsdale,



The River Garry, near Invergarry.

followed by the long dreary climb over "the Ord o' Caithness," and the deep descent into Berriedale. From the latter place a steep hill leads the way through Wick to John o' Groat's.

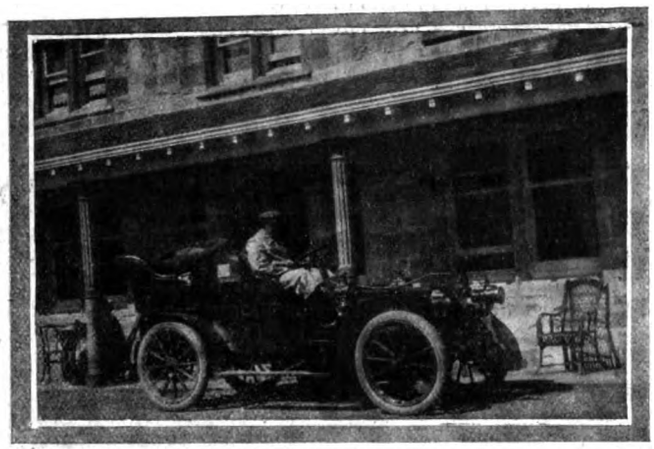
Returning the same way they drove *via* Thurso and Reay, and down to Helmsvale alongside the Hallivale and Helmsdale rivers. There is a very comfortable hotel at Golspie, where they stayed several days.

From there the route to Inverness was the same as going North. From Inverness they drove all alongside the Caledonian Canal to Fort Augustus, the scenery by the water from this road being very fine indeed. These roads are very tortuous and rather hilly, while some very dangerous corners have to be carefully negotiated. They left the canal banks at Fort Augustus and went to Invergarry and stayed there about ten days. The scenery all round about is acknowledged to be some of the wildest and grandest in the Highlands, and the road—about twenty miles—to Glenquoich and Loch Hourn especially striking. The hotel at Invergarry is delightful, and seems to improve with acquaintance. From thence the way was down by Fort William and Ballachulish (ferry) and through Glencoe and across to Oban. After staying a couple of days there, the route lay through the Pass of Melfort and Ford, where they struck the road up alongside Loch Aire with more delightful scenery. Eventually

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they went over the hills and down to Inverary on Loch Fyne. Here was a memorable run all along the loch to Cairndow; then came the bad and rough climb up the "Black Spout" and over by "Rest and be Thankful," with the long and dangerous twisting descent to Arrochar, on Loch Long, and from there across to Tarbert, on Loch Lomond. From there they drove all along Loch Lomond and on to Edinboro' via Glasgow.

After staying a day there they came south to Carlisle and over Shap, with rain pouring heavily and a heavy fog adding to the experiences of the journey in August. Then through Ken-



The Car leaving Invergarry.

dal, Skipton, Bradford and Doncaster, and again to Nottingham. In all, Mr. Hardy and his brother were away just a month. They covered about 1,650 miles without the slightest engine trouble, nothing was done to the motor from start to finish, and, with the exception of lubrication and cleaning, their only troubles were two punctures, one near Berwick and one at Aviemore. Fortunately the weather, until the return to England, was almost ideal for touring, and the trip adds yet another proof of the value of the motor-car for exploring the scenic beauties of our native land.

HILL-CLIMBING IN AUSTRALIA

MR. CHARLES W. BENNETT, of Melbourne, Victoria, recently made an interesting trip on a 10-h.p. De Dion car, when, with his friends, he journeyed to the Kunagong Heights, sixty-two miles from Sydney. Five miles from the heights there is a grade of one in thirteen to one in six, finishing with a stretch of 1,330 yards ranging from one in six to one in three and-a-half. When he arrived at this point, the engine stopped, due, as was eventually discovered, to there being no petrol in the carburettor. Mr. Bennett filled up the tank full, and made another attempt at the hill. He got a little further, but again found the grade too steep to allow petrol to flow into the carburettor. He again ran the car back, but this time fixed a rubber tube between his legs on to the petrol tank-stopper and started again, blowing down the tube the whole way, causing a force feed. He had to dismount his passengers for the final struggle, but succeeded in reaching the top.

IN connection with the forthcoming Salon in Paris an International Congress on Automobile Navigation is to be held from the 19th to the 24th inst.

COUNT E. KNUTH has been elected president of the Danish Automobile Club in succession to Baron Blixen-Finecke.

MESSRS. A. W. GAMAGE, LIMITED, of Holborn, have secured the sole agency for the Durkopp motor-bicycles.

THE "Auto" Engineering Company have every facility for the repair of motor-cars at the North Street Garage, Leeds.

MR. DUGALD CLERK is to deliver a series of lecture on "Internal Combustion Engines" at the Society of Arts in February next.

CONTINENTAL NOTES.

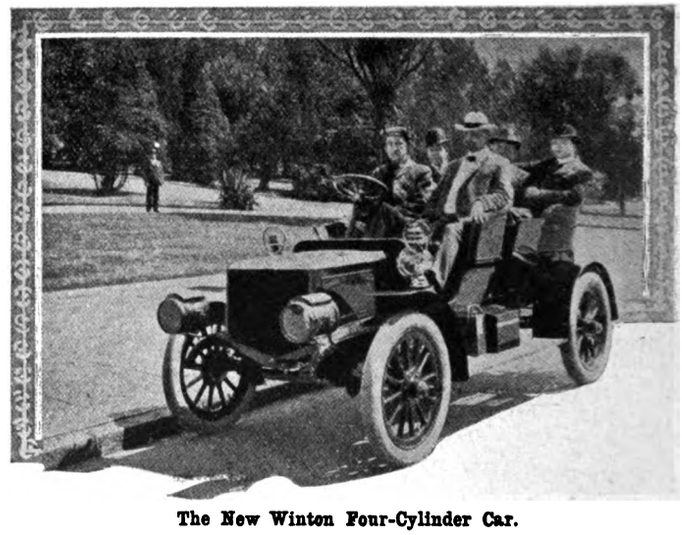
The Gordon Bennett Cup Race.

M. Quinones de Leon has returned from his prospecting trip over the proposed circuit in the Morvan Mountains, but has reported unfavourably on the roads of the district, which, though smooth and hard, are narrow, while the hills are terrific and the turns too sharp to be taken at any speed. The Sporting Committee of the A.C.F. has accordingly decided against the proposed Morvan route, at least for the present. M. René de Kynff also reported on the roads round Vichy, of which he was unable to give a very favourable account. The Committee eventually decided to ask both gentlemen to prosecute their investigations in different parts of France. Since then M. Michelin has suggested a new course for the Cup race. It starts near Clermont Ferrand, where the Michelin tyres are made, and passes through Pontgibaud, Herment, Bourg-Lastic, Laquenille, and Rochefort. A good deal of gossip is taking place with regard to the horse-power of the racers the different French firms will build for the 1905 Gordon Bennett race. It is stated that Messrs. De Dietrich's vehicles will be of 140-h.p., those of the Gobron Brillié Company 120-h.p., while the Richard-Brasier Company will be content with 90-h.p. motors. A report to the effect that the Peugeot Company will compete in the eliminating contest for the French team has been denied.

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The Paris Salon.

Ere the next issue of the *Journal* appears the great annual *Salon* of automobiles in Paris will be in full swing. For over a week a vast army of men have been at work fitting up the stands, the heating stoves, and installing the thousands of electric lamps by which the great building is illuminated. It goes without saying that this show will eclipse everything else that has preceded it. The difficulty of finding sufficient room in the Grand Palais last year to accommodate all the exhibitors compelled the organising committee to provide for an overflow, and they have therefore secured the Horticultural Palace in the Cours La Reine, only a few steps from the Grand Palais. All the machinery in motion, as well as the motor-boats, will be rele-



The New Winton Four-Cylinder Car.

gated to the *Serres*, as the buildings are known, and as the lower part of the building is on a level with the River Seine, it is intended to give buyers an opportunity of testing the boats.

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The Motor-Car Movement in Hungary.

The Hungarian Automobile Club, which was inaugurated six years ago, now numbers ninety members, mostly owners of cars. There are, however, as many more owners of cars in Hungary who are not members of the club. The second Hungarian Automobile Exhibition is to be held in Budapest from the 7th

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to the 21st May next, at which many well-known makers have already announced their intention of exhibiting. In connection with the show, a hill-climbing contest and a gymkhana are to be organised.

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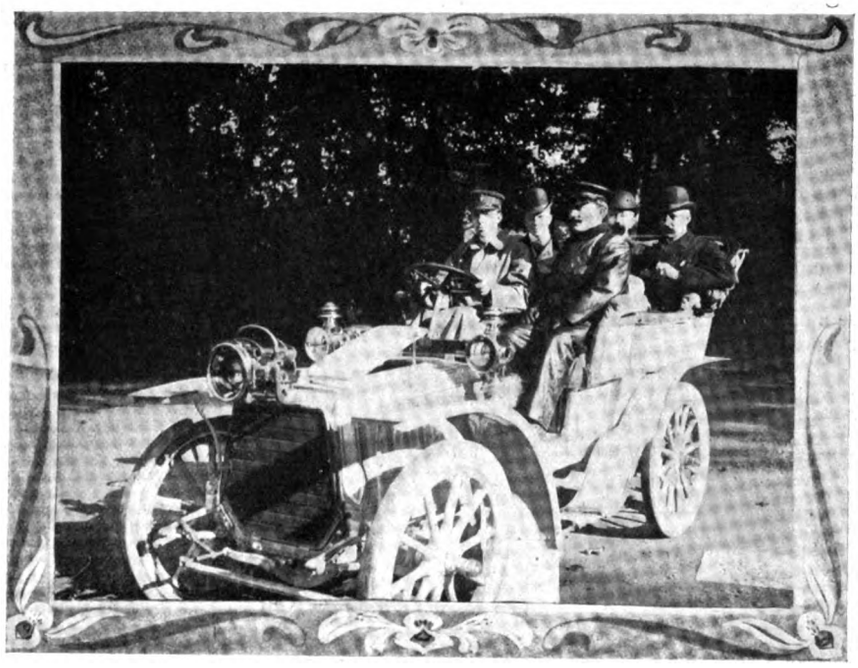
Public Services in Italy.

Public services of motor-cars have lately been established between Pitigliano and Orbetello and between Pitigliano and Orvieto, near Florence. The vehicles, which were supplied by Messrs. Delahaye and Company, are of 16-h.p. and have accommodation for twelve passengers.

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The Herkomer Trophy Competition.

The Herkomer International Competition for touring-cars (at least four-seated), which is being arranged by the Bavarian Automobile Club in co-operation with the German Automobile Club, is to held in the Munich district in August, 1905. According to the new rules which have just been issued the competition is open to the members of those clubs that are affiliated with the German Automobile Club. The entrance fee is £15, and the last date for entries is the 31st May, 1905. The Herkomer prize is an artistic trophy wrought in fine metal, and to become the property of any competitor must be won twice within three years. The second and third competitions are to take place in the country of the previous winner under the management of the club to which the winner belongs. If none of the competitors win the prize twice within the three years, it is to be drawn for by the three winners after the third competition in order to decide the definite holder of the prize. The winner in each year will in addition have his portrait painted by Prof. von Herkomer. Besides these the following prizes are offered: (1) Prize of honour presented by H.R.H. Prince Ludwig Ferdinand of Bavaria (object in silver, value £50) and given by the Bavarian Automobile Club to the touring car which develops the best average time in the Kesselberg and Forstenrieder Park trials. If the results of several cars should be exactly the same, the prize will be awarded to the first car in the hill-climbing competition. (2) Honorary prize (object in silver, value £50) given by the German Automobile Club for the most handsome and most practical coachwork. (3) Honorary prize dedicated by Dr. Magin and given by the Bavarian Automobile Club (work of art by the sculptor Mr. von Gohsen, value £100) to the winner in the Herkomer trophy competition of 1905. All the cars entered for the competition will be exhibited in Munich for one day and valued as to the beauty and practical use of their body-work. On the second day the hill-climbing capabilities of the cars will be tried on the Kesselberg, 7 kilometres; on the third day their speed on level ground, 6 kilometres in the Forstenrieder Park, near Munich. On the fourth day the touring trial over a distance of 900—1000 kilometres will be commenced. The programme of this is:—First day, Munich—Bruck—Augsburg—Ulm—Tubingen—Baden-Baden. Second day, Baden-Baden—Stuttgart—Nuremberg. Third day, Nuremberg—Regensburg—Munich. An observer will accompany each car during the whole of the touring trial, and will note the number of involuntary stoppages, their cause and duration.



King Alfonso of Spain has, much against the will of his royal relatives, recently undergone a course of instruction in motor mechanics, and is now not only an apt *chauffeur* but is stated to be capable of making roadside repairs. Our illustration shows the young King at the wheel of his Panhard.

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The Bleichroeder Race.

Immediately after the speed-trials of the touring cars for the Herkomer competition, the Bleichroeder race arranged by the German Automobile Club together with the Bavarian Club will take place on the Kesselberg and in the Forstenrieder Park, the first racer being started when the last touring car finishes. The race will extend over two days:—First day, Kesselberg hill-climb (7km.); second day 6 km. run in the Forstenrieder Park. The best average time will decide the event, which is international and open to all classes of racing cars up to 1,000 kg. The drivers must be members of one of the above-mentioned affiliated clubs or of the German Automobile Union. The entrance fee is £15, and the last date for entries, 10th June, 1905. The first prize is £400 (in cash), and the second prize £100, offered by Baron James Bleichroeder, and given by the D.A.C. Full particulars of both events can be obtained from the Secretary of the German Automobile Club, 4A, Sommerstrasse, Berlin, or to the Secretary of the Bavarian Automobile Club, 98, Turkenstrasse, Munich.

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Heavy Vehicle Trials in France.

At the meeting of the Competitions Committee of the A.C.F. last week it was decided to hold, about August, 1905, (1) a reliability trial for public service vehicles which will be run throughout the chief districts of France, fetes and exhibitions being arranged *en route* at various points, and (2) a trial of delivery vans under similar conditions.

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British Capital in the French Industry.

A feature of the French motor-car industry at the present time is the support which is being given to it by English capitalists. As is well known, the Darracq factory is owned by a British company. It is now announced that a new company is being formed in London to take over the sales department of Messrs. Renault Freres, the latter devoting their energies entirely to the production of cars. It is also rumoured that some English capital has been invested in the Rochet-Schneider Company, to enable the latter to extend its operations. A company has also been formed in England to develop the Hautier car.

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MOTOR CYCLING NEWS.

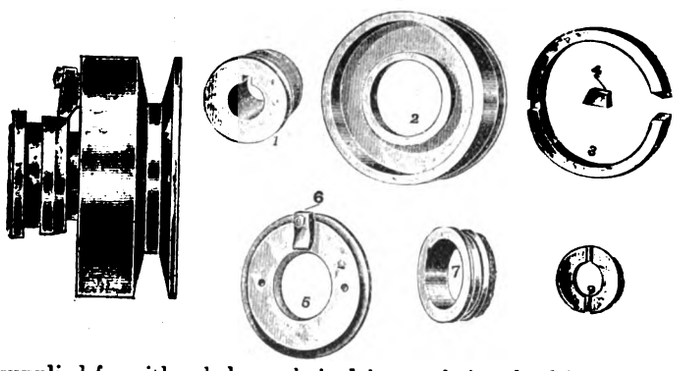
MR. G. C. GNAPP, of Colombo, Ceylon, sends us particulars of a run on a Rover motor-bicycle he recently made from that city to Kandy and back, in company with a party of friends mounted on cars. Notwithstanding that bad weather was encountered, the roads being inches deep in mud and full of ruts, the Kadugannawa Pass was successfully mounted without pedalling, and the journey accomplished without trouble of any kind.

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THE prospects of a motor-cycling club for Cardiff are bright. A large meeting of those interested in the movement was held at the Rummer Hotel, Cardiff, on Monday, under the chairmanship of Mr. Charles Williams. It was agreed that the club be called the "Cardiff and District." A temporary committee was formed, and it was proposed that the subscription be fixed at 10s. 6d. for the first year, including the badge. A further meeting will be held on the 12th inst.

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A NEW clutch for use on motor-cycles, to give a free engine when desired, has recently been introduced by Richards' Beau Ideal Cycle Company, Limited, of Heath Town, Wolverhampton. The complete clutch and pulley is shown in the left of the illustration and the details to the right. Referring to the latter, the part marked 1 is the sleeve, which is fixed to the engine shaft on which the pulley and clutch drum, 2, revolve freely. Inside the drum is an expanding ring, 3, the expansion being effected by a wedge piece, 4, which, when not wedged home, lies in idle contact with the split chamfered ends of the expanding ring. An outside plate, 5, is fixed to the sleeve, 1, and so rotates with the engine shaft. On this plate a small lever and set screw, 6, are fixed, the set screw being intended for adjustment of the lever as wear takes place. On the sleeve, 1, is a loose collar, having a groove for the controlling fork and a taper coned nose; the moving of this coned collar actuates the short lever, 6, which in turn forces the wedge, 4, against and between the split ends, the ring expanding it in turn against the inner surface of the clutch body, the whole becoming a fixture with the engine shaft. By withdrawing the collar, the spring at once contracts, releasing the clutch pulley, and rotates loosely with the parts attached to the engine shaft, the pulley remaining idle. The device can be



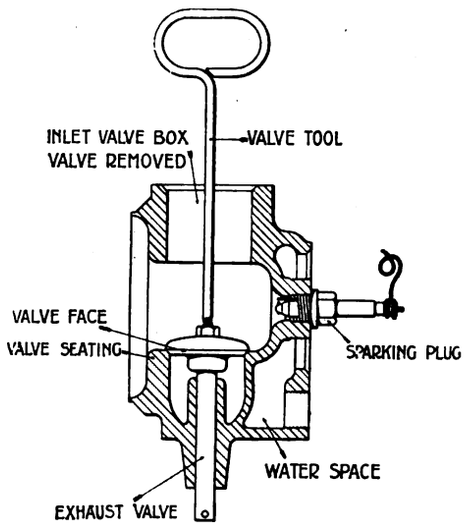
supplied for either belt or chain drive, a chain wheel in the latter case taking the place of the grooved pulley.

A SPEAKER at a meeting in connection with the parish council of Drumgeith, N.B., has declared that no motor car should be allowed to go at a greater pace than a good horse. Why not say that no horse shall go quicker than a fairly progressive motor-car?

MESSRS. BEANLAND, PERKIN AND COMPANY, Leeds, have sent us a small sample tin of a new preparation known as Gre-Solvent they are introducing for removing grease from the hands. The preparation is claimed to contain no acids or sand, and, judging from the brief trial we have given it, should prove useful to those motorists who look after their cars themselves, as by its use grease and oil can be quickly removed from the hands.

SOME USEFUL NOTES.

THE exhaust valve on the engines on Wolseley cars is fitted on the under side of the combustion chamber, and is "built up"; it consists of a mild steel spindle, to which a cast iron head is screwed and locked by a patent method. This valve requires considerably more attention in the matter of grinding than the inlet valve, as it is subjected to very great heat, and any particles of burnt oil in the exhaust gases are liable to pit the face of the seating. The method of "grinding in" this valve is to remove the inlet valve and box; the exhaust spring must then be unshipped and the valve removed through the inlet valve hole. A special tool is provided for grinding-in purposes by the Wolseley Company. As will be seen from the accompany



METHOD OF GRINDING IN EXHAUST VALVE

ing diagram, this should be screwed into the head of the valve; a paste, composed of flour, emery and oil, is then put on the face, and the valve is lowered into position again. With a light pressure it is then ground on to its seat by twisting first one way and then the other, the valve being occasionally lifted and moved round about a quarter turn, and the operation repeated, so as to ensure the valve and seat facings being equally true all over.

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AFTER a minute or so the valve should be taken out and cleaned, and to see if the surface is quite bright and smooth all over. If this is not so, the grinding must be continued till all the "pits" are ground out, and there are no discoloured places on the valve face. It is advisable to true the exhaust valve up in this way after every 500 miles, rather than to leave it until it gets very bad. The stem of the valve should also be examined to see if it is working quite freely in the guide-hole. To ensure the best results from the motor it is perhaps advisable to replace this valve with a new one every six months. When the grinding operation is over, the emery and oil must be removed from the various parts by well washing out with petrol.

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THE inlet valve will need very much less grinding in, the operations being the same with the exception that, as the valve stem projects through the casing sufficiently, it may be used to turn the valve instead of using a special tool. When replacing the inlet valve, the spring must be carefully adjusted to its former position.

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THE water in acetylene lamps is best preserved from freezing by dissolving calcium chloride in it. But if this precaution, is not taken and the water is frozen, a little saliva on the carbide will produce enough gas to light it and thaw the water, and so allow a permanent light to be obtained.

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THE ROVER 8-h.p. LIGHT CAR.

(*Concluded from page* 795.)

The mixture is furnished by one of the Rover automatic carburettors, of which a sectional illustration is given in Fig. 1. The apparatus has been designed by Mr. E. Lewis, whose object has been to obtain the advantages of an automatically-controlled air supply with the absence of any integral parts likely to prove troublesome of adjustment, or subject to derangement by vibration. The casting consists of two chambers linked by a small trunk connection, the one, A, being the customary float feed chamber common to most types of spray carburettors, the other, B, the mixing chamber or carburettor proper. It will be noticed that on the petrol lifting the float in the chamber A, the latter acts on the balanced arms just above the top of the float, causing them to depress the needle valve and restrict the flow of the spirit. The body, B, comprises two elements, and is fitted with a brass liner, which contains the plug C. To the upper portion of the latter is attached a piston E, which is kept staunch by a packing ring W. The piston is provided with a series of Λ shaped ports, H, and is attached to the plug C by means of a screwed joint. The rod I

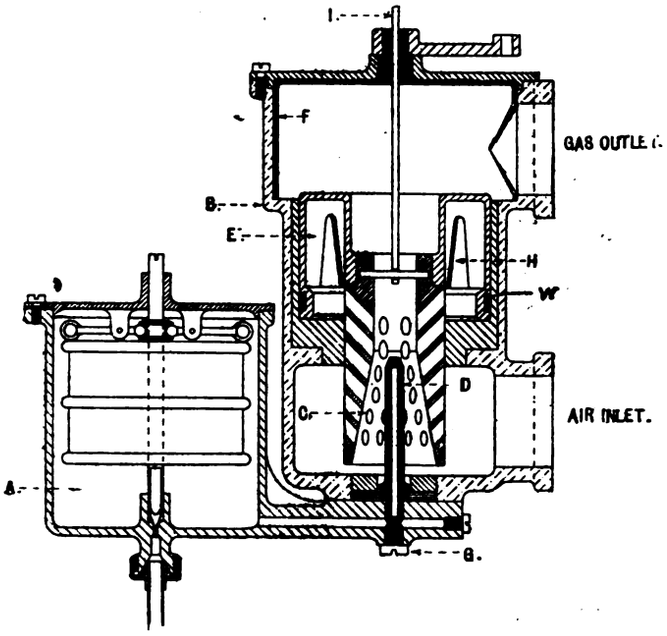


Fig. 1.—Section of Rover Carburettor.

A. Float feed chamber.
B. Carburettor body.
C. Sliding tapered plug.
D. Petrol nipple.
E. Floating chamber or piston.
F. Throttle valve.
G. Drain plug beneath spray nipple.
H. Ports in piston E.
I. Indicator.

is attached to both by means of a coupling piece at the base, the upper end passing through the cover. The operation of the moving parts C and E is controlled by the suction impulse of the motor on the one hand and by gravity on the other, the plug C being made sufficiently heavy to ensure its return to the normal position without the aid of a spring. The effect of the suction influence of the engine may be grasped by noting the elongated perforations in the plug C, where a corresponding series of air passages communicate with the air inlet chamber. Thus according to the measure of vacuum in the mixing chamber, which will vary with the speed of the motor, the relative positions of the plug and piston with the corresponding air inlet passages will determine the greater or lesser amount of air admitted. The perfect action of the carburettor is largely due to the careful proportioning of these air passages, hence the shape of the openings themselves, and the neatly arranged method of grading their capacity. The throttle valve F is situated at the top of the carburettor, and is controlled by means of a lever. The air for both the primary and auxiliary supplies is taken in at one source, the latter being delivered through the triangular openings or ports H in the piston E.

Passing now to the clutch, this is also of a distinct and novel character; it is of the metal to metal, type and is contained in an oil-tight aluminium case attached to the side of the crank chamber. As will be seen from Figs. 2 and 3, the body of the clutch —which is attached to the rear end of the crank shaft—is a bell-shaped casting N, provided with a flat machined face P, against which a flat turned disc O is placed, this disc having a square hole in its centre boss, which is a sliding fit on the squared end of a shaft T communicating with the gear box. On the back face of this disc is situated another cast disc provided with three bracket

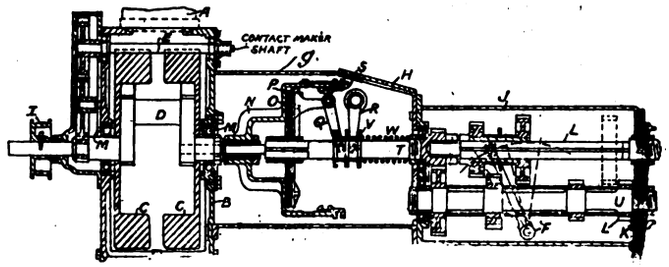


Fig. 2. Section through the Engine, Clutch Case, an Gear Case.

A. Part of cylinder.
B. Crank case.
C. Flywheels secured to crank D.
D. Engine crank.
E. Camshaft.
F. Shaft carrying gear striking lever.
G. Clutch casing.
H. Inspection door for clutch casing.
I. Fan driving pulley.
J. Gear box.
L. Squared mainshaft.
M. Ball races for engine crankshaft.
N. Bell clutch secured to crank shaft D.
O. Cast iron clutch disc.
P. Clutch ring carrying levers Q.
Q. Levers to apply action of clutch spring W to discs P, O, and N.
R. Lever to release clutch.
S. Adjusting ring for clutch lever fulcrums.
T. Main driving shaft from clutch.
U. Countershaft carrying gear wheels.
V. Clutch operating sleeve.
W. Clutch spring.

arms, which are in turn connected to a sliding sleeve by three levers. The top ends of these levers above the bosses are each provided with a ball-shaped projection, which engages in a double-flanged groove, turned on the inner face of a kind of screwed thimble S, which in turn screws into the mouth of the bell clutch body. The sliding sleeve has two grooves turned in its face, the rear groove accommodating a fork lever R, which is connected with the clutch pedal, while the forward groove in the sleeve receives the long end Q of the three levers. By this means and the force of a helical spring W behind the sleeve, the latter is projected forward, carrying the levers with it, which, as the three clutch levers are fixed in the recess at their ball ends, also

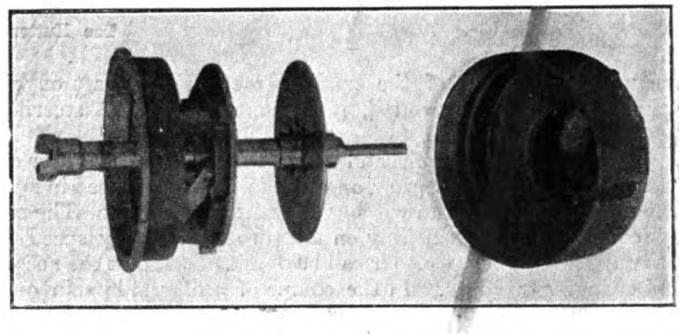


Fig. 3.—The Rover Clutch.

forces the bracketed disc forward against the sliding flat disc, squeezing the latter between its own face and that of the bell body face. The advantage claimed for a clutch of this type is that it is not only positive on account of the great pressure and double grip, but on withdrawing and restarting the grip is easy and gradual on account of the oil which accumulates between the faces when open, and which, in the process of being squeezed out again by the spring pressure, obviates any tendency to violent gripping of the clutch.

The change-speed gear is of the sliding pinion type, giving three forward speeds and one reverse, the top speed being direct. The single lever which operates the gear is attached to

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a sleeve on the steering pillar; at the extremity of the sleeve, and extending towards the dash frame, is another arm, at the end of which is a roller which engages with half-round slots, representing the various speeds and neutral notches in the quadrant which is attached to the dash frame. The cardan shaft forms practically a continuation of the gear driving shaft. At the extremity of this shaft is fixed a bevel pinion, which meshes with a large bevel crown wheel attached to the differential gear box of the back axle. The latter is of the usual type, running on ball bearings, and enclosed in an extra large diameter tube.

The rear wheels are each provided with metal to metal band brakes on large size drums, operated by a foot lever through an intermediate compensating rod, by means of which equal braking pressure is applied to both drums. The front axle is built up of 1¾ in. diameter steel tube; the steering pivots are cupped out at the top and bottom for the reception of a large diameter steel ball in each, which balls are in turn held in place and adjusted by cup-ended set-screws. The steering column is attached to the engine frame-work. At the extremity of the column a double wire cable is wound, the ends of which are in turn attached to the steering arms on the front wheels, and maintained in proper tension by stiff spiral springs arranged at the points of attachment. On account of the small diameter of the part on which the wire cables are wound, it is claimed that the steering is practically irreversible.

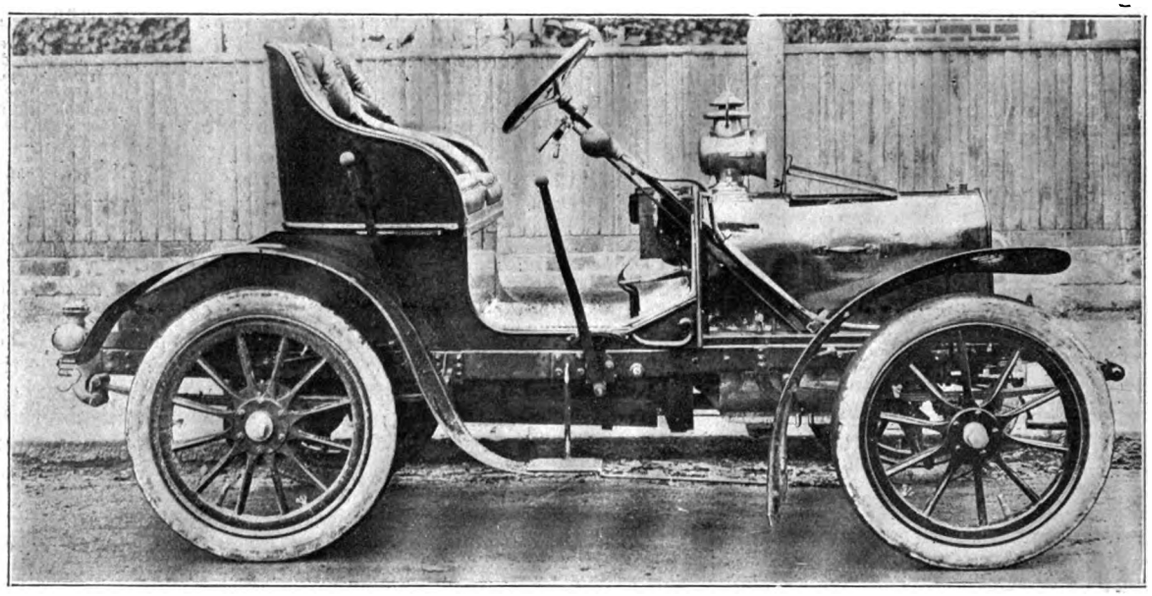
The engine, clutch and transmission gear are lubricated through a common reservoir, and a half pint of oil poured in is sufficient for a 100 miles run without any further attention. The motor is controlled almost entirely on the throttle, and any speed from five to thirty miles per hour can be obtained without the necessity of changing the gear. In the course of a fifty mile spin on the car recently we had an opportunity of noting its smooth running qualities, and the action of the motor when working as an air compressor; it appears to work smoothly and not to strain the car; it is sufficiently powerful to hold the vehicle on a gradient of one in six. We may add that the weight of the car ready for the road is 10½ cwts.

It has been decided by the Continental Caoutchouc and Gutta-percha Company to form an English company, which will bear the name British Continental Tyre and Rubber Company. Besides their motor tyres, the company will also deal in all kinds of mechanical rubber goods, and will manufacture and repair tyres in their London works. The management will be the same as has heretofore conducted the business.

THE HUTTON LIGHT CAR.

THE other day we had an opportunity of inspecting the first of a new type of light car Messrs. J. E. Hutton, Limited, are putting on the market. As will be seen from the illustration, the vehicle has a very smart and trim appearance. The frame is of pressed steel construction; the motive power is supplied by one of the Hutton four-cylinder engines, which, while rated at 12-h.p., develops up to 14-h.p. The cylinders are 3 in. diam. by 3½ in. stroke. All the valves are mechanically actuated, and the usual high-tension system of ignition with coil and accumulators is employed, the contact maker being located in an accessible position in front of the car. No pump is used in connection with the water circulation, this being on the gravity or thermo-syphon system; a honeycomb radiator with draught-inducing fan serves for the cooling of the water. The mixture is furnished by a carburettor of unusually small dimensions, and instead of it being placed under the bonnet close to the engine, is located under the footboard. The speed of the engine is controlled between wide limits by means of the ignition and a foot-controlled throttle valve.

From the motor the power is transmitted through a cone clutch of the internal type to a gear box comprising a train of sliding pinions giving three speeds forward and a reverse, all controlled by one lever and having a direct drive on the top speed. From the gear-box the power is conveyed through a cardan shaft and bevel gear to the rear live axle. A pedal actuates a powerful band brake at the rear end of the gear-box, while a hand lever controls internally expanding brakes working inside drums attached to the hubs of the gear wheels. Altogether the new car, which is British built throughout, is on very smart lines; complete, ready for the road, it weighs as a two-seater only 11 cwt. In place of the sloping tool-box at the rear, a tonneau can be fitted, converting the car into a four-seater. Mr. Hutton has recently submitted the first of these new cars to a prolonged test, as a result of which it has been decided to take in hand the construction of a series.



The Hutton Four-Cylinder Light Car.

THE Board of Agriculture have issued a folding pocket map of Plymouth and the surrounding district on the scale of two miles to one inch. It has the hills shaded, woods coloured green, roads sienna, water blue, and contours brown; the bolder slopes are brought out by stipple shading in brown; and many altitudes are given along roads and at other principal points. Copies of the map may be obtained, through any bookseller, from the Ordnance Survey Office, Southampton.

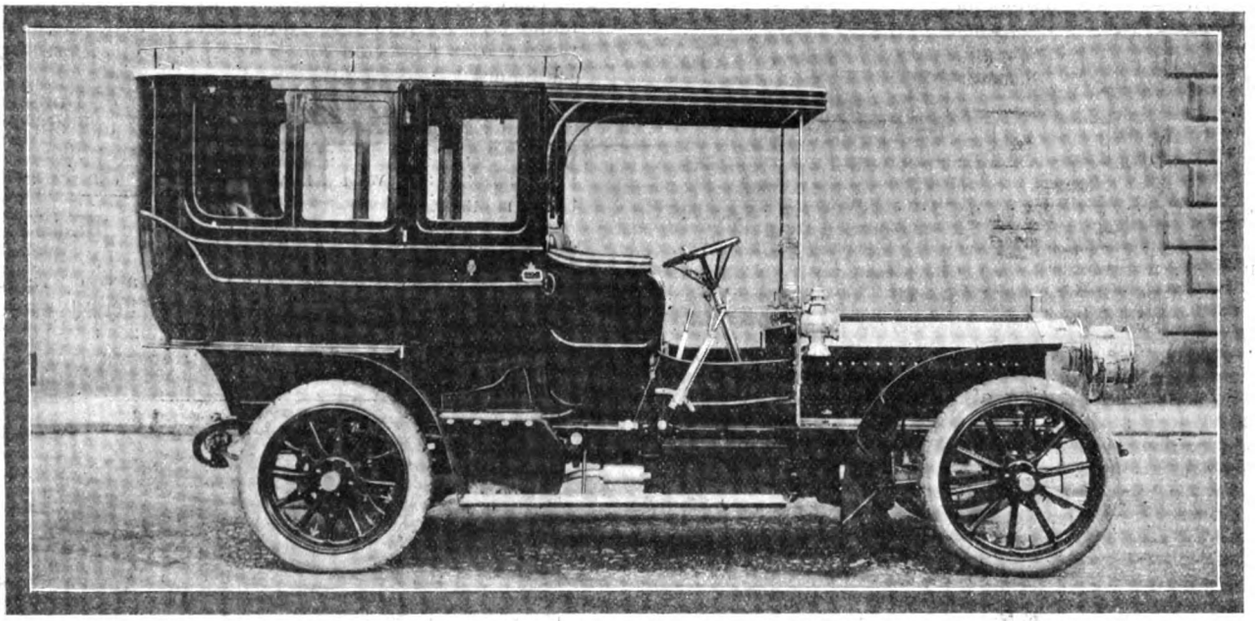
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HERE AND THERE.

HIS Highness the Maharajah of Gwalior has just ordered a Turner-Miesse steam car.

MOTOR fire engines are about to be adopted, in place of the usual horse-drawn vehicles, by the Fire Brigade of Dortmund, Germany.

ON this page we give an illustration of the 30-h.p. six-cylinder Napier car, recently delivered by Messrs. S. F. Edge, Limited, to H.R.H. the Duke of Fife. Amongst other recent customers to whom Napier cars have been delivered are the Right Hon. Lord Churchill, the Right Hon. Lord Farquhar, Countess de Grey, and the Countess Gosford. The *chassis* has an extended wheel base. The body, which was built by Messrs. Mulliner, Northampton, has been specially designed, embodying suggestions made by the Duke himself. In type it may be described as a Coupè Limousine with a very roomy interior. The accommodation provides for three people on the rear seat in the usual position; an additional seat is also arranged immediately behind each door, and having a very neat back rest. These seats are ingeniously made to completely fold up and to hinge against the sides of the body in such a manner as to be entirely out of the way when not in use. The upholstery throughout is a special shade of dark green morocco. The roof, both the interior and that over the driver, is panelled with polished mahogany. An electric lamp is fitted in the roof, with a neatly designed switch which can be easily reached by the passengers. The windows in the door slide down, the side windows and those at the back of the driver hinge open, and whether open or shut are held by fittings which prevent any rattle. The extension of the roof above the driver's seat is connected to the dashboard by hollow steel pillars, and over the dashboard itself is fitted a glass wind shield, for the protection of the driver and passenger, for whom a comfortable seat is provided. The scheme of the painting is a very dark green ground, relieved with fine lines of red, and the mouldings being black, the combination giving the whole carriage a very pleasing and harmonious appearance.



The Duke of Fife's Six-Cylinder Napier Car.

THE Central Motor-Car Company, Limited, has been registered with a capital of £10,000 to acquire the business of agents for and dealers in motors, motor-cars, and vehicles carried on by Mr. A. Blakiston, at 117 and 119, Long Acre, W.C., as the American Motor-Car Agency and Central Motor-Car Emporium. The registered office is at 18, Billiter Street, E.C.

ONE of the Avon 4½-h.p. "Trimobiles" with van body is being experimented with by the G.P.O. authorities.

SIR OLIVER LODGE, F.R.S., will read a paper on "Ignition as Applied to Internal Combustion Engines" at a meeting of the Cycle Engineers' Institute on Monday next.

IN Liverpool 306 motor-cars and 321 motor-cycles have been registered during the present year. Seven hundred and twenty-two drivers have been licensed.

SIR MATTHEW ARTHUR, BART., will preside at the annual dinner of the Western Section of the Scottish Automobile Club to be held at Glasgow on Tuesday next.

THE tonneau is the newest style in horse-drawn carriages. The body is similar to that of a motor-car set on carriage wheels, and built to be drawn by two horses.

THE Health Department of Queens Borough, New York, is contemplating adopting automobile ambulances to convey persons suffering from contagious diseases to the hospitals.

THE construction of petrol motor-vans and lorries has been taken up by the Albion Motor-Car Company, Glasgow. The vehicles are fitted with an Albion 16-h.p. motor, and are designed to carry loads of one ton at speeds up to seventeen miles per hour.

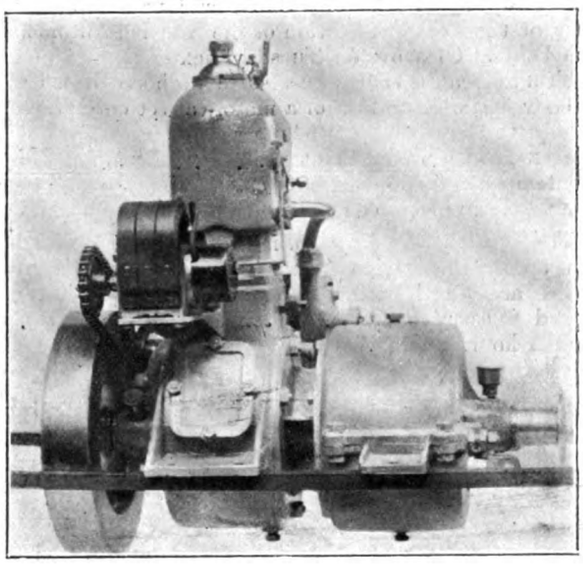
ONE of the largest motor garages in New Zealand is that of Messrs. Oates, Lowry and Co., Manchester Street, Christchurch. It is a three-storey building, 70 feet wide, 150 feet deep, and in equipment compares favourably with similar establishments in this country.

MESSRS. DEAN AND BURDEN BROS., LTD., Salisbury, recently fitted one of their 6-h.p. double-cylinder engines to the launch "Maya," belonging to Mr. J. E. Matthews. The first run of the boat was from Chiswick down the Thames to Hole Haven, a distance of fifty-eight miles, which was covered in 5½ hours.

THE British Almanac for 1905 has reached the eighteenth year of issue, and contains a mass of meteorological, official, and general information not so readily accessible elsewhere. One interesting section is that relating to motoring matters, where is a succinct account of the law relating to automobiles, the Gordon Bennett race results, the registration letters for the United Kingdom, and a useful page on "how a motor works," which is sufficiently clear to prove of interest and use to the general public. Among annual works of reference the British Almanac published by Messrs. Charles Letts and Company has a high place.

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MESSRS. J. W. BROOKE AND COMPANY, LIMITED, have lately introduced a 4-h.p. single-cylinder petrol engine combined with reversing gear, of which an illustration is given herewith. The motor has been specially designed and constructed for motor-boat work, and can be adapted to use either petrol or paraffin. The manipulation of the reversing gear is particularly easy, the three positions, forward, reverse, and neutral, being obtained



with but a slight effort. The ignition is by high tension magneto and the pump is self-contained with the engine. The valves, as will be noticed, are mechanically operated. The actual power is 4½-h.p. at 900 revolutions per minute. They are supplying a small boat fitted with the new engine; it is 15 ft. long by 4 ft. 6 in. beam, clinker-built of spruce with mahogany top strake.

THE next annual meeting of the British Medical Association will be held at Leicester in July next, and a display of motor-cars for medical men will probably be arranged.

AMONG the steam-wagons of the Colonial type recently completed by the Lancashire Steam Motor Co., Limited, was one for Messrs. Wood, Williams and Co., Capetown, and one for the municipal authorities of Greenpoint and Seapoint, South Africa.

FROM Cassell and Company, Limited, comes a copy of Letts' Office Diary and Almanack for 1905, in which, in addition to the usual paper for notes, is a great deal of useful information, making the volume a companionable book for the office desk.

REGRET will be general among those interested in the adoption of the motor-'bus for passenger service in London at the destruction by fire at the garage in Kilburn of some of the motor vehicles which have been plying between the Marble Arch and Kilburn.

SOME city officials of Rotorua (New Zealand), recently went on a tour of inspection by motor-car over a distance of forty-two miles of road over which no automobile had previously journeyed, effecting a saving of time which surprised local people.

ATTEMPTS are being made to secure the application of the ten miles per hour speed limit to motor-cars on the Kilmarnock Road at Giffnock, N.B.

TO their library of Useful Stories Messrs. George Newnes, Limited, have just added the Story of British Trade and Industry, in which Mr. James Burnley sketches the salient stages of our commercial development. He deals with facts of the past and wisely avoids surmises with regard to the future. The reference to motor vehicles, which includes Murdock and Symington, should also have recognised Hancock; but the purpose of the volume is very comprehensive for so small a book; hence only an incidental mention of the subject. The work is well done and every page lucidly written.

A SERVICE of motor-'buses has been established in Auckland, N.Z., by the Howick Motor-'bus Company.

THE HON. T. A. BRASSEY has a "Star" car, having been determined to possess a motor-car of English make.

THE British Mission to Kabul has left Peshawur for Afghanistan, taking several presents from the Indian Government, including a motor-car for the Ameer.

MESSRS. F. T. BURGESS AND COMPANY have opened a motor garage at Canterbury Terrace, Maida Vale. It has an inspection pit and facilities for all kinds of motor-car repairs.

A STEAM motor dust-collecting and street-watering wagon has just been put in service by the municipal authorities of Paris. It is of 35-h.p., and was built by Messrs. De Dion Bouton and Company.

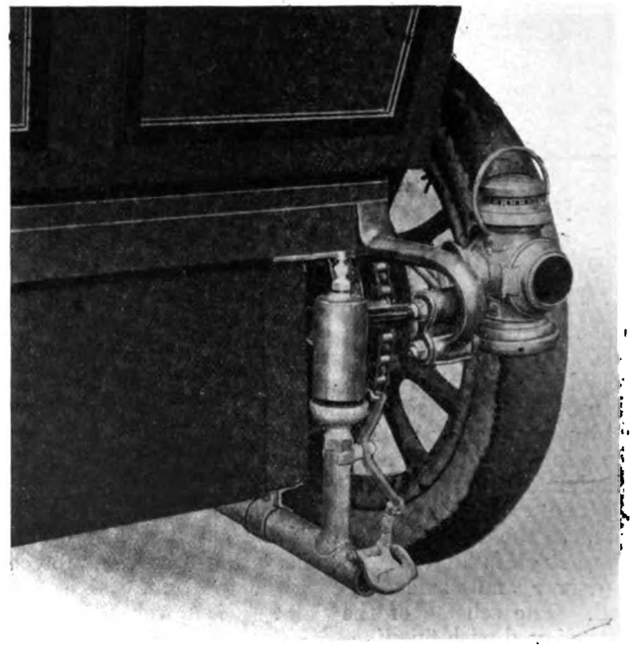
IN connection with the "Building News" Designing Club plans have just been invited for a doctor's house in the suburbs, one condition being that a motor-house for a motor-car should be provided at the bottom of the garden.

MESSRS. DENNIS BROS., LIMITED, are prepared to hire their one-ton motor-vans to business firms for a nominal charge, so that intending users may compare the cost of mechanical transport with that when horse-drawn vehicles are used.

THE CENTRAL MOTOR CO. have opened a motor garage and works at 82, Town Hall Square, Bolton, with Mr. A. Kirk as manager. Repairs of all kinds will be undertaken and driving taught on the company's cars, or on those belonging to customers.

MESSRS. EASON AND SON, LIMITED, of Dublin, send their Cabinet Scribling Diary for 1905, with double index for rapid reference. The firm's address books and time-saving indexed publications are well known, and their diaries are well up to their reputation.

A NEW alarm for use on motor-cars has been introduced by the Motor Patent Appliances Company in the form of a whistle attached to the rear of the car and operated from the dashboard by a hand or foot lever. Different sizes of whistle alarms are provided for cars of various sizes and powers, and the device is fixed, with a lever and shutter arrangement, to a short



length of tubing attached to the exhaust pipe leading from the silencer. When the alarm is sounded the shutter is closed, thus directing the exhaust through the whistle. The location of the device is shown in the accompanying illustration, and the clear and strong alarm thus afforded will also keep dogs from the car as well as warn pedestrians and others as to the presence of an automobile.

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THE STANLEY SHOW.

(*Concluded from page* 808.)

Messrs. J. LACOSTE AND COMPANY made a good display of accumulators, coils, and contact breakers, charging boards, and other electrical accessories for automobiles. A new type of accumulator was submitted for public criticism, in which each element is made up of small positive plates enclosed at each end by groups of negative plates, which plates are respectively connected, at the top by lugs in the ordinary way, and at the bottom by brackets electrically soldered to each plate. This bracket, besides keeping them the necessary distance apart from each other, makes a very solid block of each group. The available active surface has been greatly increased, while rigidity has also been improved.

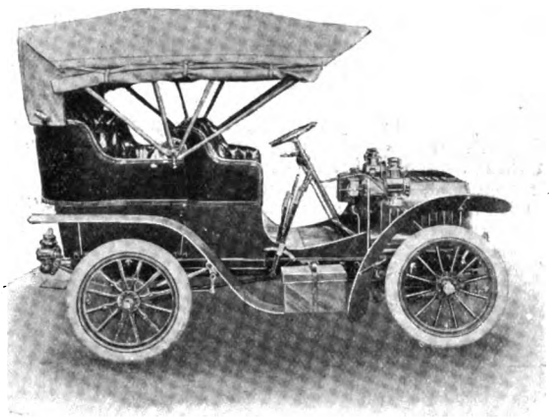


Fig 1.—The Crypto 8-h.p. with Cape cart hood. (*See last issue*).

Several charging boards, for charging small accumulators, were on view, and also a high-tension switch for use with high-tension coil and accumulators, and magneto ignition, for running on either of these without stopping the engine.

Messrs. F. REDDAWAY AND COMPANY, LIMITED, whose association with motor tyres is a matter of importance to owners of cars, have made an advance by the combination of endless wires and beaded edges in their Camel motor and motor-cycle tyres. In the construction, some of the layers of canvas are passed around the wires, while the others form the bead, the strain thus being equally divided, with resultant strength to the beads. A tubeless tyre on a similarly effective principle was also shown on this stand, in which the rubber-lined inner faces of the tyre near the bead were compressed against an inner metal ring by a divided rim. The two portions of the latter are connected by means of bolts and nuts, and as soon as these are undone, the tyre can be lifted off by hand.

THE recent expiry of the Welch and Bartlett patents directed unusual attention to the exhibit of the DUNLOP COMPANY, who remind the public that although the Welch and Bartlett patents have expired, the Doughty patent, under which Dunlop tyres have been made for the last two seasons, is still in force. The Dunlop motor-cycle tyres have been exceptionally successful during the past season, and the policy of providing tyres of larger diameter than had formerly been in vogue upon motor-bicycles and tri-cars has proved acceptable to users. Similar success has attended the improved Dunlop tyres for motor-cars with non-slipping treads. Not the least interesting part of this exhibit was the company's line of repair outfits, ranging from the wooden box, filled with materials for the repair of motor-car tyres, down through the compact outfit for motor-cycle tyres, to the Midget outfit for repairing cycle tyres.

The DUNLOP RUBBER COMPANY shared in this exhibit, their display taking the form of a varied assortment of waterproof garments suitable for motoring, as well as such luxuries as air cushions, collapsible

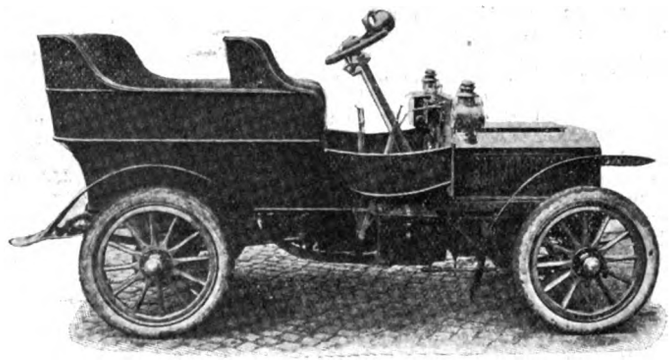


Fig. 2.—The Humber 8-10-h.p. four-cylinder Car. (*See last issue*).

buckets, motor-car covers, spare tube bags, and a new waterproof bag for containing spare tyre covers.

The "Imperial" compressed rubber and fabric non-skidding treads were on the stand of the IMPERIAL TYRE AND RUBBER COMPANY, LIMITED, whose facilities for the repair of motor-tyres of all kinds should be familiar to all motorists.

At PRICE'S PATENT CANDLE COMPANY'S stand a "Guide to the Selection of Lubricants for Motor-cars" proved a popular souvenir of the Exhibition. This sets forth the qualities and properties of Belmoline solidified oil for gear cases, Cirogene for chains, and other specialities for various parts of the automobile.

The HALLE SPRING WHEEL SYNDICATE, LIMITED, were represented by a patent spring wheel and a working model illustrative of the principle of their invention. This gains its utility and its distinctive character from the fact that a horizontal spring has been adopted in such a way that side play is a mechanical impossibility. The drive, although yielding to any sudden pressure of the engine, has no effect on the resilient springs. The appliance can be employed on cars of any power.

Messrs. S. SMITH AND SON, LIMITED, had their usual comprehensive display of motor watches, speed indicators, and similar articles for fixing to cars, and proving of convenience to motorists. Accuracy of adjustment is a feature of this firm's well-reputed productions.

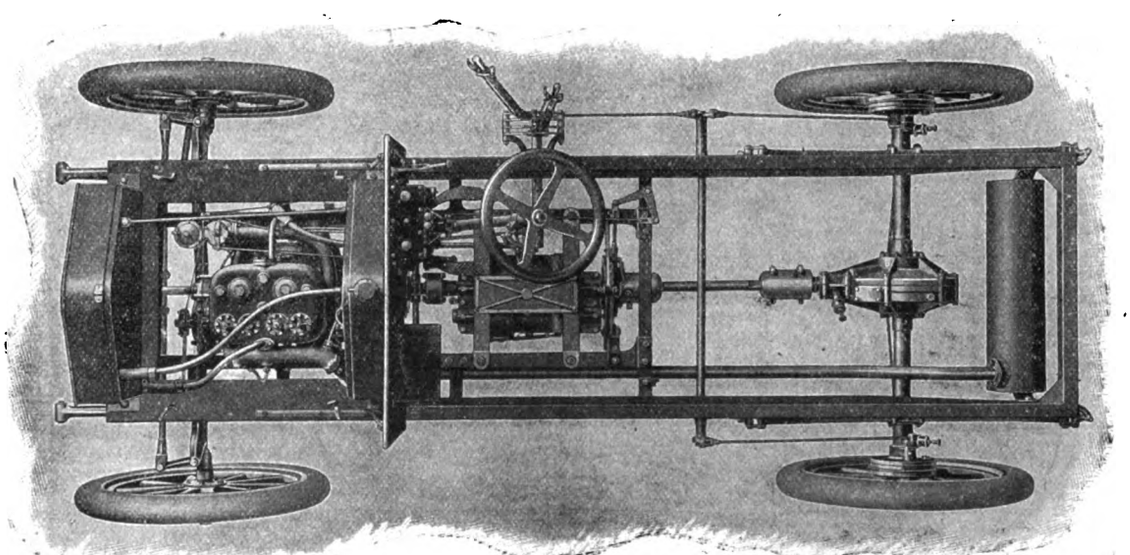


Fig. 3.—Plan View of the "Heron" 12-h.p. Double-cylinder Car.—A description of this vehicle was published in the *Journal* of September 3rd last.

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The STERN SONNEBORN OIL COMPANY, LIMITED, have long been exhibitors at Agricultural Hall shows, and their oils and lubricants are well-known to practical motorists. Autosternol oil A is a pure hydro-carbon oil, non-corrosive, free from impurities, and specially recommended for air-cooled cylinders. Others are prepared with a view to use of bearings, axles, gear boxes, and other parts. The Fram chain lubricant must not be overlooked in a reference, however brief, to this stand, the preparation reducing wear and tear and noise to a minimum, preserving the chains, and preventing friction.

A solid tyre for light and heavy motor-cars, giving a resiliency similar to that of the pneumatic, was a feature of the stand of Messrs. J. E. HOPKINSON AND COMPANY, LIMITED. Twin non-slipping treads are a special feature in the construction of this tyre.

The "Pickering" wheel was exhibited by the HIGHGATE IMPLEMENT WORKS, LIMITED, of Tweedmouth, Berwick-on-Tweed. This is designed for use on motor-cars and wagons.

The REX MOTOR MANUFACTURING CO. made a big display of their 1905 type of 3¼-h.p. Rex motor-bicycle, which has been improved in several parts. The engine, which is bolted into a special cradle, and does not form part of the frame, has a cylinder 82 mm. diameter by 82 mm. stroke, mechanically-operated inlet valve, a new pattern of silencer, double air draught to both valves, and spray carburettor. The valves are placed on the left side of the engine, both chambers being separated from the engine and each other by air passages. The new silencer is a great improvement on the baffle plates hitherto used. The exhaust is discharged into a box, shaped like a beehive, which contains a number of pipes drilled with small holes. The gases pass from the beehive into another chamber, situated underneath the valve seatings, and are finally discharged downwards into the air. It is claimed that, there is an absence of back pressure, and that the noise is reduced to a minimum. The Longuemare carburettor is enclosed in the bottom of the tank. It is, however, easily accessible. The frame has been lowered, 4in. and 26-in. wheels are used. Two brakes are fitted, the front one being a new design, taking its fulcrum from a bridge between the extension and the forks. The rear brake is actuated by the left foot. The weight of the machine has been considerably reduced, being now 125 lbs.

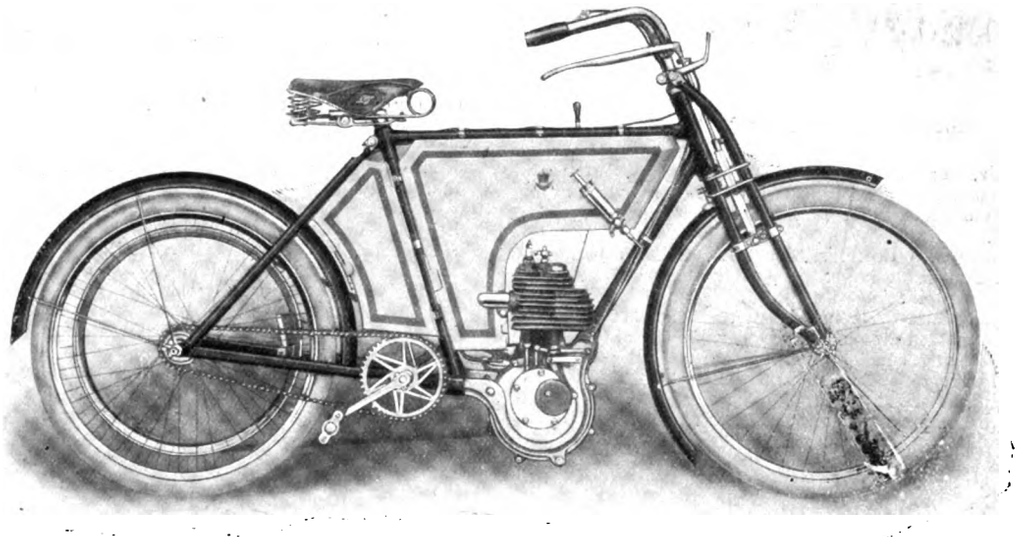


Fig. 4.—The 1905 3¼-h.p. Rex Motor-Bicycle.

The well-known "H. F." vulcaniser was brought again to public notice by Messrs. HARVEY FROST AND COMPANY, LIMITED. This has already been illustrated and described in our columns, and it remains but to say that the firm have now brought out the "Car" vulcaniser, especially designed with a view to overcoming tyre difficulties on the road, or in cases of urgent need. It is of handy shape, easily handled, and only 20 lbs. in weight, embodying the same principle of vulcanising as has been adopted for some time in the "H. F." vulcaniser. The "Car" vulcaniser is made to fit in a neat little box to affix to the vehicle.

Lamps and horns were the central objects of motoring interest on the stand of Messrs. STEINER AND COMPANY. A treble-turn horn producing a very deep note was worthy attention, and the firm's novelties in tail lamps included several well-designed goods.

Rubber goods of all kinds were exhibited by Messrs. W. AND A. BATES, LIMITED, of Leicester, whose facilities for production are being recognised throughout the trade.

The Sawyer non-skid band is a leather covering for the rubber tyre, provided with a tread in which steel studs are inserted. Messrs. SAWYER AND CO. claim that punctures and skidding are alike prevented, while the reliancy of the tyre being unaffected the device is as serviceable on light as on heavy cars.

The Universal silencer was shown by SHARPE'S "UNIVERSAL" PATENTS CO. The main features of this efficient silencer have already been described in our columns; suffice it now to say that for the coming season an important improvement has been introduced. The exhaust gas passages on the outside of the bulbs have been much reduced in length, being now cut through thin belts cast on the extreme circumference of the bulbs, thus reducing friction and increasing the freedom of the exhaust gases on the passage to the exit.

M. ANDRE A. GODIN attracted attention to his stand by an exhibit of the Hydra sparking plugs, in which simplicity of construction is combined with efficiency in operation. He also showed the well-known Dinin accumulators for all classes of motor vehicles. In the constitution of the electrodes for these accumulators provision has been made for the lengthened retention of the charge, an advantage when employed in connection with the electrical ignition in motor cylinders. For illuminating both the inside and exterior of vehicles two principal types of batteries are provided, type 11 having a capacity for one interior lamp of 8-candle-power during twenty hours, and two exterior ones of 5-candle-power during fifteen hours. In view of the difficulties that have arisen in connection with the lighting of cars under the Motor Car Act, special interest attaches to the Dinin system of transforming ordinary carriage lamps into electric ones. There was also shown by M. Godin a useful adapter for re-charging accumulators. This is applicable wherever it is possible to obtain a supply of continuous current from an electric lighting installation.

In view of the great development which is taking place in tri-cars, the exhibit of Messrs. OPPERMANN AND SONS, Clerkenwell, was of more than passing interest. It consisted of a combined clutch and three-speed gear, in which the three pairs of wheels are always in mesh. The sliding shaft is provided with three equi-distant feathers, which fit into corresponding slots in the pinions running idle on the shaft. The gear is very compact, and although it has only been on the market a short time has already met with a large adoption. A two-speed gear on similar lines for motor-cycles is also being introduced.

In the way of motor-car and cycle accessories the visitor to the show found an extensive range at the stand of Messrs. BROWN BROTHERS, LTD. These included an excellently constructed jack, the Duco non-slipping band, and a new Duco side lamp. In addition there was a complete range of E.I.C. ignition specialities, for which this firm are special agents. Various types of sparking plugs, voltmeters, and other electrical parts were also shown. Two novelties were the Bronko free-wheel hub and New Departure coaster hub for motor-bicycles. The new Brown free engine clutch for tri-cars was also worthy of notice, while finally we may mention that Messrs. Brown Brothers have arranged with the makers of the Longuemare carburettor to carry an exceptionally large stock of these articles.

The BRITISH-AMERICAN CO. exhibited the Halliday light folding hoods for motor-cars, which provide an interchangeable top for motor-cars of exceptionally neat appearance. The uprights attached to the body of the

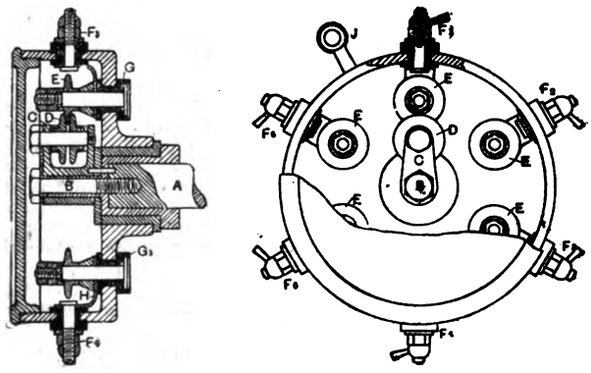
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car are so arranged that there is no obstruction to free ingress and egress for the vehicle, while curtains at the sides and rear can be drawn to protect passengers from wind and dust. Effective in operation and easily collapsible when desired, although perfectly rigid when in use, the Halliday top should become a popular feature in the British trade. The same company also showed a good type of motor-car jack, in which the extension is effected by a very easy movement, the device being collapsed in stages, which prevent the jerking associated with those jacks that are suddenly reduced to their normal position. Strong in construction and simple to work, the British-American Co.'s jack will be found serviceable in all circumstances.

Messrs. WALSH, NICHOLLS AND Co. had a display of radiators for tri-cars, as well as those specially designed for cars of a larger make. To assist those who are now interesting themselves in the development of the tri-car the firm has made a special study of tanks and radiators for these little cars, with the result that several good types were to be seen on their stand.

An interesting display was made by the BOWEN AND ODERY MANUFACTURING Co., of Greenwich, whose ignition accumulators for cars and cycles attracted much attention from expert visitors. The M.I.E. accumulators, which constitute a leading line of manufacture with the firm, are specially intended to withstand vibration and rough usage. In these the plates are separated by pierced corrugated celluloid, and are arranged so that internal short-circuits are practically impossible. Very heavy connection lugs are provided, the chance of breakage being thus materially reduced. Another type made by the Bowen and Odery Co. is a 4-volt battery sealed with a special composition to prevent the creeping of the acid and surface leakage. The terminals being cased in ebonite are absolutely acid-proof. Altogether the accumulators introduced by this firm have been carefully designed and constructed, and motorists should not neglect to see these good productions. Small charging dynamos, sparking plugs, voltmeters, test lamps, etc., were also shown, and attention drawn to the facilities the firm have at Greenwich for accumulator and coil repairs.

A good display was made by the ASTON MOTOR ACCESSORIES Co., LTD., of Birmingham, whose specialities include the Amac contact maker, which works effectively and silently. It is complete in itself, and ensures



Figs. 5 and 6.—Sections of "Amac" Contact-maker.

a perfect contact, while the absence of flimsy parts secures the longevity of the device. To meet the demand for a strong switch in no way affected by vibration the Amac switch has been introduced, a notable feature being that the contact piece does not revolve, but gives a rubbing contact. The current has not to pass through any bearings. Reliable sparking plugs and terminal clips are also made by the Aston Motor Accessories Co., Ltd., whose goods are characterised by excellence of workmanship as well as design. The A.V. patent radiators and radiator tubing are other leading specialities. In the latter the actual contact between the gills and the tube is claimed to be perfect owing to the design, and the special method of soldering. The cooling surface is more than 150 square inches per lineal foot, and in the Glasgow to London trial of the present year a car fitted with this tubing made the highest possible marks for a non-stop run, being awarded a gold medal.

The Palmer cord motor-tyre was exhibited by the PALMER TYRE, LTD. The features of this motor-car tyre, which has proved itself to be a strong and reliable speciality of the makers, have been often referred to in our columns. One great feature is the uniformity of tension of threads attained by the special principle of manufacture, all the threads of canvas or webbing being arranged so that the strains are direct. An important point in connection with the tyre is the way in which the special plan of construction lends itself to the effectual repair of bad cuts and gashes, which may have penetrated both layers of cord. The method adopted is to remove the damaged cords, and insert in their place an equal number of new cords, which are secured to the anchorage of the bead in precisely the same manner as the original cords. The rubber tread is then made good and vulcanised, the repaired portion being equally as strong as the original tyre and the section of the tyre, and consequently its resiliency, remains unaltered. This method marks a distinct advance on the practice hitherto followed for repairing canvas-lined tyres, and will be appreciated by those to whom economy is a consideration.

In the section for oils, etc., appeared Messrs. WOODGATES BROS. with automobile tyre repair outfits, and a duplex patch indicated as "The patch that won't come off." They also had a varied collection of oils for the various component parts of the car.

Messrs. SALSBURY AND SON, LIMITED, the spelling of whose name should be noted by motorists, had their familiar range of Salsbury

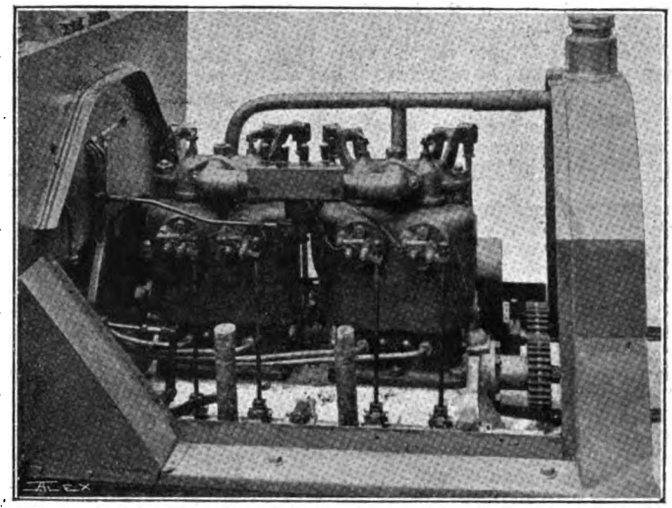


Fig. 7.—View of Engine of new Star 10-h.p. four-cylinder Car. (*See last issue*).

lamps, Salsbury-Dietz Orient lamps, Dietz tail lamps, etc. A garage petrol funnel, and the Duplex folding pail, were a couple of useful little novelties that added to the interest of their stand.

A large display of the Gaulois tyres for motor-cars was shown by Messrs. GAUTHIER AND COMPANY, whose exhibits also included Malicet and Blin's steering gears and axles, Longuemare carburettors, of the 1905 type, Dubrulle lubricators, radiators, pumps and platinum metal for body building. We hope to refer to the Gaulois tyre on another occasion.

Messrs. LAKE AND ELLIOT had a collection of motor accessories, including the Millenium motor packs, one type of which has been specially designed with a long handle to obviate the necessity of crawling beneath the car.

In King Edward's Hall the Reilloc resilient solid tyres were exhibited by the REILLOC TYRE COMPANY. This is the invention of Mr. Arthur Collier, whose idea has been to produce a solid tyre in which a resilient rubber could be employed at a cheaper rate than has hitherto been regarded probable. The Reilloc tyre is much more resilient than the ordinary solid, as the rubber, instead of being held in an upturned rim, is held to the wheel by fabric of the finest Egyptian cotton embedded and vulcanised into the rubber, much as a pneumatic cover is held. As then there is no waste of rubber inside the rim, and all of it is used for cushioning the car, a tyre is produced which has more the appearance of a pneumatic than a solid tyre. The fastening, which makes the tyre detachable, enables

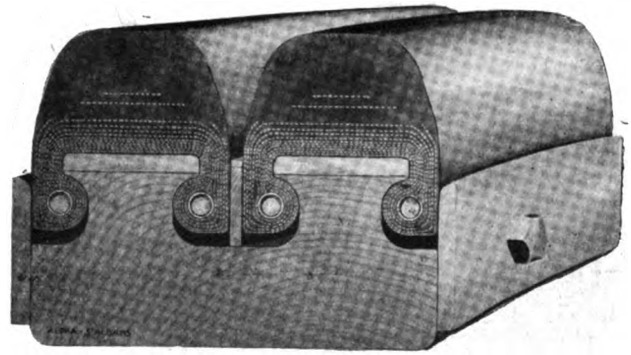


Fig. 8.—The Reilloc "Dual" Tyre.

any local wheelwright to effect the repair, in case of a damaged wheel, without the expense and delay occasioned where electrically welded wires are used and the wheel has to be sent to the tyre firms for repairs. A thick steel wire, having the ends tapped wit hleft and right threads, is united by a strong barrel nut about 3 ins. long, which enables the tyre to be pulled tightly down over the wheel, and is encased by a spiral wire of slightly larger dimensions, allowing the central wire to pass freely. In the cases of very heavy weights these tyres are run as duals, as shown in the accompanying illustration.

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A large selection of covers, inner tubes, etc., for motor tyres, was on the stand of Messrs. CAPON, HEATON AND COMPANY, LIMITED, whose display of general india-rubber goods was of a high-class character. Michelin tyres—made famous in the 1904 Gordon Bennett and other classic races—constituted a good display. The Clipper Continental motor tyres were prominent on the stand of the CONTINENTAL CAOUTCHOUC AND GUTTA-PERCHA COMPANY. The NORTH BRITISH RUBBER COMPANY, LIMITED, had a large selection of their Clincher motor tyres, and the CLIPPER TYRE COMPANY, LIMITED, showed the Clipper-Continental tyres, and the Reflex-Clipper motor-bicycle tyres. Messrs. MACINTOSH AND COMPANY, LIMITED, of Manchester, had a large selection of their motor tyres, and repair patches, etc., as well as a Macintosh motor-cycle tyre.

Among other exhibits of interest were the "Chicago Rawhide" V-shaped belts for motor-cycles, cut at an angle of 35 deg.; the "Fast-nut" washer for holding square or hexagonal nuts perfectly tight; and the "Lincona" motor-cycle belt, and the Lincona dressing, which is regarded by many riders as an indispensable equipment of the tool bag. Motor castings were shown by the MOTOR CASTINGS COMPANY, LIMITED; and the Gripwell brake, for motor-bicycles, by Messrs. WASS AND COCKS, LIMITED. Messrs. ELLIOTT, HALLAS AND SONS, LIMITED, of Huddersfield, had a good show of motor-cycle belts, motor-tyre gaiters, and the like, as well as their non-skidding device. Motor clothing of good design was to be found on the stand of M. VOLLANT, who made a creditable first appearance at these shows. Steel balls of a really remarkable degree of accuracy formed the exhibit of the Hoffman Company; a selection of bifurcated rivets of all sizes, and automatic self-feeding rivet-setting machines was exhibited by the company bearing the name of these useful goods; the "Acetyphote" and Silver King lamps were on the stand of Messrs. JOSEPH LUCAS, LIMITED, who also drew attention to the protector for the flexible tubing of foot pumps; and Messrs. W. CANNING AND COMPANY had a selection of transformers and regulating apparatus, for charging automobile accumulators.

A good range of automobile requisites was shown by Messrs. LEWIS'S, of Liverpool, whose advent to the trade has considerably enlarged the motorist's choice of clothing. A special feature is the Laveroc apron coat, comprising a combined apron and overcoat. Russian foalskin furs are utilised in some garments of particularly good style, and a high-class waterproof tweed in motor coats, used either when walking or motoring. Car covers, mats and matting, overalls, gloves, gauntlets, goggles—including a folding variety which can be carried in the waistcoat pocket—lamps, horns, jacks, petrol and water funnels were included in a very comprehensive display.

Aluminium rectifiers for changing any class of accumulators direct from alternating mains were on the stand of Messrs. STEWART, LIVETT AND CO. These work on any voltage, and there being no moving parts, require no attention. They are made in four sizes, from ½ to 6 amperes, and will enable many motorists to charge their accumulators at home.

The COUNTY CHEMICAL CO., LTD., of Birmingham, introduced their G.B. vulcanisers designed to secure uniformity in temperature and to conduct the heat to the vulcanising plate as effectually as when superheated steam is employed. Three types are being placed on the market. In one the temperature is obtained by the employment of a preheated iron block, and the device can be carried on the car with a view to effecting minor repairs on the roadside. Another pattern is shown in Fig. 9,

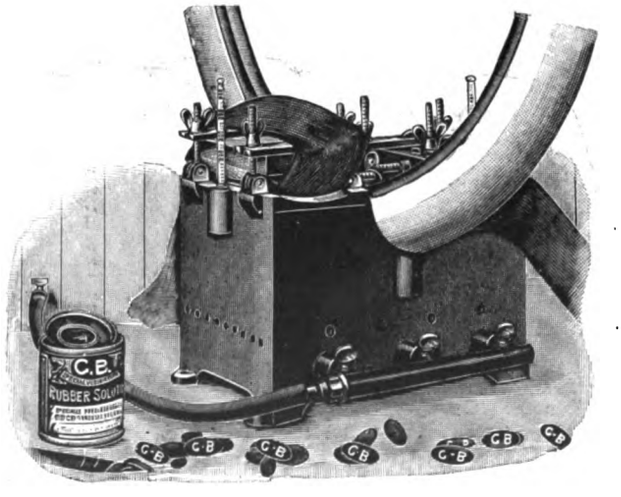


Fig. 9.—The "GB" Tyre Vulcaniser.

which is designed to deal with air tubes and outer covers simultaneously. Provision is made for valve seatings to be vulcanised on with valves in position. The interior of the apparatus is constructed in compartments, so that when desirable only a section of the vulcaniser need be heated. Vulcanising materials are also supplied by the County Chemical Co., Ltd., whose specialities include lubricating oils, repair outfits, and a full range of similar goods.

Mr. G. GOLDSCHMIDT is the sole concessionaire for the United Kingdom for the Jupiter headlight, and made a good show of such specialities, one of which is shown in the accompanying illustration. The headlight is fitted with a double reflecto throwing the light for 200 yards ahead. It is easily and quickly opened and charged, a new means of undoing and fixing the carbide container from the top having been devised. The lamp is made in four sizes, and provides an efficient as well as a convenient headlight. Mr. Goldschmidt also showed the Jupiter light with separate generator, and the "Victoria" acetylene motor-cycle lamp

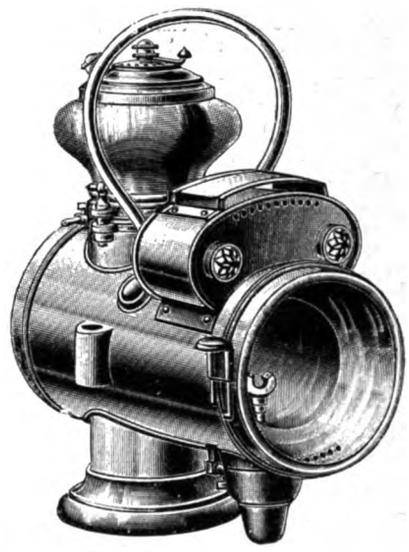


Fig. 10.—The "Jupiter" Acetylene Headlight.

this latter being a strong type of lamp specially designed to withstand the vibration attendant on such forms of automobiles. New petroleum headlights, sidelamps and tail lamps were also on the stand, as well as the Zanardini lamp previously described in these columns. Horns, funnels, sparking plugs, oilers, pumps, etc., were included in the display, and the selection of goggles was complete and comprehensive, including the Merz patent capsule goggle, which affords a good protection against dust, draught, etc. The particular make of the capsule edges is claimed to secure a greatly improved vision, while the unpleasant pressure on the face which detracts from the use of many other goggles is unknown in these. They are certainly worthy the consideration of motorists who do much riding.

The Prested safety lamp, exhibited by the PRESTED MINERS' GAS INDICATING ELECTRIC LAMP COMPANY, LIMITED, is well adapted for use in motor sheds, garages, and places where petrol is stored. The light is thoroughly safe and will burn continuously for ten hours without the necessity of re-charging. The company also showed their battery for motor-cars. The cases of these are of teak, rendered acid proof and non-conducting by a special process; so that both risks of breakage and leakage are obviated. The plates are held in position by a special non-conducting composition which is introduced in a melted state, and when set, holds the plates fixed and immovable. These batteries are fitted with acid level indicators, nickel-plated terminals, and strong straps, and being well finished and polished present an excellent appearance. The composition of the plates is the secret of the company. The negative plate is a pure lead sponge and the positive a very rich-coloured peroxide. The good colour of both negative and positive plate, indicating a maximum of chemical electrical efficiency, is maintained with great constancy, a fact which is encouraging the firm to offer a series of prizes to users who keep a record of the behaviour of the batteries on their cars.

THE Otto-Bennett Company have made arrangements whereby purchasers of their Otto or See non-skids can be fitted with either Dunlop or Michelin tyres at reduced prices.

IT has been variously reported that the Bowden Mechanism Patent (No. 25325 of 1896), or the Bowden Brake Patent (No 14402 of 1897), has been revoked on a petition before Mr. Justice Farwell on the 16th ult. The E. M. Bowden's Patents Syndicate, Limited, ask us to mention that neither statement is true. The case referred to affected only the mechanism patent, and the judge held that unless the Syndicate appealed or made amendment of the patent, it would be revoked in fourteen days. As one or other course will certainly be taken, the patent rights remain in force.

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CORRESPONDENCE.

MOTOR-CAR REPAIRS.

To the Editor of *The Motor-Car Journal*.

Sir,—Referring to Mr. L. P. Darby's letter in the last issue of the *Journal*, so new a business as the repair of motor-cars cannot but have many annoying and disagreeable features. There are many conscientious and skilled repairers, yet there are many incompetent ones in the trade, and it is the latter class that are productive of a great deal of the prevailing dissatisfaction. They make mistakes and they do poor and slipshod work. Thoroughness is not one of their cardinal doctrines. They sometimes effect a repair without removing the cause, and in a short time there is a recurrence of the trouble and the work has to be done over again. The owner of the car is annoyed, and believes that the repairer is incompetent. This may well lead to a withdrawal of patronage, and ultimately to a sweeping condemnation of all repair shops. Sometimes this is merited, and sometimes not. The motorist should, however, bear in mind, first, that the automobile is new, comparatively, and therefore more difficult to understand than it will be a few years later; second, that all intricate mechanisms are liable to develop puzzling diseases and to give trouble to even the most expert workmen. The quick-witted repairer, who locates the seat of the trouble and puts it to rights in five minutes, performs wonders: and he would be dull-witted to charge only for five minutes' work. Similarly a baffling "panne" that defies detection for hours, but is finally detected and made right with a turn of a screwdriver, is worth all the time spent on it. But the motorist does not always view it in this light, and fumes at what he terms a gross overcharge. In the motor repair business it is the employer's interest to have only good men in his shop, and he must eventually either train or educate the raw material he possesses or make it worth while for more expert mechanics to enter his employment. Then, and then only, will the loud and insistent complaints we now hear on every side cease to be made.—Yours truly,

C. A. Ashton.

BRITISH AND FOREIGN CARS.

To the Editor of *The Motor-Car Journal*.

Sir,—Referring to the discussion taking place in the *Journal* on this subject, I think there is no question that the statement put forward by Mr. Jarrott has been more than verified by the latest published figures as to the English trade in motor-cars up to the end of October. Mr. Jarrott was undoubtedly right, England is losing ground and that rapidly. The following figures bear this out:—

Number of cars and motor-cycles imported for the ten months ending October, 5,811.

Total value of cars, motor-cycles, and parts imported, £2,219,912.

The following miserable figures give in comparison what England has exported.

Motor-cycles and motor-cars, 1,137.

Total value of cars, motor-cycles, and parts, £268,466.

I think these figures close the discussion with honours for Mr. Jarrott, although it will certainly be interesting to hear what Mr. Edge and others have to say in answer.—Yours truly,

R. Seton.

PRIMARY CELLS FOR CHARGING ACCUMULATORS.

To the Editor of *The Motor-Car Journal*.

Sir,—Whilst staying at Pietersburg last year I procured second-hand a set of charging batteries for the purpose of recharging the accumulators of my motor-car. Unfortunately the labels had in most cases become detached, leaving only a small portion on one cell, revealing evidently a trade mark of rather gruesome nature in the shape of a skull and cross bones; also a registered number. I have done over 10,000 miles with accumulators charged by these cells alone, and never once been stranded. Unfortunately, on unpacking my box, I discovered two of my cells broken, and am now on the look-out for a new set with which to replenish my accumulators. I should be much obliged if some reader would kindly inform me the name of the manufacturer of these cells or where I can procure them. I have many times been advised to use Boron cells, but do not know whether these are the same.—Yours truly,

C. Crompton.

BELT TRANSMISSION.

To the Editor of *The Motor-Car Journal*.

Sir,—As no one has volunteered a reply to "Lancastrian" and "J. B." asking if any weak spots are apparent to experts in the "Dent" car described in your issue of October 15th, I beg to offer my opinion for what it is worth. I may say at the outset that I was rather taken with its striking simplicity, and if well set out and constructed, and a suitable first-class belt used, I think the difficulties of former systems will be overcome. The weakest point I can see is the position of the engine; this, however, could be neutralised by placing the valves in accessible positions, and the commutator on the dash. As regards balance, as the front cone forms the engine flywheel the weight can easily be placed as required. At the rear end, if the belt has the gear-like grip mentioned, I think a loose pulley at the slow end a necessity and a distinct advantage; then in pulling up the belt would brake the car up to the low speed, the brakes would do the rest, the belt would take the loose pulley of the vehicle, move off slowly or quickly as desired, and *vice versa*, giving excellent control in traffic. The back axle, however, is not very clear from the sketches, although the principle is good. The points I have mentioned may probably have occurred to the inventors.—Yours truly,

A Mechanic.

WATER CHARGES.

To the Editor of *The Motor-Car Journal*.

Sir,—I should be glad if you, or any reader of the *Journal*, could enlighten me as to the charge in London, extra above domestic supply, for water where a motor-car is kept? I am being charged one guinea per annum, which I think extortionate and have protested, but without result up to now. I have offered 10s. per annum, which is refused.

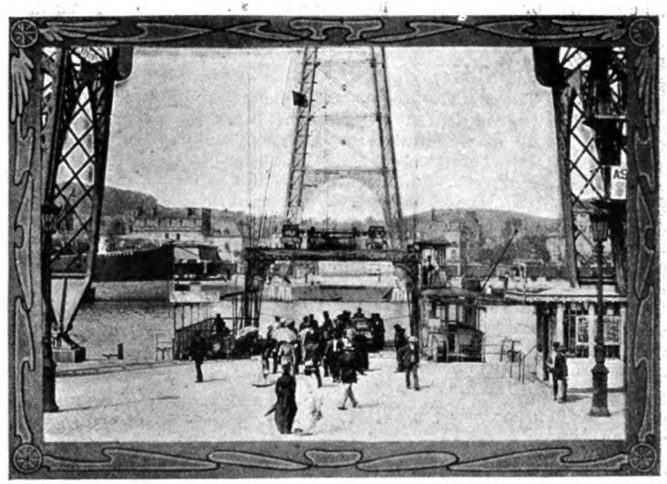
They admit the regular charge for a carriage is 8s. per annum, and for each horse the same. I have explained that there is no steam boiler to fill, simply washing occasionally like an ordinary carriage, and there is no logical reason why more than 8s. per annum for water should be charged. By what act, rule or reason is the charge of one guinea made?

If it is on the assumption that every person who keeps a motor-car is worth £10,000 a year, then why do not the revenue authorities charge 150 per cent. more for a licence for a motor-car than a carriage? but they do not.

Is it right that we should submit to this unjust charge?

If there is any way known to yourself, or any of the numerous readers of the *Journal*, how to get a motor-car recognised as a carriage (they charge all vehicles alike except motor-cars) for the purposes of the water rate, I, and no doubt many others, would be thankful for such information, as it is not a personal matter, but must affect many other motorists besides myself.—Yours truly,

London Motorist.



The Floating Bridge Across the Seine at Rouen.

WORK ON ROADS

To the Editor of *The Motor-Car Journal*.

Sir,—Would it not be a good thing if the "powers that be" would take advantage of the present state of employment in the country to straighten and level some of the roads in the country? All users of the roads are familiar with places which are not wide enough for the growing traffic; there must be thousands of such localities, and it would be well if the present time could be used to improve them. I offer this both as a means of helping the unemployed and also the users of the road.—Yours truly,

A. F. 76.

STEAM CARS AND THE BLACKPOOL TRIALS.

To the Editor of *The Motor-Car Journal*.

Sir,—Up to the present no one has come forward and given a reason why steam cars were debarred at the Blackpool trials. This is not satisfactory; a good many would-be motorists are forming their own opinion on the matter to the detriment of the petrol car. In my humble opinion it is not fair to allow a steam car to compete in a short race or a hill climb with petrol cars; a steam car has all its energy stored ready for a short run or climb and can do it well, but afterwards it is not always ready to continue its performance. It is plain a petrol car would not have a chance in a short run. I therefore contend that it is not fair to allow the steam cars to enter on hill climbs or short runs. Allow them to compete on a long run. If the above is the reason why steam cars were not allowed to compete, why does one of the officials not come forward and state the facts? It would be more satisfactory to those interested in petrol cars to have some facts.—Yours truly,

T. E. Henderson.

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PANHARD IGNITION.

To the Editor of *The Motor-Car Journal.*

Sir,—On page 810 of the last issue of the *Journal* "H. H. H." writes asking for hints with regard to the adjustment of the magneto ignition on the latest Panhard cars. This is the Eisemann system, and we shall at all times be glad to assist "R. H. H." if he will write to us, or go over the system with him if he is in London and will call. The part requiring the most attention is the hinged steel arm carrying the upper platinum point; both the hinge and the pin of the roller should be oiled occasionally, but a small bicycle oil-can should be used, as the large oil-cans found on cars feed too much oil, which splashes about and gets on to the points and the copper collecting rings, and it is on the latter that the oil gives most trouble; the rings must be kept quite dry and free from oil, and if allowed to get into a dirty state, the carbon brushes which rub on these rings should be soaked in petrol for a short time. As regards the platinum points, there is but little burning of these, but the continual tapping flattens them out after a time, when they should be filed quite flat and adjusted so that when the points are separated by the cam they are not more than 1-32 in. apart, any excessive distance between the points causing more rapid wear and considerable weakening of the spark.—Yours truly,

G. T. Riches and Co.

To the Editor of *The Motor-Car Journal.*

Sir,—In reply to "R. H. H." in your last issue *re* Panhard ignition, I would like to call his attention to these points. 1. Never screw down the Stauffer on the commutator more than ¼ turn per diem. 2. Keep the brushes at as little tension as will make contact; if they are down very hard on the fibre ring they will very soon cut or score it. 3. Wash out the commutator once a week or oftener if convenient. 4. Keep the screws on the coil as light on to the trembler as possible or bad sparking will result between the platinum points. 5. If a series of misfires occur do not fly to the coil and begin screwing up and down, but look first at the commutator and next at the coil.—Yours faithfully.

Charles Storr.

THE LANCHESTER CAR.

To the Editor of *The Motor-Car Journal.*

Sir,—I am pleased to give "Enquirer" my experience of above. I have owned and driven many cars of good make, with two and four cylinders. My latest purchase is a 12-h.p. water cooled Lanchester. I have driven it nearly nine thousand miles without a hitch or adjustment of any kind. My only delays have been to change an igniter and an occasional puncture; the brake and clutch want a little attention, which is easily observed by the position of the lever. This I do at home when required. The car is a wonderful hill climber, and has made several runs of more than one hundred miles on top speed. It can always be started on second without undue strain on the engine or gears. The change speed is certain, simple and noiseless—no grating and risk of missing or running through gears. With regard to "Enquirer's" queries, I will answer them seriatim as follows:—

1. I prefer the Lanchester tiller to the wheel. 2. No experience of air-cooled cars. 3. No, but sufficient. 4. Ditto; both, one engine does more work than the other. 5. Yes 6. Less; no accumulators, coil, wires, switch, &c. 7. Absolutely without an effort. 8. See above; fastest 12-h.p. I have driven.

I am not interested in any motor business, and am more than pleased with my purchase.—Yours truly,

F. W. T.

To the Editor of *The Motor-Car Journal.*

Sir,—I think that I may be able to give "Enquirer" some disinterested advice in regard to the Lanchester car. I have not been myself the owner of any other make of car, but my son has owned two of the usual type, so I know something of both sides. May I answer "Enquirer's" questions *seriatim?* (1) The Lanchester tiller-steering is certainly easier than wheel-steering, and it is absolutely reliable. I can guide my Lanchester with finger and thumb on a rough road. (2) I have driven my car over 16,000 miles air-cooled. Occasionally I have had to stop a few minutes to let the engine cool, and there is no doubt that a certain amount of care is needful to prevent overheating. On the other hand there are of course advantages in air-cooling, especially in frosty weather. But the Lanchester car is now water-cooled, and I have had mine "converted" to water-cooling. There is no question that the water-cooling gives considerably more power (the makers say a rise from 10 to 12-h.p., but I should put it higher), and so far as I can judge at present, it is decidedly to be preferred. I should advise "Enquirer" to choose the water-cooled pattern. As regards range of speed and fixed ignition (3 and 4) there seems no need of a variable ignition on the "Lanchester." The ignition is automatically retarded at starting, so there is no danger of back-fire. As regards range of speed on one gear it may be sufficient to say that I can drive a Lanchester through London traffic without difficulty on the top speed. Either cylinder can be cut out, and no ill effects arise if one governor cuts out oftener than the other—it usually does. The governor is controlled either by hand or by foot, in the latter case both cylinders are governed together. I usually drive with the foot-governor. (5) The position of the control levers is quite convenient and they give no difficulty at night. The Lanchester requires less speed changing than any car which I have tried of similar horse power. I have driven nearly forty miles on Herefordshire and Worcester roads without having once to drop from highest gear, pace, of course, being regulated by a governor. The lowest of the three gears is very seldom required. (6) The ordinary adjustments, etc., of a Lanchester are very simple. Undoubtedly at first sight one is likely to consider the mechanism complicated, but the apparent complication gives very little trouble in practice. For example, to get at the valves is decidedly difficult, but in 16,000 miles I had only to touch the valves twice. I am my own mechanic (two years ago I knew nothing of engineering) and I never take a man with me on tour—an ostler or a friend's coachman can do all I want. (7) The change speed and brake are hand-operated. The high gear lever when pulled back releases the clutch and puts on the brake—suddenly or slowly as required. The low speed lever when pulled back first brakes and then reverses the car, but is not so speedy in operation. This arrangement gives a very effective control. (8) I have travelled over a great part of England and Wales and have never yet stuck on a hill on which I have had to shed a passenger. On the level the Lanchester is not so fast as many cars of 12-h.p., but I can easily average twenty miles per hour on the fairly hilly roads about here, and perhaps that is enough for safety on most of our country roads. As regards comfort there is no question. The seating is comfortable, there is no vibration (the engine is "balance") and there is room for a quantity of luggage which no other car can take—a most important consideration in touring.

This seems rather a "puff" of the Lanchester perhaps but I am in no way interested in the company, and simply give my own very pleasant experience of two years. I may add that when repairs have been needed, I have found the company very prompt and courteous. I would advise "Enquirer" to ask them to give him a trial run in one of their cars, I feel very little doubt that he will be satisfied.—Yours truly,

H. George Morgan.

To the Editor of *The Motor-Car Journal.*

Sir,—In answer to "Enquirer's" letter in your *Journal re* Lanchester experiences, I send the following replies. I have driven a 10-h.p. air-cooled Lanchester car for fifteen months, belonging to the Peninsular and Oriental Steam Navigation Co., and had previously, and have since handled several types of the ordinary car up to 24-h.p. (1) The tiller system of steering is undoubtedly quicker, surer, and more easy than the wheel. (2) Air cooling was not a success on the above car. (3) There is plenty of speed and power in the engine on either gear. (4) The governor control is quite equal to the throttle, I have driven the car for miles with one cylinder working all the time and the other governed so as to cut in when the speed dropped below a certain point; this was a great advantage, enabling me to cool each cylinder alternately. A throttle in addition would, I think, be an advantage. (5 and 7) The control and speed levers are very effective, as one always has one hand free to attend to the gears. The brake is the most powerful I have ever handled, but as an extra safeguard, band brakes should be fitted to the wheels, as in the event of the driving shaft breaking or coming adrift between the engine and worm gear, the brake would also be ineffective. (6) A little trouble at first to understand, but when the principle is understood very simple. (8) Hill-climbing wonderful, due, I think, to the heavy fly wheels and perfect balance of the engine; this also applies to the speed and comfort, which compare favourably with any car, power for power, at present on the market.

The above car has, to my knowledge, travelled at least 20 000 miles over very bad roads, and is out every day in all weathers and is like "Charley's Aunt" still running.—Yours truly,

H. J. Butler.

NON-SLIPPING TREADS.

To the Editor of *The Motor-Car Journal.*

Sir,—I am anxious to know whether in the case of having a non-skid device on one back wheel only, whereby such wheel is raised higher than the other one (possibly in some cases as much as half an inch), any injury can possibly be caused to the frame or springs, or other part of the car. Also whether a different adjustment of the back brakes should be made, and if so, to what extent.—Yours truly,

Enquirer.

To the Editor of *The Motor-Car Journal.*

Sir,—I read with interest the letters of your correspondents "Norfolk" and R W. Buttemer on the subject of the above, and I trust you will allow me space to add my experience during the last twelve months. To begin with, I have always found that bands which are vulcanised on are both inconvenient and expensive, and are not much required in the summer time, and when worn out they have to be cut off the cover, thus entailing additional outlay through the retreading of the cover. I have tried several non-skidding treads, but for all-round satisfaction and economy commend me to the detachable band supplied by the Glasgow Motor Tyre Company. One of these has done me good service over more than 2,000 miles on all kinds of roads, and is little the worse of wear. The band is of the ordinary chrome leather type but with solid steel studs consequently insuring a longer life. Another advantage which I have found it to possess over other bands is the extreme ease with which it can be attached and detached. I am sure that the former operation can be satisfactorily performed in four minutes at least, and the latter in less than one. There is yet another virtue

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about this band, and it is one which would appeal to most motorists, that is, its modest cost. The one I am using at present is an old vulcanised band which the firm converted to their type at a small charge, and serves the purpose admirably; whilst there is no preceptible deterioration of speed to my car, which is of 24-h.p. I have no interest in this particular patented non-skidding tread, beyond the desire to acknowledge a felt want supplied.—Yours truly,

A Brother Motorist.

STARTING A CAR.

To the Editor of *The Motor-Car Journal.*

Sir,—I shall be greatly obliged if you can inform me of the reason my 12-h.p. De Dietrich car takes so much starting. I can only get it to start by advancing the ignition to the extreme limit, and even then it will only start very slowly, and after the handle is past the highest compression. The magneto has been overhauled by the makers and is in order. Will you kindly express an opinion?—Yours truly,

H.

[The trouble of "H." seems to point rather strongly to the fact of the ignition cams not being set correctly. If these were correct it would be almost an impossiblity to start the engine with the ignition fully advanced without disastrous results (from backfire), and we would advise a through examination of this, and ascertain if the time of spark is not somewhat late.]

ECONOMICAL RUNNING.

To the Editor of *The Motor-Car Journal.*

Sir,—Could you or any reader of the *Journal* tell me what average mileage per gallon I ought to do with Pratts' A motor spirit? The car is a four-seated one, and scarcely goes out with less than four passengers; the motor is a 1902 type 6½-h.p. Aster without governor.—Yours truly,

A Motor Driver.

EXPERIENCES IN SOUTH AFRICA.

To the Editor of *The Motor-Car Journal.*

Sir,—The following record of my 10-h.p. Argyll car may be of interest to you. I covered 1,949 miles, mostly over rough roads, with no failure or trouble. After travelling this distance I had my first accident, through colliding with an obstruction on the road. At 1,964 miles, I experienced my first tyre trouble (burst inner tube); at 2,130 miles, I struck a sand drift (sand over 9 in. deep) while running strong, damaged differential gear pinions and needed assistance for the first time.—Your truly,

Port Elizabeth. W. Roger Chew.

SIX VOLTS FOR IGNITION.

To the Editor of *The Motor-Car Journal.*

Sir,—I have read at different times of motorists who have experienced ignition troubles, and who have eventually surmounted the same by using a three-cell accumulator giving six volts in place of the usual two-cell four volt. I have lately been suffering from spasmodic firing, but have hesitated somewhat in adding another cell to my battery until I am sure that the induction coil will not be injured thereby. It wouldn probably be interesting and useful to other of your readers, as well as to myself, to have the experiences of those motorists who have used a six-volt current through the coils on their cars. I am told that the increased voltage effects marked improvement in the firing, and, consequently, the "life" of the motor.—Yours truly,

W. F. Rhodes.

ENGINE TROUBLES.

To the Editor of *The Motor-Car Journal.*

Sir,—Can any of your numerous readers inform me why my engine gives a sort of kick when running slowly? It is a single-cylinder 5½ to 6-h.p. Has it anything to do with the exhaust not freeing itself sufficiently soon enough? Any hint to overcome the difficulty will be much appreciated by—Yours truly,

Gerard.

["Gerard" does not mention whether the kicking occurs when his engine is running idle or when driving. We should be inclined to think that it was due to the engine being overworked at too low a speed when driving. A single-cylinder engine requires to be run at a rather high speed to obtain good results, and if the speed is reduced when the top gear is in, the kicking would certainly occur. If this is the case, the only remedy is to increase engine speed and lower the gears. In the case of the engine running idle the kicking may occur through a slight overheating causing premature ignition when running slowly, which would not be noticed when running fast.]

STEAM CARS.

To the Editor of *The Motor-Car Journal.*

Sir,—In your issue of October 8th I noticed letters *re* steam cars, signed by "J. R." and Mr. H. J. Rogers, in both of which it is stated that ordinary petroleum can be used by attaching some special kind of burner—the Morriss' system I think is referred to. Being the possessor of a steam car, and seeing that petrol out here in Cape Town is bought at not less than 2s. 6d. per gallon, I should be obliged if either of the gentlemen mentioned would enlighten me regarding the methods necessary for burning petroleum, and where full particulars as to the Morriss system can be obtained.—Yours truly,

B. B. B.

[We have asked Messrs. Morriss to send the necessary particulars to our correspondent.]

Motor-Cabs.—A hotel proprietor in one of the Home Counties wants the addresses of firms willing to supply motor-cabs.

Salsbury Lamps.—Messrs. Salsbury and Son, Limited, write to inform us that all Salsbury lamps have the word Salsbury on them, and that any lamps with the word differently spelt are not of their make.

The Rexette.—Referring to "Fosse Road's" statement in our issue of the 12th ult. as to this car, Mr. G. F. Heath, 49, John Bright Street, Birmingham, writes to say that he, on a 6-h.p. De Dion, would be pleased to give him, "Fosse Road," a chance of showing his heels.

Platinum Tubes.—A Liverpool firm having had several platinum tubes lately taken from cars in their motor garage, will be pleased to hear from any firm or dealer to whom they may have been offered for sale.

Stanley Show.—An umbrella left at the stand of the Hoffman Manufacturing Company, Limited, of Chelmsford, can be obtained by the owner on application to the firm, with a description of the article.

Folding Bicycle.—Replying to Dr. Teare's query in last week's *Journal*, the Dursley Pedersen Cycle Company, Limited, of Dursley, Gloucestershire, inform us that they make a folding (or military) type of bicycle. Mr. M. Turkheimer, Via G. Sirtoi 5, Via Lambro, Milan, is the maker of the military folding bicycle used in some Continental armies.

Motor-Car Repairs.—Referring to the remarks of correspondents in our last issue, with regard to motor-car repairers, Mr. R. Hazel sends a letter revealing a more pleasant picture. He recently had a bad smash with his 10-h.p. car at Hounslow, and, towing the vehicle to Messrs. Letzer and Jordan, at Kingston, had it repaired satisfactorily and economically.



Photo by The Annual Dinner of Clement-Talbot, Ltd., at their New Works at Notting Hill. (*See page* 833) [*Argent Archer.*

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THE HEREFORD LIGHT CAR TRIALS.*

By W. Worby Beaumont, M.I.C.E.

Thirty-eight cars were entered, and twenty-six, or 68 per cent., of them completed the trials, or 70 per cent. if we exclude one that did not put in an appearance. They were nearly all two-seated cars, as in 1900, yet the smallest of them had engines of 6 horse-power, or about 100 per cent. more power than the average of the little cars of 1899, and many of them had engines from 130 to 170 per cent. more powerful than the 3 horse-power of 1899.

Of the thirty-eight cars that entered for the trials there were thirty which had transmission and speed-change gear of the sliding type.

Two only were driven by side chains.

Five were driven by a single chain from engine to live axle.

Four were driven by single chain from countershaft to live axle, and of these

Three were driven by a chain from the crank shaft to first motion spindle in the gear-box.

Twenty-four were driven by a jointed propeller shaft from gear-box to bevel wheel on the live axle.

A considerable number of the cars had horizontal engines, most of them had single-cylinder engines of the De Dion make or De Dion type by other makers.

Of the thirty-eight cars entered, twenty-four, or 63 per cent., were of the live axle type, driven by a fore and aft propeller shaft and bevel wheel on the differential gear on the axle, as used by Renault in 1899. Some of these cars showed on examination that they had been *designed* in arrangement and detail, and carefully thought out on paper before they were put into the shops. Some, however, were very like a type of car not at the trials, which does no one any permanent good. The requirements for the design of this type of car are few. They are principally a component catalogue and an order-form book; and the design is carried out by two things, namely, a handy-man, erector, and a glossary of French and English terms. Cars designed in this way show themselves by numerous details—such as connecting-rods bent to escape things not noticed in the component catalogue, but which come in the way; lugs in various places that are not wanted or are not used; corners filed off to make way for something unforeseen; tanks in no way suiting the shape of the place they are made to take; disproportion of engine and cooler, of engine and gear, of car and brakes, and complications and indirectness not necessary in a designed car.



The 20-h.p. Thornycroft Char-a-banc which has been running between Lymington and Milford-on-Sea (a distance of sixty miles) daily for the London and South-Western Railway Company, for some time past. The car negotiates the Lymington town hill—1 in 10—easily upon its second speed with a full load of seventeen passengers and driver, in addition to luggage.

Generally, the cars at Hereford were of high class in design, and the average quality as good, or better, than that of the average big car.

Very few 12 or 15-h.p. cars would mount Frome's Hill in the style and at the speed that the 6, 6½, and 7-h.p. cars mounted it with two passengers.

The apparent mechanical efficiency of some of the cars was very remarkable, and it is worth while considering some of the particulars of their performance.

The speed of the ten fastest cars on Dinsmore Hill and on Frome's Hill up to the point at which the gradient became more than 1 in 7 was as given in the following table, which also gives the deduced efficiency. To determine the mechanical efficiency, a road resistance of 50 lb. per ton has been taken, and the air resistance r has been calculated by the expression

$$r = V^2 A\ 0.0017,$$

A being the area presented to air resistance in square feet, and V = velocity in feet per second.

Table I.—*Mechanical Efficiency of Ten Fastest Hereford Cars.*

No. of car. In order.	Official.	Name.	Declared b.h.p.	H.P. on hills.	Mechanical efficiency.
1	10	Wolseley	6.5	5.61	86.25
2	22	De Dion	6.0	5.19	86.40
3	14	Swift	7.0	5.12	73.20
4	15	Star	7.0*	5.42	77.50
5	18	Siddeley	6.5	5.16	79.40
6	20	Wolseley	6.5	4.75	73.10
7	26	Swift	7.0*	5.30	73.75
8	30	Croxted	8.0*	5.63	62.60
9	38	Star	7.0*	5.74	82.00
10	23	De Dion	6.0	4.24	70.75

* Two cylinders.

It may be said in criticism of these figures of mechanical efficiency that the brake horse-power used for comparison with the horse-power represented by the work done in hill climbing is an uncertain quantity, as only being the brake horse-power declared by the makers.

I have, however, checked the horse-power, which it is possible to do with a very near approximation to accuracy, from the engine dimensions and speed, and would, moreover, point out that some of the Hereford hill-climbing was such as would find out, on the one hand, any b.h.p.'s of the snatch test kind, while the 600 miles consumption test, if not absolutely accurate in each individual case, formed in the aggregate a good check on understatement of b.h.p.

Taking, then, the mechanical efficiency as found with a road resistance of 50 lb. per ton, it will be seen that they are remarkably good as compared with the results of previous trials and as compared with the results of the dynamometer trials conducted under the auspices of the Automobile Club of France by M. Forest and others. They show an advance which, in round figures, may be taken as from 65 to 80 in the last four years, or an increase on the figures of 1900 of at least 20 per cent.

The ten highest efficiencies are not confined to one class of transmission gear, four types being represented, and the three highest represent three distinct types, namely, Wolseley, De Dion, and Star.

Three of the fourth type, namely, the two Swifts and Alldays, come next, and although a good deal lower than the Wolseley and De Dion, are consistent approaches to similarity for the same class of drive, namely, the bevel drive on a live axle.

That the system of transmission is very far from being an index of performance is, however, shown by the difference in that of the two Wolseley cars and the two De Dions, a difference which was as noticeable in the "go" of the cars during the trials, as in the difference in mechanical efficiency deduced from them.

Such a difference as is shown by these two cars must show how very much performance by a particular class of mechanism may be affected by what may be called workshop differences which are difficult of detection. The difference, it will be noted, is not so great between the performance of the Wolseley and Siddeley cars as with the two De Dions. They also show how very unwise it may be to send a car which has not been run long enough to give opportunity for complete adjustment and run by the same driver for trial.

The highest mechanical efficiency is not always accompanied by the most economical performance. Thus the ten cars showing the highest mechanical efficiency change positions with regard to economy into the following order:—

Table II.—*Relative Economy of Ten Fastest Hereford Cars.*

No. of car. In order.	Official.	Name.	Miles per Gallon.	Total weight with passengers. lb.
1	14	Swift*	38.8	1512
2	18	Siddeley	38.5	1603
3	30	Croxted	33.3	1848
4	22	De Dion	30.3	1414
5	23	De Dion	30.3	1414
6	15	Star	29.5	1694
7	10	Wolseley	28.3	1596
8	38	Star	25.4	1908
9	20	Wolseley	24.6	1554
10	26	Swift†	23.6	1610

* One-cylinder. † Two-cylinder.

Several cars, not included in the ten fastest and of highest apparent mechanical efficiency, were among the most economical, namely, the Clyde, with 47.2 miles per gallon, a result which seems to show some error in the petrol account, which, however, could not be detected; the 6½-h.p. Royal Humberette, with 37.9 miles per gallon; Alldays 7-h.p., with 34.5 miles per gallon; Alldays 7-h.p., total weight 1533 lb., with 33.3 miles; 8-h.p. Brown, with 31.4 miles; the 6-h.p. Jackson dogcart, total weight 1,330 lb., with 28.5 miles; Prosper Lambert 8-h.p., total weight 1,890 lb., with 27.2 miles; and the 6-h.p. Speedwell, total weight 1,309 lb., 25.8 miles.

With regard to transmission gear, one of the cars which commenced the trials but had a mishap breakage, namely, the Downshire car, presents

* From a paper read at the A.C.G.B.I. on November 24th, 1904.

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a point of some interest with respect to chain stress. The chain used runs from engine shaft to gear on the live axle. The lower speeds are effected by change of gear driven by the chain and not by gear driving it. The pull on the chain is therefore not increased as in arrangements adopted in some other cars with a single chain, in which the speed change is made in the gear driving the chain.

An examination of the economy figures will show that there cannot be any doubt that in many cases consumption is a function of the skill and constancy of attention of the driver. It may, however, be noticed in passing that while the two De Dion cars, differed considerably in apparent mechanical efficiency, their consumption was identical, while the two Wolseleys, which differed so much in apparent mechanical efficiency, differed in the same order in consumption, which would seem to indicate similar care on the part of the drivers in this respect.

THE NEW CLEMENT-TALBOT WORKS.

On Friday last week we had an opportunity of inspecting the magnificent new works which Messrs. Clement-Talbot, Ltd., have erected in Edinburgh Road, Notting Hill, W., for the manufacture of the Talbot car in this country. The general and drawing offices, together with the engine and show rooms, consist of a large separate building, having a handsome frontage to Edinburgh Road, with an indrive to the portico giving shelter to vehicles approaching the central main entrance. By this entrance visitors gain admittance to the grand hall, which has a mosaic pavement and rich and tasteful marble decorations. A few steps on the right admit to the central corridor of the right wing, which has on the right the administration offices, and on the left an extensive and well-lighted drawing office. The entrance hall also forms a showroom, where visitors will be able to inspect finished cars, chassis, and accessories. A handsome pair of plate-glass swing doors on the left open on to a balcony within the engine-house, which at present contains a Willans and Robinson 150-h.p. vertical gas engine and dynamo, and a 14-h.p. gas engine for starting purposes. Space is available for the installation of two other sets of 150-h.p. engines and dynamos, which are to be added later. A gallery across the south side of the engine-room, accessible from the entrance hall, gives access to the heating chamber and to the stock-room, and beneath these are a workshop and millwright store. Separated by a roadway at the rear is an exceedingly large single-storey building, divided into four departments, two of which have been equipped with machine tools of the most modern kind, under the supervision of Mr. C. R. Garrard, the works manager. The third is devoted to fitters and to repairs, while the fourth is an erecting shop and stores for finished material. The machine tools are electrically driven by independent motors or in groups from the usual line shafting, the motors being supported in an inverted position overhead, so economising floor space. Detached from the main works is the producer gas plant for supplying the gas for the engines, while close to it is a separate building, comprising the testing, smiths', and case-hardening shops. The heating arrangements are particularly worthy of notice. The offices are heated by means of the engine-cooling water, which is led from the engines to jackets round the exhaust pipes, and thence to a superheater, which can be heated by gas. The hot water thus obtained is taken by a system of pipes and radiators throughout the rooms of the administration building. The works section is warmed by air forced by a large fan through a bank of pipes, which is in direct contact with the flames from the producer gas furnace. Some idea of the extent of the works may be gathered from the fact that the site covers over five acres. A large part of this has already been covered, and at an early date it is intended to add a building fully equipped for carriage bodywork, painting, and upholstering. It may also be mentioned that a track for testing cars extends right round the works. Operations have already been commenced on various parts of the Talbot cars, but gradually the construction of the complete vehicles is to be taken in hand, and although they will be identical with those built by M. Clement in France, the material and workmanship will be entirely British.

The annual trade dinner of Messrs. Clement-Talbot, Ltd., which was held in the evening, practically formed the formal opening of the new works, one of the shops having for the occasion been converted into a handsomely-decorated dining-hall. The Earl of Shrewsbury and Talbot, the chairman of the company, presided, and he was supported by M. A. Clement, M. A. Lucas, and M. Lamberjack, directors; Mr. D. M. Weigel, the managing director; and Mr. C. R. Garrard, works manager. Owing to the inclement weather, the number of agents of Clement-Talbot cars present was not so large as was expected, but the ninety or so gentlemen who braved the elements spent a most enjoyable evening. After an excellently-served dinner, Earl Shrewsbury, in proposing the toast of "The Automobile Industry," gave some particulars of the new works, and stated that the purchaser of a motor-car of to-day was much better off than the man who bought his car two or three years ago, for manufacturers were now producing a more scientific machine. That their trade was a real industry was demonstrated by the fact that omnibus companies were making trials and railway companies using automobiles to feed their lines. As to the question of speed, he was of opinion that the day was passed when people bought cars in order to make them travel as fast as they could, and that nowadays they looked for a car that would go as far as was desired. People in the country did not object to motor-cars to such an extent as was the case a year or so ago. In his own county of Shropshire the council, instead of fining motorists, had recently decided to erect 100 warning signs, and at one place, where an unfortunate accident had taken place, the owner had given sufficient land to prevent a repetition. The toastmaster then called upon "Mr. Wiggle," otherwise Mr. Weigel, to propose the toast of "Our Agents," and, in the course of a short speech, the latter stated that, whereas the sales of Clement-Talbot cars in the 1903 season only amounted to fifty-four vehicles, no less than 325 had been disposed of during the past season, mainly through the agents. He referred to the growing trade with the colonies, particularly Australia and India. He also announced that a prize of 100*l.* in cash was being offered to the agent or sub-agent of the company in the United Kingdom who during the year ending October 30th, 1905, shall have driven a Talbot car the longest distance at the best average mileage per hour in accordance with certain rules and regulations. The latter provide (1) that more than one person may act as driver; (2) in the case of a four-cylinder car all four seats shall be occupied, and in the case of a two-cylinder car at least three seats shall be occupied, during the whole period of the run; (3) during the run the engine must not stop, or be stopped; when the engine from any cause whatsoever ceases working, it will be considered that the total run by the driver and car has been accomplished, and his chance of gaining the prize will be the length of his journey up to that moment; (4) any agent, or sub-agent, while competing must drive in the county in which the district he is appointed for is situated; (5) every intending competitor shall give at least one week's notice to Messrs. Clement-Talbot, Ltd., of his intention to compete prior to the commencement of his attempt; (6) the legal speed as recognised by the public authorities not to be exceeded by any competitor. The prize will be presented to the winner at the next annual trade dinner. Mr. Millburn responded for the colonial agents, and Mr. Hollingdrake, of Stockport, for the home agents, the latter amusing the company by a story of a Welshman who gave evidence that a Clement car had travelled past him at a speed "of hundreds and hundreds of miles an hour"! Other toasts followed, including that of "Our Chairman," given by M. Clement, and that of "The Press," proposed by Mr. Cox. The hour being somewhat late, a hurried run round the works was made, following which the party gradually broke up, after spending not only a pleasurable but a most instructive evening.

CLUBS AND ASSOCIATIONS.

AUTOMOBILE MUTUAL PROTECTION ASSOCIATION.

Meetings of the Council, Finance and General Purposes Committee, and Mechanical Transport Committee of the Automobile Mutual Protection Association were held at the Royal Agricultural Hall, Islington, on November 24th.

The Earl of Shrewsbury and Talbot (President) was in the chair, and there were also present Messrs. W. E. Rowcliffe (Hercules Motor Wagon Company), Walter H. Maudslay (Coventry), Henry Spurrier, junr. (Lancashire Steam Motor Company), J. R. Richardson (Lincoln), Charles Holmes (Holmes-Prunel Company), D. M. Weigel (Clement-Talbot, Ltd.), Jno. H. Toulmin (P. Coulthard and Company), E. Lisle (Star Engineering Company), A. Pereno (Farman Automobile Company), Wm. Deighton (Yorkshire Patent Steam Wagon Company), Mawdsley Brooke (Lowestoft), and W. R. McTaggart (Dublin).

Mr. W. H. Maudslay, of Coventry, was elected Chairman of the Mechanical Transport Committee which was occupied with the proposals of the Automobile Club in respect of the heavy commercial vehicle competition to be held about a year hence. It was decided that the exact date must depend upon the issue of the Local Government Board Regulations, which are now expected to appear before the Christmas vacation, and to recommend that the trials be held during the first half of September next, in preference to their being postponed to the spring of 1906, provided the regulations do appear before January 31st, 1905.

A communication from the Automobile Club Committee, in which the Association were invited to make nominations to the Industrial Committee of the Automobile Club, was considered. In view of the importation of the suggestion that the action of the Association in proposing an alteration in the method of procedure for constituting this Committee was in any way personal (*vide* "Automobile Club Journal," November 10th, page 346), it was unanimously resolved that no nominations should in any event be made until the date of the general meeting of the Automobile Club in March next. It was also decided to point out to the Automobile Club that the suggestion of the Association was one of principle which called for acceptance, or rejection, as a whole, before the question of nominations could arise, and that if the elected representatives of the trade, to be chosen by the trade to represent the trade upon the proposed modified and jointly-constituted committee, were really to represent the trade, they must be accepted by the club as members of such committee without any right of rejection by the club committee.

The following were admitted members of the Association, being Nos. 177 to 181 on the register:—The Highgate Implement Works, Limited (Tweedmouth), the Victoria Carriage Works, Limited (London), the Coronet Motor Company, Limited (Coventry), the Phœnix Motor Company (Southport), and Messrs. Moss and Woodd (London).

MANCHESTER.

The Manchester Automobile Club have had their second House Dinner at the Midland Hotel, with an attendance of about sixty members and friends. The chairman, Mr. Frederic Smith, presided.

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After dinner discussion took place on the necessity for, and the merits of, non-skidding devices now on the market. The general opinion was that such devices were necessary, and that all of them more or less prevented skidding, and in some cases protected the tyre also, but all were expensive in upkeep. Mr. Holroyd Smith interested those present in his spring hub wheel, one of which he dismantled so as to show and explain the working of the springs and mechanism. M. L'Empereur, the inventor of the non-skid bearing his name, was also present as the guest of one of the members.

MIDLAND.

In the Sunrising Hill-climbing Handicap held in July there were thirty-one entries. The order of merit of the first score has been determined as follows :—

Result.		Owner.		Make.
1	...	W. H. Cook ...	...	10-h.p. Argyll.
2	...	P. Martin ...	...	28-h.p. Daimler.
3	...	A. Farnell ...	...	28-h.p. Daimler.
4	...	E. Manville ...	...	28-h.p. Daimler.
5	...	E. M. C. Instone	...	28-h.p. Daimler.
6	...	E. M. C. Instone	...	28-h.p. Daimler.
7	...	A. J. Dew ...	...	24-h.p. Leon Bollée.
8	...	S. F. Edge ...	...	20-h.p. Napier.
9	...	Miss Forrest ...	...	40-h.p. Mercedes.
10	...	G. F. Reading ...	...	10-h.p. Wolseley.
11	...	Major Lloyd ...	...	6-h.p. Wolseley.
12	...	Lionel de Rothschild ...		60-h.p. Mercedes.
13	...	Anglo-American M.C.		6½-h.p. Cadillac.
14	...	T. Thornycroft Co., Ltd.		20-h.p. Thornycroft.
15	...	Rover Cycle Company		8-h.p. Rover.
16	...	J. H. Deykin ...	...	6-h.p. Wolseley.
17	...	Cecil Edge ...	...	14-h.p. Gladiator.
18	...	Jersey de Knoop	...	24-h.p. Leon Bollée.
19	...	Wolseley Company	...	6-h.p. Wolseley.
20	...	C. S. Baynton...	...	10-h.p. Wolseley.

COACH v. MOTOR-CAR.

Before Mr. Justice Lawrance and a common jury, in the King's Bench Division, a case has been heard in which Messrs. S. Goff and Co., coachbuilders, Long Acre, W.C., sought to recover from Messrs. T. Tilling (Limited), jobmasters and omnibus proprietors, damages for injury to a motor-car. The defendants denied negligence and alleged contributory negligence. Mr. Salter, K.C., in opening the case, said that the old-fashioned coach and four was in fault, though, perhaps, the fact that the occurrence took place on Derby-day was a sufficient explanation. On that day the plaintiffs' manager, with a driver and three friends, went in the car to call upon a likely purchaser at Epsom. On arriving at Ewell they saw coming towards them "a mob of traffic" returning from the Derby, and, acting on instructions, the driver pulled up by the kerb on his near side and kept the car at a standstill in order that the traffic might pass. A char-a-banc was in the middle of the road, and a wagonette on the off-side, and when they got near the motor, a four-horse coach belonging to the defendants drew out from the back of the char-a-banc and attempted to pass to the front. The leaders got through, but the wheelers were unable to do so, the result being that the pole of the coach smashed into the motor-car, overturning it on to the pavement and practically wrecking it. After hearing evidence the jury found for the plaintiffs and assessed the damage at £230.

MOTOR-CAR v. BRIDGE.

In the City of London Court, the Regent's Canal and Dock Company have sued Mr. Walter Morford, of Hampstead, for £7 12s. for damage done to Renter's Bridge, Hendon, by the defendant's motor-car. On April 17th the defendant was crossing the bridge over the River Brent when his motor-car ran into the wooden parapet, carrying it away, the car, with the defendant and two friends, falling into the river. The passengers scrambled out as best they could and the car was removed the next day. The plaintiffs, having on them the duty of keeping the bridge in proper repair, now sued the defendant for the damage done. The defendant said that the bridge was a dangerous structure and, in fact, a death-trap. He had defended the action principally so that the public might be warned against the bridge. Mr. Bevan, plaintiffs' counsel, said that was a matter for the local authority and not for the plaintiffs. Owing to the greatly increased traffic since the bridge was built in 1851 it had probably become a nuisance, but that was not the plaintiff company's fault. Judgment was given for the plaintiffs for five guineas and costs.

NO NEGLIGENCE PROVED.

At the Marylebone County Court on Friday last week, before Mr. Fitzroy Cowper and a jury, John Whittaker, Shepherd's Bush, W., brought an action against Mr. W. Carpenter, Willesden Green, N.W., claiming £50 in respect of personal injuries, said to have been sustained through the negligent driving of a motor-car by the defendant. The plaintiff stated that on 19th April last he was riding his bicycle along the Barnet High Road, on his near side. On approaching the "Bull and Butcher" public-house, he heard the hooting of a motor-car behind him. A little further on a portion of the road was being repaired; there was, however, ample room for the motor-car to pass the bicycle. Plaintiff kept straight ahead, but a moment later the motor-car "bashed" into the back of the bicycle, knocking him to the ground. After the accident the driver of the car (the defendant) paid 10s. to the man who repaired the bicycle.

The defence was that the plaintiff "wobbled," and then stopped just in front of the motor-car; and that the 10s. was paid to the bicycle repairer on the understanding that defendant should not be called upon to pay more. The jury did not consider that negligence had been proved against the defendant. Judgment was accordingly given for the defendant, and his Honour allowed costs.

POLICE TRAPS.

A measured 220 yards at Whetstone, on the Great North Road, is utilised by the police for trapping motorists.

Motorists should remember that even the parks are not free from police traps. There is a measured distance in Hyde Park, and the Earl of Portarlington was caught therein the other day.

A MOTORIST ACQUITTED.

At Maidenhead, on Saturday, Stanley Noble, of the Swan Hotel, Lancaster Gate, W., was charged with feloniously killing a little boy named Thomas E. Overall. At the inquest on the boy on November 7, the jury returned a verdict of "Manslaughter" against Noble, who was alleged to have been the driver of the motor-car which knocked Overall down on November 4 at Hurley, causing his death four hours after from fracture of the skull. The Treasury prosecuted, Mr. F. I. Williamson appearing on their behalf, and Mr. Freke Palmer defended. The prosecutor called most of the witnesses who gave evidence at the inquest, and they repeated their testimony. The little boy Ridley, who was playing with Overall and another boy, failed, however, to identify Noble as the driver of the car. The prisoner was with his father in one of two cars which came from London to Henley, and passed the spot where Overall was knocked down about the time specified. After a long hearing the chairman said the magistrates did not consider there was a prima facie case to send for trial, and Noble was discharged.

CASES AGAINST MOTORISTS.

Place.	Summoned for	Fine.
Marlborough St., W.	(1) Beyond regulation speed in Hyde Park; and (2) not producing licence	(1) 20s., etc.; (2) 5s., etc.
Bow Street, W.....	(1) Beyond regulation speed in Green Park; and (2) not producing licence	£7 and 4s. costs for the two offences.
Hull	Obscured number	5s.
Coleshill	Driving dangerously	£10, etc.
Birmingham	Making unnecessary noise with motor-'bus outside King Edward's Grammar School	5s., etc.
Kingston	Beyond regulation speed in Richmond Park	£2, etc.
Highgate	Not producing licence	5s., etc
City of London	No lights	5s.
Saunders-foot	Refusing to stop when requested	£1, etc.
Penryn (Cornwall)...	Driving without licence	£5.
Newport (Isle of Wight)...	Driving furiously	Dismissed
Bournemouth	Dangerous speed	5s., etc.
Dundee.....	Reckless driving	£2, etc.
Wolverhampton.....	Reckless driving	£10, etc.

TO CORRESPONDENTS.

All communications intended for insertion in this Journal or relating to Editorial matters should be addressed to The Editorial Department, Motor-Car Journal, *39 and 40, Shoe Lane, London, E.C., and must be written on one side of the paper only. Letters must in all cases be accompanied by the name and address of the writer, as no notice will be taken of anonymous communications.*

The Editors cannot undertake to return MSS. or drawings, although every effort will be made to do so in the case of rejected communications. Where such are regarded as of value, correspondents are requested to retain copies.

To insure insertion communications and contributions must be in the Editor's hands by Tuesday forenoon of the week in which the same are intended to appear. Disappointment may be caused by non-compliance with this rule, and to avoid this earlier receipt, if possible, is necessary.

The Editors do not hold themselves responsible for the opinions expressed by their correspondents, or for statements and facts which do not appear in the editorial columns.

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THE

Motor-Car Journal.

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COMMENTS.



SO many sportsmen have ordered motor-boats for next year that a very busy season may be confidently anticipated. In our immediate circle we know of eight gentlemen who have decided to become owners of such craft, the delivery of orders to take place early in the 1905 season. There is no doubt that the pastime on the water will become as popular as on the land, and those who intend to enjoy its realisation at no too distant a date should not long delay making their wishes known to the builders of motor-boats, so that disappointment may not be experienced. The provisional Committee of the British Motor Boat Club has already got to work, and has a proposition before it to organise a motor-boat race on the Thames from Putney to Mortlake, just previous to the starting of the University Boat-race.

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Trials for Motor-Boats.

MEANWHILE arrangements for the second annual Reliability Trial for motor-boats fitted with internal combustion engines are well forward, and although the actual date of the event has not yet been definitely fixed, the provisional rules are now in circulation and may be obtained from Mr. Basil Joy, the head of the Technical Department of the A.C.G.B.I. There will be six classes, as provided by the Marine Motor Association regulations, with beam and freeboard restrictions as follows:—1. Yachts' dinghies (clench built) not exceeding 15 ft. over all. 2. Yachts' launches (clench or carvel) not exceeding 20 ft. over all. 3. Yachts' launches (clench or carvel) not exceeding 25 ft. over all. 4. Yachts' launches (clench or carvel) not exceeding 30 ft. over all. 5. Unrestricted vessels of any description propelled by internal combustion engines, and not exceeding 25 ft. over all. 6. Unrestricted vessels of any description propelled by internal combustion engines, and exceeding 25 ft. over all.

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Petrol on the River.

AT Monday's meeting of the Thames Conservancy Board a report was received from the Harbour Master of the Upper District stating that on November 23 last the sailing barge Dreas was moored off East Greenwich with 150 cases of motor spirit on board, and there was a fire in the cabin; that the spirit had been taken from a wharf at Silvertown, and the vessel was to complete her loading at Harrison's Wharf, Wapping, and then proceed to Sandwich. The Lower River and General Purposes Committee reported in regard to this matter that, as the petroleum bye-laws did not apply to the case, it being one of exportation, and having regard to the great risk, they had addressed communications to the Board of Trade and Home Office on the subject. A reply had been received from his Majesty's Chief Inspector of Explosives stating that he agreed that the case afforded another instance of the necessity for the amendment of the Petroleum Acts; that unfortunately the difficulties of getting an amending Act passed were very great, and it would certainly be impossible to bring in a Bill during next Session. In view of the gravity of the matter the committee had requested the chairman and the secretary to interview the Board of Trade thereon.

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Experts on the Bench.

THE idea of having nautical advisers to sit with the judge in the Admiralty Court when considering cases of an extremely technical nature is apparently to be adopted in other expert matters. It is one that commends itself to common sense, hence the diffidence with which it may be regarded by the legal profession generally. But the precedent set by Judge Addison at the Southwark County Court the other day is notable, and marks an advance that should be welcomed by automobilists who are unfortunate enough to be engaged in litigation. The judge was hearing a case in which the defendant was sued for the price of work done to a motor-bicycle, and several points of a technical character were introduced. To thoroughly understand these his Honour invited a motor expert to sit with him and explain the technicalities that were raised. With such help he was better able to understand the intricacies of the case—a procedure of novelty and value.

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The Renewal of Licences.

IN the month of January last about 12,000 licences were issued to drivers of automobiles. These will have to be renewed shortly, a fee of 5s. accompanying each application for a renewal. In view of the fact that the work entailed by such a task will be exceptionally heavy in London, the Clerk of the L.C.C. has suggested to licence-holders in his district that the renewal should take the form of a separate document to be attached to the existing licence. He recognises that some time may be occupied in the process of renewing licences at the office, and that some inconvenience would probably be caused to the holder of a licence if he did not have it in his possession when required by the police. Hence the suggestion that a separate document to be attached to the licence will save possible irritation to motorists in London.

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A Scottish Conference.

AN important conference has taken place between the Secretary for Scotland and the Perth County Road Board with reference to proposed regulations for prohibiting or restricting motor-car traffic in the county. After the representatives of the various districts had spoken their minds—and some of them were very emphatic in the expression of their views—Mr. R. J. Smith, the hon. secretary of the Scottish Automobile Club, elicited the fact that restrictions were to be permitted in some populous places and at some dangerous crossings, in addition to the closing of the Trossachs road. He went on to suggest that the Act should have a further and more extended trial and that greater value should be placed on Section 1 of the Act, combined with a judicious use of caution boards. His Club did not oppose restrictions which were

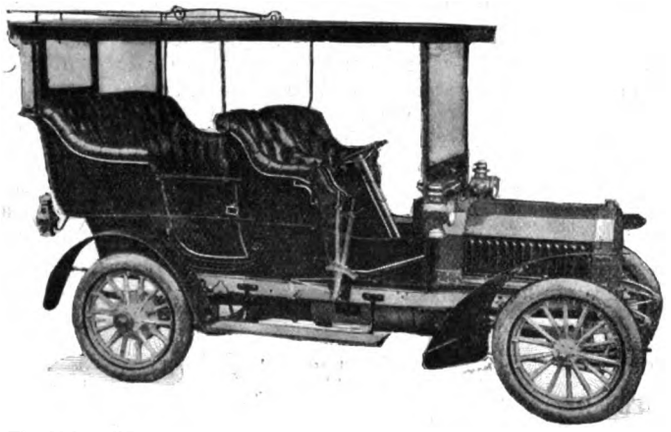
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regarded as reasonable, but they did desire uniformity in practice throughout Scotland. Mr. Robb also made a strong plea for a reasonable attitude on the part of the local authorities, being supported in this by Mr. Jeffreys, of the A.C.G.B.I.

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Views of the Secretary for Scotland.

MR. GRAHAM MURRAY, in his reply, did not disguise from them that he thought a good many people had taken a wrong view of the fact. They had treated the matter as one of local option. It was not that, for this very simple reason, that one talked of Perthshire roads because they were in Perthshire and were kept up by Perthshire rates, but they were really His Majesty's roads, and every citizen of the United Kingdom had as much right to use them as anybody in Perthshire. One remark was made that day with which he agreed as being of the highest importance, and that was that, so far as possible, the practice should be uniform. Of course it could not be uniform in the sense that circumstances in different portions of the Kingdom varied very much, and as circumstances varied the application of principles should vary. But that one should go on a certain determinate line was absolutely necessary for everybody's advantage and convenience. Accordingly, with that view, he came down and perambulated the roads, not really so much for his own information, because, if he might say so, he was rather



The 20-h.p. "Dennis" Car, with Roi des Belges body, recently supplied to Sir Alfred Watkin, Bart.

interested in the roads in Perthshire, and had driven over them all his life. Nothing but extreme necessity would justify the shutting of a road altogether, and in the question of applying the ninth section the test was whether practically, in all circumstances, it would be wrong to have more than ten miles an hour, because, so far as the actual interfering with or taking up of the person driving to the danger of the public was concerned, the principal weapon in the hands of those having anything to complain of in the way of reckless driving was section ten. He had to consider the suggestions made to him with regard to particular places; at the same time he had not heard anything that would in any way make him depart from the carefully considered opinion he had formed on the general principle. He should see that the actual determinations were given to them very soon.

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General Advice.

PASSING on to the general question, the Secretary for Scotland observed that those who had a great dislike for motors must not think that he did not have a considerable deal of sympathy with those who had to suffer from what was a new and in many cases a terrifying form of locomotion. The only hope he could give to those people was that no doubt time would to a great extent cure that. Within a radius of fifty miles of London horses were now accustomed to motor-car traffic, and it was almost unknown for them to take any notice of them. Out of that radius many horses were frightened. They had suffered terribly in the past from the very inconsiderate behaviour of a great many people who had charge of motor-cars. That was almost inevitable, especially in the case of hired servants; but he hoped there was already a considerable improvement in that matter, and he was sure there would be a still greater improvement in the future. The other remark he would like to make was with regard to the boards that should be put up. He suggested to the County Council that as far as possible the boards should be put up on a particular side of the road. That, he understood, was dealt with in the Scottish Office regulations, and no doubt would be attended to. The great thing was to put the boards where they would be seen, and that, he thought, would really solve the night problem as well, because, although the lights spoken of might be a bit annoying in their way, they would have great power in allowing motorists to see the boards.

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Improving the Roads.

FROM Falmouth we learn that the county authorities have ordered that all main roads in the county of Cornwall shall be steam rolled in future, and apparently such erring bodies as the Helston Rural District Council, whose shortsightedness led to the closing of the Great Western Railway public service a few weeks ago, will have to be reasonable. Just as some of the most prosperous seaside towns have seen well to advertise their merits and devise popular attractions, so the county authorities can do something to promote the prosperity of the country-side by seeking to draw motorists and others to their main roads. Thus there is real economy in such an expenditure.

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The Dust Nuisance.

THE weather of the last few days has robbed the address of the Hon. J. Scott Montagu, M.P., to the A.C.G.B.I. on the dust problem of much of its appropriateness at the present season. But in the greater part of the year the question of dust is a pressing one, especially when the winds blow strongly. We need not dwell upon the advisability of laying the dust, but would rather pass to the palliatives mentioned by Mr. Montagu. Many local authorities had made experiments, and although great benefits had been secured for a time, they were only temporary, and the cost of frequent renewal would be prohibitive. It had been observed, however, by the medical officer of health of Edmonton that in the area treated with one of these palliatives there had been a marked decrease of summer sickness among children. It was, of course, common knowledge that much of the disease of towns arose from the dust in the air, and those who advocated the construction of dustless roads could do so on the ground of the health of the community, and quite apart from any question of automobilism.

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Palliatives.

HE explained that road authorities when relaying and repairing road surfaces would not find it much more expensive to employ some dustless preparation such as tarred slag than the ordinary quartzite or granite at present used. Where it is not possible to so relay or repair the roads, he suggested that some such preparation as Westrumite or Akonia should be employed. Watering should be at once stopped, as it was most destructive to the road surface and binding material, entailing thousands of pounds in repairs. The different experiments which have been tried with fluids and tar preparations were then dealt with, the speaker advocating the adoption of a permanent cure wherever possible. To all appearance the material known as "tarmac," invented by Mr. E. P. Hooley, county surveyor of Nottingham, promised to provide an entirely satisfactory road. It consisted of slag steeped, as it came hot from the furnaces, in tar, which it absorbed until it was entirely permeated. This had been laid down in several places, and bade fair to justify the claim made for it, that it would cost little

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more to use, would effect a saving in cleaning, and would last five to ten times as long as the ordinary roads.

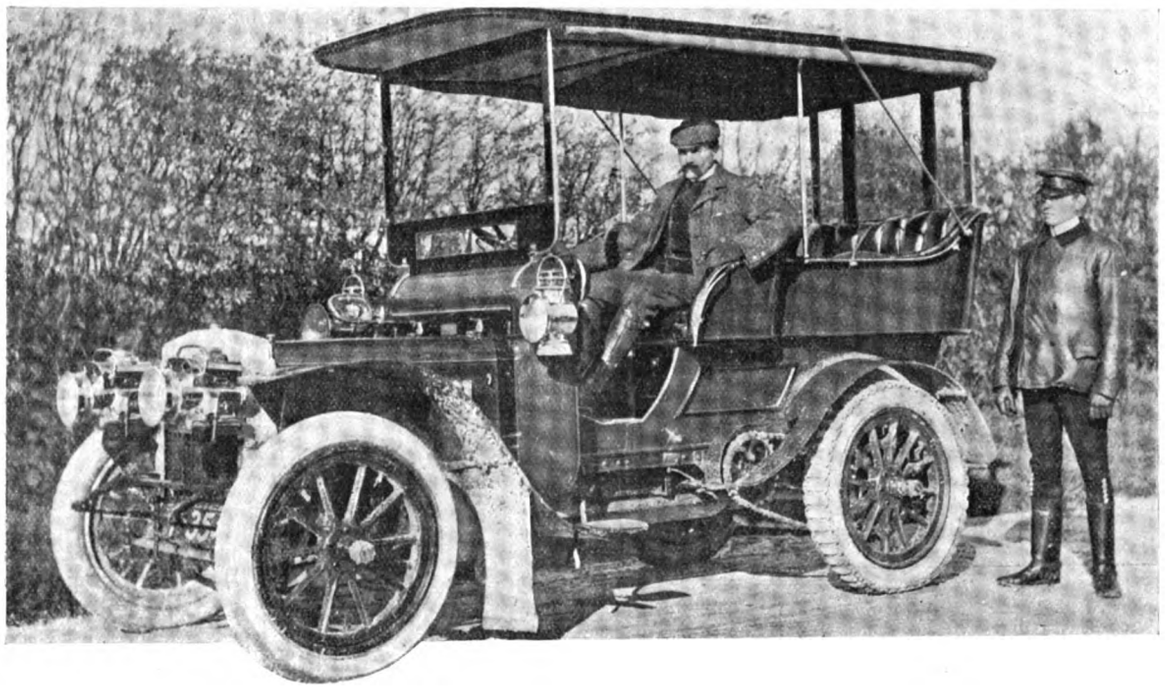
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Provincial Clubs.

THE Yorkshire and Nottingham automobile clubs have been holding most successful annual festive gatherings. At the latter, the resignation of Mr. A. R. Atkey, who has worked loyally for the movement as hon. secretary, was made public, to the great regret of the members, who were prompt to testify to their esteem. At the Yorkshire gathering Mr. A. M. Bosville, who was in the chair, touched upon the controversy as to British and foreign cars, which has lately excited so much discussion in our columns. "We want," he said, "a giant of designers; we want a Stephenson and Brunel for the motor-car industry of this country. Then, with English work and English business push, there is no reason why the market should not turn round, and why English motor-cars should not be the best in the world." In the meantime, we can only go on telling manufacturers that people nowadays take speed,

Revision Necessary.

SUCH is the law, which, in this case, is a very different thing to common sense. According to the Act the general identification mark "may be used for any car on trial after completion or on trial by an intending purchaser." The intention evidently was that the mark should cover motor vehicles running for the sake of sale, and those which were merely the stock-in-trade of the dealer. But the way in which some magistrates have strained the Act has made it dangerous for firms to send their vehicles out at all. "On trial after completion" is a term which might well be construed as "until sold," and the general identification mark be regarded as sufficient registration. In the case of a trader who has had a vehicle in his showroom a week or two it is natural that he should want to run it upon the road before risking it with a probable purchaser. This, according to the view of some magistrates, may not be done with safety—an anomalous position that should be considered when the revision of the Act takes place.



Mr. E. C. Wills on his car in a Bristol Bye-way. (See page 848.)

hill-climbing, reliability, and all that sort of thing as absolute matters of course. What they want to turn their attention to are such things as silence, ease of control, and, above all things, the high-bred paces of a motor vehicle, and the luxurious fittings of the car.

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Private v. Trade Cars.

EVEN after nearly a year's experience there seems some confusion in the minds of many motorists as to the right use of cars bearing the general identification mark that registering authorities are permitted to issue by the Motor Car Act. In a case just heard in a London police-court the defence was that a car had been used for testing purposes and trial runs bearing the general identification mark. It was acknowledged that such a practice might have been indulged in for months. The magistrate pointed out that the Act of Parliament said nothing about using cars for testing purposes. They must be used with a general identification mark only when on trial with an intending purchaser, or on completion, but when used as the defendant had used the one in question they ought to be registered as private cars.

Universal Lights.

A DEPUTATION from the General Committee of the Motor Union will be received at the Home Office on Tuesday next, with regard to the universal lighting of vehicles on the roads. This is a subject that is fast becoming of prime importance to all who use the highways, and now that automobiles have to carry lights it seems but reasonable to require that the slower moving vehicles be similarly discernible at night. Legislation in this direction would be generally welcomed.

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Influence of Motor-car driving on Character.

A PATHETIC letter from the wife of a motor driver has reached us, in which the writer says that until her husband became a *chauffeur* he was kind and steady in his character; now, after a year's experience as a motor-car driver, he has become wayward, dishonest, irregular in habits, and is possessed of many bad qualities that were never previously suspected in his conduct. She is afraid that frequent absences from home have disturbed his nature and altered his disposition. There is no doubt that motor car driving with employers who require frequent

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stays in the country does unsettle men, and hence such places are best filled by single men. Such service is necessarily irregular and cannot be subordinated to any time-table. It may therefore be quite possible to imagine that matrimony is a state ill suited to some mechanicians who are likely to be frequently from home.

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The Tourist Trophy.

THE commission of the A.C.G.B.I. appointed to suggest regulations for the organisation of a competition for the Tourist Trophy have reported in favour of the event being held between May and October in each year. The contest will take the form of a race for touring cars with a limited quantity of fuel, the distance to be not less than 150 nor more than 250 miles. The fuel will be petroleum spirit of a specific gravity of 0·695 to 0·705 at 60 deg. F. The weight of the *chassis* allowed will range from 1,300 lbs. to 1,600 lbs.; the load to be carried, including passengers, being not less than 950 lbs. Not more than two entries from one maker will be allowed, and the Commission recommend that the first race shall be held in the Isle of Man during September next.

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Mr. Gordon Stewart, J.P., Chief Officer of the Johannesburg Fire Brigade, on his 6-h.p. De Dion-Bouton Car. A small fire extinguishing apparatus is carried on the Car.

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An Australian Trial.

SOME thirty cars are expected to participate in the motor-car reliability run to be held from Sydney to Melbourne during February of next year The event is already attracting considerable interest throughout the colonies, as it will be the first great effort organised on lines which have been familiarised at home for some years. The entries are to close on the 28th January, and the itinerary with the time and speed allowances will be as follows:—Sydney to Goulburn, 129 miles. Heavy cars (over 1,200lb.),8 hr. 45 min. (average speed 15 miles per hour); light cars (1,200 lb. and under), 10 hr. (average speed 13 miles an hour). In each class 30 min. will be allowed contestants to drive from Sydney to Ashfield (five miles). No car will be permitted to leave Ashfield before expiration of half hour. Goulburn to Gundagai, 121 miles. Heavy cars, 6 hr. 45 min. (18 miles per hour); light cars, 8 hr. (15 miles per hour). Gundagai to Albury, 121 miles. Heavy cars, 7 hr. 30 min. (16 miles per hour); light cars, 8 hr. 40 min. (14 miles per hour). Albury to Euroa, 101 miles. Heavy cars, 7 hr. 15 min. (14 miles per hour); light cars, 7 hr. 50 min. (13 miles per hour). Euroa to Melbourne, 100 miles. Heavy cars, 6 hr. 15 min. (16 miles per hour); light cars, 7 hr. (14 miles per hour). The total run will thus be 572 miles.

Motor-Cars in War.

ACCORDING to Reuter, General Kuropatkin has acquired a new 20-h.p. automobile, with which he is enabled to rush at high speed from one place to another along the Russian line, which is twenty-five miles long. M. Ravoir, an automobile expert, who has reached Chefoo from Mukden, states that he spent three weeks with General Kuropatkin, who wished to secure twenty motor-cars specially constructed to carry ammunition speedily in case of emergency. These cars will only be used in winter, when the Manchurian roads are excellent. In view of the distances between various points at which the army is located we should have thought the value of the motor-car would have been recognised before now.

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Motor-'Buses.

MOTOR-'BUS services are evidently to be a success financially as they are from the point of view of public convenience. Previously we have referred to the profits of the Hastings service. Recently illustrated reference was made to the vehicles in the Eastbourne services, and now comes news that the Torquay Motor Omnibus Company is able to pay five per cent. dividend as the result of the first year of operation. The 'buses have provided better means of locomotion than hashi herto been known in the district, while the selected routes have been a recognised matter of public convenience. Mr. Fuller, the engineer of the company, is to be congratulated on the way in which the service has been run, and there is no doubt that the punctuality of the cars and the civility of the drivers are two essentials in such a service. From another part of England we have a complaint that these two features are absent from a motor-'bus service recently developed, and we would take this occasion to suggest to our erring friends that if they wish to emulate the financial prosperity of the Torquay Company, they will have to be as keen in these matters as are the directors of the Devonshire concern. New motor-'buses are to be put on the road at Torquay next season, and there is no doubt that the town will share in the general automobile revival that seems to be taking place in the west of England.

TWO meetings of the committee appointed to inquire into the use of duty-free alcohol for industrial purposes have been held this week.

ON page 844 Mr. Percy Richardson raises an important question with regard to the control of motors, upon which the views of readers are invited.

A NEW arrangement of the work of the officials of the Automobile Club has lately been made. Mr. J. W. Orde is now the secretary, Mr. W. Rees Jeffreys the head of the legal department, and Mr. Basil H. Joy the head of the technical department.

MESSRS. WEBSTER AND CO., County Motor Works, St. Albans, have taken over the premises occupied by the Ormonde Cycle and Motor Company, Limited, for many years in Wells-street, Oxford-street, London, W. The premises are well adapted for garage purposes, and will enable Messrs. Webster to greatly extend their already large connection. We understand the St. Albans business will still be retained, and motorists passing through the cathedral town will find the works well prepared for any trouble that may occur.

AT a meeting of the Highland District Committee of Perth County Council at Logierait, Sir Donald Currie has called attention to the necessity for stringent regulations applicable to motor-car traffic for the narrow portions of the roads in Glenlyon district, on which accidents have already occurred. It was agreed to take no action. A similar decision was made regarding a complaint by Sir Donald of the danger to motor-car traffic through the dilapidated condition of the protection wall of the Rannoch Road from Keltneyburn to Whitebridge.

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The Paris Motor-Car Exhibition.



Le Grand Palais, Paris. The Locale of the Exhibition.

THE seventh annual Salon d'Automobiles, which is to be officially inaugurated in Paris to-day (Friday), will remain open until Christmas night, during which time it will be visited by motorists and motor traders from all parts of the world. As was foreshadowed a year ago, the huge Grand Palais at the corner of the Champs Elysées and the Pont Alexandre III. has become too small for the annual display, the motor-boats and the machinery in motion having this year been relegated to the "Serres" or the Horticultural Palaces, which formed part of the 1900 Exhibition, and which are located close to the Seine. The Grand Palais itself has for about a fortnight been in the hands of a vast army of workmen, the results of whose labours are seen in the magnificent display now housed under the roof of the Grand Palais. As usual, the leading builders of motor-cars have vied with each other as to who shall have the best decorated stand, the result being that the general aspect is, if anything, more brilliant than ever. The Krieger stand, for instance, takes the form of an Egyptian temple, that of the Darracq Company represents an Arabian gateway, while that of the Richard-Brasier Company is surmounted by two striking paintings, one representing a car travelling at full speed, and the other a motor-boat on the Seine. The show is a veritable Babel of languages, the visitors emanating from all parts of the world. Great Britain and Ireland are well represented, and, in fact, to give the names of those from this country who are attending the Salon would mean the production of a directory of all the leading British motorists and motor traders. This week we are forced to content ourselves with a description of the exhibits of two or three well-known firms, but, in accordance with our usual practice, a full account of the novelties and 1905 models of the leading concerns, based on personal observation, will be given in the next issue of the *Journal*.

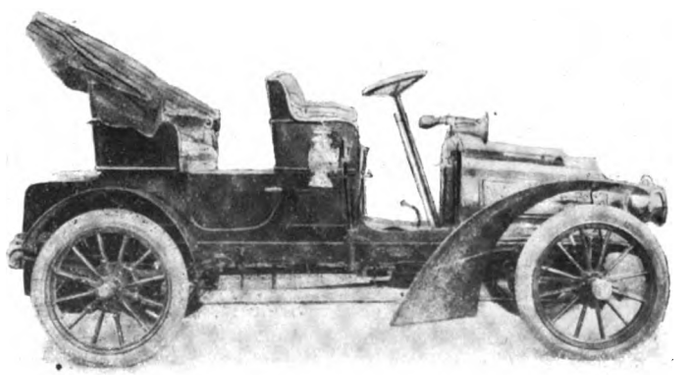
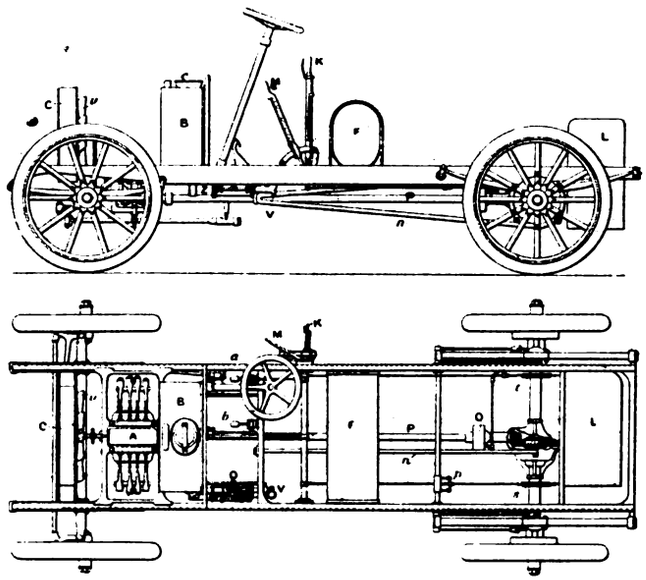


Fig. 1.—The New Serpollet 9-h.p. Steam Car.

The Gardner-Serpollet Co.'s principal exhibit is a new 9 h.p. steam car which outwardly bears a close resemblance to a petrol vehicle. As will be seen from the plan and elevation (Figs. 2 & 3), the engine and fuel and water feeding arrangements are located in the fore part of the frame under a bonnet, the raising of which gives ready access to the various parts. The engine, which comprises four horizontal cylinders—two on each side of the crank-shaft—is now placed across the frame, the power being conveyed to the rear axle by a cardan shaft and bevel gear, in place of the single chain drive of last year. The old condenser and its piping have been replaced by a radiator placed in the front opening of the bonnet, a strong current of air being drawn through the same by means of a fan driven by a chain off the engine shaft. The steam generator is enclosed in a chest at the rear, and is hardly noticeable; its weight and volume is much smaller than hitherto, these advantages being a result of an improvement in the fuel-burning arrangements. Ordinary petroleum is, of course, used as fuel, and provision is made whereby the pilot burner may be kept going for days together on a very low consumption and without danger to the tubes of the generator. The fuel and water feed to the generator is controlled by pumps Q (Fig. 3), actuated by a small steam pump controlled in turn by a small lever on the steering column. Fig. 1 illustrates the four-seated side-entrance double phaeton, which, complete with fuel and water ready for the road, weighs under 17 cwt. One advantage of placing the engine in front is that the load is now about equally divided on the front and rear axles, the weight on the hind wheels being approximately 9 cwt. A two-seated car on similar lines is also being made, the *chassis*

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being adapted to receive different types of bodies, a popular type being an entirely closed one, driven from inside, and intended for the use of doctors and commercial travellers. Examples of the Serpollet 15-h.p., 40-h.p. and 60-h.p. steam cars are also to be seen at this stand, these, together with the new 9-h.p. vehicle illustrated herewith, forming the four types the



Figs. 2 and 3.—Elevation and Plan of new Serpollet 9-h.p. Steam Car.

A Engine.
B Water tank.
C Condenser.
F Fuel tank.
K Brake lever.
L Generator.
M Engine reversing lever.
P Cardan shaft.

Company is building for the 1905 season. All lovers of steam cars will be pleased to see that M. Serpollet is determined to keep on improving his system. Each year has marked an advance, and the simplification of the working now accomplished in the new 9-h.p. car is one of the most important so far recorded.

The Buchet Company, of Levallois-Perret, gained a reputation at an early period in the development of automobile motors, as builders of extremely light and powerful motors, of which they have furnished quite a number for aeronautical purposes. They are also the originators of the Buchet "culasse," a cylinder head into which the valves open directly from above. Lately they have also brought out

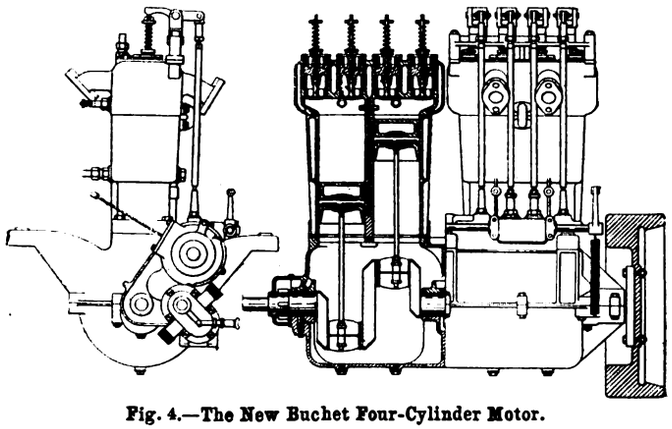


Fig. 4.—The New Buchet Four-Cylinder Motor.

a motor with mechanically-operated inlet and exhaust valves in a chamber at the side of the cylinders, but still retaining the old type with valves in the head, the latest form of which is illustrated in Fig. 4. It will be noticed that the cylinder head is cast separately and bolted to the cylinder casting; each part has a separate water jacket, the two jackets being placed in communication by a short outside tube in the form of a U. The waterspace in the heads entirely surrounds the valves, and in order to obtain room for large valves, the heads are bulged out beyond the cylinder wall at the sides. The valves are arranged in cages and can be removed as a whole. It will be noticed that the part of the stem near the head is very large in diameter, to guard against the head of the valve breaking off and dropping into the cylinder. Besides, if the inlet valves should break, they would apparently be caught between an internal flange and the sparking plug end, and could not drop on the piston. The valves are all interchangeable and mechanically-operated by means of rocking levers, or tappets, and long push rods extending up one side of the cylinders. The engine speed is controlled by varying the lift of the inlet valve by means of mechanism associated with the cam gear, which is normally held in the position of small lift by a spring, one end of which is secured to the crank case. The crankshaft has two outer and one intermediate bearings, all of the ring self-oiling type. The cam gears, cams and ignition contact maker are enclosed in separate cases at the end of the crank chamber, and the water-circulating pump forms an integral part of the engine and is driven by gears direct. The

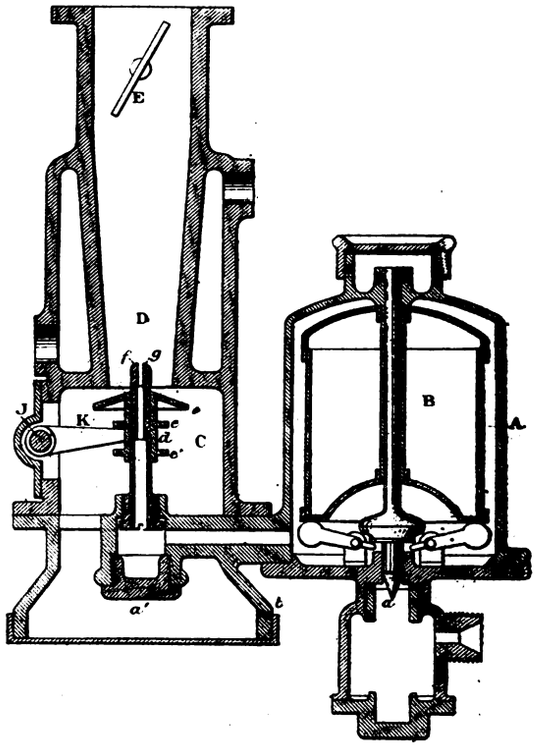


Fig. 5.—Section of Gobron-Brillie Automatic Carburettor.

motors are made in two sizes, 16 and 24-h.p., and also as two-cylinder motors of half these powers. The speed varies from 1,000 to 1,200 revolutions per min. The Buchet Company are also making a range of air and water-cooled single-cylinder motors varying in power from 2¼-h.p. to 5-h.p.

For the 1905 season the Société des Automobiles Gobron-Brillié is confining its attention to two sizes of cars, viz., 25 and 35-h.p. In both the frame is of pressed steel construction with a shield extending from the forward end well to the rear, to protect the engine and clutch from mud and dirt. The familiar Gobron-Brillié motor, which has two pistons in each of the four cylinders, is retained, the explosions taking place in a central combustion chamber. The four cylinders are cast in two pairs: the valves are all mechanically operated and interchangeable, the inlets being on the opposite side to the exhaust. Both accumulator and high-tension magneto ignition are employed, these being so arranged that either may be brought into use by means of a switch. The pump, magneto, and carburettor are all mounted directly on the engine. The water circulation is maintained by a gear-driven pump, and a ribbed radiator set in a frame forming the water tank. A new automatic carburettor forms one of the features of the latest

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Gobron-Brillié cars. From the sectional view of the device given in Fig. 5 it will be seen that it consists of a float-feed chamber A and float B, actuating the usual form of needle valve, admitting petrol to the jet *f*. The fuel passes through a gauze filter upon arrival beneath the chamber *a*, which is formed with a catch pit, into the bottom of which all impurities can sink. Another catch pit *a'*, of similar form, is seen beneath the jet. Air reaches the mixing chamber D through the gauze at the bottom of the chamber *b*. Around the spray jet tube is placed a sliding mushroom valve, opposed to the narrow opening at the bottom of the mixing chamber D, and this valve is connected up to the spindle of the throttle valve E by means of the arm K, the spindle J, and an external arm, rod, and cam device. The throttle valve E is controlled by the engine governor, and the mushroom valve C moves in such proportion therewith as is permitted by the shape of the external cam. The shape, angle, and movement of the valve C are so designed and arranged that for every variation in the piston speed of the engine such suction is produced over the jet that the delivery of petrol is infinitesimally varied, so as to obtain perfectly proportionate carburation. The mixing chamber D is provided with a

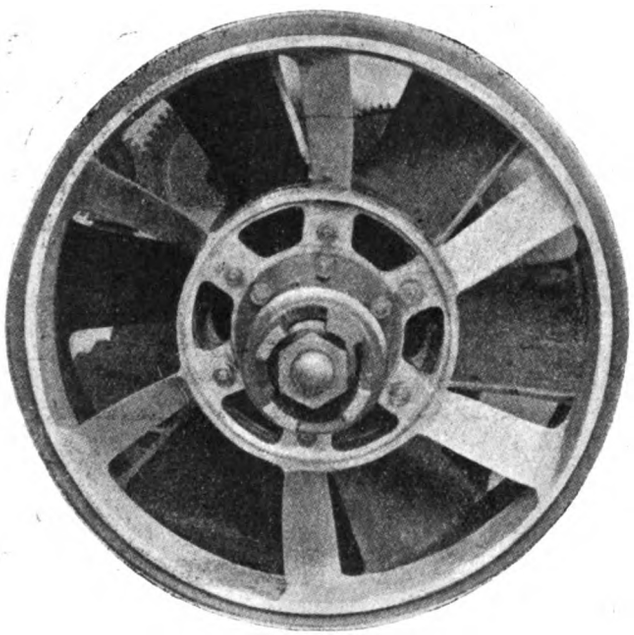


Fig. 7.—The Gobron-Brillie Double Clutch.

jacket through which hot water is caused to circulate. Once adjusted, the carburettor is permanently set, and no variation is possible. This type of carburettor was, we understand, used on the Gobron-Brillié cars which have competed in this year's races in France and Belgium. The clutch (Fig. 7) is of new design, being practically in duplicate, there being two cones. The smaller one, which is metal-to-metal, engages first, followed by the engagement of the large one, the cone of which is leather-faced. Both clutches are controlled by the same pedal; the advantage of the arrangement is that the engine is put into gear without shock, while, to further reduce any strain on the gear-box, a universal joint is introduced between the latter and the clutch. Four speeds forward and a reverse are provided, with a direct drive to the countershaft on top speed. The gear-box and countershaft are so arranged that they can be detached from the *chassis* without the body having to be removed, and can be readily replaced in their proper position. The wheel base of the cars is of such a length as to permit of side-entrance bodies being fitted, the cars exhibited including several excellent specimens of the motor-carriage building art.

THE Herald Motor Manufacturing Company, Limited, has been registered with a capital of £100. The first directors are Messrs. T. M. C. de Bingham and P. A. E. Wood.

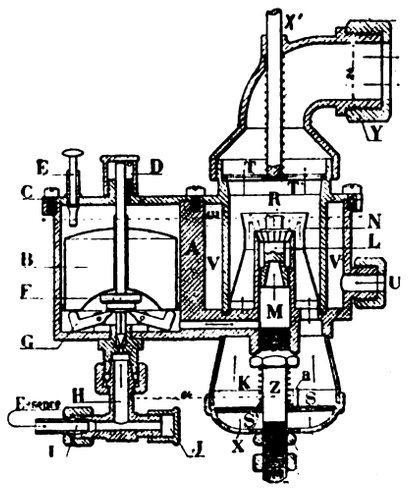
MOTOR CYCLING NEWS.

DURING the last summer Mr. F. P. Driver, of West Hampstead, successfully completed a 900 mile tour on his Phœnix Trimo. He took the machine over the worst hills in Cumberland and succeeded in riding up Kirkstone Pass from the Penrith side. The pass rises 1,000 feet in 2½ miles and 800 feet in the last mile and a half, the gradients in many parts being one in eight.

AT the annual dinner of the Auto-Cycle Club last week Colonel Holden presided. Mr. S. F. Edge, in proposing the toast of the evening, reminded those present of the existence of the Motor Cycling Club, which was first in the field. He paid a tribute to the work of the Auto-Cycle Club, and, after the presentation of prizes to the winners of the various competitions during the year, it was announced that Mr. Edge had offered 100 gs. towards a fund for the promotion of a motor-cycle Gordon Bennett contest.

THE first long-distance motor-cycling race held in the Commonwealth was successfully carried out in Western Australia on October 8th. The race was from Beverley to Perth, a distance of 116 miles. The number of competitors was small, but it comprised the leading motor-cyclists in the district. The winner was F. Mallabone, on a 2-h.p. Minerva motor-bicycle, who received 30 minutes start, and covered the 116 miles of indifferent road in 5 hrs. 41 min. 30 sec., which gives an average speed of nearly 20 miles an hour. D. Jewell (20 min.) ran second on a 2¼-h.p. machine, his time being 5 hrs. 36 min. 14 sec. R. Ward (30 min.) finished third in 6 hrs. 58 min. 35 sec. on a 2-h.p. machine.

FOR the 1905 season a new form of the Longuemare carburettor for the engines of motor-cycles has been brought out in which the greatest change from last season's type is to be seen in the vaporising compartment. The conical air adapter and the spraying nipple with varying numbers of slits is still retained. The shutter, which made the apparatus semi-automatic, has, however, been discarded, and a spring suction air inlet S substituted; it will be readily understood that the faster the engine runs, the



further the disc S will be lifted off its seat. There is no additional air inlet provided above the spray, all the air entering at S and passing the spray at varying speeds, according to the lift allowed by the spring K. The throttle is quite new, and now consists of a rotating disc T, held to its seat by a spring and rotated by the rod X'. Over the rod is screwed the cap through which the rod X', works in a guide. The union nut Y is connected up to the admission pipe in the usual way.

MR. E. A. LIVET, who is well known in the motor trade, and who at one time was responsible for a Kentish motor service, intends to startle the amusement-seeking people of the metropolis by shortly appearing at a West-end music-hall and turning a complete somersault with a motor-car of about 5-h.p.

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THE "SIMPLEX" ELECTRIC IGNITION.

—♦—

WE are now able to publish details of the new system of electric ignition for petrol motors, reference to which was made in the *Journal* of the 15th October. The rights in the arrangement, which is due to Mr. A. McLeod, of Fulham Road, S.W., have since been acquired by the Kennedy Motor Company, Limited, of Cathcart, Glasgow, which is about to put the ignition on the market. As has already been stated, the system may be briefly described as a cross between the jump spark of the high-tension ignition with coil and accumulators and the make and break of the magnets. To provide the spark required at the proper instant the circuit includes two breaks, one of which is the usual contact maker on the half-time shaft, and is normally open, while the other is inside the combustion chamber and is normally closed. When the circuit is closed at the contact maker, the current energises an electromagnet included in the circuit, and by means of the consequent attraction against the force of a spring of a soft iron armature attached to one of the contact pieces of the internal break, the latter is opened and the spark due to the so-called "extra current" of the induction circuit is produced and ignites the charge, a series of such sparks taking place during the time that the external break is closed.

Referring to the accompanying illustrations Fig. 3 is a plan of the apparatus, in which the ignition circuit and external

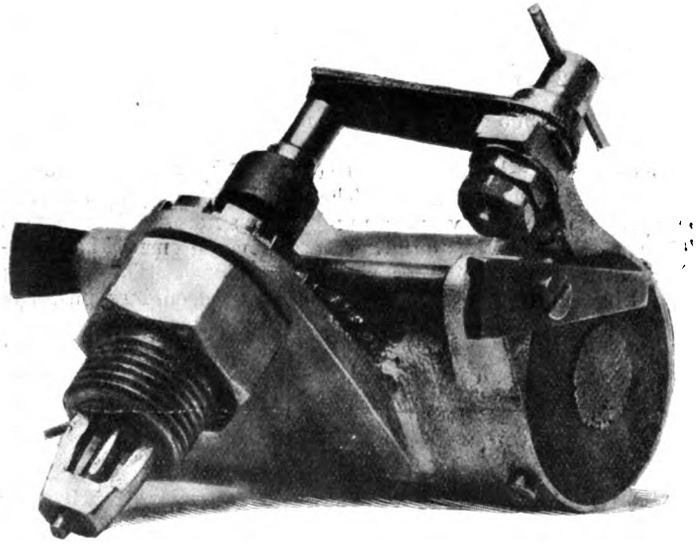


Fig. 1.—General View of Electromagnet and Plug.

break are shown diagrammatically; Fig. 2 is an elevation; Fig. 4 sectional details showing the arrangement of the sparking plug which forms the internal break; and Fig. 5 a diagram showing an arrangement of the contact maker or external break for a four-cylinder engine. The circuit includes a battery A, consisting usually of four two-volt cells, one terminal of which is in connection with one end of a small coil C, and the other earthed through a contact maker B, the plug F being also earthed. The other end of the coil, which encircles a soft iron core C^1, is connected by the arm D with the platinum-pointed spring piece D^1, which is clamped between the arm D and a bracket E, fixed to, but insulated from the iron casing E^1, enclosing the coil, and is backed by a second spring D^2, which acts as a yielding stop to limit the travel of the movable electrode H. The ignition plug F, clamped to a projecting part of the casing E^1, by means of the nut F^1, is formed for screwing into the explosion chamber in the usual way, and has a central plug G (Fig. 4), of insulating material through an axial hole in which passes a rod H, of hardened steel. On the one end of the rod is adjustably fixed a contact piece terminating in a steel ball H^1, which abuts against the platinum point of the spring D^1, and is urged forward by it so as normally to hold the other end of the rod H in contact with the bridge piece K^1, formed integrally with the body of the ignition plug. The springs D^1, D^2 are so pivoted by a set screw D^3 between the arm D and the bracket E that they may be turned to one side and the sparking electrode H instantly removed or replaced when desired. The armature of the electromagnet C consists of a soft iron or steel rod L journalled in the casing E^1 and having fixed at right angles to its ends and in the same plane with each other and the rod L two bars or fingers L^1 of similar material. These fingers, which are long enough to reach beyond the centre of the iron core C^1 and are formed with balancing extensions L^2, are

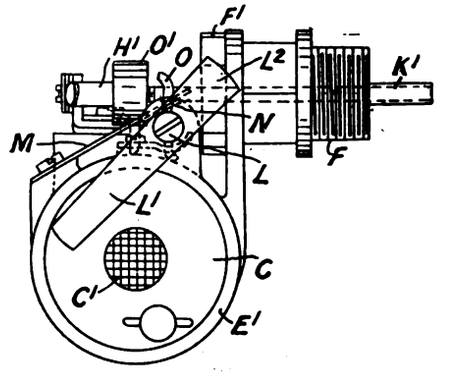


Fig. 2.—End Elevation.

normally held displaced to one side of the core by means of a spring M fixed on the coil casing E^1. The spring M engages with a reaction piece N fixed on the rod L, in a slot L^2, in which is pivotally mounted a pin O, one end of which projects upwards behind a collar O^1, made of insulating material and fixed on the rod H. The other end of the pin O travels in a cam slot O^2, formed in the casing E^1. The slot is shaped so as to constrain the point of the pin O which encounters the collar O^1 to travel in a substantially rhomboidal path during the movement of the armature of the electromagnet, with the result that when the armature is attracted a positive rotation is imparted to the collar O^1,

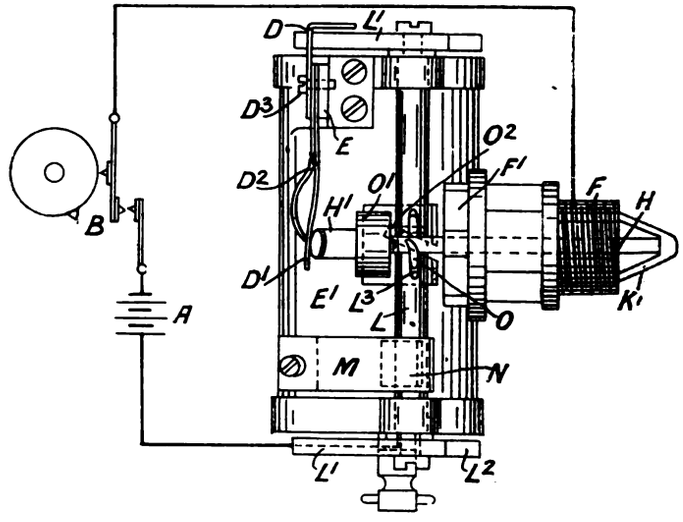


Fig. 3.—Plan.

and therefore to the rod H, the object being to equalise any wear on the inner end of the rod. The eccentric engagement of the pin O with the collar O^1 causes the latter, and with it the electrode H, to turn through a small angle each time the electromagnet is energised, the regular wear of the sparking surface thus secured not only increasing the life of the electrodes but also the certainty of their action. The arrangement of the spring M and reaction piece N is such that the armature is able to oscillate on either side of its normal position of rest, while the balancing of the armature renders it practically unaffected by

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engine vibrations, and therefore minimises the chance of a mis-fire resulting from such vibration.

Passing now to the action of the apparatus, when the contact maker B is open the sparking electrodes H, K are held in contact by the spring D^1, but as soon as contact is made at B the electromagnet is energised, the fingers L^1 of the armature are attracted towards the centre of the core C^1, thereby turning the rod L in its bearings so that the pin O pressing against the collar O^1 forces the electrode H backwards against the spring D^1 and causes a break in the circuit at the inner end of the plug, resulting in an enormous spark at that point, due to the

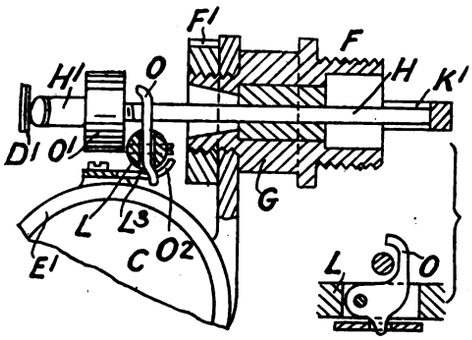


Fig. 4.—Sectional View of Plug.

so-called "extra current." The electromagnet again becoming de-energised the spring M returns the armature to its normal or unattracted position and the spring D^1 tends to close, and if there has been no ignition of the charge in the cylinder, will close the break at the electrodes H, K and the electromagnet will again become energised if the contact is still made at B. The time of contact at B can be varied within wide limits, but even the least time of contact obtainable by mechanical means is long enough to produce a series of "breaks" and "makes," and therefore a series of sparks, at the electrodes H, K. As soon, however, as the combustible mixture has been ignited, the resulting pressure in the cylinder forces the rod H outwards against the reaction of the spring D and holds the electrodes H, K out of contact long enough to keep the circuit broken at H, K until it is again broken at the contact maker B. In the case of two, three, or four cylinder motors, each cylinder is provided with its own coil and plug, worked off the one battery, through a special contact maker, that for a four-cylinder engine being shown diagrammatically in Fig. 4. One element P of each of the contacts is connected to one of the poles of the battery A, and these elements are arranged to be successively displaced by a moving part of the engine so as to be brought into contact with its fellow element Q, each of which is connected to one end of its corresponding coil. There is thus no high tension wire, the only wires in a four cylinder engine being a short one earthing one terminal of the battery, another short one from the terminal of the accumulator to the contact maker, and one from each of the contacts to the coils.

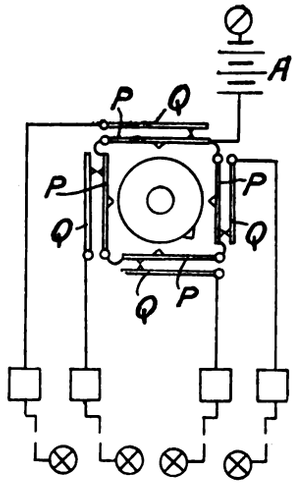
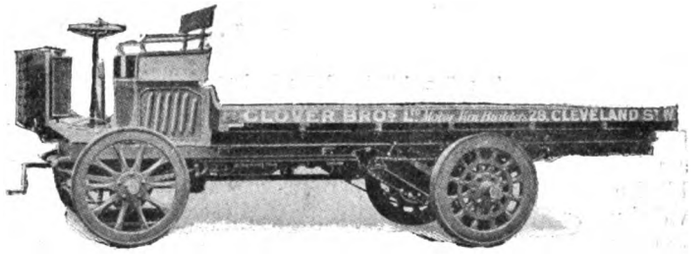


Fig. 5.—Diagram of Four-cylinder Contact Maker and Connections.

The size and power of the spark, which has to be seen to be realised, is such that the complete charge in the cylinder is fired much quicker than usual, resulting in a more rapid explosion; while, apart from this, one of the great advantages of the system is its ability to furnish a series of sparks at low as well as at high engine speeds. There is no escape of explosive mixture at the movable electrode, which is a nice fit and has a $\frac{3}{4}$ in. bearing in the body of the plug. The electrode is so made that it can easily be adjusted to allow for any wear, while it can be renewed at the cost of a few pence. Oil or sooty deposits on the inner ends of the plug do not appear to have any effect on its action, nor does the proximity of the coil to the explosion engine cause it to be adversely affected by the heat, it consisting of seven layers of 10 gauge wire well insulated. The device is exceedingly compact, as will be seen from the fact that the illustrations given herewith show it practically to full size.

THE GLOVER PETROL MOTOR LORRY.

MESSRS. GLOVER BROS., LIMITED, an old-established firm of van builders, have for some time past been devoting attention to the question of motor vehicles for commercial purposes, and have recently introduced the petrol lorry illustrated herewith. The vehicle is designed to carry an ordinary pair-horse load of forty to fifty cwts., with a maximum of three tons. The frame is of armoured wood, with steel connections; the engine, which is located under the driver's seat, is a 12 to 14 h.p. double-cylinder Aster with mechanically operated inlet valves. The power is transmitted through a leather-faced cone clutch to a gear-box giving three speeds forward and a reverse, with a direct drive on the top speed, and thence by bevel gear to a differential countershaft, side chains connecting the latter with the rear road wheels. The differential counter shaft is entirely separate from the gear-box and connected thereto by a flexible joint, allowing for "play" in the *chassis* when running over rough or uneven roads. Both front and rear



axles are of solid forged mild steel. The rear axle is connected to differential shaft by means of solid hinged stay rods, which transmit the drive of the wheels to the *chassis* and serve to take up the wear of the chains by means of right and left handed threads in the usual manner. Three brakes are provided, while the steering gear is of the irreversible type; the road wheels are of artillery pattern fitted with wide steel tyres. The steering gear, brakes, engine, etc., are all controlled from the driver's seat, which is placed well forward over the front axle, giving a large space for load and decreasing the wheel base. The new vehicle appears to be of sound construction; special attention has been paid to the matter of rendering the engine and transmission gear readily accessible; the lorry is geared to a top speed of about twelve miles per hour, and Messrs. Glover inform us that loaded with three tons it has successfully climbed Haverstock Hill, a stiff climb in North-West London.

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THE USE OF THE ACCELERATOR. FOOT *v.* HAND CONTROL.

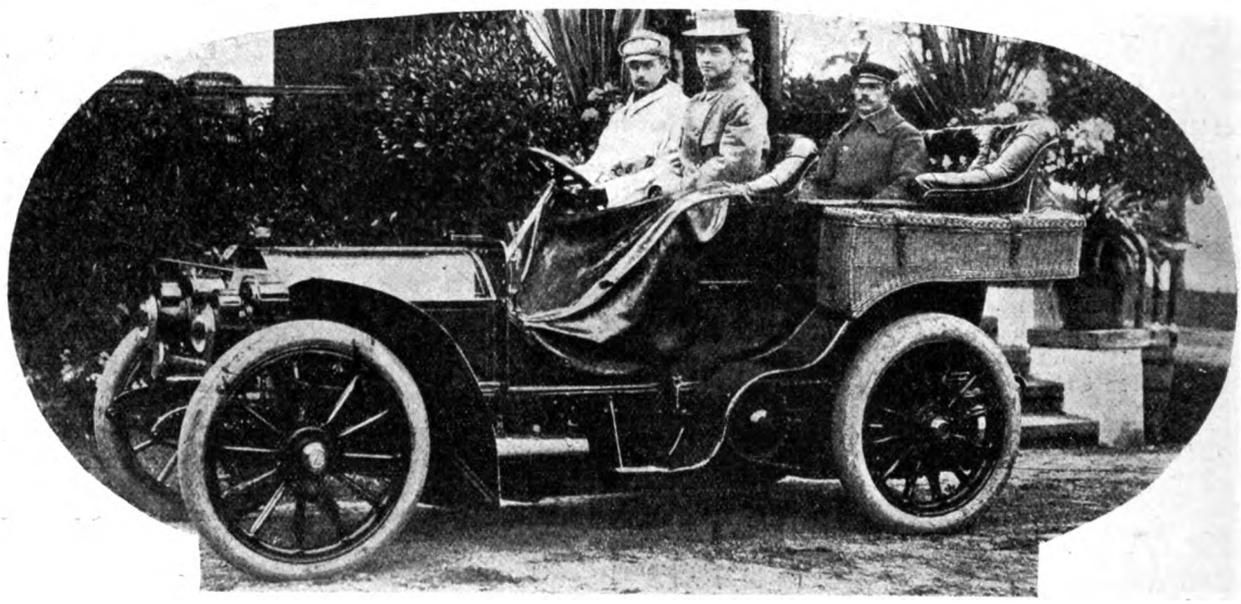
By Percy Richardson.

I WAS very interested to read the letter from your correspondent, Mr. R. T. Priest, with reference to controlling the speed of a car by the feet, as this is a question that I have been devoting attention to for some time. I agree with your correspondent that the arrangement as used on the Fiat car, of which I have had some experience, is a distinct advantage over the hand control as is generally fitted either on the steering pillar or steering wheel of the majority of cars, as this certainly does leave the hands perfectly free for steering, changing speed and applying the hand brake, which is a great boon when driving either on greasy roads, through fog, or in wet weather. The disadvantages that I have found with the system of control referred to by your correspondent are, that in the first case it necessitates three foot levers, and in the second case, the manner in which the foot lever actuating the throttle on the engine is arranged is such that, when driving over a bumpy road, it is rather inclined to vary the pressure of the foot on the pedal, and so, inadvertently, alter the throttling. My objection in the first case to the use of three foot levers is, that I consider it is a mistake to give the driver of a car more levers to work with his feet than the number of these extremities that he is provided with; as though the majority of drivers are very expert in changing their feet over from one pedal to another, it would be much more convenient if there was no necessity for doing this, and, moreover, would obviate the likelihood of accidents, which to my knowledge have occurred in several cases through the accelerator pedal being pressed down in cases of emergency instead of the brake pedal. The consequence has been that, instead of the speed of the car being checked as desired by the driver, the opposite result has happened.

Although I am not prepared to divulge at the present moment the manner in which it is carried out, I may say that, in the "Brotherhood" car, in the design and construction of which I have been occupied during the last twelve months, I have perfected a method of control for the engine that does away entirely with all hand levers, and only necessitates two foot levers. This, besides being much more convenient than the ordinary system, or the arrangement previously mentioned, is arranged so that it allows the driver to obtain a much finer graduation of the speed of the engine, and also to vary the same without any trouble more continuously, so as to accommodate the speed of the car to all circumstances, and at the same time it cannot be affected by any vibration or shocks caused by the unevenness of the road affecting the pressure of the foot on the pedal. I have been testing the arrangement for some time under all the varying conditions of driving, and I am pleased to report that I find the advantages of this arrangement very considerable indeed, as it enables a person driving a car to take much greater advantage of the flexibility of the engine than any other arrangement I have yet met with. Furthermore, I find that it is not at all trying to drive under the worst circumstances, an example of which I had only a few days ago, when I drove to Leicestershire, a distance of over a hundred miles, through a dense fog the whole distance, in which it was not possible to see more than thirty yards ahead the whole way. The roads were exceedingly greasy, and, though I had no non-skids whatever fitted to the car, I was able to do the journey without the slightest sign of a skid, and maintained a very good average speed without running any risks, and at the end of the journey I did not feel the usual strain one does when driving a long distance under such conditions.

Personally, my own idea on the arrangement for the control of motor-cars is that the same should be arranged in the simplest possible and also in the most convenient manner, and in consequence I think the fewer the control levers fitted the better. It is apparent from the arrangements for the control of some cars, that those responsible for the design have overlooked the fact that a human being is only possessed of one pair of hands and one pair of feet, for on some of the cars one sees there are so many levers provided that it really looks as though it would take two persons to properly handle the car. Peculiarly enough, too, these are generally fitted to small, low-powered cars, whereas the higher-powered cars are usually more simple.

I may also say, in conclusion, that the arrangement I have designed is so arranged as to enable any ordinary motorist or inexperienced driver of a car to obtain just as good results as an expert could. I had a striking proof of this only a short time ago, when I invited a friend to drive the car up a hill upon which the vehicle had been continually tested, and though he has only been a motorist for a matter of about six months, and had never handled a four-cylinder car before, his speed up the hill (which is about a mile long), was only a fraction of a second under the best time the car had ever made before on the same hill.



The Grand Duke of Mecklenburg-Schwerin, Patron of the Mid-European Motor-Car Union, at the wheel of his Mercedes Car.

Some of the omnibus owners have been summoning certain drivers of the electric tramcars of the London County Council for exceeding the speed limit.

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THE "CORONET" PETROL CARS.

THE CORONET MOTOR COMPANY, LIMITED, of Coventry, have lately brought out two new types of double-cylinder petrol cars of 10-12-b.h.p. and 15-17-b.h.p. respectively. Each cylinder, together with its water jacket, is cast separately. The bore of the 10-12-b.h.p. engine is 3¾ inch and the stroke 4⅜ inch, while the dimensions of the 15-17-b.h.p. motor are 4 3-8 inch by 5 1-8 inch. The pistons are of good length and are fitted with three eccentric rings. The crank shaft has a bearing between each throw of the crank. The valves

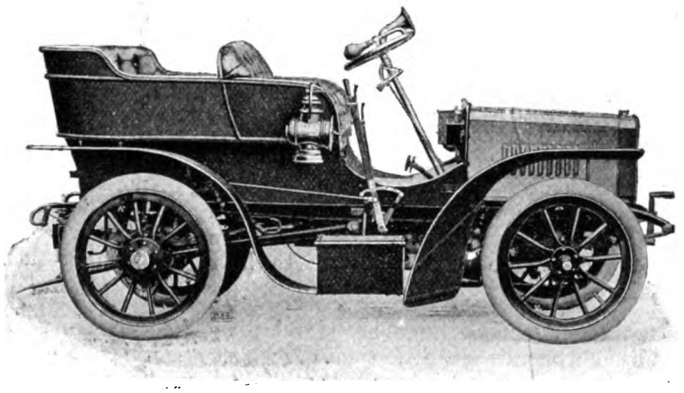


Fig. 1.—General View of Coronet 10-12-h.p. Car.

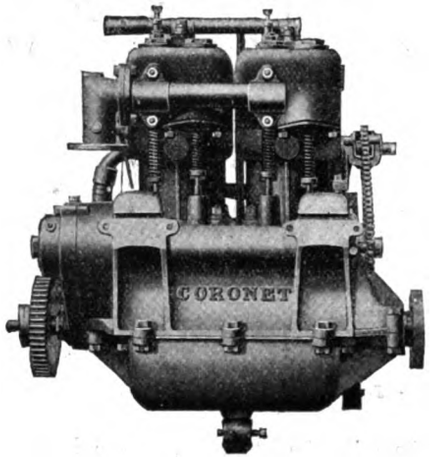


Fig. 2.—General View of Double-Cylinder Engine.

are of large diameter and mechanically operated by one cam shaft, which is supported by a central bearing, and, together with its gear wheels and the governor, runs continuously in oil in a dust proof case. Two large inspection plates are fitted in the lower half of the crank case. The normal speed of the engine is 1,100 revolutions per minute. The ignition is on the high-tension system, with accumulator and coil, while the water cooling is maintained by a gilled-type radiator and tank, and a gear-driven centrifugal pump fixed to the front of the engine. The power from the motor is transmitted to the gear box through an internal leather-faced clutch entirely free from end thrust either to the motor or gear box, whether the clutch is "in" or "out," a universal joint being arranged between the gear box and clutch. The gear, which is one of the company's own design, gives three speeds forward and one reverse, all controlled by one lever. The top speed is a direct drive with all the gear wheels out of mesh. Fig. 4 shows the gear box with the upper half removed, exposing the gears, which are in second speed. The clutch shaft is connected up to the square shaft A, on which is mounted a sliding sleeve B, carrying the two spur gear wheels C and D, which are used for the reverse, first and second speeds, in the usual way, the reverse being obtained when the wheel C engages with the pinion E, to which is coupled on the same shaft the pinion F, gearing into the wheel G on the second shaft; the pinion H, which is solid with the second shaft, now turns the wheel I, which carries jaw clutches K, engaging with similar clutches L on the shaft J, to which is coupled the cardan shaft. The first speed is obtained by moving the wheel C into gear with G, turning the second shaft without the introduction of pinions E and F, and consequently in the opposite direction, thence through wheels H and I, as before. The second speed is obtained when wheel D is moved into gear with wheel M, turning the second shaft as before, but faster in proportion to the number of teeth on wheels C and G, and D and M. The top speed or direct drive is obtained by engaging the jaw clutches N on the sleeve B with similar jaws O on the shaft J, and when these are engaged the wheel I, which has been in use for the reverse, first and second speeds, moves towards the sleeve B, allowing the jaw clutches K on the wheel I and L on the shaft J to disengage and be perfectly clear of each other; the shaft A now drives the cardan shaft J freely through the wheel I, which, together with the second shaft, is idle. It should be mentioned, however, that on the top speed or direct drive the wheel I is not moved sufficiently to disengage it and the pinion H; it is just in gear, and the moment the control lever is moved to change to the next speed slower, the jaws K and L immediately engage each

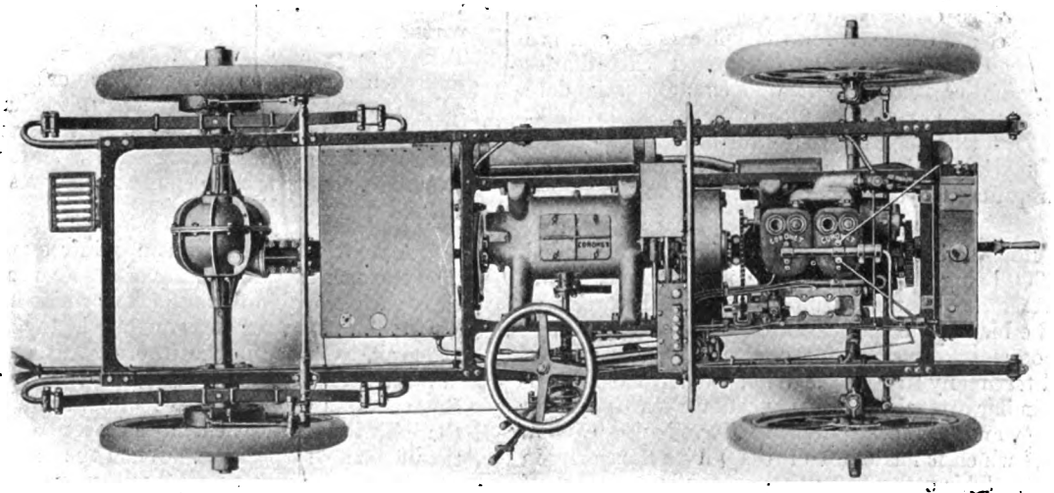


Fig. 3.—Plan of Coronet 10-12-h.p. Car.

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other and set the second shaft and its wheels in motion before the wheels D and M engage. The sliding gear B is moved to and fro by the fork P, and the wheel I by the fork Q, the whole gear being worked through the pinion R outside the gear box. The transmission from gear box to the road wheels is by cardan shaft and live axle. The road wheels are mounted on a casing

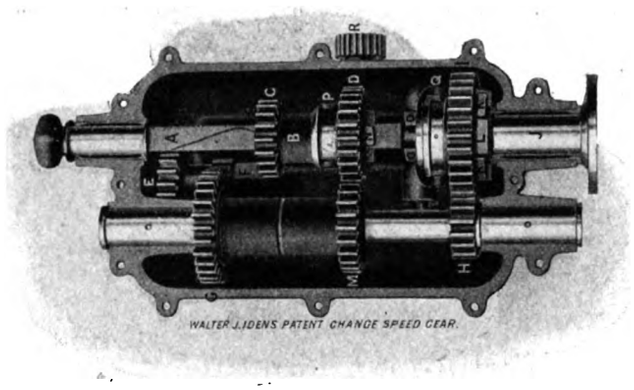


Fig. 4.—The Coronet Change Speed Gear.

surrounding the axle, the latter driving the hubs of the wheels through steel star clutches firmly fixed to the driving-shaft; by this method there is claimed to be no possibility of the road wheels spreading, the weight of the car and the road shocks being taken not by the axle but by the strong outer casing. Three brakes are fitted, all being of the same size. The steering gear is the Coronet Company's special irreversible type. Accleration is by pedal; the throttle is regulated by a neat lever and rack under the steering wheel; this rack also carries the lever controlling the ignition and a lever regulating the air supply to the carburettor, which can be opened wide when the car is travelling fast, so reducing the petrol consumption to a minimum. Best plain bearings are fitted throughout, the only ball bearings being those fitted to the clutch and steering swivels. We have had a long run on one of the Coronet cars and found it an excellent hill climber and capable of attaining a speed on the level of forty miles per hour. It should prove a reliable touring vehicle, being built to stand the strain of rough and hilly roads and having a great reserve of power. We may add that the Farman Automobile Company, Limited, have been appointed London agents for the Coronet cars.

MESSRS. CHARLES LETTS' series of Diaries for 1905, are conspicuous among such annual reminders of the flight of time by reason of the insurance coupons inserted within their covers. The scribbling diaries are designed for the office desk, and are with one, two, three or seven days to a page. Pocket diaries are another speciality of the firm, as well as automatic date calendars. Clearness of type, excellence of paper, and intelligent arrangement are three characteristics of the diaries of this firm, whose combination of insurance coupons and self-opening tablets has given quite a new interest and value to such publications.

"WHO'S WHO" for 1905 comes with considerably extended pages, nearly 2,000 being contained in the new volume. One feature of the recreations of those who are accounted worthy to be included in the biographies published therein is the increased reference to motoring. Just as, at one time, the advent of cycling received testimony in "Who's Who," so automobilism is now attracting similar attention. In connection with the larger volume, Messrs. A. and C. Black, publishers, have issued "Who's Who Year Book," which is made up of the tables formerly in the larger volume. This contains much general information of interest, and the two books together will be found on many a bookshelf. Accuracy and completeness are characteristics of the volume.

SOME USEFUL NOTES.

ALWAYS see that your spare parts—especially the valves—are of the proper size for your engine, so that there may be no annoying delay if they are suddenly called into requisition.

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SOME motorists, when adjusting their chains, do not seem to realise that there is a correct position for the shackles on the back scroll. The top of these side-plates, or shackles, should always be leaning away from the hollow of the scroll.

◆ ◆ ◆

INLET valves do not get nearly as hot, and consequently do not expand as much as exhaust valves. For this reason less clearance should be allowed between the stems and push-rods of mechanically-operated inlet valves than would be allowed between the stems and push-rods of exhaust valves.

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INASMUCH as the springs on mechanically-operated inlet valves are usually weaker than on the exhaust valves, the wear on the parts which move them will not be so great. Another reason why the wear is less is that there is no pressure on the inlet valves at the instant when they are lifted, while the exhaust valves may have forty or more pounds pressure to the square inch on them at this moment.

◆ ◆ ◆

A PETROL motor does not develop its full power until it has been in operation a little time. When started the parts of the engine are cold, the cooling water is cold, the lubricating oil is more or less stiffened, a slight gumming of the cylinder walls and valves being quite common in cold weather until all parts have been heated. After a few minutes these factors disappear, and the motor resumes its wonted power, unless something else is amiss.

◆ ◆ ◆

ACCUMULATOR terminals should always be kept scrupulously free from corrosion, otherwise they will gradually become "eaten away" to such an extent that a slight extra jolt on the road will suffice to break them off, and it may then be a matter of great difficulty to effect even a temporary connection. After being thoroughly cleaned and polished, the terminals may be fairly well protected from the action of the acid by a coating of vaseline.

◆ ◆ ◆

IT occasionally happens that the stem of an exhaust-valve is slightly longer than it should be, so that the valve is prevented from closing properly. The spare exhaust-valve, which ought always to be carried, should be examined for this defect (best done by placing the valve in position and seeing whether, when it is closed, there is the usual clearance between the end of the stem and the tappet), and if found too long should be filed off. This is a process which is better done at home than at the roadside.

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IF necessity occasions the taking down of an engine, carefully watch the parts. If the manufacturer has not marked the various parts for their respective places, the motorist himself should do so. Take the case of valves. Exhaust valves will not always interchange, and if one, at some time or other, has been ground in a little more than the one next to it, it is hardly likely to suit that cylinder. Apart from the fact that the seatings will not agree, there is naturally a slight difference in the length of the stem, which is enough, sometimes, to spoil the compression through the valve not seating properly.

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A MOST tantalizing, but not infrequent, cause of puzzling intermittence in the running of a petrol motor is a floating particle, such as a thin flake of solder which has been detached from the carburettor, or has entered the float chamber from the tank. Carried in the intermittent current of the liquid it may suddenly become lodged so as to cover the capillary duct to the nozzle, preventing all egress of petrol. When the motor stops the petrol in the float chamber ceases to be stirred, and the particle finds a new position. When the motor is started again it is not in the way, but presently it returns and stops the motor again. Should engine troubles be experienced the float chamber of the carburettor may therefore be included in the parts to be inspected.

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HERE AND THERE.

THE Duke of Oporto, brother of the King of Portugal, has just acquired a 16-h.p. Fiat car.

SIR SAVILE CROSSLEY, M.P., has received his 15–20-h.p. Brooke car. It has a very wide side entrance.

A MOTOR-CAR club is being formed for Sussex. The initial meeting will be held at Brighton on the 12th prox.

A PROJECT is under consideration to construct a cement road 26 ft. wide between Arcachon and Biarritz, a distance of about 80 miles.

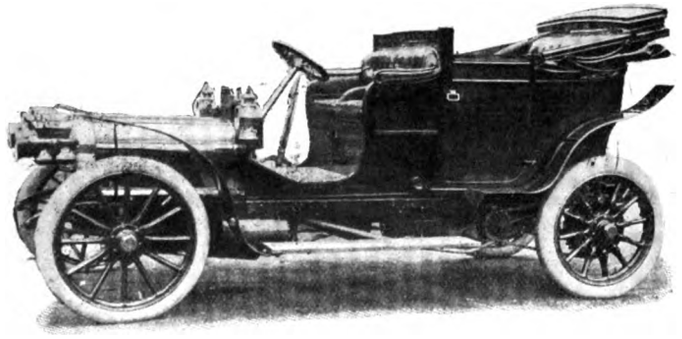
THE Herefordshire Automobile Club have collected £50 locally towards the expenses incurred by them in entertaining the Reliability Trials of the A.C.S.B.I.

ON Wednesday last the students' section of the Institution of Civil Engineers paid a visit of inspection to the motor-car works at Acton of Messrs. D. Napier and Sons.

THE Beaufort Motor Company have sent out two Beaufort cars to their agent in Bombay. The vehicles have been entered for competition in the Delhi–Bombay reliability trials.

THE General Electric Company, Limited, have a neat side or head lantern for use on motor-cars. This can be mounted on the dash-board or frame of the vehicle, and is characterised by substantial construction.

THE Great Western Railway Company have inaugurated new arrangements in connection with the Holt and Farndon motor-'bus service. The fares have been reduced, and there is a late trip arranged for Saturdays.



The 24-h.p. Leon Bollee-Car built for the Hon. Arthur Stanley, M.P., a Vice-Chairman of the Automobile Club.

THE Invicta Motor Accessories Company has been registered with a capital of £1,000, to acquire the business of electrical engineers and motor ignition manufacturers carried on by Mr. L. Brandes, at St. John-street, Coventry, as Brandes and Co.

THE Sirdar Rubber Company, Limited, are now supplying their registered grooved Royal Sirdar Buffer tyres. This tyre, although a single tyre, acts as a twin tyre, and is claimed to prevent side-slip and can be fitted to any existing Royal Sirdar Buffer rims, or, in fact, to any motor-car wheels.

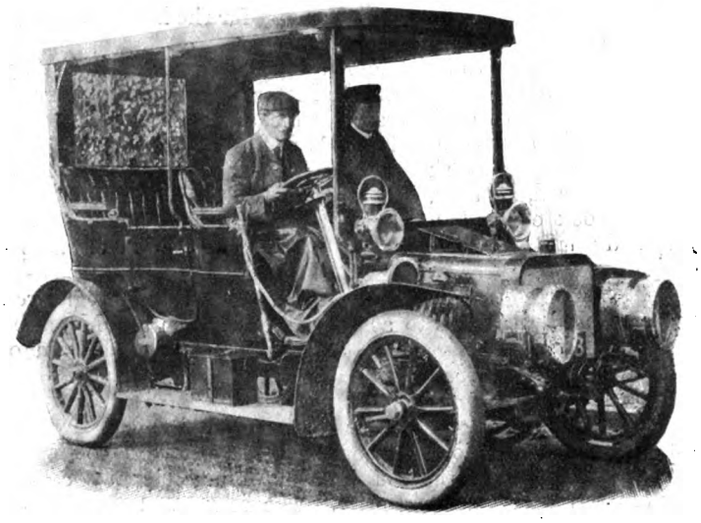
LONDON is about to witness a steady increase in the number of motor-omnibuses in use in its thoroughfares. The Milnes-Daimler double-deck 'bus which has been in use for some time by Messrs. Thomas Tilling, Limited, has evidently proved satisfactory, as we learn that orders for a further thirteen vehicles have been placed by the company.

THE Birmingham and Midland Motor Omnibus Company has been registered, with a capital of £60,000 in £1 shares, to adopt an agreement between the Birmingham Motor Express Company of the one part and this company of the other part, and to carry on the business of motor-car, omnibus, van, and cab proprietors.

A LIST of notable performances with the "Castle" accumulators has been prepared by the United Motor Industries, Limited, and which will be sent by them to motorists interested in such matters. Their new list also includes reference to the "Castle" rubber buffers for strapping or fastening to the springs of cars to deaden violent shocks. The Universal set of box spanners for cars is another speciality of the firm.

A CIRCULAR relating to their specialities has just been received from the Lacre Motor Car Company, Limited.

THE illustration herewith depicts a new 15-h.p. four-cylinder Darracq car with side entrance, canopy glass front, and curtains,



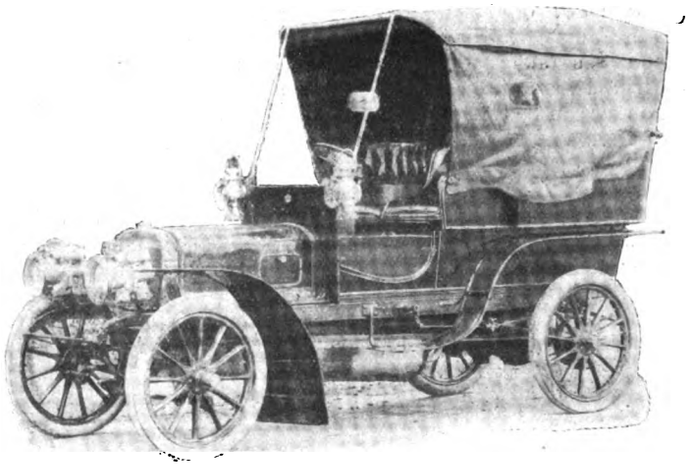
recently supplied by Mr. A. F. Garnham, of Ipswich, to one of the local magistrates. The vehicle is one of the smartest cars in the district.

PERMISSION has been given by the King to a number of motorists to go through certain roads in Windsor Great Park, provided they travel at a reasonable pace.

MESSRS. R. AND J. PULLMAN, LIMITED, of Westbrook, Surrey, are arranging for the repair and housing of motor-cars. They have now in operation a series of notice-boards acquainting motorists of the nearest telegraph office, etc., should breakdowns occur.

ONE of the most popular resorts in Surrey is "The Hut," at Wisley, and another is "The Lion," at Ockley. These two houses belong to the Surrey Public House Trust, of which Earl Grey was the founder. The Trust has now purchased the equally well-known Burford Bridge Hotel, at Box Hill, which, with its beautiful grounds, wild fowl, etc., must surely be known to most of our southern readers.

WE illustrate herewith the 20-h.p. Thornycroft petrol car which has just been dispatched to India to take part in the Delhi-Bombay race for the Gaikwar of Baroda's Cup. The car, which is one of the Thornycroft Company's standard type, has



been sent out for Mr. A. J. Dent, of the firm of Gladstone, Wyllie and Co., of Calcutta, who is entering it, and will drive it in the trial. His previous car, which he took out to India with him some time ago, was a 10-h.p. Thornycroft, which he found eminently satisfactory.

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THE principal floor at the Collier Tyre Company's new premises, 127 to 130, Long Acre, W.C., measures 130 ft. by 65 ft.

THE three Fiat racers which will compete for Italy in next year's Gordon Bennett cup race will, it is stated, be of 100-h.p.

IT is reported that the Hotchkiss Company are building a six-cylinder racer for the eliminating contest for the French team for the 1905 Gordon Bennett race.

FOR taking down a signpost erected by the Bedford County Council at Eaton Socon under the Motor Car Act the owner of the property adjoining the road on which it was put up has been fined 5s. and costs at the Bedford Petty Sessions.

TO the Home Workers' Series, published by Messrs. Dawbarn and Ward, Limited, Mr. R. H. S. Williams has contributed a small book entitled "How to Build a Bicycle," in which are included some hints with regard to the construction of motor-cycles.

THE Mercedes Motor Works, Limited, has been registered with a capital of £2,000 to acquire a licence from the Mercedes Company, Limited, for the manufacture in Great Britain of Mercedes engines for motor-cars, motor-boats, and other purposes.

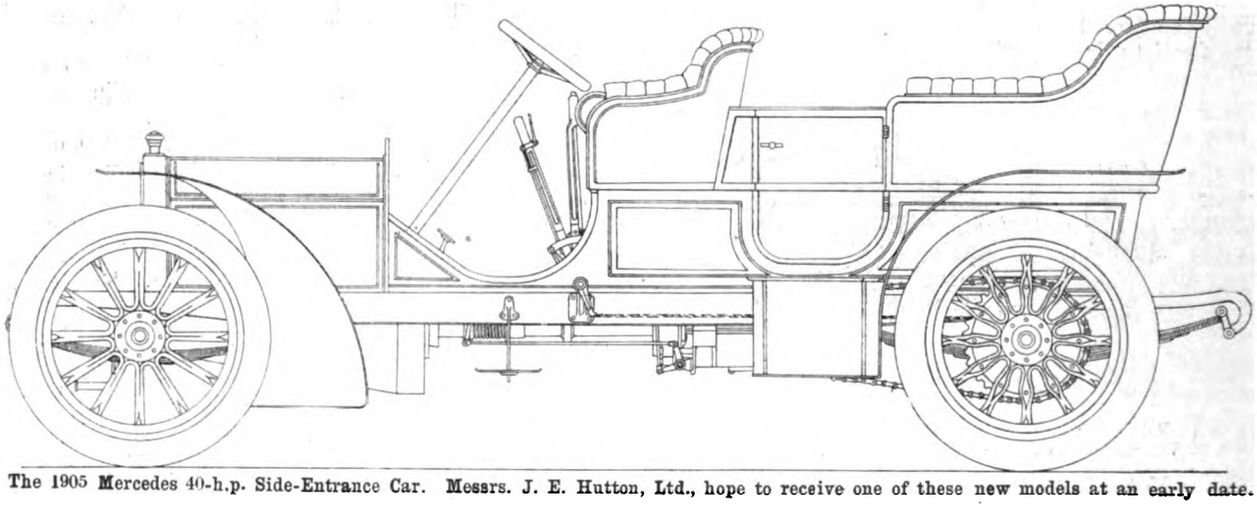
THE proposed motor service between Dartford and Swanley Junction is being seriously encouraged, and the local committee is in negotiation with the Farningham Motor Company regarding the terms of a daily service. The route will probably be through Wilmington and Hextable.

MR. H. GUTTERIDGE, who was for many years with the motor department of Messrs. Gamage, has opened premises at Cambridge Circus, Shaftesbury Avenue, W., for the sale of motor accessories and clothing of all kinds as well as for automobiles. The style of the new firm is H. Gutteridge, Limited.

MESSRS. BARKER AND COMPANY, the well-known coach-builders of Bedford Street, London, W.C., after building carriages for over 200 years, have now established a thoroughly up-to-date motor body department, from which they are turning out light, but well-made highly-finished motor bodies.

FROM Messrs. Straus and Company, Limited, comes a little handbook which, in addition to forming an illustrated catalogue of the various types of Fafnir petrol motors for which they are the sole agents in this country, contains some useful matter of interest to motorists relating to petrol densities at different temperatures, metrical weights and measures, and horse-power. Copies of the booklet can be obtained from Messrs. Straus, 211, Upper Thames Street, London, E.C.

A NOVEL method of illuminating the rear number of motor-cars is being introduced by Mr. J. B. Beal, of Pocklington. The rear number is illuminated from the front lamp by means of a burnished tube extending to the rear of the car. On the end of the tube is fitted a box in which the numbers are cut out, so that it is impossible for the numbers not to be illuminated without the driver's knowledge, as the light is taken from the front lamp, in which are fitted two burners and reflectors.



The 1905 Mercedes 40-h.p. Side-Entrance Car. Messrs. J. E. Hutton, Ltd., hope to receive one of these new models at an early date.

MR. E. C. WILLS, the eldest son of Sir E. P. Wills, Bart., K.C.B., is an ardent motorist, and is shown in the photograph on page 837 on his latest acquisition, supplied by the Bristol Motor Company, Limited, of Bristol. At the time our photograph was taken Mr. Wills was on his way from Bristol to Barnstaple, and the roads were in a slimy and dangerous condition, as can be imagined from the state of the mudguards.

ANTI-FREEZING mixtures occupied the attention of the members of the Milwaukee Automobile Club at the first of its series of winter meetings. Dr. Louis Fuldner read a paper discussing various solutions, and a general expression of opinion followed. The proper solution of calcium chloride, according to the experience of those who advocated its use, is four pounds to a gallon of water. This solution will not freeze above a temperature of thirty degrees, and does not injure the tubing. A twenty per cent. solution of pure glycerine stood next in favour.

MR. ROBERT PRATT, of South Bridge, Cupar, N.B., has sent us a sample of a new liquid anti-rust preparation known as "Spirit-Otium" he has lately introduced. It is intended to take the place of vaseline in protecting the bright parts of motor-cars and cycles from the effects of wet and rust; it is applied by means of a small brush, and not only acts as a protective coating, but on being cleaned off leaves the parts as bright as when new. Although "Spirit-Otium" has only been on the market a short time, it has, we understand, already been extensively adopted in Scotland

THE Parsons Motor Company, Limited, has been registered with a capital of £5,000, to carry on the business of manufacturers of and dealers in motors, motor-cars and vans, etc., and to adopt various agreements. The first directors (to number not less than two nor more than five) are Messrs. W. H. Parsons, J.P., H. Parsons, W. White, and G. S. Pettigrew, and the registered office is at Town Quay, Southampton.

MR. W. A. SALE, of Luton, gives a remarkable instance of the steadiness of running of the motor-car, an instance which should do much to reassure those who are of opinion that vibration is a serious obstacle in the modern automobile. Mr. Sale recently had occasion to fill up his acetylene lamp with water at Hockliffe, and unwittingly left the jug from which the water had been poured standing on the step of his Humber car. On arrival at Luton, nine miles distant, Mr. Sale found the jug still on the step.

SOME time ago Messrs. Matthew Wells and Company, of Manchester, sent us a sample tin of their "Wellsaline" lubricating oil for air-cooled engine. The oil is quite free from acids or impurities. We have given the sample a practical trial, and find that it fulfils all the claims made for it, no lubrication troubles whatever having been experienced. Messrs. Wells also supply lubricating oil for water-cooled motors and for steam engines, and in view of their great experience in this branch we do not that these are equally efficient as we have found that for air-cooled motors.

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CONTINENTAL NOTES.

An Austrian Military Motor-car.

The Austrian Daimler Motor Company, of Neustadt, Vienna, are at present engaged on the construction of a new military motor-car, which is to be fitted with a quick-firing gun. The latter will be so arranged that it can be raised or lowered at will and also that it can be set at any angle on the car.

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German Cars for England.

A report is current to the effect that the Scheibler Automobil Gesellschaft, of Aix-la-Chapelle, has secured a contract from an English syndicate for no less than 150 motor-wagons and omnibuses.

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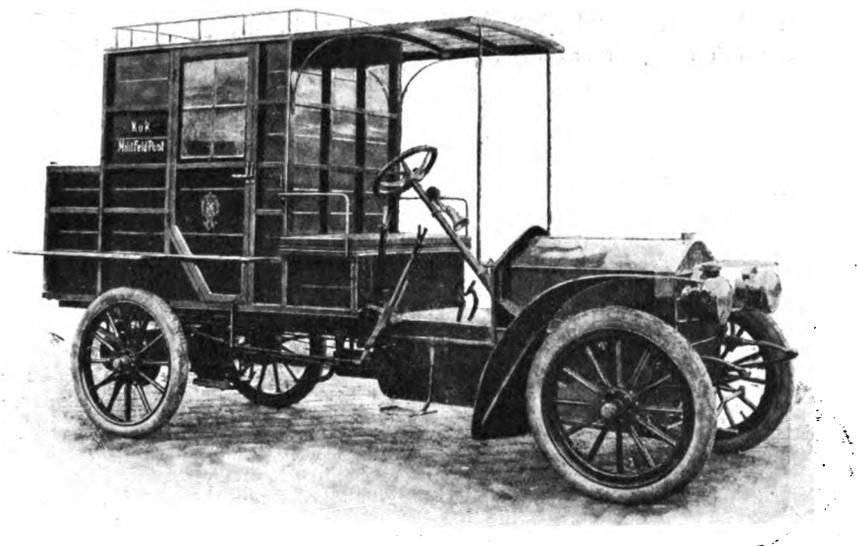
Public Services in France.

Arrangements are in hand for the establishment of a public motor-car service between Enghien, St. Gratien and Montmorency. The vehicles to be used will be De Dions, with 22-h.p. four-cylinder motors, and have accommodation for twenty passengers.

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French Trials of Electric Vehicles.

The trials of electrical vehicles proposed by the "Auto" have already been alluded to in the *Journal*. It has now been decided to hold the trials in May next. The competition will be directed to deciding the merits of the vehicles for town and suburban service, and will take into consideration the cost of up-keep per day for the distance run, the relative comfort, ease of control, and silence of the vehicles, and the price. There will be three categories, or classes, as follows:—Class 1.—2-seated vehicles, of a maximum weight of 1,300 kilogs. Class 2.—4-seated vehicles, maximum weight 1,500 kilogs. Class 3.—6-seated vehicles with luggage carrier to take 30 kilogs. per passenger, maximum weight 1,800 kilogs. All classes may have either open or closed bodies, or bodies which may be opened or closed at will, but they must all be completely upholstered. The vehicles must have at least one double-acting brake, and also a sprag. The number of entries is not limited, but no manufacturer may enter two vehicles of similar type and dimensions. For each car entered before the 15th March a fee of 20 francs must be paid, the entry fee being doubled after that date. Entries close on the 1st May, 1905. The trials will consist of eight daily runs of about 100 kiloms. in Paris and suburbs, returning each evening to the charging station.



The above Illustration depicts the Military Field Mail Delivery Van furnished by Messrs. M. A. Wyner for use in the recent Austrian Manœuvres.

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A Public Service in Sweden.

The Jungner Accumulator Company has recently started a public service of electrical motor-omnibuses in the town of Norrköping. Three vehicles are in use, having accommodation for ten passengers and the driver. They are provided with a battery of Jungner accumulators, and are designed for a speed of twelve miles per hour.

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A German Motor Volunteer Corps.

The Geman Automobile Club is taking steps to organise a Motor Volunteer Corps on the lines of that in Great Britain.

Public Services in Germany.

A company has just been formed at Emmerich with the title Die Automobilfahrt Emmerich-Cleve to run a public service of motor-cars between the two places named. In Breslau, too, the Automobilverkehrs Gesellschaft has been organised to establish a public service between Breslau and Klarenkranst, twelve miles away, and for the transport of the mails between the two places.

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The British International Cup for Motor-Boats.

At the International Motor-boat Conference held in Paris a few days ago it was decided to hold the race for the British International Cup for motor-boats on September 11th, 1905, in the Gulf of Arcachon. This is a fine piece of inland water on the west coast of France, about thirty-five miles south-west of Bordeaux. It was also resolved that in the case of motors driven by paraffin it shall not be permissible to carry petrol on board for the purpose of starting the engine.

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The Crawhez Cup.

It is announced that the Baron Pierre de Crawhez, the well-known Belgian *chauffeur*, is presenting an international cup to be competed for by motor-car builders. The contest will be over a distance of 500 kilometres, and will be one of both speed and reliability. Each firm competing will have to enter a team of three cars, and marks will be allotted in accordance with the order of arrival at the finishing point, the firm securing the least number of points holding the cup for a year. The cars not completing the whole distance will be credited with as many marks as competitors, plus one.

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The Burton Motor-Boat Challenge Cup.

The cup presented by Mr. A. Burton to the Automobile Club of Cannes is to be competed for annually at Cannes five days at the most after the last race at Monaco. It will be an International event, open for motor-boats not exceeding sixty feet in length, the distance being 100 kilometres. To secure the cup outright it must be won three years in succession.

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Gordon Bennett Race.

New courses for next year's Gordon Bennett race are being suggested almost daily. The authorities of the Department of Eure-et-Loir have proposed a circuit in the Beauce and Perche districts. It embraces a run from Chartres to Nogent-le-Rotrou, 56 kilometres, to Chauteaudun 62½ kilometres, and from Chateaudun to Chartres 44 kilometres. There are three level crossings, and at least three neutralisations on the course. The International Commission of the race is to meet at Paris on the 12th inst., to decide on the regulations for next year's contest.

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Motor-Cars in the Russian Postal Service.

The Union Motorfahrzeugfabrik Gesellschaft, of Nuremburg, Germany, has lately supplied a number of petrol motor-vans to the Russian postal authorities. The vehicles are of two sizes, both having the Union Co.'s system of friction drive; the smaller vans are of 6-h.p., and are designed to carry mails up to a load of 10 to 12 cwt. at speeds up to twenty miles per hour. The larger vans are being used in the parcels post service; they are of 8-h.p.

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CORRESPONDENCE.

THE SLUMP IN THE VALUE OF AUTOMOBILE CLUB PATRONAGE.

The following letters have been addressed to the Secretary, A.C.G.B.I. :—

November 29th, 1904.

The Secretary.
Automobile Club, 119, Piccadilly, W.

DEAR SIR,—I have been informed that the Automobile Club of Great Britain and Ireland purpose giving their patronage to the exhibition held at Olympia by the Society of Motor Manufacturers. I would remind you that upon more than one occasion the exhibition held under the auspices of the Automobile Mutual Protection Association, and controlled by myself, has received the patronage of the Automobile Club, and this patronage I have found most useful and as such have paid for. I understand the question of payment is distasteful and objectionable to your committee, and would therefore ask your committee to extend to the Agricultural Hall Show the same consideration which they have to the Olympia Show, and grant to that exhibition the patronage of the Club. Trusting you will bring the matter before your committee.—I remain, yours truly,

(Signed) C. CORDINGLEY.

December 3rd, 1904.

DEAR SIR,—Regarding my communication of November 29th, and your reply thereto of the same date, upon further reflection I have decided to withdraw my application. My reasons for doing this are, that I should not care to bind myself to support what may be in the view of myself and my friends something which may not be advantageous to the industry. Freedom of action and thought are to me far better than the doubtful privilége of the support of an organisation which last year assessed its value at £500, but which this year has apparently depreciated to nil.

Regarding the club's patronage, which was for the third time accorded (and paid for) my exhibition last year, I distinctly stated to club officials that it was not worth having; I did not want it; and only upon entreaty did I accept it. Kindly therefore, take this communication as a definite withdrawal of my application of November 29th, and in the meantime, I beg to remain.—Yours truly,

(Signed) C. CORDINGLEY.

THE LANCHESTER CAR.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—I have much pleasure in answering "Enquirer" as to the Lanchester car, being a *bona fide* enthusiast and having no interest whatsoever in the firm. I have driven Lanchesters for the last two years, an air-cooled car for nine months and then their new water-cooled 12-h.p., and would not exchange my car for any on the road. I have not had a very large experience of other cars, but have handled a 20-h.p. French car of well-known make, and am able to draw a comparison between the different types.

Firstly, up to forty miles per hour (as far as my experience goes) I think the tiller steering ideal. As placed on the Lanchester, it lies in a most happy and comfortable position for the natural repose of the arm. Contrary to general opinion, there is no inconvenience owing to "backlash," the "feel" being so delicate it is particularly handy on greasy roads and in traffic.

(2.) Air cooling was successful, but the 12-h.p. water-cooled now turned out is an immense improvement in every way. (3.) Range of speed on any one gear is quite sufficient, I can get as low as six to eight miles per hour on the top speed, and can pick up on the top speed at even lower owing to the admirable clutch. (4.) The governor levers give perfect control, and have this advantage over the throttle, that when running slow the petrol charge is entirely cut off in proportion to the speed, and thereby economises fuel and keeps the engine cool. Either cylinder can be cut out at will, and if one is set to cut out oftener than the other, the only result is a little more work on one cylinder than on the other and a loss of speed. (5.) As the right hand naturally rests on the steering arm, so the left hand naturally drops to the speed levers, and should you not be familiar enough to find, with certainty, the levers in the dark, it is perfectly natural and reposeful to let the left hand rest on the speed lever. (6.) I can say in answer to this query, that I have no trouble, and the car is running as well as ever after 8,500 miles. I may add that all parts liable to wear are easily got at and simple to "fake up." (7.) Nothing can possibly be safer or quicker in an emergency than the Lanchester system of speed levers and brakes, one movement of pulling back the lever frees the engine and applies the brake. A Lanchester can be jumped back and forth (from forward speed to reverse) as no other car can. (8.) As regards hill-climbing, the Lanchester for its *listed* h.p. is unsurpassed, and in a give-and-take run can hold its own with much higher powered cars, owing to the way it can climb on its top speed after other cars have long since changed down. The peculiar springing gives the car a delightfully easy motion, and the ample accommodation for luggage is invaluable on tour.

I would like to draw attention to a point often overlooked, viz., the wire wheels. I do not think a single case has been recorded of the collapse (except, of course, a regular smash) of the Lanchester wheel; it is a scientifically built wheel, no stretching in damp weather, or contraction in dry, no wearing loose; they last for ever, will run with half the spokes knocked out, and can be repaired at home. The Lanchester is the only genuine British car (as far as design goes); it is a good car, and deserves success.—Yours truly,

ARTHUR A. PAZOLT.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—I have a Lanchester car and herewith give my experience of the machine. The questions are answered as numbered by your correspondent. 1. Tiller steering is preferable to wheel for locomotion in traffic but not for speed. 2. I do not consider air cooling a success. 3. Speed variations very satisfactory and comfortable, but great care required in adjusting same; range of speed variation quite equal to any other car. 4. Governor levers do not give as great control as throttle levers; one or both cylinders can be cut out; machine gets hot, loses power and speed if one lever is set to cut out the governors oftener than the other. 5. Control and speed levers as placed in Lanchester equally good as those placed on the off side of other cars. 6. The car is decidedly trouble-some to keep in order. If you go into a strange garage as I did when touring, there will not be a man in the place to adjust a screw, owing to the peculiar construction of the car. My bill for repairs in six months is £70, besides three new tyres and £10 for repairing tyres; distance traversed 7,000 to 8,000 miles. 7. Control and brake first-class. 8. Hill-climbing speed and comfort very good. In conclusion in my opinion this make of car is not adapted for long distances, averages of 500 miles per week, "real touring." The delicacy and intricacy of the machinery renders the machine too liable to get out of order.—Yours truly,

X.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—In reply to a letter which appeared in the *Journal* of the 26th ult., I give the following information as a disinterested owner and from my own practical experience.

The tiller steering is far more comfortable than the wheel, being natural position of the arm when resting. It is possible at an instant's notice to practically turn the car at right angles without any danger of upsetting the vehicle, owing to the wonderful way in which the car is sprung. In the wet weather you have a greater control over the car, being able to bring it into track again the moment it begins to skid, and owing to the length of the car it gives you more time to act and correct it. I might mention that it is possible to do anything with the car in the grease by one who has good judgment and nerve. The only disadvantage is that it is impossible to turn round in an average-sized road without reversing and going forward again, owing to there being insufficient range of lock.

The air cooling is perfectly satisfactory, provided you keep the fans clean after each run (which is not much trouble) keep them properly lubricated, and if the car is driven properly.

It is impossible to control the speed by means of the ignition.

The governor levers are quite as efficient as a throttle lever as far as control is concerned, but if it is desired to drive at, say, eighteen miles an hour without declutching, as the governor blades cut in and the explosions take place, the car seems to run in jumps and starts; if, however, the levers are raised altogether the running is all that could be desired. One or both cylinders can be cut out at will. If you raise one governor lever without the other, one cylinder does all the work.

The levers between the seats are most convenient, being well within reach at a moment's notice.

I think the Lanchester will compare with most cars of its own weight and horse-power for speed. It will climb practically any hill on lowest speed.—Yours truly,

M. L. RENDRAG.

MAGNETO IGNITION.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—The question of magneto ignition has taken a firm hold on the public, and it seems to me that the ordinary high tension will soon die out. Try a car fitted with both ignitions, i.e., high tension magneto and ordinary high tension. It will go certainly 10 % better on the magneto, the increased speed being doubtless due to the richer spark. People say, "Keep the ordinary high tension as a reserve." Well, the chances are that in the remote (as magnetos give practically no trouble) occasion when recourse is had to the ordinary ignition, the cells will be down through having been out of use for so long.—Yours truly,

MAGNETO.

COST OF RUNNING.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—I should like to express my thanks to "S. C. G." for providing your readers with the interesting particulars given in his letter. This is the sort of information which is required by prospective motor-car purchasers, and if any of your readers can give further particulars

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as to the cost of running cars per year, I am sure there are many of us who would be extremely thankful.

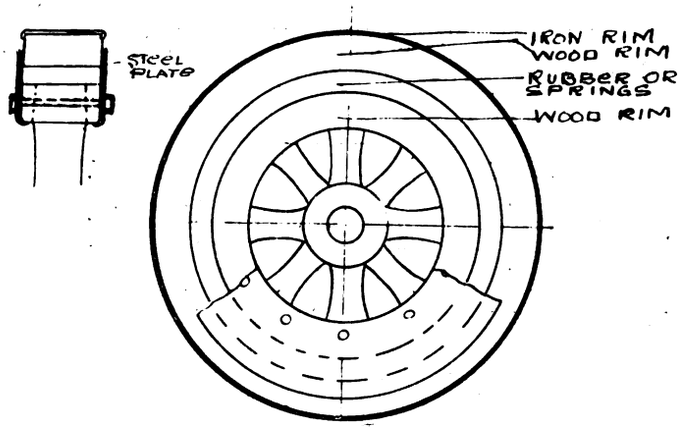
Personally I should be glad to hear from anyone regarding the upkeep of a motor-van with solid tyres, or at least solid tyres on the driving wheels.—Yours truly,

J. G. R

WHEELS FOR MOTOR-WAGONS.

To the Editor of *The Motor-Car Journal*.

Sir,—I am enclosing you a rough drawing of a new wheel for steam wagons and other heavy vehicles which I am putting on the market.



As you can see by the sketch, there is a double rim—an ordinary outer rim to which the iron tyre is shrunk, and an inner rim to which the spokes are attached in the ordinary manner—between which the two rubber or steel springs are inserted. Where springs are fitted, the space between the two rims is greater than when rubber is used. The outer rim is kept in position by a steel plate as shown.

There is a great need for a wheel of this sort, especially where steam wagons are used by city corporations for night work, etc. Many have, and are still endeavouring to, overcome the trouble of vibration over sets, and the noise, by trying an altogether spring wheel, and in some cases "wood to the road" wheel. But, after many weeks' practice and experiments with the Thornycroft steam wagons, I am convinced that the only and proper mode of attaching springs to the wheel itself is in the manner illustrated. The device will not alter the general appearance of the wheel very much. I should like some faults to be found by some of your readers interested in this question.—Yours truly,

C. De Rouet.

SIX VOLTS FOR IGNITION.

To the Editor of *The Motor-Car Journal*.

Sir,—With regard to Mr. W. F. Rhodes' enquiry in the last issue of the *Journal*, there are many motorists who recommend running on six or eight volts instead of the usual four volts. Nevertheless, before he makes the change, Mr. Rhodes should find out from the manufacturer of the coil fitted to his car what it is capable of standing, as there are undoubtedly many coils not capable of standing much more than four volts.—Yours truly,

Regina.

To the Editor of *The Motor-Car Journal*.

Sir,—I have used 8 volts on a 1902 type Oldsmobile for two years. The coil was supplied with the car, but gave trouble with the dry cells supposed to work it.

It would be best to ask the makers of a coil whether it would bear a higher voltage, as there may be danger of breaking down the insulation on a short circuit through heating. I risked it.—Yours truly,

Belfast. J. Brown.

THE CLYDE CAR IN THE HEREFORD TRIALS.

To the Editor of *The Motor-Car Journal*.

Sir,—In Mr. Worby Beaumont's highly interesting and instructive paper on the "Development of the Light Car" he refers to the comparatively low petrol consumption of the Clyde car, as though an error had been made in the quantity registered. The above trial did not show up the true capabilities of the car, for the following reasons.

On the first run up Frome's Hill a large non-competing car ran into the Clyde car (as reported in the press at the time), and bent one of the front wheel axles badly, also the steering gear. In spite of this the driver continued his journey with the front wheels running inwards, and the car always tending to steer to one side of the road. A protest was lodged, and the judges next day gave permission to repair the damaged parts. Owing to the impossibility of effecting the necessary repairs in time to start with the next run, it was decided to drive the car in its crippled condition to the end of the trials.

The effect of the front wheels running inwards was to act as a brake, so much that at the finish the treads of the tyres were ground nearly through to the canvas. In addition to this, the bent axle caused the cone of the ball bearing to bend on the cup so hard that it was afterwards found that the cone had turned blue owing to the friction. This car before and since the trials has run regularly over ordinary roads on a consumption of one gallon to every fifty to fifty-five miles, with a full load, and this is not unusual, as other Clyde cars of its type will give the same result.

As showing the extra work the engine had been doing owing to the accident, the car, on its return from the trials, and before being repaired, was driven up a hill with a gradient of one in seven. It only got up the hill with difficulty, with the driver in alone, whereas before the trials it took the hill with driver and passengers at 8½ miles an hour. Still, in these trials there is a great element of luck, and it is now a matter of waiting till the next trials, so as to give the Clyde another opportunity to show its real capabilities.—Yours truly,

C. H. Wait.

TILLER STEERING.

To the Editor of *The Motor-Car Journal*.

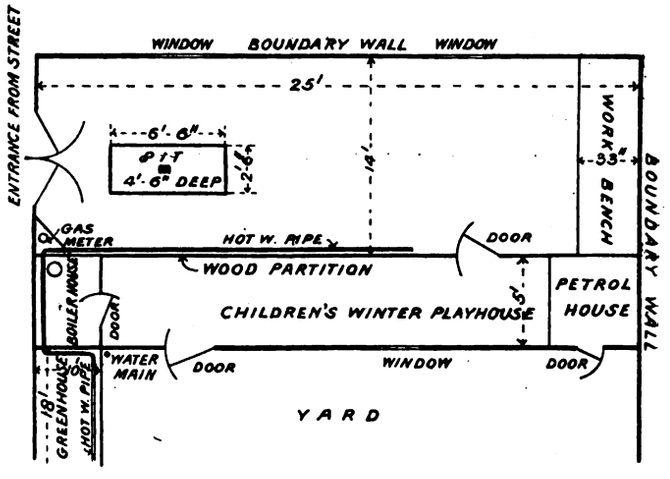
Sir,—In the *Journal* of December 3rd there are three letters in reply to query re Lanchester car. Each writer distinctly gives his opinion that the tiller is preferable to wheel steering. May we assume that all other drivers of the Lanchester are of the same opinion? Also, do not those who have tried *any other* form of tiller consider it more handy in every way than the wheel? If this is so, why do not makers think about it, and offer us the best, simplest, and cheapest form of steering, instead of the more expensive and inconvenient wheel?—Yours truly,

A.B. 50.

MOTOR-CAR HOUSE.

To the Editor of *The Motor-Car Journal*.

Sir,—Having read your note respecting motor-car houses in the *Journal* of the 12th ult., I beg to state that I am not used to drawing to scale, but have enclosed you a ground plan of the motor-house I had built about two and a half years since. I find it most satisfactory, and think other motorists would find one built on similar lines advantageous. I will therefore endeavour to explain the sketch. In the first place the house is 12 feet high, with tile roof and a boarded floor, so as to keep all damp from dripping on the car, with a manhole in so as to allow a place for lumber. The house has 9 in. walls all round. The entrance from the street to boundary or end of working bench is 25 ft., the width is 14 ft., with a lean-to greenhouse, 18 ft. long by 10 ft. wide, and same height as the motor-house. The entrance has two doors opening inwards, with two glass panels in each. The pit is 6 ft. 6 in. long, 2 ft. 6 in. wide, and 4 ft. 6 in. deep, with 9 in. brick wall, 8 in. concrete bottom; also a drain to carry water away when washing the car down. The floor is 8 in. concrete. Two windows



to give light are provided; also a bench to do minor work. The house is heated with hot water pipes, as you will see; the pipes run out of the greenhouse through the boiler-house into the motor-house. Both places can be heated at one time or separately, by simply turning one or other of the cocks. The boiler is heated by gas, and has a 3 in. pipe to take the fumes of the burnt gas away. Divided off by a partition is a small play-house for my children in wet weather. The petrol store has 9 in. walls, bricks laid in cement; 9 in. concrete roof. 8 in. concrete floor, with fireproof door facing the yard. The door has about forty ¾ in. holes near the top, so as to allow any gas escaping from cans to get away.—Yours truly

F. W. Allbones.

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STEAM CARS.

To the Editor of *The Motor-Car Journal.*

Sir,—Mr. T. E. Henderson states that the steam car has all its energy stored ready for a short run or climb, and can do it well, but afterwards it is not always ready to continue its performance. The idea that steam cars accumulate a great pressure beforehand is, I think, now quite exploded, and I may say that standing still waiting for the signal to start on a short run or climb is the worst start it is possible for a steam car to have.

On the other hand, it is well known to those who have had to do with steam car racing, that if a good timing is to be made the steam pressure must be kept down 25 per cent. below working pressure before the start, in order that the fire may come on full immediately the car is started, the boiler making steam up to full working pressure whilst racing. I should like to point out that on the Mount Washington hill climb, a little 8-h.p. Stanley steam car came off better than a 40-h.p. petrol car, and not on a short climb. Also, I do not think Mr. Henderson has handled a modern steam car, and I shall be pleased to demonstrate that 30 miles per hour can easily be maintained up hill and down.—Yours truly,

B. 126.

AN INTERESTING MOTOR QUERY.

To the Editor of *The Motor-Car Journal.*

Sir,—Although warm air is considered to furnish the best mixture for a petrol engine, it is the experience of practically every motorist that in the cool of the evening, after sunset, the power of his engine is immensely increased. Although it may have lagged during the warm, bright hours of sunshine, the fall of night brings with it an acceleration of pace that is undoubted. There are evenings when the motor seems fairly to "take the bit in its teeth," so to speak, causing the car to simply romp home. Good as it may have run during the day, it then runs better, no matter how the ignition or throttle levers may be regulated. Despite the fact that it is at variance with accepted beliefs, the phenomena or contradiction has never been satisfactorily explained; indeed, small attention appears to have been paid to it, although it would seem to offer a field of possible discoveries of value. Various reasons have been advanced as to the cause of this change in the behaviour of a motor, there being many who consider that it is not due so much to change of temperature as to atmospheric conditions. It would therefore be interesting if some expert motorist could define exactly what takes place, as then an attempt might be made to supply the same conditions artificially during the day, thereby getting so much more power out of the same quantity of fuel.—Yours truly,

Inquisitive One.

STARTING TROUBLE.

To the Editor of *The Motor-Car Journal.*

Sir,—Will any of your readers kindly tell me how to overcome the following difficulty? I have an 8-h.p. car, single cylinder Simms' engine, magneto ignition, which I can always start at the second turn of the handle when commencing a journey or when the engine is cold, but after running some miles and stopping, I have to turn sometimes a dozen or more times to start the engine. Why should it be more difficult to start when the engine is warm; would the auxiliary accumulator set for low tension magnetos remove the difficulty? How are they used? I should be glad of the experience of any of your readers who have used same.—Yours truly,

Fired Out.

[We are inclined to think that "Fired Out's" trouble is not at all to do with the ignition, as if this were the case he would have the same difficulty when starting cold. The trouble is generally reversed, trouble in starting cold and not when hot. We should be rather in favour of trying the compression, and if found to be weak when hot, use a somewhat thicker lubricating oil. This appears to be the only possible trouble, as the engine will readily start when the lubricating oil is cold and will cause a good compression, but invariably does so when it is warm and likely to let the compression pass the piston.]

WINTER PRECAUTIONS.

To the Editor of *The Motor-Car Journal.*

Sir,—Now that the winter is coming on, I should be glad to know what means I may safely employ to heat my motor stable. The shed is with wood roof and tile floor, and as it is only temporary, I do not wish to put in a hot water installation. Would it be permissible to use a coke stove of the "Tortoise" type in a corner of the shed, or would the stove have to be outside, and the flue simply carried through? Petrol is stored outside, only the small supply in the tank and carburettor on the car being in the shed.—Yours truly,

W. J. L.

[It would be an unwise risk to have anything of the nature of an open fire, even that of a "Tortoise" stove, in the motor house, as one never knows when a car may return from a run with a leaky petrol tank or pipe. The stove should be outside, with flue through the stable, though it is would be rather uneconomical in fuel with an iron stove unless it could be arranged to warm an adjoining room. If the stove is entirely outside, one of those with tile bodies would seem preferable. We have known of an inexpensive hot-water apparatus being used thus rigged up with a couple of discarded car radiators and a coil of copper pipe over a paraffin heater as boiler, the radiators being coupled in parallel, to get easy circulation.]

NON-SLIPPING TREADS.

To the Editor of *The Motor-Car Journal.*

Sir,—My car is put by for the winter. What is the best course to preserve the tyres? Non-skids are constantly referred to, but I notice no reference to "Lemperurs." My experience is that one alone seems to afford complete protection; two not being tried, as one sufficed.

On first using this device two covers were in quick succession burst. The tyres were Dunlops, and had travelled about 2,000 miles. Is this the fault of the tyre, the non-skid, or otherwise? R placing with new covers, the result has been very satisfactory.—Yours truly,

George Drinkwater.

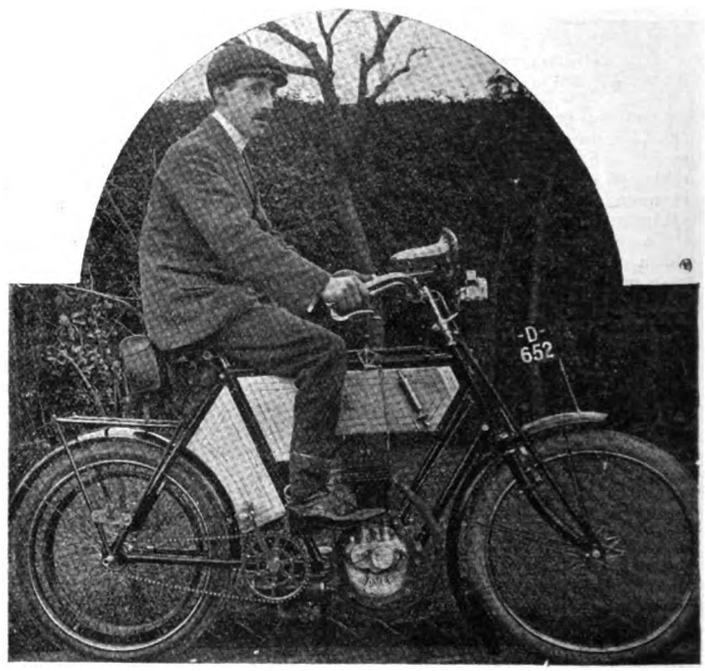
Isle of Man.

[We shall be pleased to have the experience of other users with regard to non-skidding devices.]

FOOT RESTS FOR MOTOR-BICYCLES.

To the Editor of *The Motor-Car Journal.*

Sir,—I thought perhaps some of the readers of the *Journal* would like to hear of a foot rest I have made and put on my motor-bicycle. It will be seen from the photograph how much more comfortable it is to have one's feet on the rest than it is on the pedals. I have found it of great advantage. After one has ridden 40 miles without a stop, one gets



quite stiff, with the feet always on the pedals; but now, with my feet on the rests, I can ride 40 or 50 miles without getting off, and feel just the same as when I started. With the rest fitted in front of the pedals, one sits right on the springs of the saddle and does not get the shaking caused by the holes in the road. The rests do not, of course, interfere with the pedals.—Yours truly,

A. C. Beech.

Motor-Cabs.—In reply to the inquiry *re* motor-cabs by a hotel proprietor in our last issue, the Dixi Motor, Limited, 20-22, Brompton Road, S.W., and Messrs. Delamotte and Foster, 422, Birkbeck Bank Chambers, E.C., are able to supply motor-cabs for hotel and station work.

Invicta Accumulators.—A Belfast reader of the *Journal* asks for the name and address of the firm who manufacture the Invicta accumulator for motor-cars.

Primary Cells for Charging Accumulators.—Several correspondents have written in reply to Mr. C. Crompton's letter of last week to the effect that the cells he describes are those of the Boron Battery Company, of Liverpool.

Induction Coils.—Replying to Mr. F. J. Gregg, the Guenet induction coils are made by M. J. Guenet, 5, Rue Montmorency, Paris.

A Satisfactory Hotel.—A London motorist writes enlogistically of the treatment he has received at the White Lion Hotel, Devizes, and also of the reasonable charges at the hostelry, the proprietor of which is kindly disposed towards motorists.

Owners for Tyres Wanted.—The police authorities at Chippenham, Wilts., have two motor-car tyres for which they are seeking the owners.

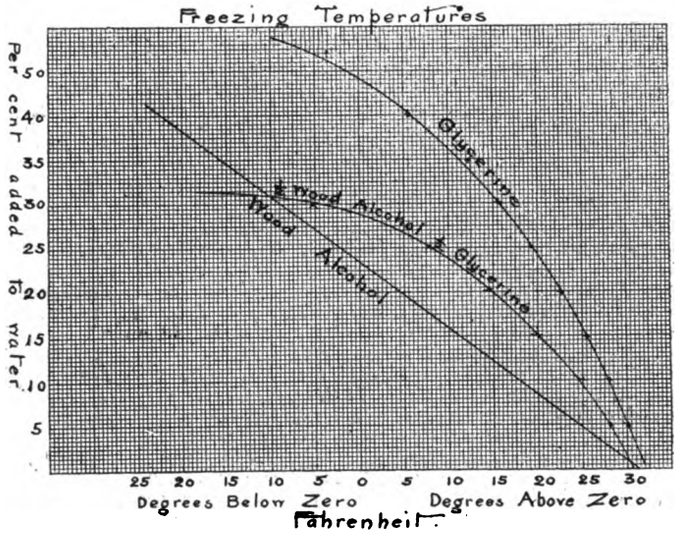
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COLD WEATHER PRECAUTIONS.

ANTI-FREEZING EXPERIMENTS.

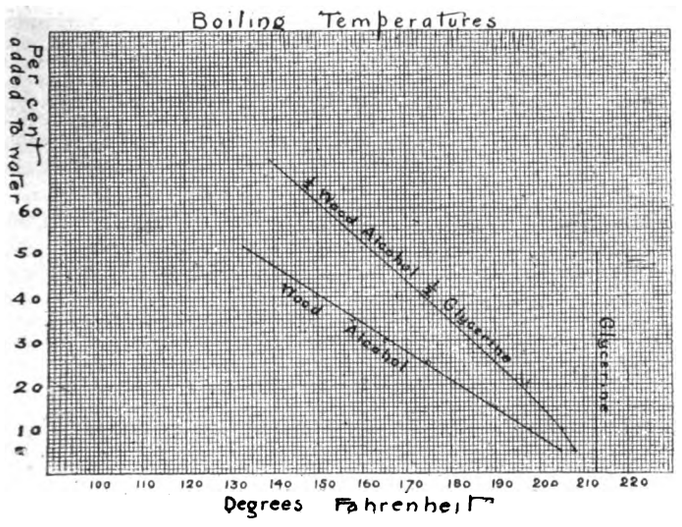
By HENRY SOUTHER.

SINCE my first article (see *Motor Car Journal*, November 12th, 1904, page 768), further investigation made to determine the relative good qualities of three anti-freezing mixtures has developed facts that place the water-cooled car beyond the point of risk or danger. It has been found that some machines containing a very small amount of cooling



liquid boil easily with alcohol on a mild day, but it must be stated, in connection with this, that the amount of alcohol used was greatly in excess of what is necessary for this season of the year. In my own case I added some 30 per cent. more than a month ago, and within a few days found that I still had 20 per cent. left, showing that the loss is not very bad from a financial standpoint with wood alcohol at 3s. per gallon.

The use of glycerine added to water is advocated by many and used successfully. It destroys any rubber tube connections slowly but surely that there may be in the circulating system, but that is not a serious matter. The percentage of glycerine required to meet a given temperature is very much larger than the percentage of alcohol required, and the cost is more than double It occurred to the writer that a mixture of alcohol and glycerine would, perhaps, after all, meet all objections best, and this has been tried. The accompanying diagrams show the curves for the freezing of various percentages of wood alcohol added to water, a



mixture of half alcohol and half glycerine added to water, and a mixture of pure glycerine added to water. One peculiarity in these curves will be noticed at once; that the wood alcohol curve is nearly a straight line; that the efficiency of the wood alcohol and glycerine mixture in meeting freezing temperatures increases very rapidly with an increase of percentage, and at about 30 per cent. is quite as efficient as the wood alcohol alone. This mixture is practically good for 10 degrees below zero. The glycerine curve is nearer a straight line, but its efficiency increased very rapidly after passing 30 per cent.; but it is seen that 30 per cent. glycerine will freeze at about 15 degrees F., and that to be safe for 10 degrees F., below zero, somewhere in the neighbourhood of 55 per cent. will be necessary.

The other diagram shows the boiling points of the three compounds. In boiling, a mixture of glycerine and water behaves very differently from the others—the glycerine raises the boiling point of water only about one degree, no matter what percentage may be added up to fifty per cent. Pure glycerine boils at about 330 degrees F., which point is so far from that of the boiling point of water that the glycerine behaves entirely independently, and the water boils, leaving the glycerine in a perfectly liquid state. The mixture of half wood alcohol and half glycerine is decidedly better so far as boiling is concerned than the pure alcohol mixture. From these results, it is seen that the half and half mixture with water is very good as far as freezing is concerned, and, also, fairly good as to boiling.

It, therefore, seems to me that if the half and half mixture is used motorists will get the best results, adding a small quantity of wood alcohol from time to time as the weather gets colder, to reduce the freezing temperature. The glycerine will stay there all the time as a constant without loss, and insure against any moderate freezing temperatures. If all glycerine is used, then a very large percentage is seen to be necessary. It is scarcely worth while to add less than 35 or 40 per cent., which will suffice for five degrees or ten degrees F. There is certainly no reason, with these data before one, why a water-cooled machine should not be run in any weather, and even left in a cold stable throughout the entire winter. It may fairly be said that the freezing problem is settled. —*The Motor World.*

CLUBS AND ASSOCIATIONS.

NOTTINGHAM.

THE fifth annual dinner of the Notts. Automobile Club was held at the Victoria Hotel, Nottingham, on Friday of last week, the company present including Colonel H. C. L. Holden (chairman of the A.C.G.B.I.), Messrs. Clay (Chief Constable of Nottingham), E. P. Hooley (surveyor of the Notts County Council), C. Hardy (president of the Notts Club), A. R. Atkey (hon. secretary), Dr. Herrick, Dr. Ashwell B. Granger, H. Belcher, Dr. Gass, J. C. Bennett, M. Ross-Browne, P. L. Jones, R. S. Clifford, W. M. Hutchinson. W. D. Foster, Dr. Palmer, G. H. Kirk, J. Anderson, Dr. Thomson, R. R. Latham, and the gentlemen whose names follow in the report. In the absence of Colonel Powell, Mr. Ross-Browne briefly proposed the parent body, coupling with it the names of Colonel Holden and Mr. Orde, who responded. Mr. Claude Johnson gave the "Notts. Automobile Club," and the secretary, Mr. A. R. Atkey. He paid a well-deserved tribute to the splendid services of Mr. Atkey. The last named gentleman, acknowledging the toast, said in all his duties he had invariably received splendid assistance from the gentlemen present, who always displayed a helpful spirit of enterprise and enthusiasm. The club had incidentally formed friendships and fostered a spirit of companionship. The motor-car, he said, had other virtues besides its puff and smell. Mr. S. F. Edge gave "The Sport and Industry," together with the names of the Hon. C. S. Rolls, Messrs. Jarrott and Instone. "The Visitors" was proposed by Mr. E. W. Wells, and responded to by Messrs. T. W. Staple-Firth, P. S. Clay, and E. P. Hooley; and "The Chairman," given by Mr. Booth Granger and acknowledged by Mr. C. Hardy. During the course of the evening it was announced that Mr. Atkey had been obliged, through pressure of business, to tender his resignation as hon. secretary. Mr. E. W. Wells expressed the great appreciation of the members present of the great services he had rendered the club, and presented him with a gold watch value £25, that had been subscribed for by his fellow-members as a token of esteem. Mr. Atkey was carried shoulder-high to the chair, and amidst loud cheers accepted the gift, which he acknowledged with feelingly expressed gratitude.

YORKSHIRE.

THE Yorkshire Automobile Club held its fifth annual dinner on Friday of last week, at the Great Northern Hotel, Leeds. There was a record attendance, and the proceedings were of a very enjoyable character. Mr. A. W. M Bowville, of Bridlington, one of the vice-presidents of the club, took the chair, and was supported by the Lord Mayor of Leeds (Mr. R. Armitage), Messrs. E. Hepper, J. H. Kaye, R. S. Kirk, A. Kirk. H. R. Kirk Harrison Benn, Major Tarry, Arthur Willey, J. Hepper, Dr. Rumboll, L. Hey (hon. treasurer), A. W. Dougall (hon. secretary), H. A. Jones, R. Winn, Norris, Hepworth, Walter Jackson, T. Whitaker, A. Masser, H. A. Routh, T. Atkinson, E. Faiers, F. Marwood, and others. In proposing the toast of "The King," the chairman referred to His Majesty as "the first motoring monarch of Merrie England." The chairman afterwards proposed "Automobilism." He thought the movement had suffered from the inventor. He thought the inventor was rather too much of a specialist; he did not think enough of what had been done in engineering practice in other branches. He had not a sufficiently catholic outlook on the matter. Mr. E. Shrapnell Smith proposed "The Yorkshire Automobile Club." He said that as motoring grew difficulties of organisation were springing up all over the country. He suggested that the best solution of the difficulties would be strong local clubs and county federations. Mr. E. H. Hepper, responding to the toast, said in Leeds there were very few drivers who drove cars at an objectionable speed. It was likely that during the next session of Parliament a Bill would be brought in for the universal lighting of all vehicles. and they as a club. as well as all other road users, would be only too delighted when that Bill was passed. Mr. J. H. Kaye also

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responded on behalf of the Huddersfield branch. Mr. Rees Jeffreys, in submitting the toast of "The Town and County Authorities of Yorkshire," mentioned that there were more than 200 local authorities in the county having charge of over 13,000 miles of road. He urged that the authorities should combine to abolish the toll gate on Selby Bridge, on the Great North Road. The Lord Mayor of Leeds, in replying to the toast, said that in Leeds very large additions and improvements had been made to the principal streets. He had himself experienced great inconvenience owing to the presence on the roads of slow-moving vehicles without lights. Such vehicles were not only dangerous and disagreeable to automobilists, but also to people who drove horses, and he should be glad to see a universal lighting Bill passed. In conclusion, his Lordship said that although at present he was not an automobilist, he hoped to become one next year. (Applause.) Major Tarry, Chief Constable of Leeds, also replied.

A general meeting of the Club is being held on the 9th inst.

SOUTH-EAST ESSEX.

The South-East Essex Automobile Club held its first annual dinner on Thursday evening, December 1st, at the Alexandra Hotel, Southend-on-Sea, Essex. The chair was occupied by Dr. Silva Jones, one of the pioneer motorists of the district, and a very pleasant evening was passed, aided by the usual toasts and songs.

THE RESPONSIBILITY OF A MOTOR GARAGE PROPRIETOR.

Before Mr. Justice Lawrance and a special jury, in the King's Bench Division, an action has been brought by the Hon. Richard Molyneux, Mayfair, to recover from Mr. E. C. Cresswell, High-street, Newmarket, owner of a garage and repairer of motor-cars, the value of a motor-car which was destroyed by fire whilst in the care of the defendant, alleged to be due to the negligence of the defendant and his servants. The defendant denied negligence and also denied liability. Mr. Duke, K.C., in opening the case, said the plaintiff, through the agency of a friend, the Hon. Mr. Stanley, purchased a car in Paris in June of last year, giving for the car and the accessories the sum of £930. In January of the present year the plaintiff lent the car and the services of his chauffeur to a friend who had a house in the neighbourhood of Newmarket. On the 26th January one of the pumps of the car went wrong, and in consequence the car was taken to the defendant's garage for repairs. On the following day a fire broke out on the defendant's premises, and several cars, including the plaintiff's, were burnt up. The fire was caused by the explosion of petrol vapour, and the plaintiff alleged that the defendant was responsible for the destruction of the car. The plaintiff, his driver, and Mr. E. H. Lancaster having given evidence, Mr. Powell, for the defence, submitted that no negligence had been proved on the part of the defendant, and therefore he was not liable for the damage done. The fact was that the plaintiff's man had dropped some of the petrol from his car, and this was unfortunately fired by the electric hand lamp, which, when an apprentice was about to use it, gave him a shock, upon which he dropped it. It was true that a lamp was taken from the plaintiff's car, and it was after getting that lamp that the petrol fired, the flames spreading and destroying the building, including some eight cars.

During the second day's hearing Mr. Henry Belcher, manager of Humber (Limited), Beeston, said that their works were lighted entirely by gas. In the provinces nearly all garages were illuminated by gas, and it was a general practice to light and extinguish motor-car lamps in the garage. He had also seen open forges in garages where they were used as repair shops. On Tuesday the hearing of the action was concluded. Mr. Ronald Walker, for the plaintiff, having replied on the whole case, his Lordship summed up, and the jury, after an absence of two hours and a quarter, found a verdict for the defendant, for whom judgment was given.

ALLEGED OLD CAR FOR NEW.

The action of the Automobile Components Co., Ltd., v. Lewis came on for trial on Monday before Mr. Justice Ridley and a common jury, in the King's Bench Division. No one appeared for the plaintiffs, and the case was only proceeded with in regard to defendant's counterclaim, defendant being Mr. Corney Lewis, a dentist, of Pontypridd. Mr. Lewis said in August last year, seeing some advertisements about motor-cars, he communicated with the plaintiff company, asking their terms for a small second-hand car. They replied saying they had a new car, absolutely reliable, for £75 12s. He agreed to take it, and paid a deposit of £24, giving bills for the balance. The car was sent in September, but when he received it he found that it was anything but a brand new reliable car. The tyres were worn out, and no thing that could be done would induce the engine to work. He therefore claimed to recover his £24 deposit, £4 12s. for carriage to Cardiff, stalling at 2s. 6d. per week, and other sums amounting to four guineas for expenditure in respect of the car, together with the return of his bills. Mr. Joseph Aylifle, of T. Aylifle and Sons, motor-car manufacturers, of Cardiff, said he examined the car, and found the tyres perished and the machinery unworkable. In the result plaintiff's action was dismissed with costs, no one appearing to support it. On the defendant's counter-claim the jury found a verdict for the defendant, damages £47 5s., with delivery up of the bills. Judgment with costs.

IGNITION.

On Monday Sir Oliver Lodge read a paper on "Ignition as applied to Internal Combustion Engines" before the members of the Automobile and Cycle Engineers' Institute.

Having described the general principles governing the ignition of inflammable gaseous mixtures, Sir Oliver went on to point out that such ignition involved the raising of the mixture to a certain critical temperature locally, and that combustion then spread from this ignition centre. The spreading was influenced by the concentration of the mixture—that was, the proportion of combustible to incombustible molecules, by its state of compression and by its temperature. Since also the molecules of different gases had different rates of motion, the lightest moving fastest, the predominance of the lighter constituent also favoured spread of combustion. In a rich mixture the rate of combustion became so rapid as to be explosive, because many molecules came within the influence of the ignition centre, but in a weak one, owing to the comparative fewness of combustible molecules, the spread of combustion took a meandering course, or might fail altogether. To increase the rate in a weak mixture compression would be resorted to, and it would be fired at several points simultaneously. The speed of combustion was also affected by the contiguity of cold surfaces, such as the walls of the cylinder in a gas-engine; the result was to extinguish the combustion to a certain extent, and there was bound to be some unburnt material. Hence it would be better to work with hot walls, if possible, and he wondered whether a century hence engineers would still be using water-jacketing. The use of hot materials was not outside the possibilities of invention, and the present system seemed a mistake, like that of the Newcomen engine, in which everything was cooled down at each stroke. He proceeded to explain the advances that had been made in the methods of ignition. Some of the older methods were described, and then electrical devices; first magnetos and those using low-tension currents were discussed, as well as those that employed the high-tension current of an induction coil. A method which depended on inserting in the circuit a pair of Leyden jars, the spark from the outer coatings of which was employed to fire the mixture in the cylinders, was also described. This arrangement had the advantage that short-circuiting was impossible, and that the spark was not affected by moisture—indeed, would actually pass under water.

CASE DISMISSED.

Mr. Alfred Hutchinson, motor-car driver to Sir W. G. Armstrong, Whitworth and Company, was summoned at the Bow Street Police Court on the 2nd inst. for that he did unlawfully use a certain motor-car for a period of one hour after sunset and one hour before sunrise on which there was not kept burning a lamp so contrived as to illuminate and render easily distinguishable the letter and figures on the identification plate fixed on the back of the said motor-car. Evidence was given by two policemen. One stated that upon receiving a signal from another policeman he flashed his light to the driver to stop and the driver stopped. Both policemen admitted on cross-examination by Mr. Staplee Firth that the lamp was burning brightly, but that it was fixed too high up. Mr. Worby Beaumont gave evidence for the defence and stated that he had examined the lamp in the position in which it was fixed. Mr. E. Gascoine also gave evidence, and ultimately Mr. Fenwick dismissed the case, stating that he considered that as there was a doubt he would give the defendant the benefit of it.

CASES AGAINST MOTORISTS.

Place.	Summoned for	Fine.
Bradford	Driving without a licence	5s.
Birmingham	Using unregistered motor-cycle	Dismissed on payment of costs.
Marylebone	Driving unregistered car	£5, etc.
Bromley	Keeping motor-carriage without licence	10s.
,, ...	Driving dangerously	£1, etc.
Ayr	Failing to stop when signalled to	£1, etc.
Brighton	Dangerous speed	£5, etc.
Thames	Keeping motor-car without licence	1s., etc.
West London.....	Allowing motor-car to travel backwards for a greater distance than necessary.	3s., etc.
Lambeth	Dangerous driving	£3, etc.

A motor lifeboat will be stationed at Newhaven for the winter.

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COMMENTS.



ALREADY the central political organisations of the principal parties in the House of Commons are tabulating the owners of automobiles belonging to their particular political faith—or at least, such as have expressed their willingness to lend their vehicles for the purpose of bringing voters to the poll at the general election. At the bye-elections the motor cars have proved a greater factor than they are likely to be in the general contest, for the simple reason that concentration upon any one constituency will not be possible. When it was found—before the last reform of the law relating to elections—that the cost of carriages by single candidates was running into hundreds of pounds, Lord James of Hereford secured a provision for more polling-places and the abolition of the direct hiring of carriages. Now the latter have to be lent, and just as voters were getting used to walking to the poll, the motor-car has come along, disturbing all the notions of political agents. For the voter wants a ride in a motor-car and some, more obstinate than others, have declined to vote unless such provision was afforded. Should they be equally intractable when the general election takes place, a new terror will have been added to the difficulties of the political agent.

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An Exception.

THERE are, of course, a few discordant chords in the chorus that favours the use of the automobile for electioneering purposes So far as Sir Henry Aubrey-Fletcher is concerned, little electioneering is likely to be done by motor-car in his division of Sussex. Sir Henry assisted in the recent Horsham fight, and there, in his own words, they had "the screeching, howling noise and smell of motor-cars dashing through the villages day and night." Speaking at the annual fete of Worthing Primrose Leaguers last week, Sir Henry said he thought he could promise them one thing—they would never see him dashing about in a motor-car. He would sooner go to any exertion, wear out horse after horse, and tramp miles on foot about his constituency, than go about in a motor-car. Really!

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Mr. Balfour as Motorist.

WITH this issue we give as a Supplement an interesting picture, showing the Rt. Hon. A. J. Balfour just returning from a motor-car trip to his official residence, No. 10, Downing Street, London. The interest of the Premier in the automobile movement is no new thing; it began in the days when Dashwood Hill contests were a feature in the motor car year, and we remember the famous occasion in 1902 when Mr. Balfour mounted the hill on a 40-h.p. Mercedes—Mr. Campbell Muir driving—in 1 min. 13 sec. Since then he has become an enthusiastic motorist, making many long journeys by car, and in other ways showing how closely he follows the movement. The Premier not only regards the motor-car as a means of pleasure; he sees in it some help to the solution of many of the modern difficulties associated with the congested populations of our great towns.

Motor Experts on the Bench.

LAST week we referred to the innovation on the part of Judge Addison, K.C., at the Southwark County Court, in having a motor expert sitting with him in order to secure proper guidance during the hearing of a case involving automobile technicalities. Soon after we went to press judgment was given, when his Honour complimented the legal gentlemen on the trouble they had taken, expressing his astonishment at the great amount of technical knowledge displayed. During the hearing the expert, he said, was necessary, because of the want of technical knowledge in the court, and if judges only had the courage to appoint advisers in similar cases an enormous amount of time and contradiction would be saved. When it came to the question of the payment of the expert's fees, the judge suggested that the parties in the case should share. The defendant, who won the action, claimed, however, that the expert was necessary solely as the result of the plaintiff's alleged breach of contract. Judge Addison controverted this with the modest suggestion that it was his own want of special knowledge that made the expert's services necessary, and the point has been referred to the Registrar for settlement. Apparently in cases where such assistance is to be called into requisition each party should, according to the Judge of the Southwark County Court, bear a moiety of the expense.

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Seaside Races.

MOTORISTS will be very busy next year in connection with the many motor car meets and races that are being organised at English sea-side resorts. The secretary of the Yorkshire Club, for instance, has just received from the district council of Filey a letter sanctioning the holding of speed trials by the Club on the sands at that growing place. Blackpool, too, will have speed trials, somewhat similar to those which recently took place. The Southport Corporation is anxious that that town shall not be ignored. The Lincolnshire Club promise a meet at Skegness, the South Wales and Monmouthshire organisation will hold a race gathering at Port Talbot, and another gymkhana at Hastings is also in contemplation. Should Bexhill, Eastbourne, and two or three other towns which have always shown some partiality for such gatherings decide to invite motorists again, it is evident that the holiday period of the year will be largely filled, so far as motorists interested in racing are concerned.

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Warnings in Surrey.

MOTORISTS touring in unfamiliar places have frequently come to danger when the presence of a notice warning them of the steep decline or the narrow sharp turning would have saved bad accidents. Dye House Hill, at Thursley, near Godalming, is a case in point. Several accidents have occurred there, and the corner is one of considerable danger to all users of the road. Attempts to induce various organisations and authorities to put up a warning board having failed, Mr. C. Cordingley has, at length, persuaded the Hambledon Rural District Council to erect the necessary boards at his expense, and thus motorists will, in future, have due warning when nearing that particular spot.

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A Ten Guinea Tax.

THE members of the Berks and Oxon Chamber of Agriculture are doubtless very reasonable persons in their individual capacity, but when they appear in all the glory of their collective importance they become somewhat one-sided in view and irrational in judgment. At their last meeting Mr. W. J. Henman proposed, Mr. A. Simmons seconded, and the meeting endorsed a resolution to the effect "that a tax of not less than £10 10s. a year be imposed on cars of four wheels or more, and that cars with two wheels pay £5 5s. per annum, in addition to the existing licences, the money to go to the County Highways fund in order to prevent as far as possible damage to the roads and the dust nuisance." An amendment was moved, but it was of nearly as drastic a character, so that automobiles were practically without advocates in the gathering. But surely Mr. Henman and his friends will, upon reflection, see how such a proposition would seriously prejudice a growing industry if it stood any chance of adoption—which it certainly does not.

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A Lady Automobilist.

THE Hon. Mrs. Maurice Gifford, whose portrait we reproduce, is one of the best-known lady automobilists in Lincolnshire. She runs a 12-h.p. Sunbeam, and is an expert driver, always steering her own car. On one occasion this year she and her husband took part in a driving competition promoted by the Lincolnshire Club in Grimsthorpe Park, when



The Hon. Mrs. Maurice Gifford on her Sunbeam Car.

she demonstrated her skill in driving by steering the car to victory. Not only is the Hon. Mrs. Gifford a keen automobilist, but she is an ardent follower of other sports and pastimes. Her favourite occupation in winter is hunting. Both she and her husband are strong supporters of the automobile movement in Lincolnshire, and once during the past season they organised a club meet at Boothby Hall, their place near Grantham, where a novel driving competition for the delectation of the members took place.

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Education needed in Wales.

AT Newport (Mon.) is a Chamber of Commerce, some of the members of which need education with regard to equine and automobile matters. Mr. H. Williams raised the question at the last meeting of the reduction of the maximum speed of motor vehicles passing through the district, and moved a resolution approving of the idea. This was agreed to with unanimity, some being of opinion that motor-cars were dangerous things. One speaker declared, in a tone of sweet reasonableness, that they were "like the infernal regions on wheels," a style of phrasing that certainly did credit to his powers of expression. On the same day a gentleman was riding a horse in Cardiff when the animal stumbled and crushed a woman carrying a baby, who was near, against the wall of a railway arch so severely that the infant's life is despaired of. Accidents with horses are more frequent than many people imagine, but, unless they are unusually serious, they rarely find their way into the papers. Why does not the Newport Chamber of Commerce concern itself with such dangers of the streets instead of adopting a minatory attitude towards a form of locomotion that will do much for commerce and business the welfare of which such an association exists to promote?

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The Economy of the Car.

BEFORE the members of the London Institution the Hon. C. S. Rolls has been lecturing on the development of motor traffic, and, with the aid of lantern slides, showing its advance during the last century. In the course of the address he said that the time was well-nigh ripe when the public would be able to purchase a small, simple, reliable car for £100 to £150 that would carry three persons and travel at the rate of twenty or twenty-five miles an hour. When the price of motor-cars came within the reach of the less moneyed classes, people whose work was in towns would be able to live in the country, instead of clustering as they now do around railway stations or tramway routes. The lack of success in connection with the tradesman's light delivery van had been owing to makers using the standard mechanism of their pleasure vehicles instead of designing special frames to carry the loads. Touching upon the transport of heavy goods, Mr. Rolls mentioned that a ton of goods could be carried forty miles for 5s. 6d. without any changing or handling of the goods from the start to the place of destination.

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Branding Motorists.

ACCORDING to Mr. F. W. Verney it would be well if motorists convicted of furious driving were to be compelled thereafter to have their cars painted yellow and marked with the Government broad arrow. We are almost surprised at the modesty of Mr. Verney, who has thus been giving ideas to the Buckinghamshire Chamber of Agriculture. Why not return to an earlier method of branding the individual, so that wherever he was he should be known and recognised as a very undesirable person? Ere motoring became popular ordinary mortals had a proper dread of conviction in the police-court; but, thanks to the travesties of justice that have been played by magistrates and police on many a country bench, the respect for the impartiality of the law has been greatly minimised since the Motor Car Act came into operation.

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Provincial Instruction.

SEVERAL owners of automobiles in the town of Warrington recently asked the Corporation to organise a class at the local Technical Schools for instruction in the theory, structure, and management of motor-cars, similar to those that are already in successful operation in the Metropolis. The authorities, however, could not see their way to accede to the request, whereupon the directors of Messrs. Joseph Crosfield and Son, Limited, resolved to hold the class in the Works' Assembly Room from 2.30 to 3.30 each Thursday afternoon. The attendance promises to reach or exceed thirty. At first sight it would seem somewhat extraordinary for a firm in no wise connected with the motor industry to adopt this course, but Messrs. Crosfield have always shown considerable public spirit with regard to such matters, and would like, through our columns, to thank the leading motor manufacturers and agents in this country for the kind way in which they have responded to requests for details regarding their special manufactures. In many cases these firms have not only sent their catalogues and driving manuals, but they have

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sent photographs, lantern slides, and specimens of their material, and anything and everything which they thought was likely to prove of interest to members of the class.

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English Drivers in Ireland.

FROM a case which was heard in a Dublin police court the other day, it would appear that English motor-car drivers do not like Dublin any more than did the Rev. Robert Spalding appreciate London. The driver of a motor-lorry, belonging to the Leinster Paper Company of Clondalkin, was summoned for driving the vehicle without a licence. The company was also hauled before the magistrate for employing an unlicensed driver. At the court it was explained that they had previously had many licensed drivers in their employ, but they had left after a while to return to England. So before obtaining licences for any more drivers, they had decided to make sure they were likely to stay and thus avoid unnecessary expense. Under the circumstances the idea was probably one that appealed to common sense, but it contravened the legal position, so the owners of the motor-lorry and their driver were both dismissed with cautions and costs. The magistrate said that the company could not be allowed to train men at the expense of the public. "That," he said, "might mean a great many broken bones." We did not know before that there was any connection between licences and efficiency; perhaps Mr. Drury, the magistrate who thus illuminated his judgment with legal wisdom, will explain?

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Agriculturists v. Motor-cars.

THE Staffordshire Chamber of Agriculture, meeting at Stafford on Saturday, passed a resolution urging the Central Chamber and local authorities to take measures to ensure more stringent restrictions for the protection of the ordinary users of the roads against motorists. A strong protest was entered against wealthy men being allowed to race about the country for their pleasure without regard to the convenience and safety of the general population. A special ground of complaint was that the drivers employed were in the main ignorant and careless with respect to horses. Such generalisations, while sustaining public prejudice against motor-cars, do not carry us much nearer the solution of the problem. Agriculturists should remember the old antipathy of their class against railways in the early Victorian days and recognise how completely they have had to change their views.



A Reminiscence of the Military Manœuvres in East Anglia.—A De Dion Car in the Field.

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Motor Fire-Engines.

LAST week the Fire Brigade Committee of the London County Council recommended that tenders be invited for the supply of a motor steam fire-engine. Sir M. Beachcroft asked the Chairman of the Committee if he considered that motor traction was satisfactorily adaptable to fire-engines. Mr. E. Smith replied that the motor-engine already in the possession of the brigade had been fairly satisfactory. There were, however, things about such vehicles which rendered them less reliable than engines drawn by horses. The committee were watching every invention in that form of traction and its adaptability to fire-brigade purposes, and they hoped to make a fuller report in due course. At present, however, they could not entirely rely on motor fire-engines. The recommendation was adopted, and we hope the result will justify the committee in their experiment.

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An Expensive Little Trip.

AN amusing incident is related regarding a deputation consisting of the Chief of the Greenock Police, an ex-Bailie, and a motor-car mechanic, who recently visited Glasgow. They journeyed to the city for the purpose of weighing one of the vehicles which were then being used by the West of Scotland Carrying Company, Limited, in their motor carrying service between Glasgow and Greenock. On arrival at the company's works, it was pointed out to them that the warrant did not compel the company to place the vehicle on the weigh-bridge, and that the visitors would require to do this for themselves. The mechanic, who had been taken up from Greenock, then boarded the car, but in taking it through the work gates he drove the motor into the wall, of which a large portion was knocked away. He reversed the car, and it then ran across the roadway and damaged the wall on the opposite side, besides breaking a plate-glass window. A constable is reported to have come upon the scene at this juncture and demanded to see the driver's licence. This little matter had apparently been overlooked, and the officer thereupon took the names and addresses of the trio. It is believed that the damages consequent on the little outing will amount to considerably over £100.

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Indian Progress.

CONSIDERABLE interest attaches to the outlook for automobiles in India by reason of the forthcoming trials and competitions to be held there, and which are attracting international attention. From a French commercial journal we learn that only five years have elapsed since the introduction of motor-cars into India; there are now about 150 in the country, mainly in a few of the larger towns and in the capitals of some native States. The practical advantages to be derived from automobiles are as yet by no means appreciated; the European or native purchasers treat them as toys, available for short spins, but useless for long journeys. The chief reason for this is the lack of mechanics, drivers, and repairing shops. In spite of these drawbacks, the importation shows a steady increase; a considerable development of the trade might therefore be confidently expected to result from the establishment of garages with repairing shops attached, in such towns as Calcutta, Bombay, and Madras. It has often been suggested that automobile services

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should be established in connection with existing railways; but hitherto such schemes have fallen through owing to the existence of difficulties which these establishments would obviate. The demand for very fast cars is said to be small, an average speed of about eighteen miles an hour being held to be sufficient in most cases.

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In the New Forest.

As in Ireland, animals have the right to sleep on the highway in the New Forest, and should an automobile happen to pass over their bodies, the owners pour forth all manner of threatenings against the motorists. Of course, the local owners of motor-cars are not the delinquents; at the New Forest Verderers' Court held at Lyndhurst it has just been asserted that such things are done "by the people who came from London on a Saturday night, and then went so fast that it was utterly impossible to stop them or know who they were." That cattle in the New Forest have been killed by motorists is apparently clear, and, although the drivers have no legal responsibility in the matter, it is satisfactory to learn that they are starting a fund from which to help commoners whose animals are destroyed in motor-car accidents. This, however, must not be regarded by motorists as condoning, in any way, furious driving through the New Forest, where every care should be taken to propitiate public opinion, and not to arouse ill-feeling.

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The above Illustration shows the method adopted in the recent Vanderbilt Cup Race for rapidly Refilling the Petrol Tanks of the Competing Cars.

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Free Navigation for Motor-Boats.

Those interested in the development of the motor-boat movement in this country should watch with close attention the assistance which the authorities in France are giving to the progress of the sport. The Minister of Public Works in Paris has decreed that all pleasure-boats under ten tons having a mechanical motor are to have a free passage through the locks on the Marne between Charenton and Epernay. This removes the difficulties which owners of motor-boats have frequently experienced at the hands of lock officials. The same privilege is to be extended to all the locks on the Seine and other rivers and canals, and in a short time motor-boats, it is expected, will have free navigation through all the rivers in France.

Removal in the New Year.

Early in the new year the offices of *The Motor-Car Journal* will be removed from Shoe Lane to 27, 29, 31, and 33, Charing Cross Road—a new building of splendid frontage, large dimensions, and ample accommodation for automobile firms anxious to be conveniently near the chief avenues of the West End. We shall make a definite announcement as to the date of removal in an early issue; meanwhile this preliminary notice is made for the benefit of those who have lately seen *The Motor-Car Journal* sign in the windows of its future home, 27–33, Charing Cross Road, London, W.C.

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The Universal Lighting of Vehicles.

On Tuesday an important deputation was received at the Home Office by the Hon. T. H. Cochrane, Under Secretary of State for that Department. On another page we give the memorandum which had been prepared by the Motor Union on the subject, and in introducing the deputation the Hon. A. Stanley, M.P., said everybody admitted the anomalies and inconsistencies of the present lighting by-laws. The best way to amend them would be by legislation introduced by some member of Parliament, but in the present condition of affairs in the House of Commons no private member's bill would stand much chance of success. Dr. Boverton Redwood suggested that, pending the passing of a bill through Parliament, the Home Office should take action in the direction of endeavouring to secure that local authorities should adopt a by-law requiring the carrying of a front light and a rear red light, without any exemption of slow-moving vehicles. Colonel Crompton also spoke, and in reply Mr. Cochrane remarked that there was much force in pointing out the anomaly that the swift vehicle must carry a rear red light while the slow-moving one was exempt.

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Legislation wanted.

He promised that if a private member of Parliament would introduce a bill into the Commons embodying the views of the deputation no opposition would be encountered from the Home Office, an expression of opinion that should lead to a prompt response on the part of some M.P. anxious to increase the safety of our public highways. He also assured his hearers that should local authorities in future suggest by-laws containing exemptions from carrying lights for certain classes of vehicles, the Home Office would seriously consider whether such be sanctioned. There was no doubt that the best solution of the difficulty would be a uniform law for the whole country; and in that direction legislation must make an early move. Having regard to the practical acquaintance of many members of the Cabinet with automobilism, there should be little difficulty in securing the passage of such a measure as is suggested.

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Cornish Wisdom.

When the shortsighted people of Helston adopted a stubborn attitude towards the motor-'bus service of the Great Western Railway Company other councils learned wisdom. A discussion on the injury alleged, or supposed to have been inflicted on the roads of St. German's by the presence of such 'buses in that district has taken place at the local district council, when the advisability of caution in denouncing the company was advocated. The surveyor said the motor-'buses had come on them like a meteor, and they were not prepared to receive them. His own impression was that engineers and highway surveyors would have to find another method of macadamising and making up the roads, or they would sustain tremendous damage. In the dry weather the cars turned up the dust, and in the wet weather they took up the mud. He believed it would come to this, that they would be obliged to pave their roads in the middle for the cars. Evidently the lesson of the Helston obstinacy has been recognised in other districts of Cornwall.

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AUTOMOBILISM IN 1904.

REVIEWING the course of the automobile movement during the past year, we may surely declare it to have been a period of steady advance. The motor-vehicle has not merely effected one or two changes; it is transforming social conditions, and is likely to prove useful in the solution of some of the pressing grievances of the time. That it has received recognition from every class and every section is but a truism; the fact is that the Motor-Car has been given a permanent place in our industries, and is now a recognised factor in national life.

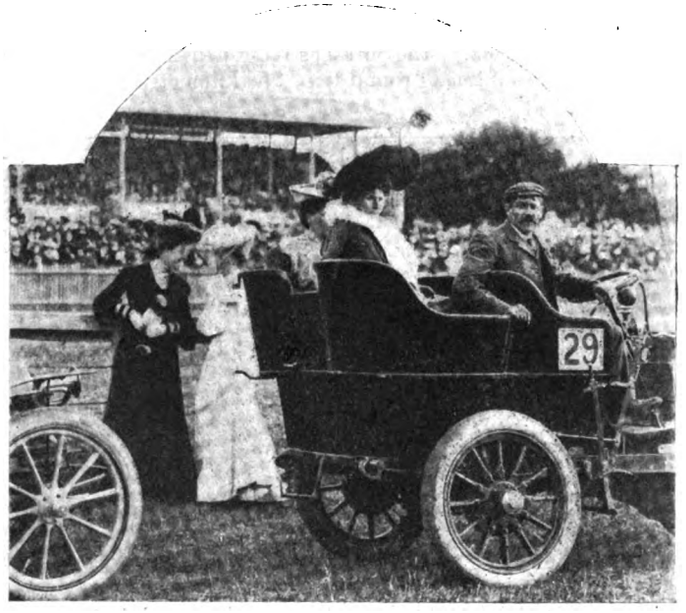
During 1904 the columns of the *Journal* have recorded the advance of the automobile in Royal favour. Our own King often goes from his palace in London to the Castle at Windsor by motor-car; the King of Portugal enjoyed the delight of motoring during his recent visit to England; the young King of Spain has defied the wishes of his Court, and persists in driving his own car; and in Italy, Belgium, Germany, and elsewhere the highest in those lands have bestowed marks of favour or have publicly identified themselves with the automobile movement. Equally gratifying has been the patronage of the chief personages in republican countries like France and the United States.

Looking at home, and glancing through our own columns for the past year, it may be recalled that we have recorded the march of the automobile in military esteem, its growing use by municipalities for street cleansing, the extension of public motor services by railway and 'bus companies, the use of the motor-car by bishops in pastoral visitation, the notable tour of General Booth, and the sanction of motor-cars as part of the necessary equipment of their officials by municipal and local authorities—all such developments are evidences of the invasion of the car into most conservative aspects of affairs. But in any backward glance everything is overshadowed by the fact that this year motorists have been subject to the pains and penalties associated with the operation of the Motor Car Act, the passage of which through the Houses of Parliament occasioned so much agitation and discussion in the later months of 1903. For the first time in our history private gentlemen have had their vehicles numbered like auction lots, and they have been at the mercy of local prejudice, police watchfulness, and magisterial bigotry. Those who hoped that the new Act would prove a satisfactory solution of the difficulties that had arisen in connection with the advance of the automobile movement have been grievously disappointed, and the many anomalies that have been discovered during the course of the year have shown that the contention of those motorists who were loth to welcome fresh legislation has been amply justified.

It was said that when the new Act came into operation police traps would no longer be employed to snare motorists, but experience has proved to the contrary. Anxious to propitiate rural councillors and bucolic grandees who, on village green and around the tables of the parish conclaves, denounce the coming and the going of the automobile, constabulary officers delight in devising ingenious plans wherewith to waylay motorists. In recent years the poacher, the marauder on the roadside, the petty tyrant of the hamlet, and similar persons of nefarious habits, were the objects of the policeman's quest. He was the terror of the evil-doer, the pursuer of the wicked one, and the most respected functionary in the village. Now, in some districts of the south, his calling has been degraded, and the unmanly system of espionage which he has had to practise upon motorists has led him to be despised, and, in constables of the better type, to despise himself.

Of course the police traps are not always devised and controlled by men in uniform. Plain clothes officers have been enlisted in the ranks of the motor-trappers, and these, lurking behind hedgerows, hiding in pig styes, secluding themselves in barns, and demeaning themselves in other ways, have become frequent sights on some of the southern main roads. Two or three men stand idly at a corner—probably a cross-road. They appear innocent indeed, lounging and smoking as though they were mere loafers—a habit, by the way, soon acquired by men who have to set traps to catch other men, and who conceive it their duty to give evidence of some kind or other, without the limitations that would be imposed by a strict sense of accuracy. And yet, when tackled by motorists who alight from their cars to view the scene, these men do not seem to appreciate their position. They are not entirely hopeless; but surely their superior officers must feel it is derogatory to the status of the police that they should be called upon to do such work.

Unfortunately the matter does not end there. There is little doubt that grave errors have taken place in the courts during recent months as a result of the keen desire of the police to secure convictions, regardless of truth or anything else of such a character. They know that the magistrates before whom they appear are invariably prejudiced, that their evidence will not be too closely sifted, and that the views of the presiding "justice" will probably be against the motorist. Can it be wondered that the motorist of to-day regards justice as a bye-word and equity on the bench as something which was, and is not now? Given a large amount of local prejudice, a constable always in association with those who foster such a condition of mind, and a magistrate full of a desire to air his pompous state against strangers of position, and the result is clear. Every week



At an Australian Motor Gymkhana.

during the year we have recorded quite a score of cases in which motorists have been convicted under the Act—a few dismissals have also been reported. Space has prevented the publication of all the cases which have occurred, but those made known to our readers have been sufficiently numerous, and distributed over an area wide enough, to convince any impartial reader that persecution rather than prosecution has been the order of the day.

It must be confessed that the feeling of fairness which was once associated with our legal procedure has had a shock during the year now closing. There is no guarantee of impartiality where motorists are concerned, and the uncertain reading of some clauses in the Act is another contributory factor to the present the state of affairs. Until the whole position is reviewed again at end of 1906 things will continue as now, unless, in the meanwhile, influence is exercised with county councillors and others to induce them to make the police feel the need of exercising reason in their imaginative moods and of bringing common sense to bear in the issue of summonses.

IN the recent successful 4,000 miles trial Messrs. S. Bowley and Son's "Special" motor spirit was used throughout and gave every satisfaction This "Special" brand has merits for reliability, efficiency, and economy.

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CONTINENTAL NOTES.

A Public Service in Russia.

The "Journal de St. Pétersbourg" states that a project is under consideration for running an automobile service between Novorossisk and Sukhum by way of the Black Sea coast. The scheme, which is strongly supported by the local authorities and landowners, should prove of great benefit to the Caucasus, some parts of which are destitute of a postal service. There are, however, many difficulties in the way owing to the poor condition of the roads throughout a large portion of the route.

The French Carburettor Competition.

The Technical Committee of the French Automobile Club has just made the awards in respect of the competition of carburettors for special motors. Longuemare secures the gold medal for petrol carburettors for 8-9-h.p. De Dion engines; Claudel for a paraffin carburettor for the same motor, and Gautreau a bronze medal for a heavy oil carburettor for the Gautreau engine.

Motor Boat Racing on the Seine.

The motor-boat race known as "La Coupe du Salon" is to be held on Sunday next. The course is from the Alexander III. Bridge, near the Exhibition, to the Suresnes Weir, a distance of 12½ kiloms. each way, making the round trip 25 kilometres. The racing craft will cover the circuit four times—total distance 100 kiloms.; the big cruisers twice, equal to 50 kiloms., and the small boats once. The boats will be started in batches of three. The entries are about 80 in number, and include many of the boats which have competed in the leading events of the last season.

A French Motor Union.

A "Ligue des Chauffeurs" has just been formed in Paris to defend the interests of motorists. A committee has been appointed to draw up the necessary rules and regulations.

A Rouen-Trouville Motor-Boat Race.

The new French daily "Les Sports" proposes to organise a motor-boat race from Rouen to Trouville during next season. It is suggested that the competing boats should assemble on the river in Paris, and, after a fête in the Bois de Boulogne, promenade down the Seine as far as Rouen. A big water fête is to be held at the latter place prior to the start the following day for the race proper.

The Paul Meyan Cup.

The Club Nautique de Nice has fixed April 18th, 1905, as the date for the motor-boat race for the Paul Meyan Cup, at present held by "Vas-y," belonging to M. A. Jean. The race, which has to be won two years in succession to secure the cup outright, is for boats up to 12 metres in length, and is over a 100 kilometre course. All entries should be sent to the club, whose address is 93, Quai du Midi, Nice. The list will close twenty days before the race.

Motor-Boat Racing in Germany.

June 29th and 30th next year are the dates provisionally fixed by the German Automobile Club for its motor-boat meeting at Kiel. The first day will be devoted to short races, while on the second there will be a competitive run from Kiel to Travemünde.

Another Steam Car for the Shah.

The attraction at the stand of the Gardner-Serpollet Company at the *Salon* is a 9-h.p. two-seated steam car for the Shah of Persia. This is gorgeously upholstered in damask and decorated all over, even to the lamps, with tassels hanging from the sides of the seats. This makes the sixth car M. Serpollet has supplied to the Shah.

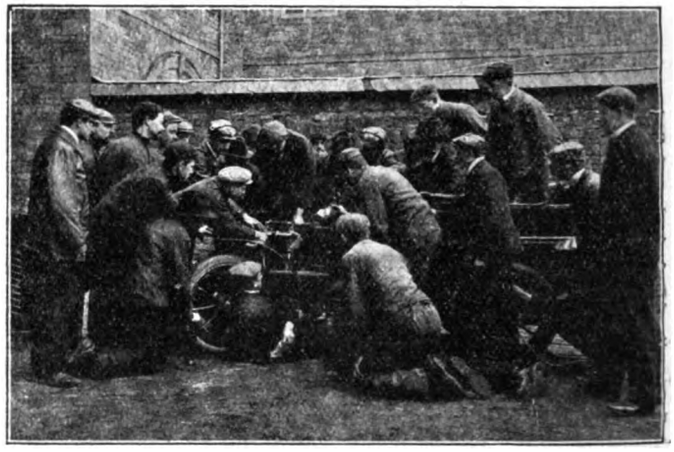
An International Conference.

A conference of the International Association of Automobile Clubs was held at the A.C.F. club-house in Paris on Monday. Eighteen delegates attended, Great Britain being represented by Sir David Salomons, Colonel Holden, and Mr. Alfred Bird. Especial importance attached to the meeting owing to the fact that several points bearing on the Gordon Bennett Cup race were discussed. As a result of the conference, it may now be stated that the 1905 race will be run under the same regulations as this year. The proposals for reducing the weight-limit of cars, for a team contest, for a two days' race over 1,000 kilomètres, and for allowing only a fixed number of tyres to competitors, were dropped. It was decided that the annual contest should always be held in the last week of June, or as nearly as possible to that date. After a long discussion, the classification of cars by weight already established was officially adopted for all countries except Belgium, which accepted it only provisionally. In future, the term "heavy car" will mean a vehicle weighing over 650 kilos and a "light car" one under that figure, while the limit for motor-cycles is fixed at fifty kilos. Other decisions arrived at by the conference were that only one club in every country will in future be officially recognised, that danger and caution signals shall be blue and yellow, instead of red and green, and that due notice of all sporting events shall be given by each club to all the others to avoid clashing. A proposal to appoint an international commission for all sporting events was shelved, and another to create an international sign to be carried on motor-cars for the purpose of identifying law-breakers was dropped as being impracticable.

The Gordon Bennett Cup Race.

Although the course has not yet been decided upon, the entries for the French eliminating trials have already assumed





What is stated to be the first Automobile School in Germany has lately been organised in connection with the Technikum at Aschaffenburg, Bavaria. The illustrations given above show the students being taught how to steer and to deal with engine troubles, respectively.

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imposing proportions. Seventeen firms have stated their intention of entering forty-four cars, as follow :—

Makers.	Cars.	H.p.	Makers.	Cars.	H.p.
Richard Brasier	3	110	Turcat-Méry.....	3	120
Mors	3	130	Clement-Bayard	3	120
De Dietrich	3	120	Hotchkiss.....	3	150
Darracq.....	3	140	Gardner-Serpollet	3	—
Gobron-Brillie ...	3	150	Delaunay-Belleville	2	120
Renault.....	3	90	Berliet	2	130
La Buire	2	120	Boyer.....	2	120
Rochet-Schneider	2	120	Brouhot.....	1	80
Panhard.....	3	120			

It is also reported that vehicles will be entered by Corre, C.G.V., Cornilleau, and Westinghouse. It is further stated that the A.C.F. has decided on passing some radical rules regarding the eliminating trials. It is to be laid down that not more than three cars, not only from one factory but of one type, may run. For instance, under the new order of things it would not be possible to run three Turcat-Mérys and a trio of De Diétrichs, because the last-named are made under licence from the former. The new regulation aims at the recognition of the fact that the design of an engine and car is equally important with its actual manufacture. The nationality of the drivers has also been considered, it being decided that none shall take part in the race who have not been domiciled in France at least two years.

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Switzerland and the Cup Race.

Messrs. Dufaux, who, it will be remembered, built a car for the 1904 race, but which did not start owing to an accident to the steering gear, are reported to have decided to build three 100-h.p. vehicles for the 1905 event.

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A New Liquid Fuel for Steam Cars.

On Thursday last week the Serpollet Company submitted one of their steam cars to a run from Paris to Rouen and back, the object being to demonstrate the possibility of using a new cheap heavy oil derived from coal-tar. M. Serpollet obtains the raw material from gas-works, and by subjecting it to a purifying operation, and by making certain additions to render it homogeneous, secures a liquid fuel which not only gives good results in the generator burner, but also shows a noteworthy economy in cost.

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Motor Prison Vans.

Motor-cars are already used for a variety of purposes in Paris. Quite a number of electric vans are used by the postal authorities Motor dust-carts have lately made their appearance, while now it is proposed to introduce automobile prison vans.

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A New Mercedes Car.

A new 70-h.p. Mercedes car was seen for the first time in Paris on Monday. The inlet valves are on the side of the cylinders instead of on the top and the cam shaf gear wheels are enclosed. The differential is separate from the change-speed gear, and on the differential shaft there is a ratchet and pawl sprag which immediately comes into operation should the car commence to run back on a hill. The other distinguishing feature is that the supply of gas is cut down when the clutch is thrown out by a lever working in connection with the clutch pedal.

Messrs. Perman and Company, Limited, has been registered with a capital of £6,000 to carry on, among other things, the business of agents for and dealers in motor-cars. The first directors are Messrs. G. Alston, R. O. Smith, and T. H. Wright.

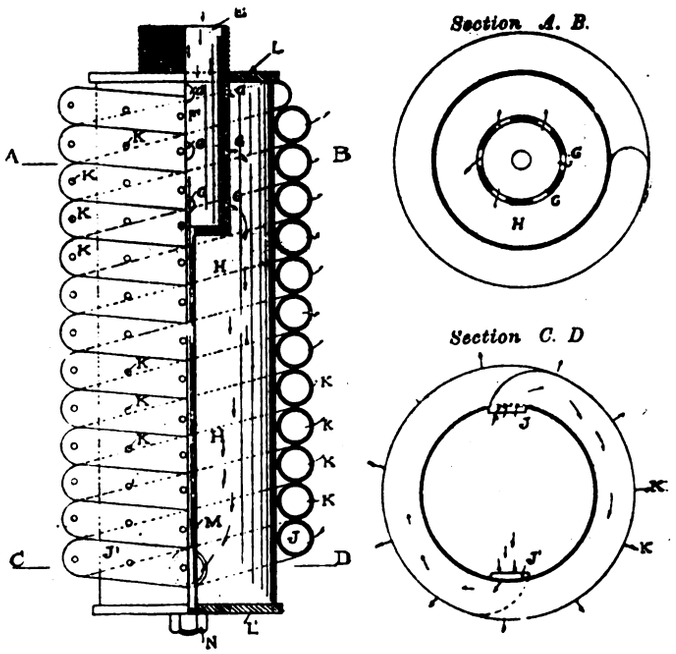
The Brighton and South Coast Motor Garages, Limited, is the title of a company registered with a capital of £15,000 to establish agencies for the sale and purchase of motor-cars and vehicles, and to carry on the business of garage proprietors, motor and carriage dealers, etc. The first directors are Messrs. R. K. Moore, D'Arcy R. Baker, and V. H. Miller, and the registered office is at 18, Fleet Street, E.C.

MOTOR CYCLING NEWS.

New world's motor-bicycle records for the hour and the 100 kilometres (62½ miles) were established by Anzani, on the Parc des Princes track, in Paris, last week. Riding an Alcyon machine with Buchet motor, he succeeded in covering a distance of no less than 55 miles in the hour, and traversed the 100 kilometres in 1 hour 8 min. 24 3-5 sec.

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Messrs. W. Montgomery and Company, of Bury St. Edmunds, have lately brought out a new silencer for the engines of motor-cycles. Referring to the accompanying detail drawings of the device, which is known as the Montgomery, E is the inlet to the silencer, the exhaust gases passing into the chamber F, where the charge is broken up and gets away by means of holes G into the outer chamber H, as shown by arrows. The force of the explosion carries the charge to the end of chamber H, whence it escapes into the coils J and J', which are wound round the outside of the chamber H, from end to end, in the form of a



double spiral, the ends projecting slightly into the chamber H. The gas passes through the coil and emerges into the open air by means of the small holes K drilled in the coils throughout their length. L and L' are circular end plates grooved to receive the cylindrical chamber H, the whole being held in position by means of a central pin M and nut N, so that the silencer can be readily opened out for cleaning purposes. It is claimed for the apparatus that not only does it effectively silence the exhaust but that, by its use, the power of the engine is increased, there being no baffle plates to cause back pressure.

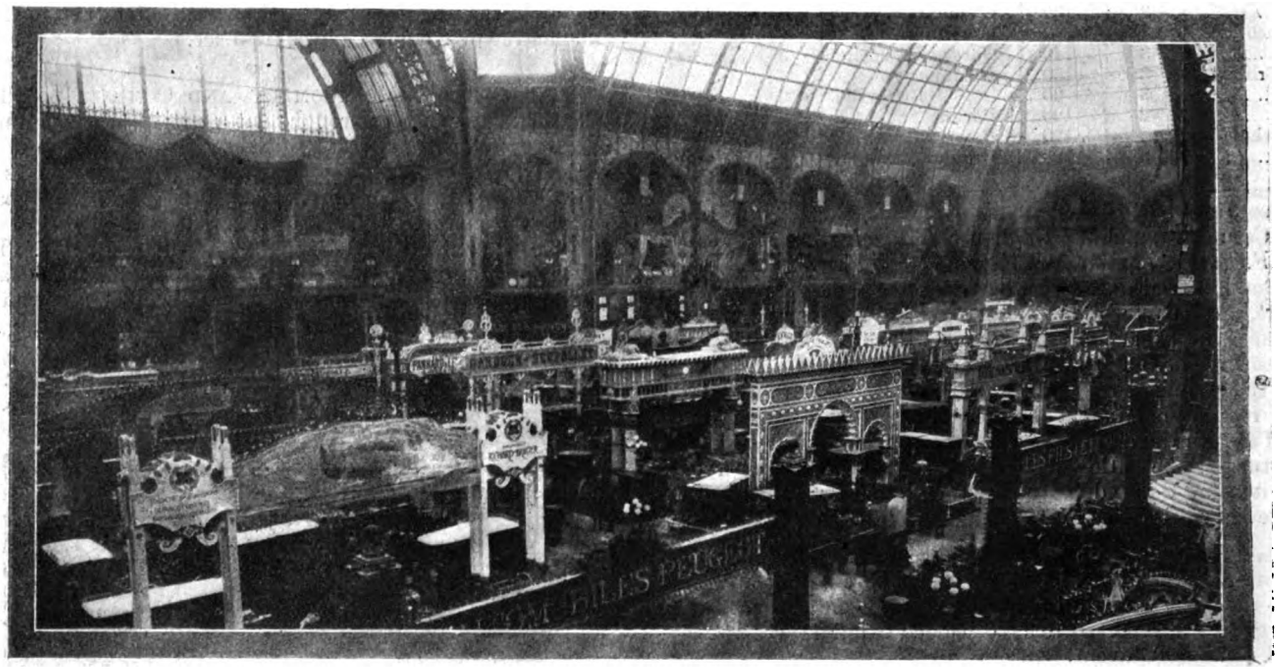
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The Motor-Cycling Club is of the opinion that there should be a central organisation of motor-cyclists which should not be subordinate to the A.C.G.B.I., and is inviting the many provincial motor-cycling clubs to express their views on the point. The Motor-Cycling Club has no antagonism to the Auto-Cycle Club, but believes that the pastime could be placed on a more dignified basis by an organisation in which all the clubs should be represented. Its annual dinner was held on Saturday last, with Mr. S. F. Edge in the chair.

The Ordnance Survey have published a cheap map of Yorkshire on the scale of four miles to the inch. It is printed in colours, and shows all roads, with an indication of their character, as well as rivers, towns, villages and railway stations.

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The Paris Motor-Car Exhibition.



General View of the Salon.

GENERAL IMPRESSIONS.

To say that the seventh annual Salon d'Automobiles eclipses all its predecessors is to give but a faint idea of the excitement that is at present prevailing at the Grand Palais, in the Champs Elysées, Paris. No sooner were the doors open on Friday of last week than the rush began, and within a few minutes the building was a mass of people representative of all nations. The Show was officially opened by M. Loubet, who arrived about 10.30 a.m., and who, after spending some time at the leading stands, subsequently distributed the much-coveted red ribbon of the Legion of Honour to a number of persons prominent in the world of motoring, including M. Clément, M. Armand Peugeot, M. Henry Brazier, M. Brouhot and M. Krieger. As for the Exhibition, it can only be described as magnificent. Thousands of pounds have been expended on the stands alone, the elaborate drapery and festoons of flowers by day, and the myriads of electric lamps by night, making up a scene of amazing splendour. Some idea of the blaze of light after dark may be gathered from the fact that not only is all the available current from the central stations in the neighbourhood taken, but that several temporary plants have been put down, that entrusted to the Mors Company being of no less than 1,500-h.p.

The most vivid impression left on the mind after doing the round of the *Salon* is that of uniformity. The gradual evolution of a standard design of car seems to be almost approaching finality, there being few wide divergences from the normal types, and still fewer "freaks"; in fact, unless one includes such persistent survivals as the extensible pulley and the like, these latter are practically absent. It may be inferred from this that little in the way of novelty is to be expected; and there can hardly be said to be any distinctive feature by which the *Salon* of 1904 is marked, as was the case with previous shows. Not that advance and improvement are absent, by any means, but they are chiefly in matters of detail. Accessibility, facility of adjustment, neater methods of control, lubrication and carburation arrangements have all received obvious attention, improvements in one or more of these directions being visible on nearly every stand. There seems to be more inclination on the part of French builders to cater for "the man of moderate means," there being few stands on which a light car is not to be seen. Up to 8-h.p. the single-cylinder engine is the favourite, the twin-cylinder being used for cars of from 10 to 12-h.p. Even allowing for the natural fact of exhibitors preferring to stage their largest cars, however, the prevalence of four-cylinder engines is marked, as their proportion is 72 per cent., to 6 per cent. of two-cylinder and 9 per cent. of one-cylinder cars. The three-cylinder car has evidently progressed, and now outnumbers the two-cylinder, while the horizontal engine has apparently succumbed, at least as a native, its last French defenders, Gillet-Forest, showing a vertical engine. There seems a tendency towards casting each cylinder, together with its water-jacket, separately, the use of copper and brass jackets shrunk on to the cylinders having made little if any progress. As regards inlet valves, the mechanically-operated type is steadily gaining ground, notwithstanding that the suction valve is retained by one or two leading concerns, notably De Dion-Bouton and Panhard-Levassor, the latter on engines up to 15-h.p. Pressed steel frames are all but universal, and appear on the De Dion and Renault cars, while the 50-h.p. Panhard has an armoured wood frame in which there seems more "armour" than wood. High and low tension magnetos far outnumber accumulators, and appear about evenly divided, while the tendency to fit both ignitions seems diminishing, which may be somewhat regretted, as there are good grounds for holding that two ignitions, capable of being used simultaneously, are not without advantage. The over-elaboration of carburettors is not so evident as last year, but substantial progress in these is noticeable, the Renault and Brasier double-jet systems and the self-adjusting Decauville carburettor, in which the governor is made to regulate the air inlet, attracting attention, while both the Renault and Decauville cars have a variable mechanism to their mechanically-operated valves by way of throttle. Live axles are rather more numerous than chain drives, and in several instances springs have been introduced, the Roy device being a large spiral spring in tension, of about ¾ in. section, surrounding the propeller shaft, while in the other cases small

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spirals in compression are used. Chains, where employed, are for the most part shorter, with gear-boxes placed further back and connected with the clutch by some more or less flexible coupling. Expanding brakes are largely replacing exterior ones, the chief novelty in these being the pneumatic brake on all four wheels, with rams about 2½ in. diameter, exhibited on the Mercédès stand. A good number of cars have the Truffault friction shock absorber on the springs, while the use of a few short spring leaves on the upper side of springs for the same purpose is also in evidence; springs for the most part are carried outside the line of *chassis*. Honeycomb radiators have by no means ousted tubular ones, being only one-third as numerous; but fans are usual, opinion being about equally divided between placing them in the fly-wheel or behind the radiator. The circulation in the majority of cases is by pump, but Renault, Richard-Brasier and one or two others still adhere to the thermo-syphon system. Metal clutches have increased in number, but not much, direct or inverted cones being most popular, while some combinations of both systems are shown. The new De Dion clutch is a noteworthy device, while an interesting new departure is to be seen in the clutch on the 50-h.p. Panhard car. In change-speed gears, the *train balladeur* or sliding pinion type still holds its own, most makers now, however, providing for a direct drive on the top speed. A striking feature is the great prominence given to the side-entrance covered vehicle for touring purposes—landaulets, coupés, and double phaetons. Indeed, in cars of this class it would seem that a side entrance is now *de rigueur*, few if any of the old limousines with rear entrance being visible. It is to be noted, however, that the bodies now being fitted are somewhat heavier than formerly, and although the *chassis* remains the same, the weight of the complete car is greater. The result is that more power is needed, and that cars intended for touring purposes are rarely fitted with engines of less than 15-h.p. The tonneau and front-entrance double-phaeton types of bodies are still very popular for open cars.

THE EXHIBITS.

The exhibit of the WOLSELEY TOOL AND MOTOR CAR CO., LTD., marks an epoch in the history of this well-known concern, inasmuch as a car with a vertical engine is shown for the first time. Only a *chassis* is to be seen, but it is representative of a new two-seated car which is being introduced. The single cylinder is 4½ in. bore by 4½ in. stroke; the normal speed being 800 revolutions per min. The water-jacket and upper half of the crank-case are in one casting. The explosion chamber, with its water-jacket and valve chest, is a separate casting bolted on to the lower part. The valves are mechanically operated off one cam shaft, the inlet valve being located in the cylinder head. The pump is driven off the cam shaft. The commutator is also actuated off the cam shaft through bevel pinions, so that it is brought into a most accessible position. The radiator is of the ribbed tube type set in a frame forming the water tank. The transmission is also a new departure for the Wolseley Company, being through an internal cone clutch, gear box, cardan shaft, and live axle. The change speed gear-box, which is supported directly on the pressed steel frame, is adapted to give three forward speeds and a reverse. The cardan shaft and the axle are completely enclosed in an aluminium casing. Long dumb irons are fitted to the rear springs, the latter being of good length and outside the frame. The foot brake acts upon a drum on the cardan shaft, and the hand brakes on drums connected with the hubs of the rear wheels. The clutch and brake pedals are of the push-forward variety, and the hand brake lever of the pull-up type. The brake pedal is connected with the throttle in such a way that when the brake is applied the speed of the engine is automatically reduced. One of the standard 6-h.p. Wolseley cars, with horizontal engine, is also displayed, and side by side with it is a *chassis* of the 8-h.p. car. This has a double-cylinder engine of a new type, there being no central bearing to the crank shaft. The connecting rods work on to one crank, so that there is an impulse every revolution, a heavy balance weight being provided on the shaft. The drive is by Renold silent chain to the gear-box, which is in one with the casing to the differential on the counter-shaft, whence the power is conveyed to the road wheels by side chains. Four forward speeds and a reverse are provided. Fig. 2 depicts the 12-h.p. double landaulet, which is being shown for the first time. It has been introduced to meet the demand for covered vehicles, and, while following the usual general arrangement of Wolseley cars as regards the engine and transmission, a number of changes have had to be made to accommodate the new form of body. Thus the engine—a two-cylinder horizontal one—is below the driver's seat, the sides of the latter accommodating the radiator, which is thus in two parts. A light shaft extends across the frame just under the seat; it is driven by a belt off the engine, and carries at each end a fan to induce a current of air through the radiator. The steering is of the Panhard type, while we notice that the usual dumb irons at the rear have been replaced by springs. The vehicle, which is luxuriously upholstered, can accommodate six persons, including the driver, and is altogether an excellent example of modern automobiles for town work. The Wolseley Company also exhibit a 60-h.p. four-cylinder vertical engine for a launch, and a range of connecting-rods and pistons extending from 4 in. to 12 in. in diameter, the latter being the size used in the engines employed in submarines.

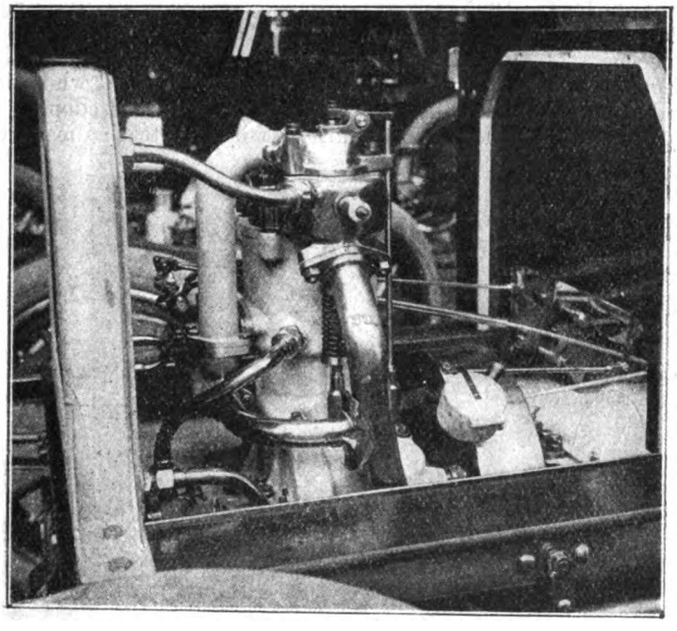


Fig. 1.—The Wolseley 6-h.p. Vertical Engine.



Fig. 2.—The Wolseley 12-h.p. Landaulet.

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Messrs. C. S. ROLLS AND Co. were apparently fortunate in the lottery for space wherein to exhibit, for the first time, the new "Rolls-Royce" cars. The vehicles, which have been designed in consultation with the Hon. C. S. Rolls, are manufactured by the well-known engineers, Messrs. Royce, Ltd., of Manchester. The vehicles on view include a 10-h.p. two-cylinder, a 15-h.p. three-cylinder, and a 20-h.p. four-cylinder car. A 30-h.p. six-cylinder vehicle is also being made. The cars have been designed on the multiple system, which gives complete interchangeability of parts. The cylinder dimensions (95 mm. bore by 127 mm. stroke) are

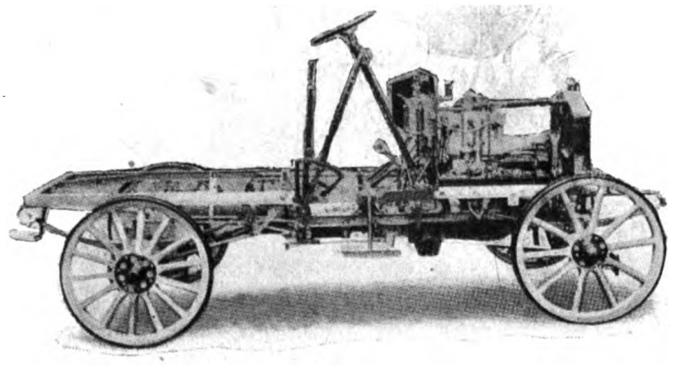


Fig. 3.—Chassis of the Rolls-Royce 10-h.p. Car.

the same for the two, four, and six-cylinder cars; such parts, therefore, as valves, pistons, connecting rods, etc., are the same in all types and are interchangeable. The valves are mechanically actuated, the inlets being located in the cylinder heads. The crank shaft is provided with bearings at the ends and on each side of every crank. The crank chamber is of aluminium, and is in halves jointed horizontally, the lower half carrying the bearings. An inspection door is provided to enable the connecting rods to be examined without dismantling. The cams on the half speed shaft are machined from a solid bar, and are driven by completely enclosed spur wheels. The ignition is by coil and accumulators; the commutator is fixed on the dashboard, and is provided with high and low tension portions, a single coil and trembler being used. To avoid the necessity of moving both the commutators and the various connecting wires or sliding contacts, the drive of the revolving portion of the commutator is arranged to be advanced or retarded by sliding one member of the skew gear along its shaft. The carburettor is of the float-feed spray type, and is fitted with a special automatic valve which accurately adjusts the carburation for all speeds of the engine, and enables the latter to run "dead slow" with the maximum of torque when required. It is provided with a throttle, to enable the gas to be shut off by the governor when descending hills, or when the speed becomes too fast. The governor, which acts on the throttle, is controlled from the steering wheel, by means of which it can be set to control the engine at almost any speed from 140 to 1,400 revolutions per minute, equalling respectively about 7 to 36 miles per hour on the top speed. A pedal is also provided by means of which the governor can be cut out and the speed of the engine consequently accelerated. The pump is of the cog wheel type, and is driven by skew gearing off the half-speed shaft. The radiator consists of vertical thin solid drawn brass tubes, through which the water circulates, with horizontal brass plates, which act as cooling surfaces. A fan is provided to draw a current of air through the radiator, this being mounted on a swinging bracket, so that the tension of the driving belt may be readily adjusted. The clutch is of the leather-faced internal cone type; it is connected to the gear box by a universal joint. Three forward speeds and a reverse, with a direct drive on the top speed, are provided, the power being conveyed to the rear live axle by a cardan shaft. The rear axle consists of a central aluminium case containing the bevel gears and the differential; attached to this case are two solid drawn steel tubes, upon each of which is mounted a road wheel. Inside the tubes is the revolving shafts driving the road wheels from the differential in the bevel gear case. The revolving shaft has fitted on squares on its outer ends jaw clutches, which engage with teeth formed in the outer ends of the road wheel hubs. The steering is by means of a steel worm working in phosphor bronze sector, provision being made to take up the end play in the worm by means of an adjustable bush. The frame is of the usual pressed steel pattern, being deepened in the centre to prevent deflection, and is long enough to provide a roomy side entrance body, the wheels being placed well back for this purpose. The front axle is of nickel steel, having each end formed into a deep and substantial fork supporting a vertical pivot on which the road-wheel rotates. A special oil-retaining and dirt-excluding hub is used for the road wheels, the end play being taken up by central flanges and washers, which are advantageously arranged to ensure good lubrication. The foot brake is at the rear end of the gear-case, and acts through the differential gear; the brake blocks are supported by vertical levers which are drawn together by a smaller lever on a floating fulcrum. The hand brakes are of the internal double-acting type having metal to metal surfaces, and are formed by expanding two curved levers within a drum, which forms part of the driving-wheel hub. Ample adjustment is provided for taking up the wear, and the brakes being double acting, the car is held equally well backwards or forwards. These two side brakes are compensated by a special arrangement of levers. The lubricator is placed on the dashboard; it consists of an aluminium vessel containing a pump driven from the engine by belt, the pump being used to force oil continually at a pressure of, approximately, 20 lbs. per square inch, and capable of being regulated to give the necessary feed to the various bearings about the *chassis*. A hand-pump is also provided by which the engine can at any time be given an extra supply of oil. The engine is so accurately balanced, and the carburation so perfect, that when the car is standing still there is an entire absence of noise and vibration; while when the car is running the only noise heard is the ticking of the trembler coil. The claims on this point, and also that the car can be almost entirely driven on the top direct speed, were borne out in the course of a short spin we made in one of the 10-h.p. two-cylinder cars with Mr. Rolls, who also gave us a demonstration of how the car could get away from a standing position on the top speed.

Four different models are being made by Messrs RENAULT FRERES for the 1905 season, viz., 8-h.p. single-cylinder, 10–14-h.p. double-cylinder, and 14–20-h.p. and 20–30-h.p. four-cylinder, specimens of each of which are on view. Fig. 5 depicts the motor of the 8-h.p. car, from which it will be seen that while the valves are mechanically operated the arrangement adopted is quite a new departure. The ignition is by high-tension magneto

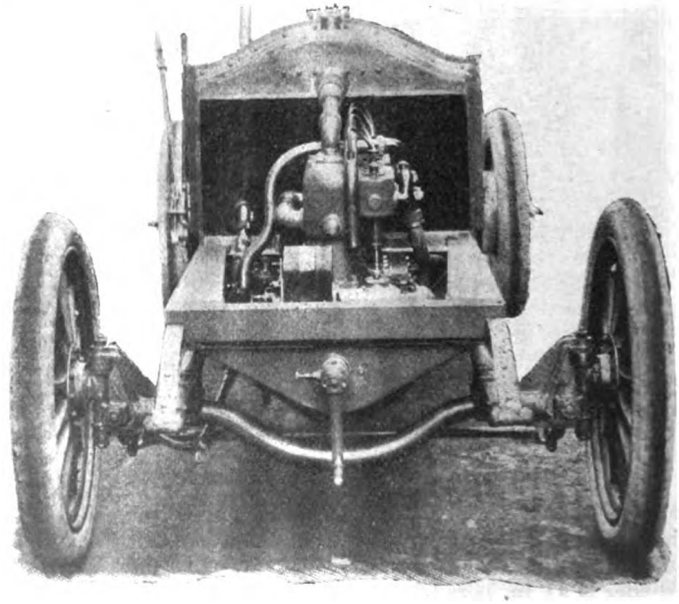


Fig. 4.—Front View of Renault 20-30-h.p. Car. (*See page* 865.)

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mounted on the end of the cam shaft. The water circulation is on the thermo-siphon system. A view of the engine on the 10-14-h.p. car is given in Fig. 6, in which the arrangement of the mechanically-operated valves and the high-tension magneto is clearly shown. It will also be observed that the rim of the flywheel is provided with vanes to force a current of air through the radiator, which is set in a frame, comprising top and bottom water tanks, the whole being mounted on the front of the dashboard. By the action of the fan-shaped flywheel a very powerful suction is caused underneath the bonnet, and

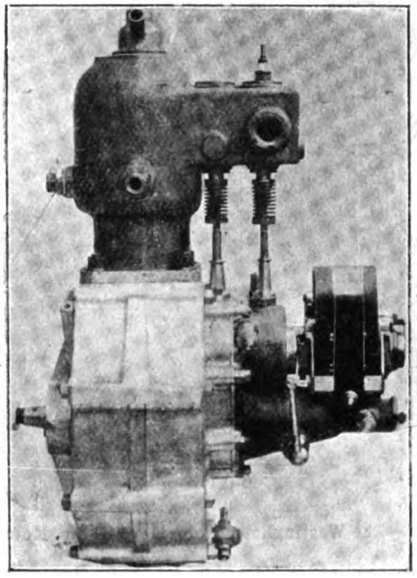


Fig. 5.—The Renault 8-h.p. Motor.

thus a strong current of cold air is forced through the radiators. The engines of the 14-20-h.p. and the 20-30-h.p. cars are similar to the 10-14-h.p., except that they comprise four cylinders. It may be mentioned, however, that the 8-h.p. and 20-30-h.p. engines are fitted with a compression release to facilitate starting. In all the motors a special wear-resisting metal is used for the bearings; the inlet valves, too, are provided with the variable lift device Messrs. Renault have used so successfully for several years. In the larger engines an automatic governor is provided, this acting on a butterfly valve on the admission pipe; a pedal

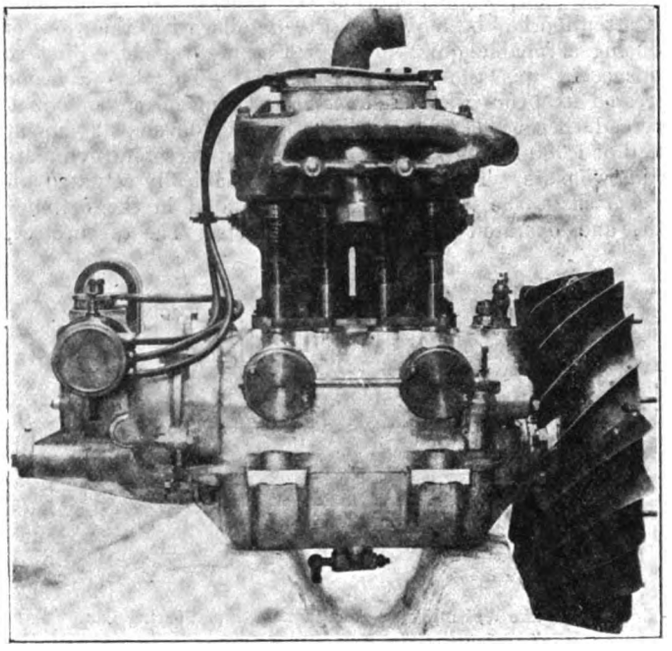


Fig. 6.—The Renault 10-14-h.p. Motor.

admission pipe and commands the auxiliary air inlet by a rod. The clutch is of the leather-faced cone type arranged to give a gradual engagement. The change speed gear has been slightly modified; it is adapted to give three speeds forward and a reverse with direct drive on top speed. The cardan shaft and live axle system of transmission is still retained, but we notice that a new form of spherical universal joint is being used. The brakes are of the metal-to-metal expanding type. A shield extending well to the rear protects the under side of the engine, clutch, and gear box from mud. A noticeable departure is the adoption of pressed steel frames and the suppression of the subsidiary frame for the support of the engine and gear box. The springs are of good length, and we notice that an additional transverse spring is now provided at the rear in the case of the larger cars.

The CUDELL MOTOR COMPAGNIE displays three types—

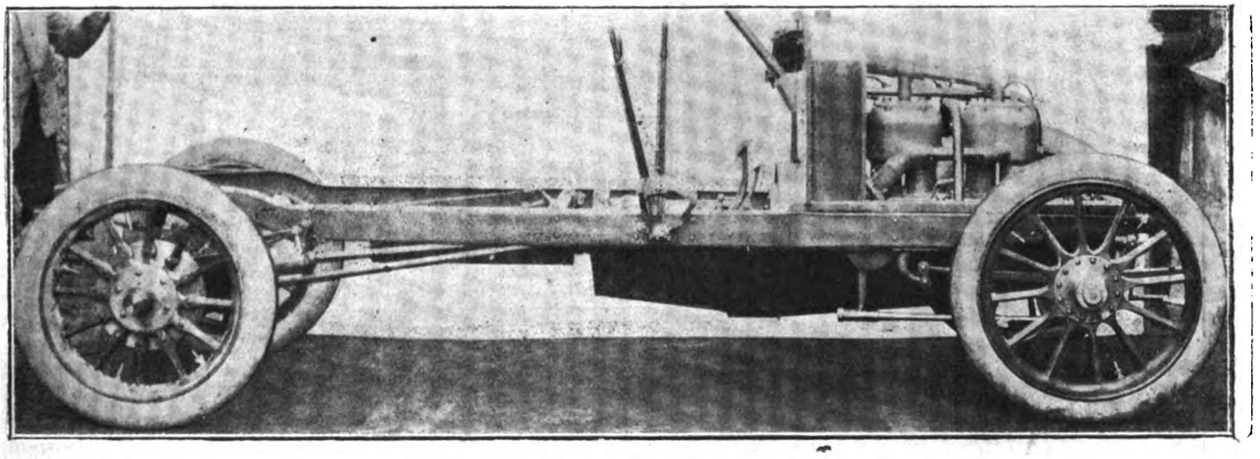


Fig. 7.—Chassis of Renault 20-30-h.p. Car.

accelerator is also fitted. The cam shafts have the cams cut therein out of the solid. The ignition is so arranged that it is automatically advanced or retarded, the hand lever usually fitted being now abandoned. A new form of automatic carburettor is also employed, enabling the air lever to be also dispensed with. The supplementary air admission is regulated by a brass disc, which partially closes the

10-h.p. double-cylinder and 20 and 35-h.p. four-cylinder. The largest *chassis* is a very interesting model, the engine having both the inlet and exhaust valves located in the cylinder heads, being mechanically actuated off one cam shaft by rods and tappets. The crank shaft, too, is mounted on ball bearings. The frame is of pressed steel, while the axles are of tubular steel made by Messrs. Krupp, of Essen.

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A new-comer to the Salon is the Société Westinghouse, of Havre, which has recently taken up the construction of automobiles, and exhibits a number of cars built to the designs of M. Albert Schmid. It may be said at once that the Westinghouse-Schmid cars—this being the name by which they are to be known—are likely to take a prominent place among high-grade automobiles; for, while following the generally accepted lines, great attention has been paid to the details, with the view of producing a reliable quiet, and easy-running vehicle. First to be inspected was the 20-28-h.p. *chassis*. This has a frame of pressed steel construction, supported by long springs on equal-sized road wheels. The engine (Fig. 9), which develops 24-h.p. at a speed of 1,000 revolutions per minute, comprises four cylinders cast in two pairs The valves are all mechanically actuated off one cam shaft, the inlet valves being located in the cylinder heads, and operated by rods and tappets. The carburettor,

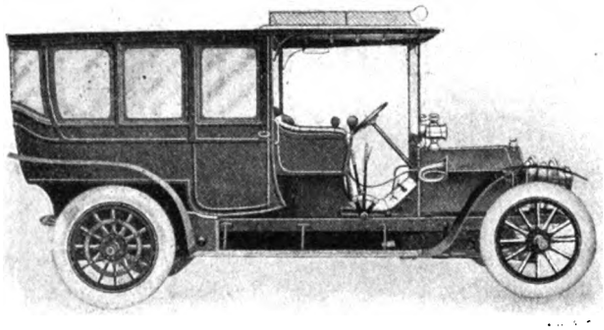


Fig. 8.—The Westinghouse-Schmid 20-28-h.p. Touring Car.

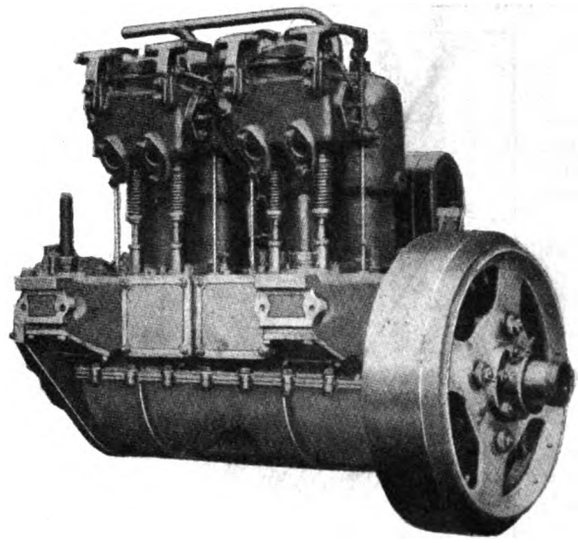


Fig. 9.—The Westinghouse-Schmid 20-28-h.p. Motor

magneto, and pump are all mounted on the engine. The magneto is of the high-tension type, and is gear driven. The governor is enclosed in the crank chamber; it acts on a piston throttle regulating the admission of gas to the engine; the carburettor is of the automatic air regulation type. The water circulation is maintained by a gear-driven pump and a honeycomb radiator. The clutch, which is of the leather-faced cone type, is so arranged that it can be removed without interfering with the engine or the gear box. The latter is adapted to give four speeds and a reverse with direct drive on top speed

cylinders cast in two pairs, the inlet valves being on one side and the exhaust on the other, all being mechanically actuated. It is in the transmission, however, that the principal novelty lies. The power is transmitted through a leather-faced clutch to a gear-box, from which extend two cardan shafts, one driving on to the rear axle and the other on to the front one, so that all four road wheels are driven. No less than three differential gears are employed, one on each of the axles and one in the gear-box. It is claimed that the car is proof against side-slip, and that steering is in no way affected. The gear-box is adapted to give

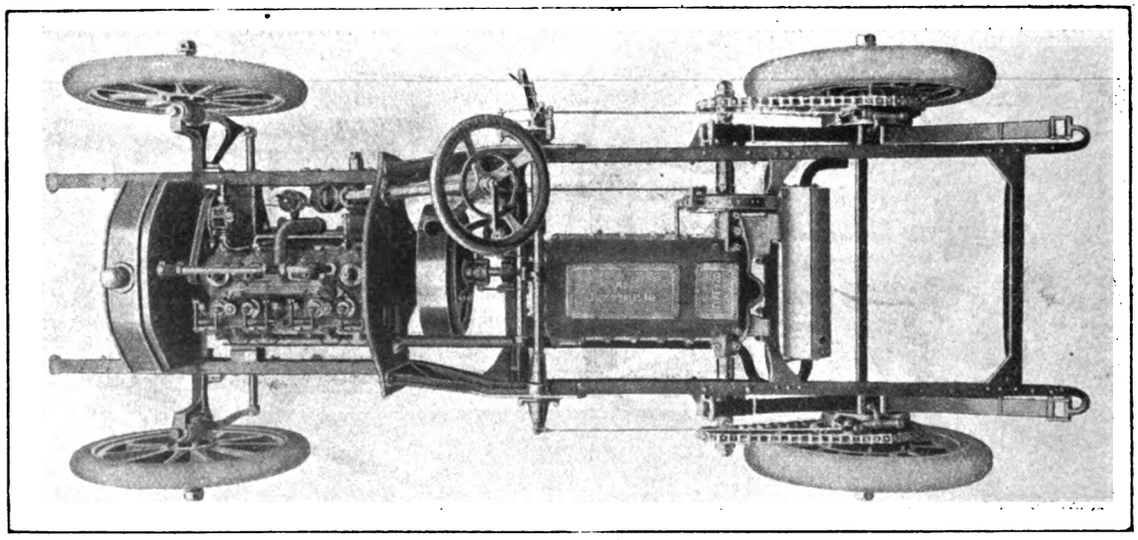


Fig. 10.—Plan of Chassis of Westinghouse-Schmid 20-28-h.p. Car.

The shafts in the gear box run on ball bearings. From the differential shaft the power is conveyed to the rear road wheels by side chains. We notice that the steering bar is placed behind the front axle instead of in front as usual. The vehicles exhibited include a side-entrance double-phaeton with canopy and a handsome side-entrance limousine (Fig. 8). The latter has an unusually long wheel base, the rear part of the body having

three speeds forward and a reverse. We noticed that the live axle does not carry the weight of the car, the road wheels being mounted on a sleeve, and having the power transmitted to them through the axle ends. As regards the standard Spyker cars, these are shown in two sizes, 16-h.p. and 20-h.p., both having four-cylinder engines. The car follows the usual lines of cardan-shaft transmission vehicles, among the features being the

Holland is represented by the SPYKER COMPANY, at whose stand we met Mr. A. House, of Bradford. The novelty of the display is the *chassis* of a 35-h.p. four-cylinder car. The frame is of pressed steel filled in with ash, while the engine has the

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ready means of access to the pinions in the gear-box, and the pivots of the front wheels, which are entirely enclosed and work in an oil bath. Ball bearings are used throughout, while the brakes are of the metal-to-metal type.

Prominent among the few British firms exhibiting at the *Salon* is the HOZIER ENGINEERING COMPANY, LIMITED. This firm has given quite a national appearance to its stand by the adoption of a design composed of stately columns of imitation granite supporting a stone arch. This is set off with stags' heads, surmounting shields on which are placed crossed claymores. Over the stand are

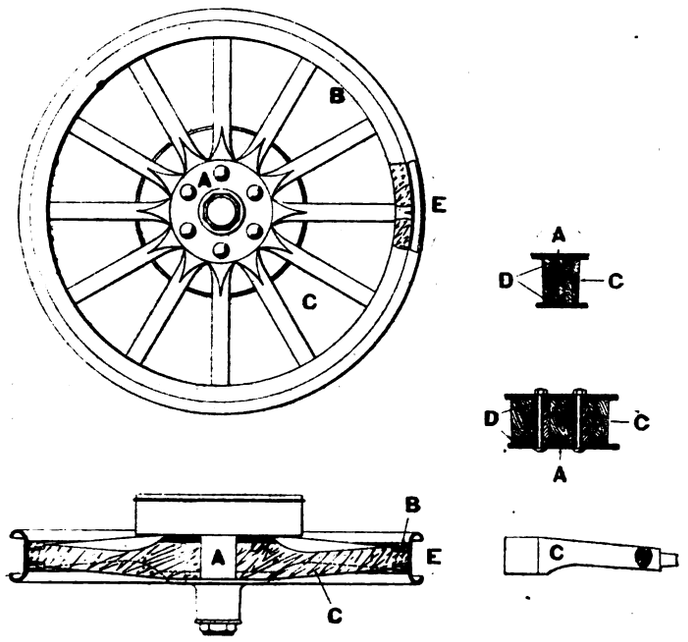


Fig. 11.—Details of "Staggered" Wheel of Argyll Car.

A—Iron Hub. B—Wheel Felloes. C—Spokes, right and left hand.
D—Fibre Packing between small edge of spokes and rim of wheel. E—Steel rim of wheel

draped the national flag of Scotland, the Union Jack and the Tricolour. The exhibit itself consists of two Argyll cars, a *chassis* and a number of special novel features. One of the cars is a 10-12-h.p., fitted with an Aster two-cylinder engine, built with a long frame, on which is mounted a handsome side-entrance body. The body is built of pressed sheet metal, and is on Roi des Belges lines, the tonneau being very roomy and comfortable. We learn that the engine has been completely re-designed by the Aster Co. in consultation with the Hozier Co., in order to better fit it to the requirements of this popular type of car. The most striking alteration is the arrangement of cylinders and valves. Separate castings are employed and the mechanically-operated inlet and exhaust valves are arranged on opposite sides. The water spaces around the cylinders are greatly increased, and the diameter of the valves is much larger than before. The commutator is no longer on the end of the cam shaft, but in a much more accessible position, being driven by a small shaft lying at about 45 degrees to the vertical. The thermo-syphon system of cooling is still a feature of this car, but the type of honeycomb radiator has been changed, the feature being the section of the tube used; this is hexagonal at the ends and like a cross in the middle, and, as a consequence, a large cooling surface is obtained and very free circulation for the water. In order to obviate any chance of leakage due to the springing of the joints as a result of road shocks, the radiator is carried in a cradle, and is supported on a bed of soft material, which deadens the shock and keeps the radiator from being strained. To facilitate the cooling of the water, a well-designed fan built up of six aluminium blades set on a brass centre and driven by a belt is placed behind the radiator. The fan is run on a spindle carried eccentrically, and so arranged that the belt can be tightened by simply turning the spindle round and clamping it. The well-known Govan change-speed gear is still fitted; certain minor improvements may, however, be noticed. A ball bearing has been introduced into the gear-box to lessen the friction when running free wheel to the low gears. The common form of pin joint for the control levers leading to the carburettor, commutator, &c., has been substituted by a neat form of ball-and-socket joint. The steering is effected by a triple-threaded screw turning in a phosphor-bronze nut, the whole being encased and working in thick oil or grease. The front axle has been re-designed, the swivels now being carried between the jaws of a cast-steel fork at either end of the curved and brazed tube which forms the axle. A ball bearing is introduced in the swivels to allow of easy steering. The rear axle runs on roller bearings, and consists of nickel steel shafts, with mild steel cut gears, case hardened. These are supported by a suitable case and outer tubes carefully stayed to prevent sagging. The road wheels are built on a new and patent principle (Fig. 11), the point aimed at being great lateral strength, so as to be capable of resisting the strain caused by side-slip, etc. To achieve this the spokes are "staggered" in the vertical plane, alternate spokes passing to the right and left sides of the iron hub. The joints between the spokes are so arranged that should the wheel at any time become loose through the wood shrinking, it can be tightened up by drawing together the hub flanges by means of the bolts holding the hub together. The front road wheels are carried on ball-bearings. The three-cylinder 12-14-h.p. car is fitted with an "Argyll" engine, the cylinder dimensions being 90 mm. by 120 mm. stroke. The car itself is a detachable tonneau, built on Roi des Belges lines. The wheel base is 7 ft. and the track 4 ft. 1¼ in. The engine is of compact design; it is provided with a centrifugal governor acting on a definitely-balanced double-beat throttle valve. The commutator is situated below the bonnet and readily accessible; the pump is a centrifugal one, gear-driven at the same speed as the crank shaft, and is so placed as to be easily detached if required. The engine is hung direct from the pressed steel frame by brackets cast on the crank casing. Probably the most popular improvement made in these cars is the clutch: the metal and leather type has been abandoned in the case of the three and four-cylinder cars, and the Hele-Shaw metal to metal clutch adopted (Fig. 12). This clutch is encased in

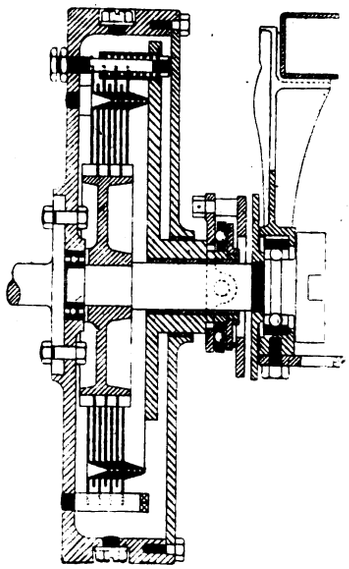


Fig. 12.—The Hele-Shaw Clutch on Argyll Car.

the flywheel and runs in an oil bath, and consists of a series of discs of steel. The alternate discs are notched along the outer and inner circumferences. The one set of discs engage with all projections within the fly-wheel, while the alternate set mesh with ribs or keys on a boss on the gear-shaft. The plates are kept in contact by a coiled spring. The action of the push pedal in disengaging the clutch is to overcome the pressure of this spring, and allow a set of small springs between the steel discs to free the plates from each other. The advantages claimed

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for this device are:—(1) great gripping power, (2) large wearing surfaces, kept well lubricated, (3) the motion is imparted to the car without shock, and (4) the clutch can be allowed to slip any amount that may be wished. This feature is a very valuable one, as it allows of the car being driven slowly on the top gear with the engine running at its normal. We learn that for the 1905 season the Hozier Company will manufacture a four-cylinder touring car of 20-24-h.p., fitted with an "Argyll" engine having cylinders 95 mm. bore and 130 mm. stroke. The wheel base is 9 ft. 3 in. by 4 ft. 6 in. track, which allows of a very roomy side entrance body being fitted. A splendidly finished *chassis* is shown on the stand. All the best points in the design of their other cars have been incorporated, as well as some features peculiar to this type. In examining the *chassis*, one is specially struck by the quality of the workmanship, and we note with pleasure the marked advance which this firm has made in this respect even on last year's exhibit. The pressed steel frame is of an inverted U section, deep in the middle and tapering towards the ends. On this *chassis* is shown a new joint for the cardan shaft. This consists of two steel sleeves, one keyed to the driving and the other to the driven shaft; each sleeve ends in a double prong, the edges of which take the form of epicycloidal teeth, the teeth being parallel to —instead of as in a gear wheel at right angles to—the axis

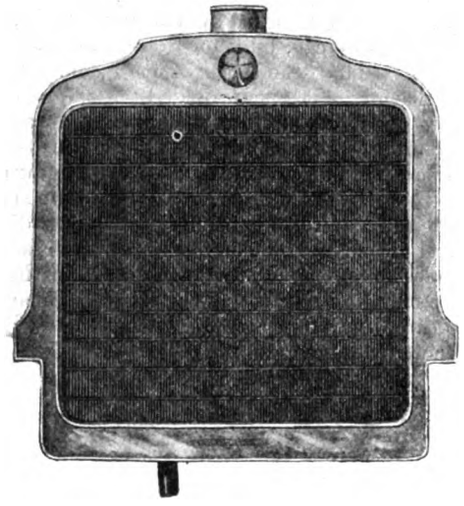


Fig. 13.—The Grouvelle-Arquembourg Framed Radiator as used on Richard-Brasier Cars.

of the shaft. These teeth when meshed together form a hollow sphere. Inside this is placed a ball to keep the teeth in proper relative positions, the whole being covered by a dust cap. The advantages claimed are, sweet running and large wearing surfaces, the teeth rolling on each other when the cardan shaft revolves. The back axle has the same general appearance as that fitted to the 1904 "Argyll," but it is so arranged as to permit of its being opened out without removing it from the car. This is obtained by dividing the case containing the bevel gear and differential on a horizontal plane through the centre. Besides this a large inspection door is provided to allow of the condition of the gear being readily ascertained at any time. The live axle is of nickel steel of ample proportions, while the machine-cut steel gears are of good size and excellent workmanship; in fact, the whole *chassis* is a creditable piece of work.

Messrs. GROUVELLE AND ARQUEMBOURG, whose radiators are employed by most of the leading French concerns, have a big display of their *refroidisseurs cloisonnés*, or framed radiators for use in connection with the water circulation of petrol motors. These radiators are made in several forms, each in a variety of shapes and sizes. Thus there is the plain radiator, set in a neat frame; a similar cooler, but fitted with a fan to induce a current of air through the air spaces formed by the radiating ribs; and finally the framed radiator with water tank and fan combined. The latter are made in a variety of shapes to meet the desires of different manufacturers. A new carburettor adapted for cars and motor-cycles is also displayed. Two views of the smaller type are given in Fig. 14; it is of the constant-level pulverising type, and consists of a chamber A, in which is a float fitted with a needle valve which closes the petrol inlet as the float rises. From the chamber the spirit passes to the spraying chamber F, placed transversely at the rear. The latter is of special design, the internal surface being in the form of a sinuosoidal curve, by means of which the suction of the motor, even when the latter is running slowly, is claimed to be sufficient

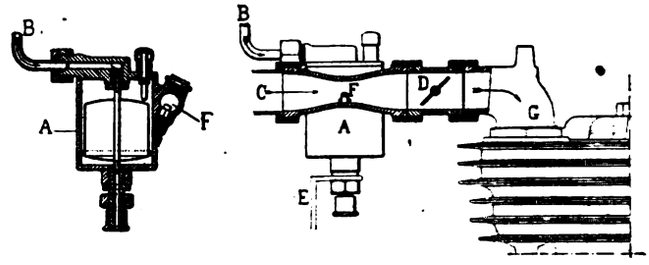


Fig. 14.—Sectional Views of Grouvelle Arquembourg Motor-Cycle Carburettor.

to maintain a constant carburation. The carburettor, which is so arranged that it can be readily taken to pieces for cleaning purposes, is provided with a throttle valve D. As will be seen, the device is exceedingly simple and compact.

The pressed steel frame, with mud-protecting shield forming part of the same, still forms a prominent feature of the cars made by LA SOCIETE NOUVELLE DES ETABLISSEMENTS DECAUVILLE. For the 1905 season six models are being made, viz., 12-h.p. double-cylinder, and 12-16-h.p., 16-20-h.p., 24-28-h.p., 30-35-h.p., and 40-50-h.p., all four-cylinder. The two last named have side-chain transmission, while the others have the standard Decauville live axle, in which the rear road wheels are not fitted

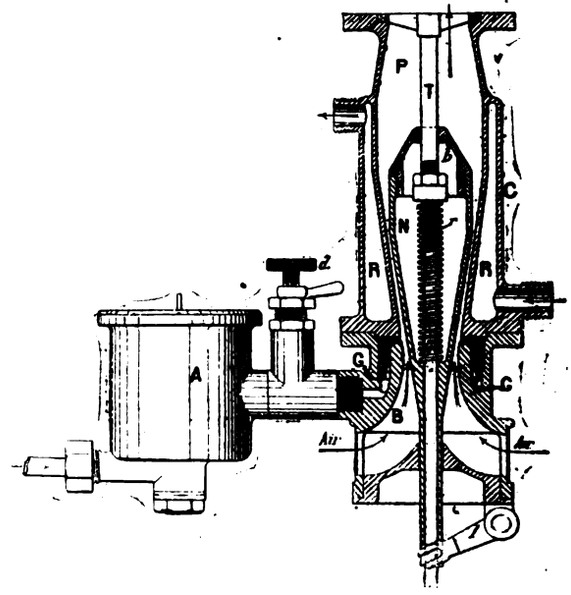


Fig. 15.—Section of Decauville Carburettor.

on the axle but on a sleeve surrounding the same, the power being transmitted to them through "dogs" on the ends of the axle. A new form of automatic carburettor is one of the Decauville Co.'s most striking apparatus for the 1905 season. In the new device all the air has to pass round the spraying nozzle, and this, with the variable opening for the admission of air, gives an automatically-controlled perfect mixture at all engine speeds. A sectional view of the new carburettor is given herewith, from which it will be seen that it comprises the usual float-feed chamber and a conical mixing chamber C. Within the latter is

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a moveable cone N, by means of which the quantity of air admitted through the two openings at the bottom is automatically regulated, the cone N being more or less raised by the suction of the motor against the action of the spring. The spirit is drawn in through openings in the cone G. A hot water jacket, R, is provided to the mixing chamber C. Provision is also made in the four larger cars whereby the quantity of gas admitted to the cylinders may be varied from that drawn in during the complete suction stroke down to zero. This is effected in an ingenious yet simple way and without in any way affecting the valves or their lift. A clutch pedal is connected up to the new arrangement, so that as the clutch is withdrawn the supply of gas is automatically partially cut off.

The DARRACQ COMPANY has a magnificent stand, the design of which is intended as a reproduction in miniature of an Arabian

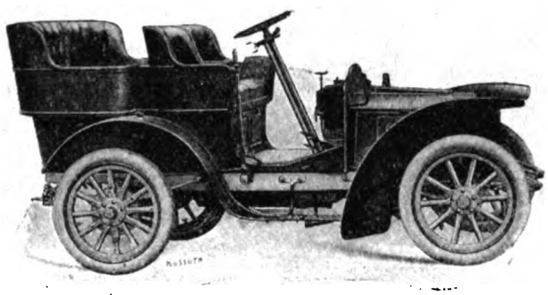


Fig. 16.—The Darracq 8-h.p. Car.

gateway. This is one of the few concerns whose 1904 models have been shown in England ere being exhibited in France, and as a description of the same was given in a recent issue of the *Journal*, no lengthy mention is necessary at the present time. It will suffice, therefore, to briefly state that for next year this concern is making seven types of cars: 8-h.p single cylinder; 12-h.p. double-cylinder; and 15-h.p., 18-20-h.p., 20-22-h.p., 28-h.p., and 30-h p. four-cylinder. The chief object of interest is the new model 8-h.p. car. The one on view is fitted as a four-seated car, with tonneau body, but it is also supplied as a two-seater. The vehicle has a pressed steel frame, in the forward part of which is set an 8-h.p. single-cylinder engine, 112 mm. bore by 120 mm. stroke. The inlet valve is mechanically operated, and is provided with a device in conjunction with the governor whereby its lift,

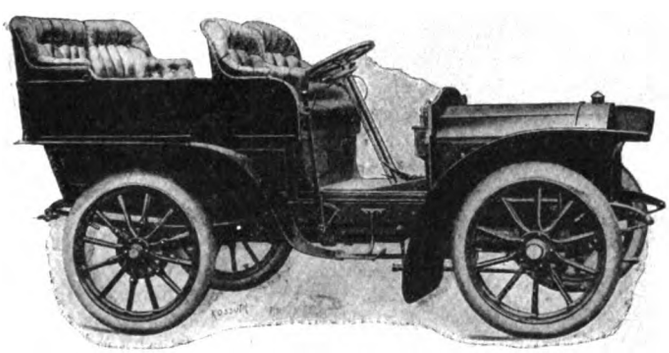


Fig. 17.—The Darracq 18-20-h.p. Car.

and consequently the speed of the engine, can be regulated. The change speed gear-box is adapted to give three forward speeds and a reverse controlled by, as usual in Darracq practice, a lever on the steering column. On the top speed the drive is direct through the cardan shaft and bevel gear to the live axle. The brakes are of the metal-to-metal expanding type. There are a number of detailed improvements in the car, among which may be mentioned the fitting of side panels to the front mudguards, which prevent the splashing of mud on to the front wheels. The exhibit also includes a 30-h.p. four-cylinder *chassis*, and examples of the 12-h.p. and 15-h.p. cars, among the latter being a handsome landaulet. The vehicles are on similar lines to the 1904 models, but comprise a number of changes in detail. Among these are the adoption of forged steel axles of H section; the steering column is now sloped considerably more, and magneto ignition can be fitted at the option of the purchaser, either alone or as a secondary ignition. The brakes are of the latest design, being internal expanding, metal-to-metal, and holding equally backwards and forwards. A new type of governor has been adopted, working on an eccentric controlled by hand and foot, and an improved form of pump is being used which makes it impossible for the water to leak, and at the same time is much more efficient than previous patterns. The Darracq Company is devoting much attention to side-entrance cars, all the larger vehicles being available in two lengths of *chassis*.

THE PANHARD-LEVASSOR COMPANY has lost none of its favour, if the crowds which continually gather round its handsome stand may be taken as any criterion. The smaller types of Panhard cars show but little change from last year. The armoured wood frame is still retained, as are also automatic inlet-valves on engines up to 15-h.p. In each case the cylinders are cast separate, and we notice that the 24 and 35-h.p. engines, which have mechanically-operated inlet valves, are fitted with an arrangement whereby the lift of the latter can be varied, enabling the engine to be started more readily, and its speed regulated. The "Eisemann" high-tension magneto ignition is still used, but an auxiliary battery is now provided, controlled by a two-way switch to facilitate the starting of the engine. Interest at this stand is mainly centred on the new 50-h.p. Panhard car. The four cylinders are cast separately, with the

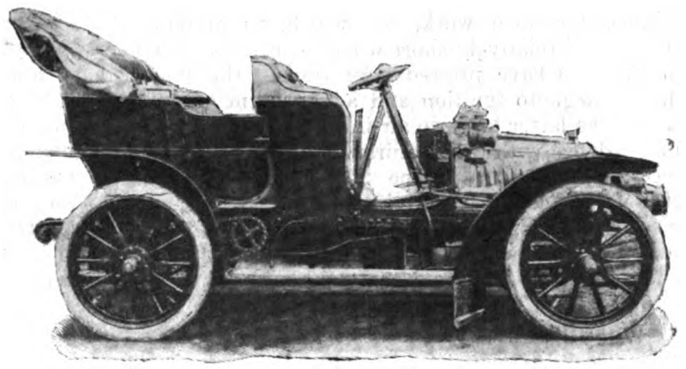


Fig. 18.—The Panhard Side-Entrance Double Phaeton.

mechanically-operated inlet-valves on one side and the exhaust valves on the other, while the five bearings which support the crankshaft have their caps bolted to the upper portion of the crank-chamber, to enable the lower half of the latter to be removed without disturbing the shaft. A new departure is found in the method of automatically governing the speed of the engine; the usual centrifugal governor is replaced by a hydraulic arrangement working in conjunction with the water-circulating system, the increased pressure of water—due to increased engine speed—being utilised to control the throttle-valve in the required way, the throttle opening being more or less closed according to the water pressure. Passing to the transmission mechanism, we find a new clutch consisting of a series of discs running in an oil box. The change-speed gear is of the sliding type, giving four speeds forward and a reverse, with a direct-through drive to the countershaft on the top speed When the latter is in use, the side shaft inside the gear-box remains stationary, so that the transmission losses due to friction are reduced to a minimum. It is worthy of note that all the cars on view are fitted with side entrance bodies.

The GLADIATOR COMPANY has four models on view—10-h.p. double-cylinder, and 11-h.p., 15-h.p., and 24-h.p. four-cylinder. The radiator is of the ribbed pipe variety set in a neat frame. The transmission is by side chains, and among the several noteworthy features may be mentioned that the cylinders are all cast separately, the inlet and exhaust valves being arranged on opposite sides and mechanically actuated. The differential gear is entirely separate from the change speed gear-box, the con-

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nection between the two being by a jointed shaft. The wood and steel frame is still retained, but we noticed that the usual dumb irons at the rear have been substituted by halves of semi-elliptic springs. The larger cars are provided with both high-tension magneto and coil and accumulator ignition.

La Societe Mors has a large stand on which are shown five different sizes of cars, viz., 12-16-h.p., 14-19-h.p., 19-24-h.p., 24-32-h.p., and 40-52-h.p., these all having four-cylinder engines and frames sufficiently long to take side-entrance bodies, the

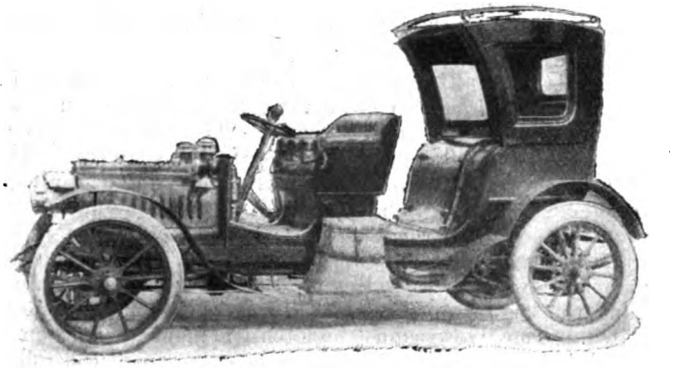


Fig. 19.—The Mors "Cab."

vehicles on view including a limousine coupé and a landaulet. The latter has the engine under the front seat, and has been designed for town work, for which, on account of its silent running and relatively short wheel base, it is excellently suited. All the cars have pressed steel frames, the motors have low-tension magneto ignition and a new form of automatic carburettor; the latter has two air inlets, the mixture being regulated in accordance with the requirements of the engine at different speeds. The engines of the 24-32-h.p. and 40-52-h.p. cars are fitted with a compression release device to permit the motor to be easily started, and a cog-wheel water circulating pump. The radiator is of the ribbed-pipe variety. A double cardan joint is provided between the clutch and the gear-box. The shafts of the gear-box in the 14-19-h.p., 24-32-h.p., and 40-52-h.p. cars run on ball bearings. The 40-52-h.p. car, which is designed for fast work, has a special steering gear and three rear springs, one lateral and two longitudinal. A feature of the motor is that the crank shaft is placed not in the centre of the cylinders, but a little on one side, as in the Mors racing cars of 1904, the object of this being to avoid the lateral reaction of the pistons.

A number of interesting light cars are are shown by M. Bailleau, of Longjumeau Fig. 20 shows the two-seated car; it has a tubular frame, and can be fitted with either a 6-h.p. or 9-h.p. single-cylinder De Dion engine with water circulation on the thermo-syphon system The change-speed gear is dapted to give three speeds forward and a reverse and a direct drive on the top speed. From the gear-box the power is conveyed by a cardan shaft to a live axle. The road wheels, differential, and clutch run on ball bearings. Altogether the Bailleau cars should meet the views of many motorists seeking reliable vehicles at moderate prices

La Compagnie des Automobiles Hurtu, which is now represented in England by Messrs. E. and H. Hora, Limited, displays two interesting models—10-h.p. double-cylinder and

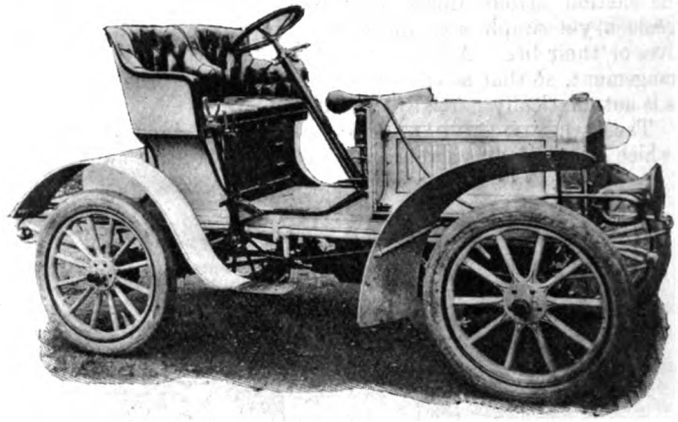


Fig. 20.—The Bailleau Light Car.

16-18-h.p. four-cylinder. The vehicles have pressed steel frames, narrowed at the front to increase the lock of the steering wheels. The engines have separate cylinders 85 mm. bore by 120 mm. stroke; the valves are mechanically actuated off one cam shaft, the inlets being arranged in the cylinder heads. The ignition is by coil and accumulator or by magneto as desired, the 16-18-h.p. *chassis* on view being provided with the latter. Four speeds forward and a reverse, with direct drive on top speed, are provided on the larger car, the 10-h.p. vehicle having, however, only three forward speeds. The gear box, which is supported directly on the main frame, is provided with ball bearings. The transmission is by enclosed cardan shaft to the live rear axle. All the brakes are of the metal-to-metal expanding type. To prevent strain on the engine or gear, a universal joint is provided on the clutch shaft. The cars appear to be built on sound lines, and, like all modern vehicles, can be fitted with side-entrance bodies.

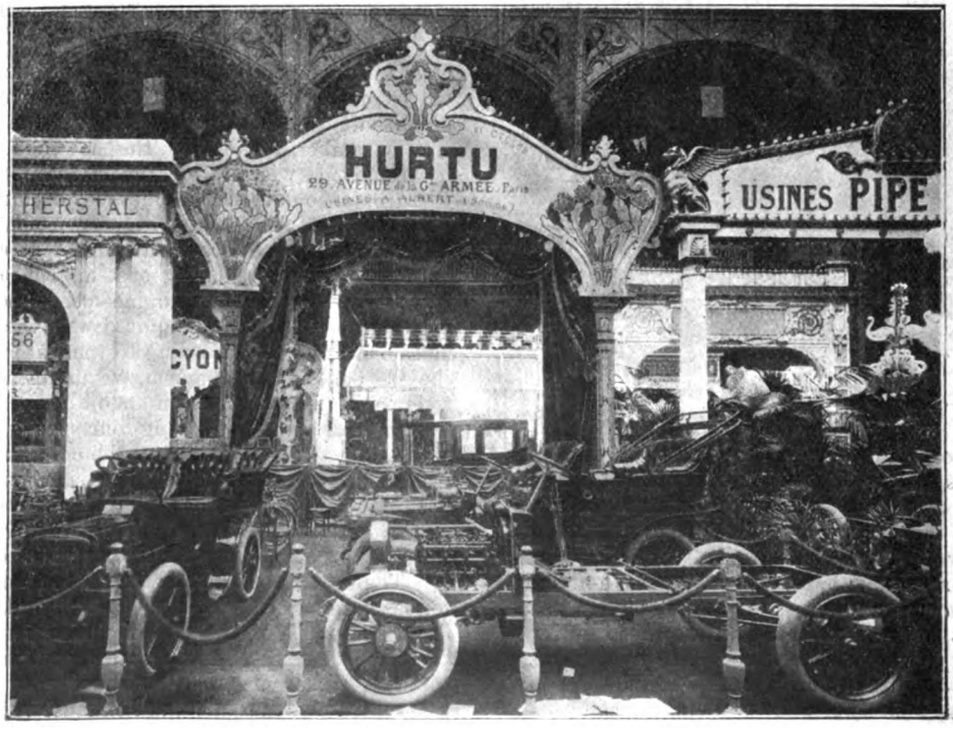


Fig. 21.—View of the Hurtu Company's Stand

Messrs. Desponts and Godefroy have a large display of radiators, both of the honeycomb and ribbed-pipe types, these being shown in a variety of shapes. "Jupiter" acetylene head-lights and mechanical lubricators are also to be seen, while of especial interest at the present time is their *chauffer-ette*, or foot-warmer for motor-cars. A description of this apparatus was given in a recent issue of the *Journal*, but it may be mentioned that it consists of an arrangement fitted in connection with the piping connected with the circulation of the engine cooling-water.

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THE COMMERCIAL VEHICLE EXHIBITS.

By E. Shrapnell Smith.

I JOURNEYED post haste to the Serres de la Ville, in the Cours la Reine, on the morning of the 8th instant, rueing the fact that spells of intermittent driving over stretches of "Kleinpflaster" roads in Rheinland had occasioned so serious a delay as three days beyond the opening of this section of the *Salon*. My perturbationproved to be a quality of supererogation, for everything was chaos and ample time remained to me. The customary practice of certain exhibitors to be late had been distinctly widened by the unroofing of a portion of the



Fig. 22.—The Brillie Four-ton Petrol Lorry.

large glasshouse during the storm of the previous week. Machine tools, motor boats, petrol omnibuses, and steam lorries, were chiefly outside the building rather than in position on the stands. Horses strained in traces to *camions* upon which shapely hulls submitted, unresisting, to Philistine hands and methods in their unloading and staging; meanwhile the Seine glistened below, silently demanding the boats for her care and carriage. The approaches were ankle-deep in yellow mud, and sympathy forced one to take a turn at the wheels behind an exhausted hay-motor. A commissionaire before the entrance gate, where no turnstiles were yet, politely explained that my invitation card for the opening function, which was dated for the 9th, was not available on the 8th—in short, that to-day was not to-morrow. But a diplomatic reference to *The Motor-Car Journal* proved an irresistible *open sesame*.

Visits on succeeding days made it clearly evident that France is awakening to the scope which commercial vehicles offer. All the great houses are prepared to supply workmanlike small delivery vans and open trucks, to which end the *chassis* have been specially strengthened. It is no longer a question merely of superimposing a different body on the underframe of the pleasure car, for the models are essentially suited to the steadier and severer grind of daily service in business work. This development in the use of the lighter commercial types is reflected in the streets of Paris, one being complementary to the other, for it is a noticeable feature that, amongst the stream of automobiles which cheer the eye and gladden the heart of the motorist in the gay city, the occurrence of the *camion de livraison* daily becomes of greater frequency. Beyond this stage, heavy motor traffic has yet to advance. The motor-wagon, laden with its five tons of beer, of stone, of paper, or almost any load one may choose to name, which is regularly seen in any London line of traffic, is conspicuous by its absence here. Enquiry at the stands, and from members of the Automobile Club de France, particularly from my friend, M. Georges Forestier, the engineer-in-chief of the Department of Roads and Bridges, demonstrates, to the exclusion of contradiction, that France will never know the applications of the five-ton motor lorry as we do in England. The physical and commercial conditions of the two countries provide one explanation, for England stands alone in her volume of internal trade, taken in conjunction with the short distances between her productive centres and the high ratio of road mileage to superficial area, whilst, as regards town uses, it is only for regular loads of definite character that commercial success can result. London, and other English cities, apparently offer more opportunities of this kind. At least, the fact remains that there are probably ten times more five-ton lorries at work in London, where the roll exceeds a total of two hundred, than there are in Paris.

I went carefully over all that was exposed, twice and yet again. Not a few of the exhibits—it were kinder not to make particular reference—are doomed to a short existence when they reach actual use. The boldness with which some of the machines had been labelled for a *charge utile de* 4,000 *kilos.*, when perhaps 1,500 kilos. was a reasonable average load, tempted one to smile until the desire was checked by the certainty of bitter disappointment in store both for the user and the builder. It is the old story of ignorance of road conditions, for, no matter how brilliant the engineer, or how good the material, theory is rudely upset when it comes to running on bad roads, especially with iron tyres. The most promising vehicles, to my mind, were those exhibited by the Société des Automobiles Eugène Brillié (19, Rue Auber, Paris), whose construction is undertaken and carried out by MM. Schneider and Cie., Le Creusot and Havre; the *avant-train* of A. Latil, 9, Rue Neuve-de-Villiers, Levallois-Perret; the *trains automobiles à propulsion continue, système Ch. Renard*, shown by Surcouf and Cie., Rue de Bellevue, Billancourt; the Bretin lorry staged by Mathian Frères, 147, Rue de Tolbiac, Paris; and the five-ton steam lorry of Turgan, Foy and Cie., Rue Carnot, Levallois-Perret.

The construction of the Brillié vehicles is exceptionally solid and well thought out for the purposes in view. The four-ton type (Fig. 22) is fitted with an 18-24-h.p. four-cylinder motor, with both petrol and alcohol carburettors, and with high tension ignition. Magneto is added, to work on the same plugs if required. The motor runs, normally, at 900 revolutions per minute. The transmission is of the ordinary cardan type, with direct drive on the third forward gear, which is the highest; the transverse differential shaft is close to

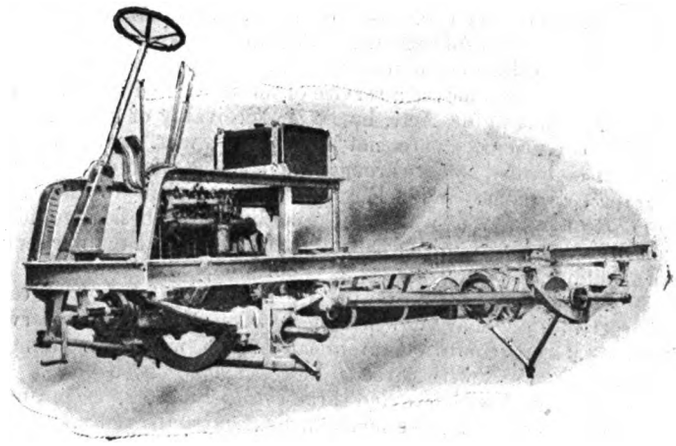


Fig. 22.—Chassis of Brillie Petrol Lorry.

the back axle, and carries pinions with twelve or fifteen teeth, which can be changed by a patented method of altering the centres of this shaft relatively to the internally toothed rings on the driving wheels. All is satisfactorily enclosed and oil-tight, whilst powerful Lemoine brakes are applied externally on the drums. The three speeds range from 2¼ to 7½ miles an hour, above which the engine can be accelerated by 30 per cent. The lorry, including platform, weighs 3½ tons, and I was able to examine the records of tests made on a gradient of 1 in 10, with a load of five tons, up which the climb was performed at two miles an hour on a wet macadam road, and this with only six-inch tyres on the driving wheels of thirty-seven inches diameter. The makers guarantee the b.h.p., and the speeds under load, and I observed that they

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mploy a friction clutch having a metal face on the male member with the leather on the female face, which forms part of the engine fly-wheel.

The *avant-train Latil* is a neat, compact and promising invention, which has stood the test of time. It has been in use some four years, and the *Maison Goulet-Turpin*, of Reims, who bought one of the early machines several years ago, have bought three more, the last of these being on the stand. The two-cylinder engine and gear-box are carried transversely above the front axle, from the frame. Cardan shafts carry the drive to short shafts which run in bearings held in brackets which are part of the substantial flap castings of the front springs. On the outer end of each of these short shafts is a spherical jaw, smooth on the inside except for a horizontal projection, or fork, about three-eighths of an inch deep, which fits a groove cut in the steel ball, about two inches in diameter, which lies between the spherical jaw on the driving shaft and a similar spherical jaw, but with a vertical projecting fork, which is attached to the pinion which engages the internally toothed ring attached to each front wheel. This special ball joint gives the necessary play and an efficient drive, and the wear is practically *nil*. All the shafts are parallel, the motor is close to its work, and a remarkably high percentage of the engine power must reach the rim of the front wheels. The tare weight of the vehicle is under two tons for a load of 3½ tons, and the price is only £340, in Paris, including solid rubber tyres on the front wheels, with a 12-h.p. motor. I look upon this system as the novelty of the heavy section and hope to see it in London hereafter.

The Renard train has already been fully described in the *Journal*, so I shall refer only to the improvement that has recently been made in the suspension for the six-wheel type. The frame is carried on compensating rods which give points of support capable of accommodating themselves to the variable lifting of any wheel without any appreciable effect upon the level of the vehicle body as a whole. The arrangement also permits of the front or rear wheels being raised by irregularities on the road surface without any reduction in the load upon the centre axle, which requires the greatest possible weight for adhesion in driving. A number of the Renard vehicles have recently been ordered for service as omnibuses between Dieppe—Oriel—Le Treport. In England this system will have no practical application for road trains, as the use of more than one trailing vehicle removes a service of motor-cars within the pale of the Traction Engine Acts, but it is conceivably of great interest under conditions, as are not infrequently met, where a trailer cannot be hauled solely through the tractive effort of the towing motor car alone, and where the transmission to the trailer of part of the power, whereby the additional adhesion could be used for aiding propulsion as whole, might assure a regular service of a suitable character.

Messrs. Mathan Frères deserve mention principally because the petrol lorry they show has been taken from actual service, and because its condition, after nearly 7,000 miles of running in and around Paris with three to four ton loads, is so good. The vehicle is fitted with two and three cylinder motors, according to demand. This firm, like many in England and France, will hire their motor-lorries to any firm for two or more weeks, as a trial, for an inclusive charge, which in their case is from twenty-five to thirty francs a day. There is no special feature in the design that calls for reference.

The name of Turgan, Foy and Cie. is known to English readers and to all who have attended the *Poids lourds* trials at Versailles and elsewhere. It is a sign of the times that these builders of boilers and steam engines are also getting out internal combustion motors, though they have every confidence in the continued demand for *camions à vapeur* for years to come. Their 60-h.p. five-ton steam lorry and tractor is, indeed, an achievement of which they may well be proud, though the price of £960 seems rather stiff. The provisioning is ample throughout, no less than 245 gallons of water being carried, and this quantity is none too much for the normal load of ten tons, five each on the motor lorry and the trailer, when traversing heavy roads. A strong ratchet is fitted on the back axle to guard against any risk of running back, which is a useful provision where such great weights are in use.

My interest is, I must admit, ever in the heavier loads, for that is what will aid the British manufacturer and the agriculturist, so long as we can secure a true proportion between traffic, carrying agency and road structure. I do not overlook, however, the many encouraging signs that talent and capital are surely combining to elucidate the problem of mechanical road transport.

I have ventured to advise constructors to always avail themselves of every scrap of road experience before launching out into selling, and I now repeat that new-comers to the heavy branch of automobilism will find no royal road to success. It was interesting to learn from such constructors as the Société Decauville, the Société Delahaye, and the Société Peugeot, whose reputation as car builders is generally acknowledged, that they have been perfecting commercial lorries at their works for a long time past, and that they are now ready to supply to the public what they have proved to their own satisfaction in their own haulage over protracted periods. I hope they will rapidly develop their capacity, which remark applies to many other makers, such as the Hagen lorry, with 12-h.p. motor, a tare of 3 tons and the same useful load; the Krieger petrol-electric lorry, with 16-h.p. motor, a tare of 2½ tons and a useful load of 5 tons; the Bardon lorries, with 6 and 8-h.p. motors, having single cylinders but two pistons, for loads of 1½ and 2 tons respectively; the Zappa and Schars steam wagon, which is the first of its type, intended to take a 5-ton load; the De Dion-Bouton lorry, for about 2 tons of useful load, in which the front spring shackles hang on bifurcated leaf springs, which are bolted to the frame of the vehicle, whereby specially easy suspension is attained; the Delahaye light tower-wagon, which has been sold to the Alexandria and Ramleh Electric Railway; the four-cylinder 25-30-h.p. wagon by Adolph Saurer, Arbon, designed to carry 5 tons; and, last but not of least interest, the 2-ton lorry of the Neue Automobil Gesellschaft, whose London house, the N.A.G. Automobile Company, Limited, of G.B. and Ireland, of Great Portland Street, W., will be exhibiting at the Agricultural Hall, Islington, in March of next year.

It is a pity that the heavy vehicle section has been relegated to a building several hundred yards from the Grand Palais, though the fact that the motor-boats are similarly "outlawed" makes for the likelihood of a fair proportion of visitors. One is able to detect much in common with English practice, both in point of constructive details and business methods, and all the makers appear to look upon the commercial types as a growing asset to the industry. In conversation, I gathered distinctly that they recognise the necessity for reasonable prices and the fact that trade concerns will not, were they able, pay anything in the nature of fancy prices. Taking a line through the various quotations, French makers are selling 2-cylinder 1½-ton lorries which are capable of taking that load at an average of six or seven miles an hour at £350, inclusive of rubber tyres. This is below home prices, but the French machines are not so strongly built in the wheels, axles, or frames as English roads have proved to require, and the loads would have to be reduced accordingly. The diameters of the driving wheels seldom exceed thirty-four inches, and this is insufficient for smooth running except on good surfaces, whilst the platform areas are almost universally too small for the bulk of a load of general goods, such as groceries, provisions, fruit, or cotton. Some of the machines have very narrow platforms placed inside the wheel gauge, but this can easily be remedied by packing from the frame so as to raise the floor above the tops of the wheels.

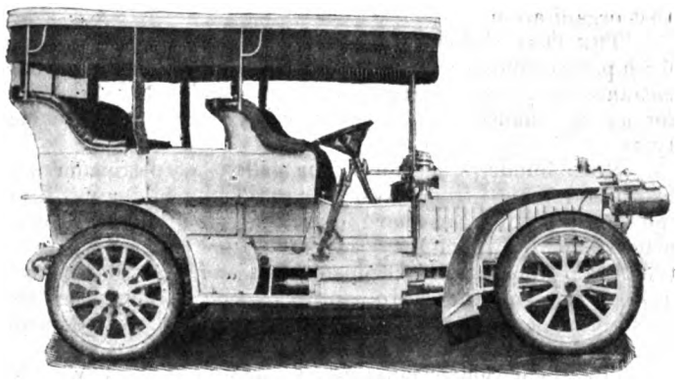
I have certainly seen ample to prove that, whatever position English makers may hold in their own markets, and that is difficult to prognosticate, they have no monopoly for export orders. Output alone can secure to them any advantage, for the French builders appear to be definitely behind our leading houses in that particular, and for commercial vehicles only.

(*To be continued.*)

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HERE AND THERE.

THE other day we had an opportunity of inspecting a special 30-h.p. six-cylinder Napier car which has now been shipped by Messrs. S. F. Edge, Limited, to India. The car, of which an illustration is given herewith, is extremely quiet, and it is claimed to be able to travel at from four to forty miles per hour on the highest speed. The body is built of aluminium and is fitted with entrance doors at the sides. The upholstery



is of real leather, and is of the most luxurious description. Light dust curtains are attached to the sides of the canopy. A combined glass wind and dust shield is provided at the rear end of the body, the central portion of which can be opened if required, and there is also a glass wind shield over the dash-board in front of the front seat.

THE Duke of Marlborough has just purchased a 3¼-h.p. Clyde motor-bicycle.

THE United Kingdom Motor Tyre Manufacturing Company, Limited, has been registered.

THE Bromley (Kent) District Council's Surveyors have reported in reference to certain roads to be scheduled under the Motor Car Act.

THE South British Trading Company, Limited, are bringing out a "three-in-one" oil which is claimed to be useful for lubricating a wide range of machinery.

IN connection with the special course in January for the staff officers at the Staff College, Camberley, it is proposed to hold a Staff Ride, the cars of the Motor Volunteer Corps being used for the purpose.

THE "Boon" Variable Gear Syndicate, Limited, has been registered with a capital of £5,000 to acquire an invention relating to improvements in driving and gearing mechanism for motor-cars, and to adopt an agreement with Mr. A. W. Boon.

MESSRS. DONNE AND WILLANS, LIMITED, has been registered with a capital of £5,000 to acquire the business of a manufacturer and repairer of and dealer in motor-cars carried on by Mr. M. Donne, at 27, St. John's Square, Clerkenwell, E.C. The first directors are Messrs. R. St. J. Willans and M. Donne.

THE Resilient Hub (Jackson's Foreign Patents) Syndicate, Limited, has been registered with a capital of £5,000 to adopt an agreement with Messrs. J. E. Hodgkin and E. C. P. Scott, and to carry on the business of hub, axle, tyre, wheel, and lamp manufacturers, etc. The registered office is at 32, Victoria Street, S.W.

MOTOR PLANTS, LIMITED, is the title of a company registered with a capital of £10,000, to adopt an agreement with Mr. H. B. Graham and Mr. A. J. Smith, securing their services, and to carry on the business of manufacturers of and dealers in motors. The registered office is at Winchester House, Victoria Square, Birmingham.

FROM Messrs. W. Galloway and Company, of Gateshead-on-Tyne, we learn that the Stanley Motor Carriage Company are placing on the market for next season no less than five new models, three of them having the boiler in front under a bonnet. Perhaps the most interesting of all the new models will be a 20-h.p. touring car to seat five, with side-entrance tonneau body.

MR. J. W. ORDE has been to Douglas in connection with next year's motor racing in the Isle of Man.

THE floor of the garage should be kept free from oil as a precaution against fire, and also to save the tyres from damage.

MESSRS. HUMBER, LIMITED, have placed their contract for the supply of accumulators for the ensuing year with the Prested Battery Company.

AN automobile club has been formed for Harrogate. Dr. Ozanne has been elected president, Dr. Holroyd Pannal, treasurer, and Mr. W. C. Priestley, secretary.

THE business carried on by the Regent Street Garage at 151A, Regent Street, has been acquired by Messrs. S. F. Edge, Limited, and is now directly connected with 14, New Burlington Street, W.

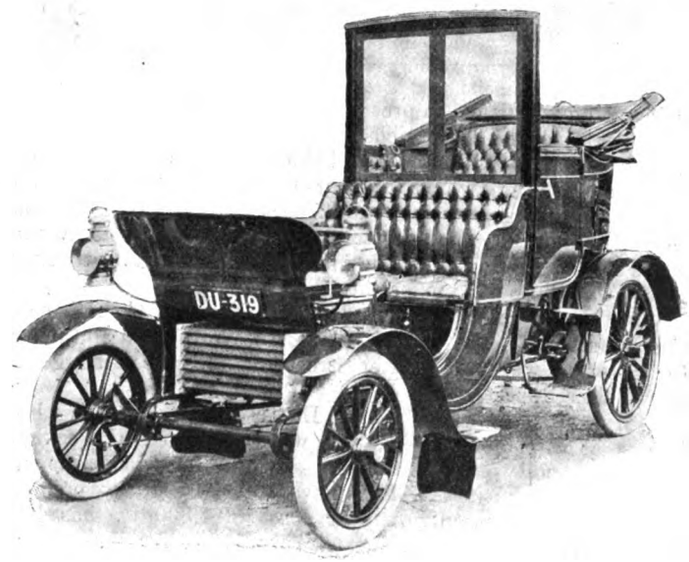
THE Agricultural Handbook for the year 1905 contains articles of great interest and utility to agriculturists. It is edited by Messrs. C. R. Adeane and Richardson Carr, and is published at "The County Gentleman" offices.

AT the meeting of the Oswestry Town Council a letter has been read from the Great Western Railway Company, intimating that the company had it in contemplation to work the Oswestry branch by means of a rail motor service as soon as the necessary vehicles had been constructed.

DURING the last week or two the motor-'buses of the Isle of Wight Express Motor Syndicate, Ltd., have been flitting about the island. The ordinary fares charged will be: Sea View to Ryde, or *vice versa*, 6d.; Cowes or Newport to Ryde, 1s.; Sandown or Bembridge to Ryde, 9d.; St. Helens to Ryde, 7d.

PROFESSOR H. S. HELE-SHAW has resigned his position as head of the Faculty of Engineering at the Liverpool University in order to proceed to the Transvaal Colony, where he is undertaking the duties of senior professor of the new Technical Institute which is to be established there. He will leave England early next year.

SIR WILLIAM SELFE, judge of the Rochester County Court, last week awarded a labourer £21 damages and costs for injuries sustained through being knocked down and run over by a motor-car. His Honour held that the accident was caused by the defendant attempting to pass a string of dockyardsmen going home from work and not allowing sufficient room.



The above Illustration depicts a new design in Duryea Carriages recently built by the Duryea Company, Ltd., for Dr. Ca'verley, of Folkestone. The car is built on a standard chassis of 15 h.p., and is identical, so far as the front portion of the carriage is concerned, with the usual type. The rear portion, however, is constructed as a landaulet with fixed glass screen in front, the entrance being, of course, at the side.

THE Canterbury (New Zealand) Automobile Association has decided to co-operate with the Auckland Association in securing a reduction of the heavy charges made for the conveyance of motor-cars by steamer between the various ports of the colony.

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THE Torquay Motor-Omnibus Company has been able to pay a dividend of 7½ per cent.

THE Motor Omnibus Trust, Limited, has been registered with a capital of £1,000, to carry on the business indicated by the title.

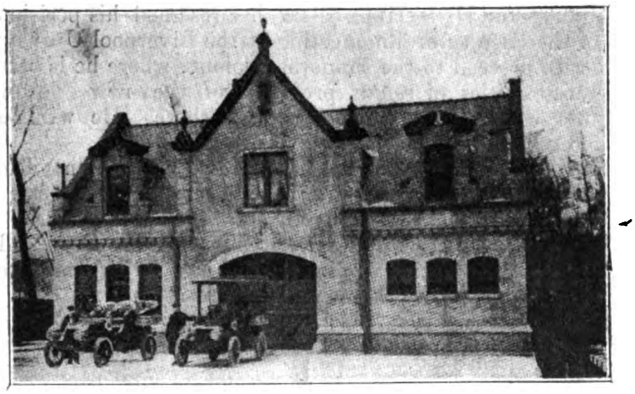
MR. A. MILLS has been elected captain, Mr. M. Blackwaller secretary, and Mr. Thistle treasurer, of the newly-formed Cardiff Motor Club.

THE Hozier Engineering Company, Limited, have secured the rights to fit the Simplex ignition, illustrated in the last issue of the *Journal*, to Argyll cars.

AN error respecting prices has been appearing in the Speedwell Motor Company's advertisement, the price of the 10-h.p. light Speedwell car being £10 more than was stated.

WE are officially informed by the Dublin, Wicklow and Wexford Railway Company that they are now running a steam lorry for the carriage of goods between Ferns station and Newtownbarry.

THE best private motor-car garage in Chicago is stated to be that of Mr. Shepherd. Situated in the rear of that gentleman's house in the southern part of the city, the garage is of an inviting appearance. On the ground floor are located the storing room, with accommodation for three or four cars, and repair shop, while in the upper storey are found the sleeping quarters of the mechanics and bath rooms. The lower floor is furnished with every modern convenience for the repairing of motor-cars save a lathe. The floor is of cement, laid on pressed bricks, while the



wainscoting is finished in pressed brick. Located in the garage is a turn-table and a spacious repair pit. Outside, at a safe distance from both the house and the garage, is located a 120-gallon petrol tank, which, of course, is underground. A pipe runs to the garage, with a shut-off cock attached to it just outside the building. If at any time the men desire to fill a tank while a car is inside the building, all they have to do is to attach a hose to the pipe and run it into the garage.

AT the last meeting of the General Purposes Committee of the Wrexham Town Council, plans were presented and passed for motor-car works in Chester Street for Messrs. H. Higginson and Walter Roberts.

MESSRS. E. AND H. HORA, LIMITED, who have long been known as carriage builders, and whose premises at Peckham cover between two and three acres, are entering with spirit into the automobile business. They have just erected new premises in the Peckham Road. A floor space of 4,800 ft. has been fitted with electric lifts, and heated throughout for the purpose of a second-hand showroom. In this department also they are arranging that second-hand cars for sale may be examined by an expert, who will submit to intending purchasers the exact state of the cars, engines, etc.—a new feature in the second-hand business which should be of interest to prospective buyers. The firm are also making bodies for motor-cars, in connection with which department they have a large plant of new machinery. Messrs E. and H. Hora are also taking up the agency for the new Hurtu cars, and are supplying half-a-dozen motor-'buses to Messrs. Tillings, Ltd.

THE makers of Peter's solid tyres are guaranteeing them for 10,000 miles run.

THE Warwickshire Chamber of Agriculture has been discussing the use and abuse of motor-cars, without, however, coming to any definite conclusion on the matter.

THE Birmingham Motor Show will be held from January 21st to 28th, 1905, under the management of Mr. Walter Cawood. A special section will be devoted to touring cars and tri-cars.

A CIRCULAR giving the conditions of the Long Distance Trials which may be carried out under the auspices of the A.C.G.B.I. has just been issued by the Technical Department of that organisation.

THE Dixi Motors, Limited, have despatched to Calcutta a 6-8-h.p. two-cylinder Dixi car, fitted with a four-seated side entrance body with doors to both back and front seats. It is for use up country, and is fitted with extra strong pneumatic tyres.

NINE hundred and forty-four gallons of petroleum which had been removed from Liverpool to Blackpool for use during the recent motor trials have been confiscated by the Blackpool magistrates, by whom Mr. James Hamilton, general manager of the Anglo-American Oil Company, was fined £1 and costs for having brought the petrol to Blackpool without the chief constable's permission. Mr. Roland Robinson, who defended, said there would be an appeal.

THE regulation prohibiting a locomotive to be driven along the highway without having on it a person competent to apply the brake was held by the Stratford Bench on Saturday to have been infringed in a case where, though there were two men on the locomotive, the brakesman, instead of being at the rear of the van where he could apply the brake, was with the motor. Only a small fine was imposed, it being stated that the vehicle had now been fitted with a pneumatic brake.

THE Birmingham and Midland Motor-Omnibus Company, Limited, has been registered with a capital of £60,000, to adopt an agreement between the Birmingham Motor Express Company, Limited, and to carry on the business of motor-car, omnibus, van, and cab proprietors, carriers of passengers and goods. The first directors are Messrs. W. J. Taylor, J. Jordan, T. Ottey, W. Roberts, and E. A. Olivieri, and the registered office is at Winchester House, Colmore Row, Birmingham.

THE inquest on Lieutenant Sidney Flavel, who died from injuries received in a motor-cycle accident, was held at Leamington the other day, and a verdict of accidental death was returned. From the expert opinion offered it was deduced that Lieutenant Flavel, who was picked up on the night of the 14th of November at the bottom of a hill near Warwick Castle, must have come down the incline very quickly, and that the machine skidded, causing him to come into collision with a lamp-post.

AMONG the pneumatic non-slipping and unpuncturable tyres lately put on the market is that known as the "Lucas," for which the Fabry Automobile Co., Ltd., are the sole concessionaires for the United Kingdom. This consists of a casing made of canvas and rubber, similar to the ordinary pneumatic tyre. The outside covering is made of "chrome" leather, which is firmly secured by a special process, and in addition is sewn to the "talon," which it completely covers thereby not only preventing the tread from coming off but materially strengthening one of the weakest parts of the ordinary tyre, and consequently increasing its life. The tread is fixed on the outside covering by means of steel rivets, and another "chrome" leather covering is added for the purpose of protecting the cover from the rivets. It is consequently absolutely impossible for the studs to injure the casing or inner tube. At the Versailles trials in February of the present year it was proved to be possible to drive at speed round corners on specially prepared greasy roads, and to suddenly apply the brakes without side-slipping; and it has also been proved to be possible to drive over nails or newly-metalled roads without puncturing, thereby not only saving much time and labour for repairs, but also expense. The "Lucas" tyres are made in all sizes, from 1,370 mm. by 120 mm. for heavy cars to 650 mm. by 55 mm. for motor-cycles.

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CORRESPONDENCE.

THE USE OF THE ACCELERATOR—FOOT v. HAND CONTROL.

To the Editor of *The Motor-Car Journal.*

Sir,—I have read Mr. Percy Richardson's article in the *Journal* of the 10th inst. on the above subject, and I must say I cannot agree with him that the use of the foot accelerator is dangerous. The two makes of cars which I may claim to have had most experience with, namely Panhard and Mercedes, differ completely in their method of control. While Messrs. Panhard have always kept rigidly to the idea of the foot control, though introducing certainly a control on the wheel besides, which is totally ineffective as regards acceleration, the Daimler Motoren Gesellschaft have on the other hand steadily refrained from introducing a foot control. From the experience I have had of both these types of cars, I must say that the ideal form of control on a car would to my mind be a combination of the two. The Mercedes governor and throttle is so arranged that at whatever speed the motor is set to run by the hand throttle, the governor keeps the engine running constantly at that speed, provided, of course, it is not subjected to an overload. If therefore you are running in traffic and can set the car to run at say ten miles an hour and you suddenly wish to accelerate quickly, it is necessary to move the lever on the steering wheel, guiding the car through possibly very difficult traffic with one hand. The same applies to driving in the country, round corners and on winding roads. In practice a Mercedes car is guided entirely by the left hand, the right hand, which is usually the stronger, being reserved entirely for operating the throttle. If a foot accelerator were added to these cars, the control would be absolutely perfect. On the other hand, the Panhard system, which depends upon the use of the foot accelerator, possesses other disadvantages. In practice the control on the steering wheel is closed to such a point that when the accelerator is "up" the engine runs at its lowest possible speed, and in order to get any power from the motor at all it is necessary to depress the accelerator. The accelerator is, in practice, always down, causing the throttle to be open to its fullest extent, therefore, in Panhard driving the engine is either giving its maximum or its minimum power with practically no variation. In traffic this is handy, as London driving consists in alternate quick bursts and quick stops, but for country work or on winding roads, where the power of the engine exceeds that required, it is very trying to the foot and to the car, as it necessitates constantly drawing the clutch.

Summing up the advantages of both systems, it appears to me that the foot accelerator system possesses the great advantage of leaving both hands free to operate the steering wheel, which, after all, the lives of the driver and occupants of the car depend on, and that great acceleration can be obtained in the smallest possible time, and finally, that the operation of putting on the brake must immediately release the accelerator owing to the fact that the same foot operates both pedals, and thereby renders the engine free from the dangers of racing. The system of hand control has the great advantage that the motor can be made to run at the will of the driver at any constant speed from minimum to maximum. Both systems appear to me to possess advantages and disadvantages, which, if combined, would give a control that would be altogether safe and satisfactory. I believe I am right in saying that M. Jenatzy's Mercedes in the Gordon Bennett race was fitted with a foot accelerator which gave him very great advantage over other competitors, though I admit that racing conditions are altogether different to touring.—Yours truly,

J. E. Hutton.

To the Editor of *The Motor-Car Journal.*

Sir,—I have read with interest Mr. Richardson's article on the above subject. Personally, I do not see there is any great question over the matter. The foot control has many advantages, so has the hand control; the solution therefore seems to me to be a combination of the two, working independently or otherwise. In the four-cylinder 15-20-h.p. Brooke cars we arrange the governor to cut out at 500 r.p.m., above which speed the foot accelerator has to be used, and if this is depressed the hand control can still be used for all speeds, but if the foot accelerator is not depressed then the hand control can be used only for speeds below 500 r.p.m. of the engine; this means, that for all speeds above this the foot accelerator has to be depressed.

In our 1905 28-35-h.p. cars I think we have a still better method; it has the same action as in the 15-20-h.p. above described, but is so arranged that the hand control has an extension which eventually acts on the governor and increases the tension on the spring, so increasing the governed speed of the engine. I believe this is the ideal control. Yours truly,

Maudsley Brooke.

To the Editor of *The Motor-Car Journal.*

Sir,—Referring to the question as to foot or hand control of the accelerator, we are pleased to say that we agree very much with Mr. Richardson that the control of motor-cars should be simplified as much as possible, and have throughout followed this principle to the fullest possible degree in the construction of Duryea carriages. By the accelerator is meant, we take it, the mechanism by which the governor can be more or less put out of action, but in our vehicles we use no governor at all, thus avoiding a certain number of parts and placing the full control of the engine more directly in the driver's power. Then we agree with Mr. Richardson when he says that a human being is only possessed of one pair of hands and one pair of feet, so, whilst one hand will be required for working the gear-changing and brake levers, and the other must necessarily be always on the steering handle, we place the engine control, or what would be equivalent to the accelerator in other cars, *i.e.*, the throttle, in the steering handle itself; thus the driver has not even to move a finger to grasp a lever, but simply raises or lowers his wrist as he requires to advance or retard speed of the engine and car. This makes the simplest possible control, and places both the speed and the direction of the car entirely in the one hand, which of necessity must always be grasping the steering handle, so that the control is not only of the simplest possible character, but is as instant in action as thought. You will gather from this that we are entirely in favour of hand control. —Yours truly,

Henry Sturmey.

To the Editor of *The Motor-Car Journal.*

Sir,—With reference to Mr. P. Richardson's article in your last issue on foot v. hand control, I quite agree with him that a foot control is infinitely ahead of the ordinary hand levers on the steering gear. I should like to point out that one English maker is at the present time fitting a foot throttle actuated by the withdrawal of the clutch pedal, which up to the present time has proved very satisfactory indeed and is most convenient in traffic. But what I cannot understand on the part of the large firms is that so far they have put nothing whatever on the market in the way of a foot accelerator worked on the combined throttle and ignition system of control as fitted by an English firm in the form of a hand lever, and which works as well as can be wished. But it has the disadvantage of requiring both hands, one on the steering gear and the other on the throttle lever, and, as Mr. Richardson remarks, an ordinary human being is only possessed of two hands and two feet; it leaves the horn to be worked as best it can. The foot control would do away with this difficulty, and, to my mind, would be a great improvement. I am of the opinion that in a few years we shall see cars driven entirely on two or three pedals, and sincerely hope I may "be there to see."—Yours truly,

Charles E. N. Storr.

MORE ENGINE TROUBLES.

To the Editor of *The Motor-Car Journal.*

Sir,—Will you give me your opinion on the following trouble. My two-cylinder Aster engine, when working with the car at rest, makes a most peculiar hammering metallic noise when running at a fair rate against the governor, but not when "raced" or run very slow. This "tinny" hammering occurs with every beat of the engine when the back cylinder trembler is held out of action and does not occur at all when the other trembler is held down. The same noise occurs intermittently when on the road, and on all three speeds, also invariably whenever the clutch is withdrawn for gear changing. The engine has just been carefully overhauled here by a good firm, in an endeavour to locate the noise; they report the engine in good order throughout, and are, like myself, puzzled. All the usual tests have been tried and every part of the engine and connections seen to.

I imagine the trouble has something to do with ignition.—Yours truly,

Perplexed.

[We think that "Perplexed" will find the trouble in the inlet valves. The fact of not having the springs in each case at the same tension would cause a slight hammering in one cylinder and not in the other. This would not be noticeable at a high speed with the throttle open, but would when closed, the suction causing a partial vacuum in the inlet pipe, thereby aiding the valve to close more quickly, and having the tendency to hammer the valves, more especially if the springs are somewhat strong. We should advise trying a little weaker spring on the cylinder which appears to cause the trouble.]

To the Editor of *The Motor-Car Journal.*

Sir,—I should be very glad if some of your many readers could assist me in the following matter. In consequence of the frost my cylinder was burst. I took advantage of the accident and put in a new one, a little larger in the bore, viz., 4 in. instead of 3½ in. After being completed I find my power on the low gear very much lower than previously, owing, I think, to the engine running slower. The top speed is very much the same, but more powerful. The engine also runs very irregularly, sometimes running down, then racing away without any alteration in the petrol or sparking. The water circulation is very unsatisfactory, and causes overheating, also premature firing. The cooling is done by radiator. The water supply up to the time it reaches the pump is right, but when it leaves the pump and reaches the water jacket appears to be instantly generated into steam. Therefore no water gets round the cylinder. The steam appears to pocket in the return tube, which has to travel down below the outlet of the cylinder some 16 inches, then rises again to top of the tank some 3 or 4 inches higher than the cylinder level. I may say the engine is fixed on back axle and tanks under the bonnet in front. The car is of French build, and is eighteen months old. The lubrication is, I think, at fault: previously it was from the crank chamber and very satisfactory indeed. Now a lubricator is fixed on the side of cylinder, the oil afterwards being returned

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in a small well on top of the chamber into which the lower end of the piston dips. The silencer is very defective, consisting of a case, 15 in. long by 5 in. dia., in which are six half-inch tubes, perforated, running the whole length and open at each end. I shall feel very grateful for any suggestion to remedy the above.—Yours truly.

A READER OF THE JOURNAL FROM THE FIRST ISSUE.

THE COST OF RUNNING.

To the Editor of *The Motor-Car Journal*.

SIR,—As your correspondent "J. G. R.," and others, might be discouraged by the figures I recently gave showing the cost for running my car for one year, I should like to add a few particulars to those already supplied. The item "repairs" included the addition of two sprags, and also two rubber rollers, one fixed on each side of the car frame for the purpose of preventing the front wheel covers from being injured by coming into contact with the spring hinges when going too sharply around corners. "Repairs" also comprised a pair of guards to prevent mud dropping from the splash boards into the band brakes; also a zinc covering to flywheel to prevent the oil being thrown about the inside of the bonnet; also the replacing of two broken springs of the back wheels. Mine is a French car, and I think the springs must have been rather too light for our bad roads. I have therefore had thicker leaves substituted and now carry spare straps and plates for repairing broken springs. I have also smashed one of my splash-boards twice. Once it was my fault and the other time it was not, but I paid for both. Accessories include a clock at a cost of 30s. and an odometer for the same sum. Tyres include £8 8s. for Samson non-skids on hind wheels.

"J. G. R." will see, therefore, that some of my expenses were not absolutely necessary—merely luxuries; and while on the subject of repairs I would suggest that it is not always the biggest people who do these most satisfactorily. The cycle agent or an intelligent ironmonger will frequently do the work better than the Blundering Motor Company, Limited. He gives his personal attention to it, whereas at the company's works some apprentice may be deputed to experiment on your car, while the fitter is sent away to take the orders of the last arrival, who "can't wait." As to insurance, the chief contingencies to provide against are fire and third party claims, and £5 a year should be sufficient to cover these in the case of any moderate sized car, such as a 10–12-h.p. Some companies stipulate that the car owner shall pay the first 40s. or 50s. in case of damage, etc.: the result is that I have had to make good my own damage on two or three occasions, and my rather large premium has been clear profit to the insurance company. Other companies will accept a very low premium if the car-owner will pay the first £10 of everything insured; for instance, a premium of £7 10s. is reduced thereby to £3 3s. This seems to point to the conclusion that as it is so unlikely that any damage or claim beyond £10 will occur, it may be hardly worth while to insure at all. With regard to rent, enquiry at all the stables and garages in the locality will sometimes result in payment of a much lower rent than formerly, or, in your present landlord offering to accept a considerable reduction, as in my own case. In short, with a little trouble and care a car can be run at a very moderate sum. If car owners were to give others the benefit of their experiences more frequently I think we could with better prospects face the crowd of car-sellers, insurance agents, repairers and garage owners, who all take so much interest in our welfare.—Yours truly,

S. C. G.

SUNRISING HILL CLIMB.

To the Editor of *The Motor-Car Journal*.

SIR,—My committee regret that an error has been discovered in the particulars of the above competition, recently published, which affects the result.

The Argyll car when first weighed was 19 cwts. 1 qr. loaded, and 15 cwts. 2 qrs. unloaded, leaving 4 cwts. 1 qr. only as the weight of the four passengers. As the passengers did not average the ten stone required by the rules, a boy was taken on the car, which then weighed, loaded, 1 ton and 3 qrs. The alteration from 19 cwts. 3 qrs. to 1 ton 0 cwt. 3 qrs. on the weighing card, which was filled in with ink pencil, became indistinct owing to the rain, and the weight of the car was read as 1 ton 9 cwts. 3 qrs., and was taken as such when working out the handicap. On the basis of the corrected weight, the Daimler car driven by Mr. Percy Martin takes the first place, and I shall be obliged if you will publish this correction in your next issue. I may add that on discovering the mistake Mr. W. H. Cook at once placed himself in the hands of the committee, and the prize will therefore go to Mr. Martin.—Yours truly,

A. G. JOHNSON, Hon. Sec., *pro tem.*

WINTER PRECAUTIONS.

To the Editor of *The Motor-Car Journal*.

SIR,—Replying to "W. J. L.'s" enquiry in the last issue of the *Journal*, many motorists heat their motor stables by means of a coal stove. While this can be done, there is obviously a good deal of danger involved in an open fire in a shed containing a car charged with petrol, for, if the tank should ever become leaky without the owner's knowledge, an explosion would be almost certain to result. Obviously when the motor house is located near a building provided with a steam or hot water heating system, the problem is a comparatively easy one, as radiators or flues are then readily installed in the stable and connected with the heating system of the building. Where the owner's residence is not equipped with any of these modern heating arrangements, and where the installation of such a system is impossible, or inadvisable for any reason, the stable must necessarily be heated by means of a stove. In such a case, however, I consider it advisable to locate the stove in a partitioned-off corner of the stable, or in an addition thereto, and to simply lead the heated air from round the stove through the shed containing the car. With such an arrangement, it is absolutely impossible for inflammable vapours to reach the stove, and all danger of fire or explosion is eliminated. The heating efficiency of the stove under such conditions may not be so great as if it were placed directly in the stable, but the latter arrangement is infinitely the safer one.—Yours truly,

T. ALEXANDER.

PETROL CONSUMPTION.

To the Editor of *The Motor-Car Journal*.

SIR,—In the *Journal* of the 3rd inst. there was printed Mr. Beaumont's commentary on the recent "Light Cars Trials." I wish someone would explain why the two cylinder-cars, both Swift and Humberette, consumed so much more petrol than the single-cylinder cars of the same make. The two-cylinder Swift did only 23·6 miles per gallon and the single-cylinder Swift did 38·8 miles; does the increasing the number of cylinders, without increasing the h.p., increase the petrol consumption? Another point in the trials was that the single-cylinder Swift was third in the hill-climbing, while the two-cylinder was seventh; contrary to what one would have anticipated, the i.h.p. of each being the same.—Yours truly,

BERNARD NORTON.

THE EFFECT OF EXHAUST GASES.

To the Editor of *The Motor-Car Journal*.

SIR,—Perhaps an experience of mine may serve as a warning to some of your readers. One morning following a hard frost in the night I went to draw the water from a motor-car kept in a brick shed with no means of warming. Preparatory to taking the plug out I started up the engine, intending to warm the water so that the tank, circulating pipes, and water jacket should drain quite dry. The engine had been running about ten minutes when I began to feel light-headed, and things seemed blurred, and while wondering what had happened I began to feel dizzy and to rock about on my feet. I had the presence of mind to make a dash for the door and throw it open, and get out into the open air. On entering the car-house I had carefully closed the door behind me, thus precluding any fresh air getting in, and no doubt was being slowly poisoned by the exhaust gases.—Yours truly,

W. F. F.

SELF-STARTING MOTORS.

To the Editor of *The Motor-Car Journal*.

SIR,—After being accustomed to the advantages of a self-starter, I find it most inconvenient to be without one on a four-cylinder Darracq I recently purchased. I am told one cannot be fitted in connection with non-trembler coil, but do not credit the statement. By means of four pushes, which, when pressed, connect accumulator, through engine, to coil, I am able, on the pushes being released and connection broken, quickly to



(*The Motor World.*

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cause a spark at each plug; but, try as I may, I cannot get engine to start, though I can get back fires. Can you or any reader help me? After using a self-starter it is like going back a century to be compelled to turn the starting handle after a short stop. On my old car I have dozens of times started without the use of handle after as many hours' stoppage.—Yours truly,

VIATOR.

[It is very doubtful if the self-starting can be accomplished with the non-trembler coil, as the engine usually stops with one piston half up the compression-stroke and the other half way down the explosion stroke; both of these would equal approximately the same compression. Unless a continuous spark be obtained it would be almost an impossibility to fire this half-compression charge. It could no doubt be accomplished by means of an auto-trembler, but the more satisfactory method would be a controller coil.]

CLUTCH TROUBLES.

To the Editor of *The Motor-Car Journal*.

SIR,—Could you or some of your readers advise me as to the best means to get a clutch to hold? It is a leather-faced one on a 10-h.p. car, and appears to be thoroughly saturated with oil. I have repeatedly washed it with petrol without effect, tightened spring, and lastly used French chalk and powdered resin with short-lived results. The leather does not appear to be unduly worn, and has not been in use two years yet.—Yours truly,

A. M.

[There is without doubt something wrong with "A. M.'s" clutch, as powdered resin would certainly have effect. We would suggest that the leather is either worn sufficiently to allow the rivets to bear, or that the clutch is prevented from going quite up by coming in contact with some metal portion inside—probably the end of the spigot bearing.]

AN INTERESTING MOTOR QUERY.

To the Editor of *The Motor-Car Journal*.

SIR,—Your correspondent "Inquisitive One" wishes to know the reason of a petrol engine usually running better at night than through the day. We believe the reason is very simple—that it is owing to the extra moisture in the air at night. This has been proved in the experiments and tests we have carried out with the "Economic" carburettor, which is a carburettor for taking in a small amount of water with the petrol. When the carburettor is started in the ordinary way, and the water gradually turned up to a limit, the motor gives greater power; beyond that limit it slows down. Besides giving more power it keeps the cylinder very much cooler—so much so that air-cooled cylinders of fairly large size can easily be kept cool. When the water is introduced the sound of the engine is distinctly different—approaching nearer to that of a steam engine. We believe the theory to be:—The water is vapourised, so reducing the temperature, and therefore the pressure of the explosion at the commencement; but the expansion of the steam formed causes the pressure to be longer—a higher general level for the whole stroke—and, of course, it may be said that at the high temperature in the cylinder dissociation would occur, but time has to be considered in this, for it must take some time before the water is converted into steam, and must take longer time for it to be separated into oxygen and hydrogen. We think the above considerations indicate the reason of the better working of engines at night.—Yours truly,

THE ECONOMIC COMPANY.

THE MOTOR INDUSTRY AND THE CLUB.

To the Editor of *The Motor-Car Journal*.

SIR,—Absence in Germany has prevented my writing to you until now to correct certain mis-statements which have appeared in some of the motor journals. I wish to point out—

(a.) That the Automobile Mutual Protection Association includes over fifty trade members who do not belong to the Society of Motor Manufacturers and Traders;

(b.) That the younger body, the Society of Motor Manufacturers and Traders, represented only about one-third of the firms interested in motoring—many firms have joined neither body;

(c.) That the published lists of elections during the past season show accessions to the A.M.P.A. largely to exceed those to the Society of Motor Manufacturers and Traders during the same period;

(d.) That the sub-committee of the A.C.G.B.I. did not invite representatives of the older trade body, the A.M.P.A., to meet them, but accepted ex parte statements from representatives of the Soc. M.M. and T.;

(e.) that the A.M.P.A. has no control over, or power to ask patronage for, Messrs. Cordingley's Royal Agricultural Hall Motor-Car Exhibitions;

(f.) that the extension of club patronage to Olympia, on the ground that the show there will be the more representative, is directly opposed to fact as regards the commercial vehicle section, which I gather it is not the desire of the club to ignore or to prejudice.

I submit that this procedure is calculated to widen a breach rather than to conduce to a fusion of interests.—Yours truly,

E. SHRAPNELL SMITH

TREMBLER COILS.

To the Editor of *The Motor-Car Journal*.

SIR,—I have just purchased a Carpentier trembler coil, size of case 7½ by 6 by 3, made by Dubois, of Paris. I have fitted it on my 8-h.p. single-cylinder car. I can get plenty of sparks from the trembler and from the plug when I turn the handle slowly, but when turned very quick the spark at the plug is small.

I cannot get the engine to start. I have screwed the contact screw down hard and have tried it in the usual place. Must I exchange my make and break for a wipe contact?—Yours truly,

COIL.

[Make and break contact breakers are more suitable with coils that have no trembler, as in the Darracq cars. If used with a coil fitted with a high speed trembler such as the Carpentier, it is not always possible to obtain a satisfactory result. The speed of the engine does not allow the contact to remain sufficiently long to get the full value from the high speed trembler. A wipe spark would remove the trouble. We have made experiments with high speed trembler coils of various makers on an 8-h.p. car fitted with a make and break contact. With two of these coils it worked well, with the other it worked in the same manner as described by our correspondent, whilst all three coils were the same when used with a wipe contact. Therefore it would not be correct to assume that a high speed trembler cannot work well with a make and break contact; it depends on the mechanical working of the actual trembler in use.]

CHARGING ACCUMULATORS.

To the Editor of *The Motor-Car Journal*.

SIR,—I should be glad if you, or any of your competent readers, would advise me as to the best way of charging the accumulator of my two-cylinder car from thirty-two E.P.S. cells with smallest waste and at least cost. Could it be done by coupling two of the cells to the accumulator, or should I couple three cells and insert a small resistance? I do not wish to have a lamp in use all the time if it is not necessary.—Yours truly,

ELECTRIC.

[To recharge a 4-volt accumulator from cells forming part of a lighting set, it is necessary to connect up to three cells of the large set, and put a resistance in series with the accumulator being charged. Two cells would not be sufficient, because the voltage will only balance with the small accumulator, and three cells would be too much. Therefore the resistance is necessary. If a small ammeter is connected in the circuit, the amount of the resistance can be regulated to obtain the right charging current. It is advisable to charge from those cells in the large set which are used as the spare cells, these being, as a rule, underworked, and charging from them should make no difference to the whole set when it is in use. This method of re-charging is the most efficient, as there is practically no waste of voltage, and it is also very regular and certain. Care must be taken to connect the positive terminal of the 4-volt accumulator to the positive pole of the accumulators, which is usually painted red. If the connecting bolts of the E.P.S. cells are loosened to make connections, they should be well tightened up after charging, as loose connections heat up and cause trouble.]

QUERIES RE WOLSELEY ENGINE.

To the Editor of *The Motor-Car Journal*.

SIR,—I am having a little trouble with my 10-h.p. Wolseley car. It has been running well up to about a week ago, and as the engine was losing power a little, I ground all the valves in, and now it is worse than before. If any reader of the *Journal* has had the same trouble, I should be obliged if he would let me know, through the valuable *Journal*, how often the exhaust and inlet valves ought to be replaced. I find one inlet spring to be much weaker than the other, but I don't think that has anything to do with it, as the engine has run well with it before.—Yours truly,

PUZZLED.

[Undoubtedly the trouble of "Puzzled" is caused by the tappet screws under the exhaust valves giving too much lift, so as to hold them slightly off their seatings. By grinding in it would slightly lower the valves, bringing them in contact with the adjusting screws in the end of the lever which actuates them. The inlet valve springs should both be as near the same tension as possible. With regard to the renewal of valves, this is a point which must be left for discretion, as some engines may burn a valve in a few journeys, while others may run for years.]

INVICTA ACCUMULATORS.—In answer to a Belfast enquirer, the makers of these accumulators are La Société des Accumulateurs "Invicta," 5, Rue Deves à Neuilly, Paris.

SERVICE AT SOLWAY.—We shall be glad to have the address of the Workington syndicate that proposes to inaugurate a motor-car service along the Solway coast in the spring of next year.

MOTOR-CABS.—Following the names given last week, we mention the N. A. G. Aut mobile Company, 106, Great Portland Street, W., as being able to supply motor-cabs for hotel and station work.

NON-SLIPPING TREADS.—Messrs. Mann and Overton, referring to Mr. Drinkwater's letter in our last issue, say they have never had a complaint from the users of any of the thousands of bands they have supplied. They do not think the non-skids had anything to do with the tyres bursting.

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THE BRITISH AUTOMOBILE INDUSTRY.*

By Henry Sturmey.

The 1,000 miles tour of the Automobile Club in 1900 did wonders in its influence upon public opinion, and during the twelve months following there was a great increase in the demand for motor-cars. Not only were the great majority of the English cars of that date little better than experiments, but practically no manufacturers were in a position to supply, except only to a very limited extent. The result was that people who brought cars back with them from the Continent found a ready sale for them, and many enthusiastic motorists of that day sold their foreign cars in England, after a season's use, for more money than they had paid for them, for they were undoubtedly better in many respects than the home product. These gentlemen were generally rather pleased than otherwise to tell everyone of their smartness, with the natural result that others sought to do the same, and as the desire to possess a car was now rapidly growing amongst the English people, the French manufacturer soon found an enormous new market opened to him, and dealers flocked to place orders with him for the supply of British needs, with the result that, the sale of his output assured, he increased his production enormously. For a time all went well. In the seasons 1901 and 1902 the demand here was greater than the supply. Dealers demanded enormous premiums for what cars they could deliver, and both they and their customers thought themselves lucky to get cars at all. For 1903 they again doubled their orders, and the French industry once more responded and expanded, and they talked of their big profits, so that long before the end of the season new firms for importation and dealing were being formed in every direction, and whilst capital, with but few exceptions, carefully tabooed the home industry, importation and retailing were looked upon as the only means of making money in the motor business, with the result that to-day this branch of the industry is enormously overdone. Garages and motor depots have sprung up like mushrooms. Every street in London pretty well has one, and many several. From Baker Street Station to the Angel at Islington, for instance, they fairly jostle each other in places, and the cry of "bad times" is heard in the land, and little firms with an odd £1,000 or so capital have filled themselves up with foreign goods to the immense benefit of the continental manufacturers, and then, finding the public are not scrambling for their goods, they have a scramble amongst themselves to get quit of them.

Although the trade in foreign cars is, as above stated, very much overdone, and British trade has received the cold shoulder in its own land, it has not stood still, and is, indeed, in a far stronger and healthier position to-day than could have been expected with the circumstances against it. In spite of all odds it has made steady and even rapid progress. In the four and a half years since the 1,000 Miles Trials it has indeed done wonders. There were at that time only two British firms organised for manufacture. I give below the progress made by representative British firms who have been in business upwards of three years, and I think you will admit the result is satisfactory.

No.	1901-2.	1902-3.	1903-4.
1	100	120	233
2	100	110	140
3	100	160	160
4	100	200	360
5	100	100	200
6	100	200	485
7	100	305	590
8	100	240	424
9	100	142	335
10	100	109	199
11	100	280	378
12	100	100	156
13	100	252	563
14	100	379	598
15	100	166	240
16	100	150	250
17	100	550	233
	1,700	3,561	5,544

In the above table the business done by each of the seventeen firms dealt with in 1901-2 has been taken as a unit, and the business done in the two following years figured in relation thereto. It will be seen that in every case there has been a heavy increase as between last year and 1901-2, and with a single exception the increase last year is considerably greater than either of the two previous years, the only case in which this is not the case being No. 17, in which a far greater advance was made on the first year's work in the second than by any of the rest, the drop in the third year being due entirely to internal troubles, which hung up production for some months in the spring of the year. The seventeen firms taken virtually represent all the makers in the light motor industry who were making cars commercially in 1901-2. I have taken no account of motor-cycle making firms, or of the commercial vehicle trade, nor have I included the business done in the two latter years by a number of firms who have entered the trade since 1901. By adding the totals it will be seen that the aggregate trade of these British firms during 1902-3 showed an increase of 109·4 per cent. over the trade of the previous year, whilst a slightly greater increase over that is shown for the season just expired; last year, indeed, as compared with 1901-2, showed an increase of 226·1 per cent. Now, the business done by the automobile manufacturers of France has been recently stated to be approximately:—

1901	£1,200,000
1902	£2,400,000
1903	£4,000,000

It will be seen by comparison of these figures that the increase in trade of these seventeen British firms alone, excluding the additions to the industry in the two latter years, shows a higher percentage of advance than does the aggregate French trade.

I have not given in the above figures any figures with reference to the heavy commercial vehicle branch of the industry. Undoubtedly, in this branch of the trade England at present occupies a higher position than any other country, and a very large trade has been done.

Another matter that has been thrown at us has been the comparative smallness of our exports; but we are not so behind as some people seem to think. In the first place, a country which cannot nearly supply the home demand can scarcely be looked for to send much abroad; in the second place, when comparing French exports with British exports, it must be remembered that the great bulk of French exports are to this country, where there is a huge demand and an absolutely free market, whereas, not only by tariff, but by sentiment, British manufacturs are virtually excluded from the Continent, and what trade they have to do is done everywhere in face of a tariff, as there are no other free markets outside of this country. Now, let us look at a few figures. The French exports of motor-cars in 1901 equalled £631,281, but there are no figures to show where these were sent. For the years 1902 and 1903, however, we not only have available the total export returns, but also the returns to this country, and we find that in 1902, whereas £1,208,760 worth of cars and parts—that is just over one-half the total French product for that year—were exported, all but £357,005 in value came to this country, whereas in 1903, out of a total product of £4,000,000, £2,035,680 were exported, and all but £399,806 were "dumped" upon us. The returns for the first ten months of 1904 show a total export from France of £2,240,000, equivalent to £2,688,000 for the full year. I have not the proportion, however, of these exports to this country, but it will be noticed that there is nothing like the proportionate advance, or even the actual advance, which is shown in the French exports of the four previous years. Coming now to our own exports, we find that, whilst we have no returns for 1901, British exports in motor-cars and parts in 1902 were £172 143, and in 1903, £343,817. Practically the whole of these went to other countries than France, and by a comparison with the figures of French exports for these two years, it will be seen that, whilst the French exports to other countries than England increased only 11·9 per cent. in 1903 over 1902, our own exports during the same period increased no less than 93·9 per cent., whilst in the second year the total of £343,817 will compare very favourably in view of the respective dimensions of the total industry—in actual figures with the £399,806 of the French business in the same field during the same period.

As to the actual dimensions of the industry here to-day, I have ascertained that the largest number of hands employed by any one firm in this country is 1,300. The smallest amongst the seventeen firms mentioned above employs 100, but as, whilst the larger firms make virtually everything on the premises, including the bodies, very few, if any, of the smaller houses manufacture the bodies, and many get quite a large proportion of the total car manufactured in other engineering shops, so that the figures given are actually much under the mark. The seventeen firms above alluded to, however, to day, employ 6,120 hands, and if we take the heavy commercial car branch of the industry to employ another 2,500, and the motor-cycle and body makers at least as many more, we shall have a very respectable number of persons in this country dependent upon this industry, in addition to which the number of persons engaged in the sale of cars all over the country, in repair work, and in garage work generally must aggregate to a very considerable number, and in addition to this we have those, a large portion of whose work in general engineering shops is devoted to the production of parts and material, so that I do not think I am at all ouside of the mark when I say that we must have at least 20,000 persons directly and indirectly engaged in the automobile industry in this country to-day, a result which, when the short time we have been seriously at work is considered, is little short of marvellous.

In those few instances where proper financial support has been given, not only is rapid progress being made, but most satisfactory and substantial profits are being returned to those who had the enterprise to take the plunge—facts which, when once known, should refute for ever the doleful refrain above alluded to. The 35 per cent. dividends of the Hozier Engineering Company are fresh in the minds of readers of the automobile press, and these should be substantial enough for anyone; yet this firm, which is now the second largest in the United Kingdom, was barely in existence four years ago, and only a day or two since I met a man who was sorrowfully bewailing that he had failed to take up the shares to which he was entitled under an amalgamation when it was formed, his reason for not doing so being that "no one had made any money at it" then! The big profits of the Darracq Company over the past three years, culminating in a 20 per cent. dividend and £50,000 taken out of profits for extensions, are also now a matter of history; and although in this case it may be said that the work is done in France, I would point out that, whilst

* From a Paper read at the A.C.G.B.I. on December 8th, 1904.

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that is true, the sales—or, at any rate, the bulk of them—have been made in England, whilst the capital financing it is English. Most of our motor firms, however, although limited companies, are not public ones, so that it is not possible to know their profits, but I can say with absolute certainty that in all cases where sufficient capital is available to get a large enough output, the profits that are being made are substantial. I take it no one will query, for instance, that the Napier and the Wolseley firms are profitable undertakings, although they do not publish it on the housetops, and I say without hesitation that a million could be placed in the motor industry to-day—without the establishment of any new firms—with very little possibility of any of it going astray and the absolute certainty that very substantial returns would result.

THE LIGHTING OF ROAD VEHICLES.

THE memorandum showing the views of the Motor Union on the subject of the lighting of road vehicles prepared in connection with the deputation to the Home Office on Tuesday set forth :—

1. Pending the passing by Parliament of a Bill providing that all vehicles throughout the country shall carry efficient front and rear lights, the Motor Union venture respectfully to request that the Home Office shall take the following action :—(a) Amend the model bye-law printed by order of the Home Office for the guidance of Councils in making bye-laws under the Municipal Corporations' Act and the Local Government Act, so as to provide that after dark all vehicles shall show a red light in the contrary direction to which they are proceeding. The present model bye-law provides that vehicles shall carry a lamp or lamps so constructed as to show to the front a white light visible within a reasonable distance to persons meeting or approaching the vehicle. Vehicles are not required to show a red light to the rear except when they are carrying loads projecting more than six feet. (b) Circularise the local authorities who have power to make bye-laws, suggesting that they shall adopt the new model bye-law providing in all cases for the carrying of a rear red light. (c) Bring special pressure to bear upon those local authorities whose present lighting bye-laws exempt slow-going vehicles from carrying lights at all, or which exempt all vehicles from carrying lights during the summer months.

2. In support of the above requests it is urged (a) That since the model bye-law of the Home Office was settled there has been a great alteration in the conditions of road travel by the increasing use of the motor-car. The introduction of a fast travelling vehicle upon the road has rendered it necessary in the public safety that the position of all other vehicles shall be clearly indicated at night by lights. Such indication is particularly required in the case of slow-going vehicles, which are necessarily overtaken and passed by the faster traffic. (b) Serious accidents have been caused by the neglect of slow-going vehicles (which on dark and unlighted country roads usually occupy the centre of the carriageway and are often on the wrong side of the road) to carry efficient lights, and such accidents are likely to increase in number unless some efficient means of lighting the slow-going vehicles is insisted upon. (c) The need for detecting unlighted vehicles upon the road has rendered it necessary for motor-cars to carry powerful lamps. The glare caused by these lamps has been seriously objected to. If all vehicles were required by bye-laws to indicate their position after dark by lights, the necessity for automobilists to carry such powerful lights would be considerably reduced. (d) It is most desirable that there shall be uniformity of regulation. A main road in twenty miles may pass through the area of three or four authorities having power to make bye-laws. Pending a statutory provision, such uniformity can only be secured by the action of the Home Office.

3. For these and other reasons the Union desire in the strongest possible way to urge the Department to make strong representations to the councils of counties and boroughs in England and Wales to induce them to adopt an efficient and satisfactory bye-law providing that all vehicles shall carry a lamp or lamps, so constructed and capable of being so attached as when lighted to show a white light in the direction in which the vehicle is proceeding, and a red light in the contrary direction, such lights to be visible within a reasonable distance to persons meeting or approaching or overtaking the vehicle.

CLUBS AND ASSOCIATIONS.

SCOTTISH.

THE annual dinner of the members of the Western Section of the Scottish Automobile Club took place in the St. Enoch Station Hotel, Glasgow. Sir Matthew Arthur, Bart., presided, and the croupiers were Mr. John Adam and Mr. Henry M. Napier. The company, which numbered about 150, included the Right Hon. Sir J. H. A. Macdonald, K.C.B., Lord Justice Clerk of Scotland, Count Louis de Clercq, Right Hon. Sir Herbert E. Maxwell, Bart, M.P., Sheriff Fyfe, Professor Archd. Barr, Professor Dawson Turner, Bailie M'Innes, Shaw, ex-Preceptor Gray, D.L. ; Messrs. Hugh Reid, D.L. W. Weir, W. Hepburn, N. P. Brown, H. W. Block, J. B. Shanks, J. W. Murray, Fred Lobnitz, J.P., F. G. Buchanan, J.P., John M. Ross, Arthur Hart and Robert J. Smith, hon. sec. The loyal and patriotic toasts having been honoured,

The Chairman proposed "The Scottish Automobile Club." Given good roads and good weather, he did not think there was anything more exhilarating after a day's work or sport than the run home in a car through the fresh air. Enthusiasm seemed characteristic of motorists. The Western Section of the Scottish Automobile Club at its formation in 1902 had a membership of 33, a year later this had increased to 113, and it was now 320. The principal club events of the year had been the very successful Glasgow to London trial in May, when about 30 different makes of cars competed ; the Lanark hill climb in September, and the anniversary run in October, in which 100 cars took part. The Western Section had recently suggested, in the interest of the industry, that the Glasgow to London trial should be replaced by one covering hilly roads in the Scottish Highlands, and this proposal, which was still under consideration, had met with strong support.

The Right Hon. Sir John H. A. Macdonald, Lord Justice Clerk, the president of the club, replied. Referring to the Automobile Act, he remarked that the fate of automobilists lay only eighteen months ahead. When the Act was passed it was thought that by restricting it to three years they would get better terms at the end of that time. He hoped it would be so, but he was certain that if they did not behave themselves they might get very much worse terms than they had already got. His Lordship added that he had long foreseen that mechanical traction was not to be for mere amusement or for the rich; it was to be of vast benefit all over the country, if it was properly organised. They would be doing a much more patriotic work in encouraging the running of vehicles for the conveyance of goods and passengers than in merely running pleasure vehicles. He believed that commerce would enormously benefit from the extension of the automobile industry, and it would enable people to make a living, which they could not do now in many parts of the country. They might



The Firefly Motor Company, of Croydon, has sent us the accompanying illustration of a novel home-made motor-car. It is built up of 3 dining-room chairs, 3 wine cases, part of dining-room table, a tablecloth, two dustbin lids, a walking-stick, and a tray.

rely upon it that if only we went in boldly for raising a loan of five or six millions of money to be expended upon the roads, enormous benefits would follow to the country in the course of a few years. His Lordship also paid a warm tribute to the organising abilities of Mr. Smith, the hon. secretary of the Western Section.

Sheriff Fyfe gave "Automobilism," and remarked that the scientific aspects of the question were being more and more regarded by those in authority ; and their desire was that every opportunity should be given to develop the industry. The toast was acknowledged by Count Louis de Clercq, representing the Automobile Club de France ; and by Mr. Julian W. Orde, representing the Automobile Club of Great Britain and Ireland.

The other toasts were "The Corporation of Glasgow," by Mr. N. P. Brown, acknowledged by Bailie M'Innes Shaw ; "Our Guests," by Mr. John Adam, acknowledged by Councillor Gray ; and "The Chairman," by Mr. Henry M. Napier.

YORKSHIRE.

A GENERAL MEETING of the members of the Yorkshire Automobile Club has been held to consider the question of affiliation with the A.C.G.B.I. and the Motor Union. Mr. E. H. Hepper, vice-president took the chair at the meeting, but there was only a small attendance. Mr. W. Rees Jeffreys, secretary of the Motor Union, attended the meeting. The opinion of those present appeared to be principally in favour of continuing the existing scheme of affiliation. On the other hand, it was contended that the money which might be saved upon the affiliation could be usefully applied to other branches of the club's work. As an example it was pointed out that the club in the future would have to face some expenditure on paid secretarial work. At

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previous meetings the affiliation scheme has come in for a good deal of criticism, the Huddersfield branch in particular having complained of the cost. After a long discussion, on the motion of Mr. H. A. Jones (Bradford), seconded by Mr. R. Winn (Leeds), it was unanimously decided to continue the affiliation on the 10s. 6d. basis.

MAGISTRATES TO DEFEND THEIR VERDICT.

Mr. Abner Hassall had been driven through Danbury, in Essex, and subsequently received a letter demanding information to lead to the identification or conviction of the driver on the day in question.

The police had not warned anybody on the car at the time, or signalled them to stop, but they took the number of the car and applied for the name of the driver of the registered owner, some time after.

The alleged offence was for travelling over twenty miles an hour under section 9 of the Act, and although Section 1 makes it obligatory upon the registered owner to give information respecting the driver in cases of reckless driving, and only then where the driver refuses to give his name and address, or gives a false one, yet Mr. Hassall was convicted and fined by the Chelmsford magistrates. Mr. Horace Avory, K.C., with him Mr. White (instructed by Messrs. Firth and Company), have applied to the Lord Chief Justice and Mr. Justice Ridley for a writ of certiorari to issue against the magistrates to justify their action, and an order has been made upon the magistrates to show cause why their decision should not be quashed. The magistrates who tried the case were Sir F. Carne Rasch, Bart., M.P., and Mr. Fred Chancellor.

CASE DISMISSED.

On Wednesday of last week, Mr. R. V. Asbury, of Paddington, was summoned before the Croydon magistrates on the charge of refusing, when driving a motor-car, to cause the motor-car to stop and remain stationary as long as was reasonably necessary, at the request of a constable in uniform. Mr. R. Pike, Glasgow, instructed by Messrs. Kenneth, Brown and Co., defended. The police gave evidence to the effect that Mr. Asbury's car ran over a dog and that the police-constable then stepped from the kerb into the roadway and signalled to Mr. Asbury to stop, which he did not do. After hearing the case, the Bench declined to convict and dismissed the summons.

MOTOR-CAR v. COACH.

A collision between a stage-coach and a motor-car has been the subject of an action at Llandudno County Court. Mr. Davidson, assistant water engineer to the Liverpool Corporation, was proceeding in his automobile past Llandudno Junction in July last when he overtook a four-in-hand. A collision occurred, and the car sustained damage, for which its owner now claimed compensation on the ground that the coach driver was negligent in turning, as he was alleged to do, without warning other users of the highway in his rear. A verdict was given for the plaintiff. Damages, £14.

A MOTORIST SENT TO PRISON.

The trial has taken place at the Shire Hall, Warwick, before Mr. Justice Bucknill, of Thomas S. Stevens (21), Coventry, on the charge of the manslaughter of John Hales, of Whitefriars Street, Coventry, at Kenilworth, on August 31st. Mr. H. A. McCardie and Mr. H. H. Joy prosecuted, and the accused was represented by Mr. Hugo Young, K.C., Mr. J. J. Parfitt, and Mr. Maddocks. The circumstances of the case have already been reported, and after hearing evidence the jury returned a verdict of guilty. The judge said the verdict meant that the jury had satisfied themselves beyond a doubt that his driving was reckless, and criminally reckless. He must respect that verdict—he bowed to it, as prisoner had to. It was sufficient for him to say that he was satisfied it was an honest verdict. He then sentenced the motorist to a month's imprisonment in the second division.

DANGERS OF THE ROADWAY.

At the Cardiff County Court the case of the Cardiff Motor Garage, Limited, v. the Cardiff Corporation has been concluded. Mr. A. J. David explained that the action was for damage to a motor-car, sustained through defendants leaving a cut-up portion of Ely Road insufficiently protected. The contention of the plaintiffs was that there were not sufficient lights properly placed to warn people. In summing up, his Honour commented upon the fact that the nearest lamp to the free portion of the road was 7 feet from the kerb, and not at the end of the pole. The jury awarded plaintiffs £35, expressing the opinion that the Corporation did not use sufficient lights. Judgment was given in accordance with the finding of the jury.

LADS ON VEHICLES.

At the West London Police Court Messrs. Pickford and Company were summoned for infringing the Motor-Car Act by allowing to be driven a light locomotive, to which was attached a laden van on which there was no person competent to apply the brake. P.C. Pearman, 37 F R., said he saw one of the defendant company's vans in Bayswater Road. It was drawn by a motor-car, and there were two persons on the car—a man and a boy aged 15. There were brakes on both the car and the van attached, but the witness contended that the boy of fifteen was not competent to apply the brake on the van. The boy, he explained, was engaged in cleaning and oiling the car, but his usual place was on the van, where he was stationed for the purpose of applying the brake.

The case had been brought in order to test the question whether a boy of fifteen was competent to apply a brake. The magistrate remarked that that depended on the boy, who was called. In reply to the magistrate the boy said he was quite able to apply the van brake—even half-way down a steep hill. Mr. Pierron said the case was of great importance, not only to carriers like Pickford and Company, but to all who employed motor-cars in their carrying business, and he submitted there was no evidence to show that the boy was incompetent to apply the brake. The magistrate agreed and dismissed the summons.

Mr. W. Pilkington, a director of the Rex Motor Manufacturing Co., Ltd., gave a dinner at the King's Head Hotel, Coventry, last week, to the staff and employees, numbering about 250, of his firm in celebration of the coming of age of his son, Mr. W. Pilkington, jun. After the removal of the cloth a concert was held, at which Mr. Arthur Pilkington presided, Mr. G. Pilkington occupying the vice-chair. The latter had the pleasant duty of presenting Mr. W. Pilkington, jun. with a handsome gold watch and chain, subscribed for by the workmen.

In our old friend "Notes and Queries" a correspondent has been asking whether there is any clue to the system on which the distinguishing motor-car signs have been awarded. London rightly leads off with a solitary A, and I and S seem to be sacred to places in Ireland and Scotland respectively; "but why," he asks, "should Glasgow be the only town or district that has any dealing with G? Why should Devonshire be D; Leeds, U; Northumberland, X; Somersetshire, Y; the North Riding of Yorkshire, A J; the East Riding, B T; the West Riding, C; and York itself, D N? 'That way madness lies.' I have studied Throup's waistcoat-pocket book of 'Motor Index Marks' to but little purpose, and never before found the alphabet so difficult to deal with. Can anybody make easy the hornbook of my second childhood?" The answer is simple. There is no clue—or reason for the system, or rather, lack of system, displayed in the assignment of index letters.

In view of the advance of automobilism in Australia, new regulations with regard to the speed of motor vehicles in Victoria have been suggested, and legislation on the subject is shortly to be introduced. According to advices we have received this would seem to be somewhat on the lines of the English Motor Car Act. Cars, it is suggested, should be numbered and drivers licensed. The distinctive difference between the proposed Australian law and that in operation in this country is concerned with the speed limit. This is to be restricted to ten miles in towns, and allowed to go up to twenty-five miles an hour in the open country. Doubtless in suggesting this wider range regard has been paid to the conditions of the Colonies with regard to populations in the rural districts. The idea of a speed limit seems to appeal to the non-motoring community in these early stages of the industry. As experience grows the desire for such a limit will probably become lessened.

TO CORRESPONDENTS.

All communications intended for insertion in this Journal or relating to Editorial matters should be addressed to The Editorial Department, Motor-Car Journal, *39 and 40, Shoe Lane, London, E.C., and must be written on one side of the paper only. Letters must in all cases be accompanied by the name and address of the writer, as no notice will be taken of anonymous communications.*

The Editors cannot undertake to return MSS. or drawings, although every effort will be made to do so in the case of rejected communications. Where such are regarded as of value, correspondents are requested to retain copies.

To insure insertion communications and contributions must be in the Editor's hands by Tuesday forenoon of the week in which the same are intended to appear. Disappointment may be caused by non-compliance with this rule, and to avoid this earlier receipt, if possible, is necessary.

The Editors do not hold themselves responsible for the opinions expressed by their correspondents, or for statements and facts which do not appear in the editorial columns.

The Editors and Publishers beg also to state that they will accept no responsibility for unsolicited contributions, even if used, unless payment for same is directly specified in forwarding, and the terms arranged before publication.

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Photo by Campbell-Gray. *The Motor Car Journal.*

THE RIGHT HON. A. J. BALFOUR AT No. 10, DOWNING STREET.

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THE

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COMMENTS.



SEASONABLE greetings should introduce the *Journal* this week, and we take the opportunity once again of wishing all our readers a Christmastide full of happiness, and a New Year bubbling with prosperity and cheerfulness. Trade has been slower than the automobile during recent months, but most people are looking to 1905 with optimistic vision. We trust their faith in the future will not be misplaced, and hope that the present Christmas season may prove an augury of bright days and pleasant avenues for the motorist—both the maker and user of the car.

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The Renewal of Licences.

IN reply to various correspondents who have written with regard to the renewal of licences, we would remind all whose permits are about to expire that they should be renewed by the County or County Borough authority in the place where the applicant resides. Those who have removed since the first issue of the licence should take out a new licence with the authorities in the County or County Borough in which they are now living. Several readers have imagined that renewal must be with the office from which the licence was originally issued. Section 3 of the Act is explicit on the point as follows:—"The Council of a County or County Borough shall grant a licence to drive a motor-car to any person applying for it *who resides in that county or county borough*, on payment of a fee of five shillings, unless the applicant is disqualified under the provisions of this Act." The same provisions apply with respect to the renewal of the licence as apply with regard to the granting of the licence.

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Hand and Foot Control.

THE correspondence following Mr. Percy Richardson's article on this subject proves the interest that is taken in the matter. Already many well-known designers and constructors have given us their views, and amateurs and others are invited to send their opinions for publication. When the correspondence has run its course Mr. Richardson will reply to the various criticisms of his conclusions—a fact which should encourage our readers to make their particular notions known, with a view to helping the solution of one of the many interesting problems associated with the development of automobilism.

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Professor Hele-Shaw.

ON Tuesday evening a farewell dinner was given by the members of the Liverpool Self-propelled Traffic Association to Professor H. S. Hele-Shaw, prior to his departure for South Africa. Mr. T. Thornycroft Vernon presided, and, in proposing the health of the guest, expressed the hope that his work in South Africa would be attended with the same success as had marked his labours in Liverpool. In regard to automobilism Professor Hele-Shaw's services had been of the utmost importance and utility, and the members of the association had always found him ready and willing to assist them in advancing the interests of the movement. Mr. Lyle Rathbone supported the toast, to which Mr. Burton, Mr. Blair, and Mr. Duncanson also spoke. In responding the Professor paid a tribute to the work of his colleagues at the Liverpool University. With regard to automobilism, he mentioned the excellent services rendered by Liverpool on behalf of this movement, and trusted that the association would continue to further the objects which it had in view.

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South Wales Automobile Club.

AT a meeting of the South Wales and Monmouthshire Automobile Club at Cardiff, with the Rev. Miles Whiteside in the chair, five new members have been elected to the club, including the first lady member, Miss L. C. Humphrey, who is now touring across France. Although it was definitely decided to hold a hill-climbing contest and gymkhana, the event was left undated in order that it might fit in with an engagement of the Gloucestershire and Leicestershire Automobile Clubs. The efforts of the club to improve the conditions of the road leading to the West Wharf, Cardiff, are apparently having effect, the Health Committee of the Cardiff Corporation having moved in the matter. The Secretary presented a statement showing the financial position of the club, which is thoroughly satisfactory.

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Motor-Car Imports and Exports.

ALTHOUGH there was again a falling off in the number of foreign motor-cars imported to this country during the past month, there was, on the other hand, a slight increase in the value of the imports. The number of cars imported in November is returned at 237, of a value of £99,518. Parts were responsible for £28,871, bringing up the total for last month to £128,389, as against £123,980 in November, 1903. So far this year, that is to say for the first eleven months, the imports stand at £2,305,367, or approximately £404,000 more than in the same period of last year. Passing now to the exports of British automobile productions, the returns show a satisfactory improvement, altogether 96 vehicles being shipped last month, which, with the "parts," attained a value of £40,037, while for the eleven months ending with November the exports are returned at £280,084.

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In the Lake Country.

THE suggestion for a motor-boat race on Lake Windermere seems to have aroused the concern of the local Izaak Waltons who are in the habit of angling in the waters around Ulverston. Mr. Fell, at the first meeting of the newly elected Fishery Conservators' Board for the rivers in that district, has been commenting upon the suggestion, and said he was not at all sure that such an innovation would be welcome news to anglers of the Lakes. The conservators would have to consider whether the constant movement along the shores of the lake would be beneficial or detrimental to angling, and latest reports from the locality seem to show that the members of the Lake

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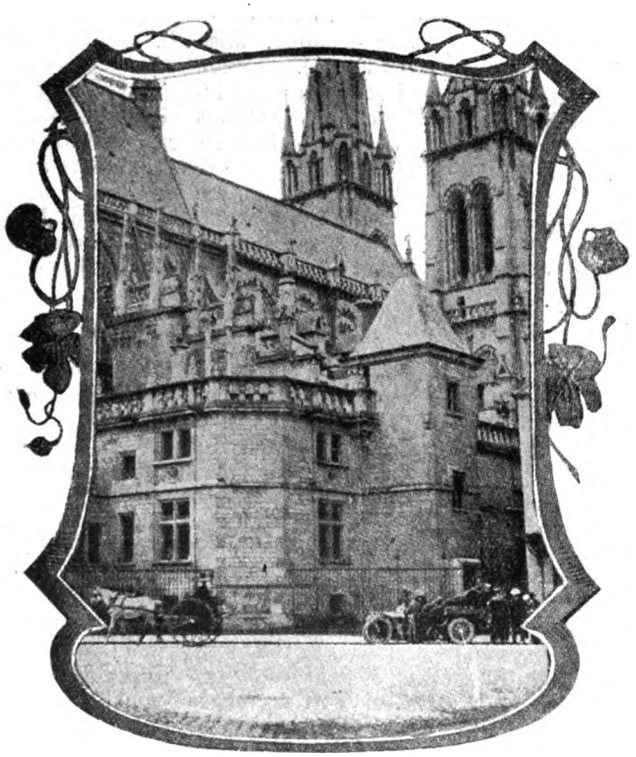
District Angling Association are now giving the matter their attention. It would be rather interesting if the pioneers of the motor-boat movement found anglers as prejudiced against their movement as are agriculturists to the development of the road car. But the incident affords some evidence of the many different angles at which the automobile movement touches the social life and habits of the time.

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An Anti-Speed League.

SUSSEX, which has had as much experience of police traps as any county in England, has at last produced a hero who comes forward with a proposal for an association to regulate the speed of motor-cars. Mr. J. H. Nunn is apparently willing to support his sentiments with financial aid, and suggests the formation of a league "to create such a body of public opinion as would influence the members of the House of Commons, who will be glad to appoint an early date to discuss the next Motor Car Act." He will be most happy to subscribe £100 to such a society, and suggests that subscriptions of 6d. and 1s. should also be welcome, so that the organisation may embrace all sorts and conditions of men. Mr. Nunn's address is Lealands, Hellingley, Sussex, which we give here for the benefit of those motorists who may be willing to help his automobile education by taking him for a trip on a fairly fast car along some of the roads of his favourite county.

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Motor Touring in France—at the Cathedral of Bourges.

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After Dust—Mud.

THE Middlesex County Council has received £1,809 in fees for licences and registrations in connection with the Motor Car Act, and at its last meeting resolved to expend £2,250 in erecting notices at dangerous corners and similar positions, warning drivers of motor-cars as to the risks they run in going too speedily along such routes. Although this sum is rather in excess of the amount received from automobilists, it is considerably less than was desired by the local authorities which requested the Middlesex County Council to do the work. It is satisfactory, however, as an example of the right spirit, which we hope will be followed by the councils throughout the country. When motorists have been universally warned of awkward corners on the road, the time will come for the authorities to see to the roads with a view to preventing the troubles that have been caused by allowing the highways in many places to get into a bad and broken condition. Then, too, they will have to consider the actual construction of the roads themselves; otherwise gentlemen like Mr. Cockburn, the chairman of the Kingston Bench, will be again complaining of the mud that is thrown up by motor-cars when passing through the streets of this well known town. It appears that on the day of Sandown Park races he saw an automobile driven along the Portsmouth road which was apparently in a particularly muddy condition, with the result that ladies standing on the pavement were "smothered in mud; in fact, had a regular bath of mud." This is a luxury hardly appreciated in the present state of civilisation, and must be put down as a result of the neglect of the local authorities to keep the streets properly cleaned. Otherwise the ordinary respectable motor-car passing along would never have rendered itself so offensive to people who were merely standing on the pavement. The neglect of local authorities in the past has had much to do with the dust nuisance, and it is to be hoped that they will not also give countenance to what is undoubtedly an inconvenience in wet weather, namely, mud splashing from fast-going vehicles.

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The Locks on the Thames.

THE news published last week with regard to the freeing of the locks on the French rivers to motor-boats affords a striking comparison with the state of things on the Thames, where the new sport will be seriously handicapped by the many locks and the high charges for such craft. As a matter of fact the lock rates for a small motor-boat are as high as those for a steamer carrying a hundred passengers. Surely some distinction may be made in the near future with a view to enabling the motor-boat to become a popular feature of the river traffic. To class it in the same category as the Thames steamers is, on the face of it, absurd.

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Sense in Suffolk.

SOME of the county councils are wiser than the smaller parish and district bodies, which spend much time in the discussion of problems the purport of which they see but darkly. Thus the Woodbridge Urban District Council has been passing a resolution calling upon the county authority to impose a restricted speed limit on motorists passing that way. The matter has been well discussed by the East Suffolk County Council, of which Lord Rendlesham is chairman, where, by thirty votes to nine, the application was declined. We congratulate both bodies on this decision, for the matter is too important to be regarded in any parochial spirit. There is need to look at this question of restriction from the national standpoint. Closing a road to motorists, or harassing them in any way, may appear a small thing in the locality, but if it hinders the progress of visitors to places beyond, it becomes a matter of hurt to a district. Hence the need for regarding all such suggestions with the most impartial mind.

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Roads—A National Issue.

THE national aspect of the question must never be overlooked. Great main roads should be under one control from end to end, and both construction and repair should be carried out on a thoroughly systematic plan. Now that country runs of a few score miles a day are an ordinary feature of travel, there is a need for long stretches of roads through several counties with an uniformity of surface that cannot always be secured by the present idea of county authorities. This is an aspect that should be kept well to the fore by all automobilists.

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The Choice of a Car.

A POINT that is of the first importance in a petrol car, says Mr. Filson Young in the new book reviewed recently, is that all parts liable to wear and to need re-adjustment should be easily accessible without the unscrewing of numberless bolts and the unbuilding of half the car. Such things as inlet and exhaust valves, commutators, water-pumps, clutch springs, and gear cases should all be easily exposed and got at for the purpose of examination and repair. Lubrication should be positive and efficient, and the oil should be conveyed through pipes of decently large diameter. Steering gear should be strong and simple, with some provision for the taking up of wear. The breaking of steering gear while a car is travelling may not improbably have fatal results, while nothing is more unpleasant than loose steering connections which allow of much back-lash in the wheel. All nuts should be of what is known as the "castellated" type, and secured by split pins. The engine and its gearing should be protected underneath by a screen from dust and mud; in fact, the more the moving parts of a car are dust-proof and oil-retaining the better it will run. Oil and grease cups of a liberal size should feed all bearings which are not automatically lubricated, and the wiring of the ignition system should be as simple and as well insulated as possible.

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A Vicar's Views.

THE Rev. F. T. Wethered, vicar of Hurley, near Marlow, is a determined anti-motorist, whose antipathy breaks out in letters to the local journals and other ways. Fortunately, the prejudice is so thinly veiled that we do not anticipate any ill-effects from the reverend gentleman's declamations, anathemas, and other denunciatory attacks upon the car that moves without the help of horses, bullocks, or other troublesome animals. Mr. Wethered's latest contribution consists of an extract from a volume in which appears an account of the stoppage of a road steam carriage outside the shop of the local blacksmith at Hurley. The tale is seventy-two years old, and we are now told that "the dreadful motor-cars" that frightened the villagers three-quarters of a century ago have made the roads "simply impossible for carriages." If that is so, the carriages must get out of the way, and, according to one of our legislators, such a change is likely to happen in a couple of decades. What will Mr. Wethered say then?

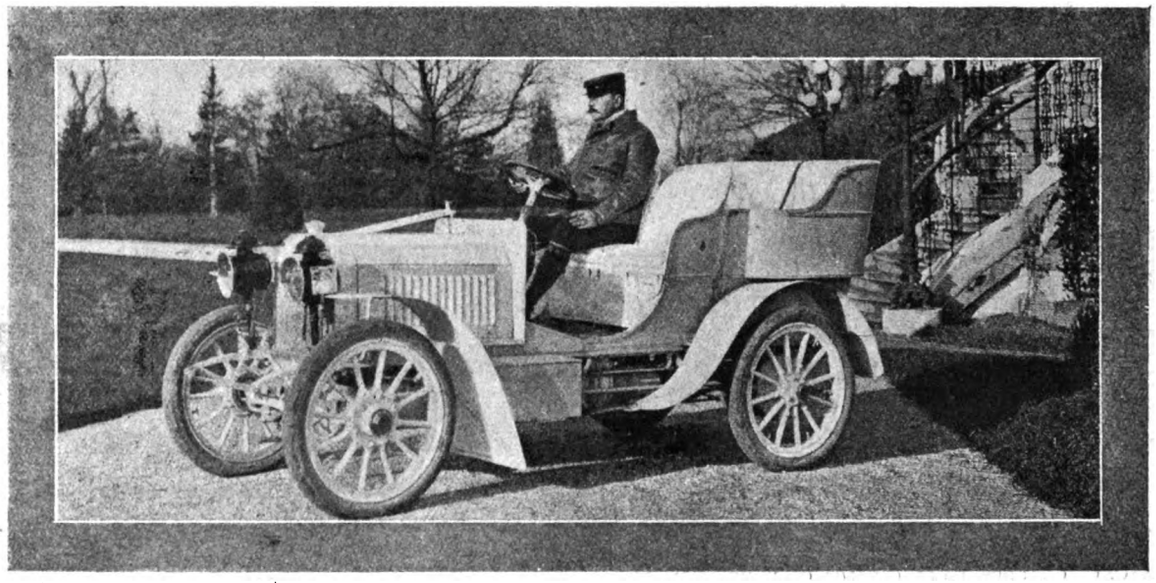
Unattended Horses.

AT Stonehaven Court a crofter who pleaded not guilty to leaving his horse and cart on the road at Portlethen without any person in charge has been fined £3, and he and his friends have doubtless been much surprised. It appears that Dr. Cruickshank and Mr. A. L. Wood were driving to Aberdeen in the doctor's motor-car, and encountered the horse and cart. In endeavouring to clear it the motor wheel skidded, and the occupants were thrown out. Not only in Scotland is the habit of leaving carts unattended practised to the danger of motorists and other users of the road. Such salutary lessons universally administered for a month would rid the roads of many chances of accident.

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A Reverend Advocate.

AMID all the attacks that have been made on motorists and their vehicles at various meetings of Chambers of Agriculture held during the last week, the speech of the Rev. P. E. Mainwaring stands out in pleasant relief. A resolution in favour of more stringent regulations than now prevail had been moved at the meeting of the Stafford Chamber of Agriculture, when the reverend gentleman, without objecting to the terms of the resolution, said he should like to say a word on behalf of a method of locomotion which was both a pleasant and a very useful means of getting about the country. There was no doubt a certain amount of nuisance and danger arising from the motor-car traffic, but that resulted not from the use, but from the abuse, of motor-cars. He had himself been using a motor-car for eight months, and had never experienced any difficulty whatever. If he met a restive horse, he stopped his machine and did all that was necessary in the circumstances. We believe this is true of most motorists.



Prince Solms Braunfels, President of the Austrian Automobile Club. [*Automobil Welt.*

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The Education of Horses.

SEVERAL times have we urged that automobilists should offer every facility for owners of horses to practically demonstrate to their animals that the automobile is a harmless and friendly machine, not at all the ferocious monster some of their drivers would have us believe it to be. We are glad to recognise the growing disposition on the part of owners of horses to bring their animals to a right understanding of the automobile, and the article on another page in the present

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issue should do something to reassure them of the ease with which the motor education of the average horse can be begun.

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The Effect of the Car on Rural Populations.

MR. G. H. YOXALL, M.P., sends a useful plea for the extension of motor-car traffic as the result of the experience of France. There he has repeatedly noticed that the development of the automobile for ordinary rural transport has affected the well-being of the district very favourably. Not only have the roadside inns revived, but around them, in almost every village, have sprung up fresh occupations or calls for additional service in old occupations, such as those of the mechanic who repairs, the shopkeeper who supplies motor fuel, &c., the inn servants, and so forth; so that motor traffic along the high roads really means more and more varied occupation for village dwellers than would otherwise be the case. In France, too, the motor is also promoting an emigration of town dwellers to live in villages, because of the greater pleasantness of the surroundings, the motor between town and village obviating the drawback, which

The Residential Radius.

BUT while the character of the estate agents' business has changed, it must not be supposed that only loss has to be recorded. True some districts have declined owing to the growing traffic of all kinds that makes a ceaseless clatter unsuited to quiet people; but, on the other hand, the residential radius has been greatly extended. Distances have been swallowed by the motor-car, and the small towns twenty miles from London have been able to attract residents who would have remained in town but for the facilities for rapid travel, independent of the railway, provided by the automobile. That is an elementary fact to be realised in the initial stages of any discussion on the matter.

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The Trials in India.

INTEREST in the forthcoming Delhi-Bombay motor trials continues to increase, and cups for various merits are being offered by the Gaikwar of Baroda, and the Maharajahs of Gwalior, Mysore and Kapurthala, as well as by some of the leading commercial firms in the Dependency. All the



The Starting and Finishing Point.



The Hotchkiss Boat Finishing on the Seine. (*See page* 887.)

MOTOR BOAT RACING IN PARIS.

previously existed, of distance from centres of population and places of business. This aspect of the matter should cause the most ardent anti-motorist to reflect upon the errors of his views.

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Changes in Cities.

THAT changes in the social habits of the people will follow the general adoption of the automobile is inevitable, and the first class of people to realise the altered fashions of the time are those estate agents of the West End of London who have large connections among riparian folks. At the annual dinner of their Institute, a few evenings ago, the Hon. W. H. Goschen referred to the conditions affecting house property in London as altering from day to day. The present demand was for excitement, and that took the form, amongst other things, of running up to London on all possible occasions. Years ago people came up to town on January 1st, and remained until the end of the Parliamentary session. Then they disappeared until next year came round. But now people frequently came hopping up to London, and went to hotels instead of taking houses. An even more insidious enemy of house property was the motor-car, which had altered the face of West End life. The great West End shopkeepers would tell them that there were only three days a week for business now, because the smart thing was not to have a house in London, but to live just outside. People so situated could always get up to town for their amusements in the swift motor-car.

railway companies running into Bombay are giving special facilities for sightseers, and it is evident that the contest will arouse the interest of India in the automobile in a way it has never been excited before. Thirty-eight entries have been received, among them being the Maharajah Scindia, 12-h.p. De Dion; the Rajah of Pudukotah, 20-h.p. Gardner-Serpollet; Prince Ranjitsinhji, 12-h.p. Lanchester; Count Giulio di Gropello, 16-h.p. Fiat; Mr. A. Turckheim, 16-h.p. De Dietrich; Mr. S. F. Edge, 20-h.p. Napier; Mr. Arthur Hoare, 12-h.p. Clement; Mr. W. S. Sorel, 24-h.p. De Dietrich. There are also a Humberette, 6-h.p. Speedwell, two 6-h.p. Wolseleys, 10-h.p. Argyll, 12-h.p. New Orleans, and a 20-h.p. Thornycroft. We shall be glad to hear from our readers in India as to the effects that the trials have on the demand for cars.

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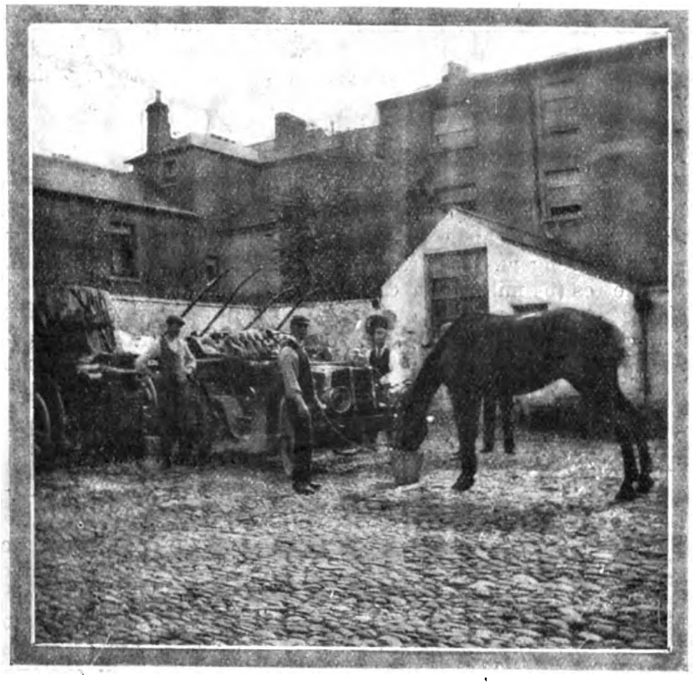
MESSRS. OSBORN AND LORD, of the Broadway, Hammersmith, have, we learn, been appointed sole concessionaires in Great Britain and Ireland for the "Gregoire" car, made by Messrs. Gregoire and Co., of Poissy.

MESSRS. SHIPPEY BROTHERS have disposed of their interest in the leases and goodwill of the Central Motor-Car Emporium, also the American Motor-Car Agency as carried on by them for the past two years at 117 and 118, Long Acre, W.C., to the Central Motor-Car Company, Limited, of 18, Billiter Street, E.C., who have secured the sole British rights in the Ford motor-car for sale in the United Kingdom. Messrs. Shippey Brothers intend to extend their wholesale and export trade in the sale of American motor-tyres, batteries, non skid tyre bands and other motor-car accessories at 13 and 14, King Street, Cheapside, E.C

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THE EDUCATION OF THE EQUINE.

EDUCATIONAL matters have occasioned much controversy of late. That progress is being made in this direction, so far as the horse is concerned, is evident from the fact that no reference was made in the House of Commons discussion on the Motor Cars Act to the intractability of the horse in the presence of the motor-car. A few years of familiarity have effected wonders, and not only does the average horse regard the



The Lesson in the Stable Yard.

modern automobile with little feeling of alarm, but he is often less nervous than his driver.

Often have we noticed that drivers of horse drawn traps have a startled look as the motor-car whizzes by, and frequently do they seem relieved when the mechanical carriage has passed on. The horse continues his journey as unconcerned as though he were meeting a member of the same tribe, and has evidently become well accustomed to the new locomotion on the highway. It is, however, a matter of common occurrence that when a horse appears to be going steadily towards a car coming in the opposite direction, the driver suddenly tugs at the reins, raises his whip, and otherwise unsettles the nerves of the animal in such a way that he becomes alarmed and rears about in terrified fashion as the car comes nearer. Then he shies, and the newspapers appear with graphic accounts of "Motor Mishaps," "Horse Frightened by a Car," or some other equally erroneous title. The truth is that half the cases of horses being alarmed by the motor-car can be traced to the ineptitude of their drivers, or the foolishness of passengers in cart or car who herald the approach of horse or motor with a series of noises intended to be reassuring words of welcome, but in reality notes of alarm to an animal with nerves overwrought by silly handling on the part of the driver.

The best way to deal with horses is for strangers to ignore their presence and their drivers to show some confidence in their own good sense, merely holding a firm rein and being prepared for all contingencies; but not violently intimating to their animals that something unusual is in the locality.

During a recent tour in Ireland the behaviour of the drivers of horses and donkeys in the south was in marked distinction to the indifference with which those about Dublin regarded the automobile. Around St. Stephen's Green, in College Green, and near Nelson's Pillar, were ranks for outside cars, the jarveys allowing their horses to stand still in the presence of scores of cars, and not a wayward animal was reported throughout the city. Several drivers told us that horses that could not stand still in front of tram-cars or motor-cars were of no use to them, and it was evident that the jarveys had carefully accustomed their horses to the cars. Down south, however, there was an obvious nervousness on the part of the people driving carts that was really needless. Without any warning they simply dropped from their seats, rushed to the heads of their horses, and frequently pulled them into the hedge until the cars had passed. That, however, was not the only result of such precipitate action. The whole length of the vehicle was projected across the road, and the passing automobile had little room in which to manœuvre between the hedge and the projecting pieces of the cart, for those primitive Irish vehicles are strangely lengthy in the rear.

One advantage of the official tours that have been held through various parts of the United Kingdom and Ireland since 1896 has been the education of horses that has taken place. The Reliability Trials starting from the county town of Hereford accustomed the horses of that locality to the automobile, and not a few horse owners followed the example of the head of the local fire brigade, who paraded all his horses before the cars, both stationary and when in motion. Two notable instances of good work thus done by motorists occurred to us while going from Dublin to Cork with Mr. S. H. Pearce, on that gentleman's trusty Napier—a car that has journeyed over all sorts and conditions of roads in Northern Africa as well as in Southern Europe. We had been stranded one evening at Dungarvan—the reason of which is another story, to be told on a later occasion—and met a coastguard officer from Youghal. He had a spirited horse that did not care for motor-cars any more than the Rev. Mr. Spalding liked London. In fact, our coastguard friend almost regarded his quadruped as an unconvertible heathen so far as automobilism is concerned. We assured him the horse was an intelligent creature, and that a little coaxing and patience would give him a good rudimentary education. Though sceptical, he cheerfully accepted the offer of Mr. Pearce to become a tutor of the equine the following morning.

Breakfastless and wondering the horse was led into the hotel yard in the morning and paraded around the car. He acted like a bear on hot bricks, and when the engine was started gyrated in a fashion that would have scattered the most curious London

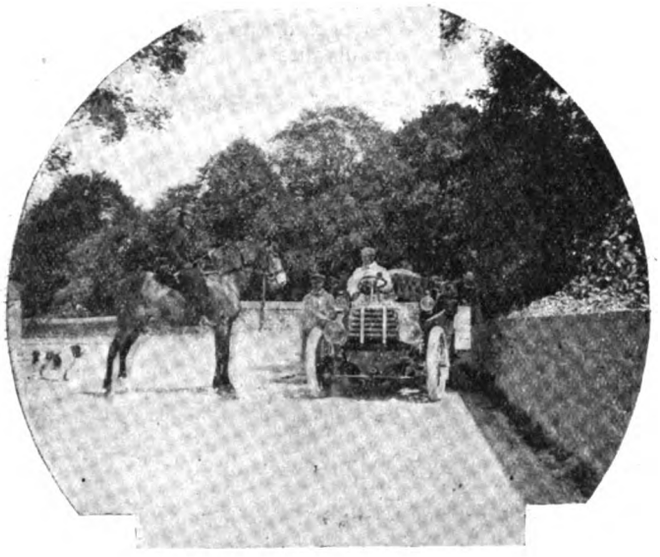


Horse and Motor-Car starting together from Dungarvan.

crowd. After a while the engine was stopped and a pailful of corn placed in front of the radiator. Gee-Gee looked askance, but his hunger was great and unusual, and with a somewhat questioning glance at his master he dipped his head into the pail, quickly to remove it. Three or four attempts gave him assurance, and he was soon busily feeding. Then the engine was re-started, and the old nervousness re-

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turned for a moment. The appetising corn was unfinished, and the horse, risking the noise of the engine, continued his meal. He concluded his breakfast with the motor in full revolution, and then quietly walked around it as though, the introduction being over, he was prepared to be friendly. Patiently he stood as the car was driven out of the yard, and subsequently allowed himself to be driven by the side of the automobile to



On the Bridge at Lismore.

the front of the hotel, where the scene was photographed. Thus was the horse of the Youghal coastguard given a very necessary and interesting lesson.

Arriving at the bridge spanning the Blackwater, under the frowning turrets of Lismore Castle, we met a clergyman on as fine a quadruped as we had seen in all Ireland. Gallantly steering the noble creature towards the car, he had a tough contest for mastery. For a few minutes the issue was in the balance; but intelligent and patient handling did their work and the horse was made to stand quietly by. At the request of the clergyman some interesting manœuvring was performed with the horse and the car, and the last scene of all, ere each went his own way, is depicted in our third illustration.

There is no doubt that those owners of horse-drawn vehicles who familiarise their horses to the automobile are wise in their generation. The automobile is the inevitable vehicle of the road for the future. It will be seen in every form and for every purpose, conveying passengers from village to village, transporting produce from the field to the railway, and giving pleasure to tourists by enabling them to see the beauties of their own and other countries. Hence the necessity that lies upon owners of horses not to give way to the foibles and follies of their animals, but to persistently and consistently compel, using kindness as well as firmness in the operation, their animals to go forward whenever automobiles come their way.

MESSRS. MORS, LIMITED, has been registered with a capital of £15,000, to acquire English patents relating to motor-cars of the Société Anonyme d'Electricité et d'Automobiles Mors, to manufacture and sell in the United Kingdom and British colonies and dependencies, motor-boats and accessories in accordance with such patents, to deal in motor-cars and accessories made by the Compagnie Francaise des Voitures Electromobiles, and to carry on the business of garage proprietors, etc. The first directors are Messrs. S. L. Lazarus (chairman), L. Carle (managing director), D. Singer, G. de Wilde, L. Haarbleicher, F. Kerr, L. Auscher, M. Drummond, and C. Banbury. The registered office is at 55-59, Shaftesbury Avenue, W.C.

CONTINENTAL NOTES.

A Motor Boating Costume Competition.

The "Auto," always full of new ideas in regard to competitions, now proposes to organise one as to the best costume for motor-boating. It is proposed to hold the same in connection with the exhibition at Monaco next spring, on the occasion of the motor-boat races in the south of France.

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Public Services in Germany.

Messrs. Bussing, of Brunswick, are building a number of motor-omnibuses for a public service between Harzburg and Braunlage. A company has also been formed to organise a service between Huy and Holberstadt.

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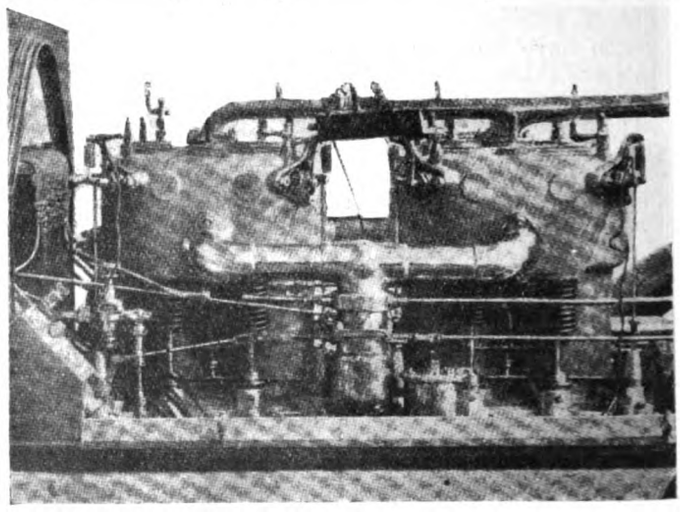
A New Liquid Fuel for Steam Cars.

M. Serpollet last week made another trial of the new liquid fuel for steam cars, referred to in the last issue of the *Journal*. The vehicle employed was a 20-h.p. 'bus, carrying eleven passengers, in addition to the driver. A distance of 102 kilometres (64 miles) was covered at an average speed of about eighteen miles per hour on a consumption of sixty litres of fuel. The cost of the latter was 7 fr. 20 cent., which works out at 6½d. per person carried for the whole distance. As already mentioned, the new fuel is derived from coal tar obtained from gas-works.

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The New 70-h.p. Mercedes Car.

Some further details are now available of the new 70-h.p. Mercedes car briefly referred to in the last issue of the *Journal*. The engine has its four cylinders cast in two pairs, a larger space than usual being left between the two pairs. The inlet valves are arranged on the opposite sides to the exhaust valves, all being mechanically actuated. The gear wheels driving the cam shafts are located at the front end of the engine; they are of bronze instead of the fibre hitherto used, and are entirely enclosed. The valves are of larger diameter than formerly, but have a reduced lift; the maximum speed of the motor has been increased from 1,100 to 1,400 revolutions per minute. The



The Engine of the new 70-h.p. Mercedes.

crank shaft now runs on special ball bearings, while an innovation is found in the pump lubrication, which only works when the engine is in operation. The carburettor is provided with a hot water jacket; the piston type of throttle has been abandoned in favour of discs which may be rotated so as to cause the slots in the same to more or less coincide and so vary the quantity of mixture allowed to pass to the engine, the air supply being automatically regulated at the same time. The throttle is now arranged not only to be operated by hand, but also by a pedal located between the clutch and brake pedals.

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Motor-Cars in the Russian Postal Service.

As mentioned in a recent issue of the *Journal*, the Union Motor-fahrzeugfabrik Gesellschaft, of Nuremburg, Germany, has lately supplied a number of petrol motor-vans to the Russian postal authorities. The vehicles are of two sizes, both having the Union Co.'s system of friction drive; Fig. 1 shows the smaller type of van; it is of 6-h.p., and is designed to carry mails up to a load of

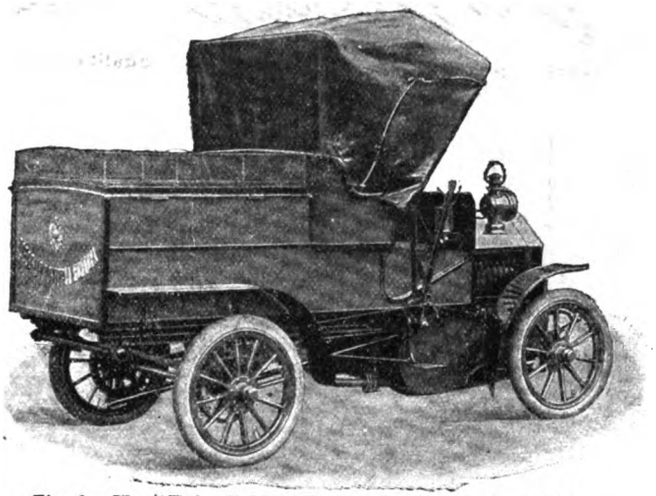


Fig. 1.—The "Union" 6-h.p. Van for the Russian Post Office.

6 cwt. at speeds up to twenty miles per hour. The larger vans (Fig. 2) are being used in the parcels post service; they are of 8-h.p. and are intended for loads from 11 to 12 cwt.

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The Michelin Cup.

At the meeting of the Committee of the French Automobile Club last week, M. A. Michelin referred to the growing tendency to fit *chassis* with increasingly heavy carriage bodies, and to the consequent difficulty of pneumatic tyre makers to produce reliable and durable tyres suitable for such vehicles. With the view of encouraging carriage builders to pay more attention to reducing the weight of bodies, he has offered a cup of the value of not less than £1,000 to the A.C.F., to be awarded annually to the carriage builder who shall produce the body which, while fulfilling all the usual requirements, shall be the lightest in weight. It is proposed to limit the competition for next year to a six-seated touring car, this being the type for which there is now a noteworthy demand. Unfortunately, M. Michelin has suggested that the competition be restricted to French carriage builders, but we trust that ere the definite rules are drawn up the A.C.F. will see its way to make the contest an international one.

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Motor-Cars in the Swiss Postal Service.

The 1905 Budget of the Swiss Post and Telegraphs Department provides for the acquisition of two additional motor-cars for use in connection with the postal service.

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The Monaco Motor-Boat Meeting.

No less than 75 entries have already been received for the motor-boat race meeting to be held at Monaco next spring. The English competitors include Mr. S. F. Edge, who has entered two boats, and Mr. Maudsley Brooke his "Baby" Brooke.

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Motor-Boat Racing on the Seine.

A series of motor-boat races was held on the Seine on Sunday last, the events being run off in beautiful weather and watched by thousands of interested spectators. The course was from the Alexander III. Bridge, near the Exhibition, to the Suresnes weir, the distance out and home being twenty-five kilometres. The racing craft had to make two circuits, equal to fifty kilometres, and the cruisers one round. Soon after daybreak the river began to assume unwonted activity, many of the competitors making trial spins to get their engines *au point*. The racing commenced at 11.30 a.m., the "extra reglementaires" cruisers with engines up to 8-h.p. being sent off first in batches of three, the winner being M. Frilet's "Satyre," with 8-h.p. De Dion engine, time 1 hour 45 min. 38 sec. The 8-12-h.p. cruiser class was won by M. Duplessis' "Etoile," with 12-h.p. Boyer motor, in 1 hour 29 min. 57 sec.; the 12-24-h.p. category by M. Cricq's "Mets-y-En," with 20-h.p. Chenard-Walcker engine, in 1 hour 10 min. 57 sec., and the over 24-h.p. class by M. Gaveau's "Marie Madeleine," with 35-h.p. Panhard motor, in 59 min. 8 sec. In the standard "cruiser" class for boats of less than 21 ft. in length, M. Claudel's "Titan IV.," with Delahaye paraffin engine, made the best time—1 hour 15 min. 18 sec.; the under 26 ft. cruiser category was won by "Titan III.," which is also fitted with a Delahaye engine, time 1 hour 13 min. 8 sec.; M. Perignon's "Dietrich III.," with De Dietrich motor, won the under 39 ft. class in 1 hour 1 min. 18 sec. Passing now to the racers, the under 26 ft. class proved a victory for M. Mestayer's "Titan II.," with Delahaye engine, the time for the 50 kilometres being 1 hour 58 min. 35 sec. The principal interest of the day was centred in the category for racing boats of a length under 39 ft. M. Henri Fournier was at the wheel of the "Hotchkiss" with 90-h.p. Hotchkiss engine, which was in fine trim. He covered the first circuit in 43 min. 24 sec., and completed the 50 kilometres in 1 hour 23 min. 33 sec. M. Legru's "Suzon-Hotchkiss," also with Hotchkiss motor, was second in 1 hour 42 min. 17 sec. M. Thubron's "Trefle-a-Quatre" (Richard-Brasier engine) third in 1 hour 44 min. 11 sec., and M. Kapferer's "N'a-pas-pied," with Napier engine, fourth in 1 hour 48 min. 13 sec. Some difficulty was experienced in getting the competitors to the starting point, and in some directions the management of the meeting left room for improvement. The event was, however, the first of its kind, and the experience gained will doubtless be taken advantage of in next year's meeting.

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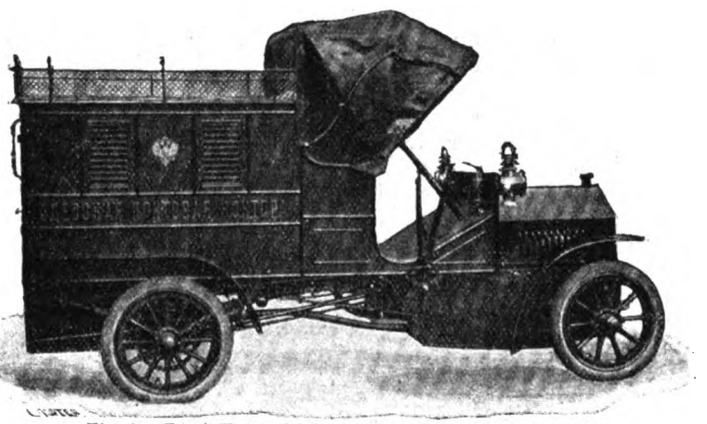


Fig. 2.—The "Union" 8-h.p. Van for the Russian Post Office.

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A British Motor-Boat in the French Navy.

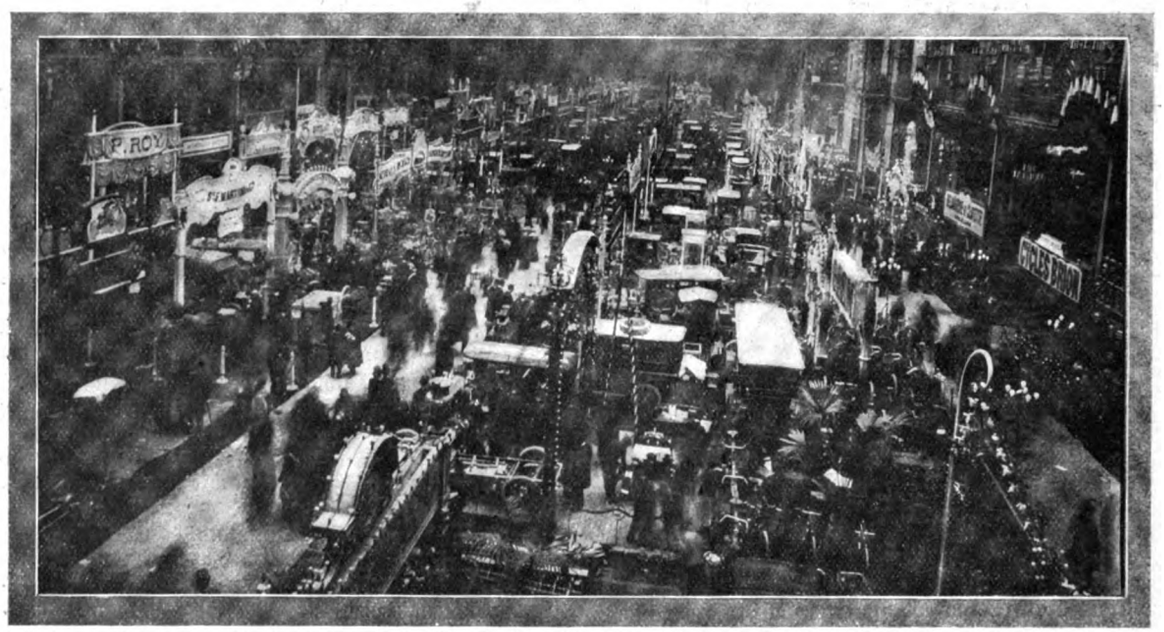
M. Deutsch de la Meurthe, who some time ago purchased the Napier 70-h.p. motor-boat and re-named it the "N'a-pas-Pied," has presented the vessel to the French Ministry of Marine. The boat will probably be employed as a sort of guard-ship to the fishing fleet in the Gironde.

THE German De Dion-Bouton Company of Mulhausen are shipping fifteen motor-cars to German East Africa.

THE New York Automobile Trade Association has adopted a uniform schedule of charges for the storage and care of cars, to go into effect on January 1st next. After that date the garage rate for large cars of the regular touring class will be £5 a month and for small tonneau cars £4 a month. For two-seated cars the charge will be £3, these charges including washing and cleaning.

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The Paris Motor-Car Exhibition.



General View of the Salon.

THE *Salon*, which closes on the evening of Sunday next, has lost none of its interest, the Grand Palais being crowded daily by visitors from all parts of the world. On Thursday last week it was honoured by a visit from the King and Queen of Portugal, who spent some time in inspecting the leading stands. Below we continue our report of the leading exhibits.

Prominent on the stand of Messrs. BROUHOT & Co. is a 40-h.p. racer built for Lord Lonsdale, and a *chassis* of the latest type of 24-h.p. Brouhot car. This is fitted with an engine, the four cylinders of which are cast in two pairs. All the valves, both inlet and exhaust, are mechanically actuated off one cam shaft, and are consequently on one side of the engine. The ignition is by magneto, and the carburettor is of Messrs. Brouhot's own design and provides for the automatic regulation of the air in order to give the correct mixture at any or all speeds. A device

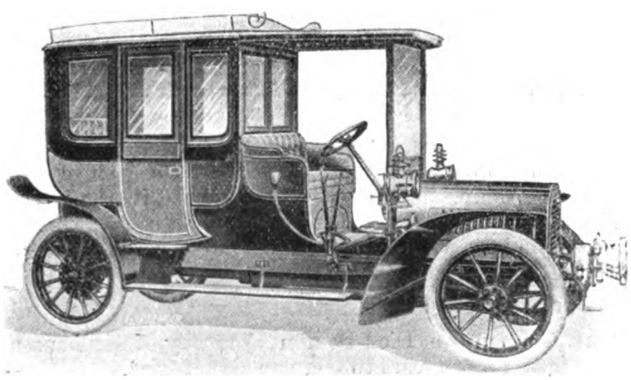


Fig. 23.—The Brouhot 24-h.p. Coupe-Limousine.

is also provided whereby the lift of the inlet valves may be varied and the speed of the engine consequently controlled. Pump circulation is adopted in conjunction with a honeycomb cooler, through which a current of air is drawn by a belt-driven fan. The transmission is by side chains, the drive on the top speed being direct. An ingenious form of friction clutch is employed to connect the engine with the gear box. The lubrication of the engine is ensured by a gear-driven oil pump. The road wheels are mounted on ball bearings, while the rear brakes are of the internal-expanding type. Two separate brake drums are provided on the countershaft. Among the detail improvements worthy of notice may be mentioned the chain-adjusting device and the steering bar which is now located behind the front axle. A *chassis* of the 15-18-h.p. type is also on view, as well as two or three complete vehicles, including the coupé-Limousine illustrated in Fig. 23. The Brouhot cars have made great progress during the past few years, and now rank among the high-grade productions of France.

For the 1905 season the LEON BOLLEE cars are being made in two sizes—20-24-h.p. and 40-45-h.p. An inspection of the

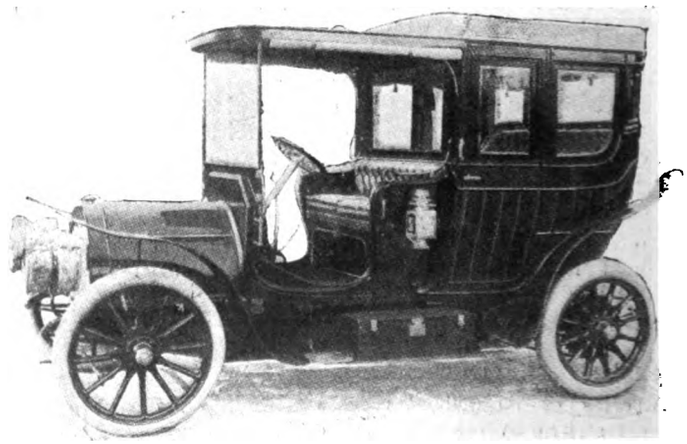


Fig. 24.—The Leon Bollee 20-24-h.p. Car.

40-h.p. *chassis* on view shows that while the general lines have been retained numerous modifications have been made. The engine comprises four cylinders, cast in two pairs. The inlet valves are mechanically actuated, and are located on the opposite side to the exhaust valve. The pump is of a new type; it is

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driven by gearing from off the half-speed shaft, as is also the magneto. The fan fitted behind the honeycomb radiator is driven by a broad belt, the fan spindle being carried upon a rocking plate, sustained by an adjustable spring, so that the belt is always kept at the proper tension. The car is fitted with two distinct ignitions —magneto and coil, and the retarding or advancing of the spark of either is controlled by one lever from the steering-wheel. Coming now to the carburettor, this is on novel lines, consisting practically of two distinct spraying chambers. Up to a speed of about thirty miles per hour the mixture is supplied from the smaller jet. As the speed, and consequently the suction, of the engine increases the larger jet is brought automatically into action and the smaller one closed. The speed of the engine can be varied over a very wide range, and will run at as low a rate as 100 revolutions per minute. Passing to the clutch, this is also on special lines. The main portion is of the ordinary cone type, but the internal portion is mounted upon its shaft on a kind of spherical joint, so that it is capable of fitting accurately into the outer member, even if the shafts carrying the two members are not perfectly in line with one another. The clutch pedal is now so connected with the throttle that as the clutch is withdrawn the speed of the engine is automatically cut down. A flexible coupling is fitted between the clutch and the gear box. The latter, like the engine, is supported at three points. Four speeds forward and reverse are provided, these being arranged in such a way that it is possible to readily change from the first to the fourth. All the lubricators are named, and

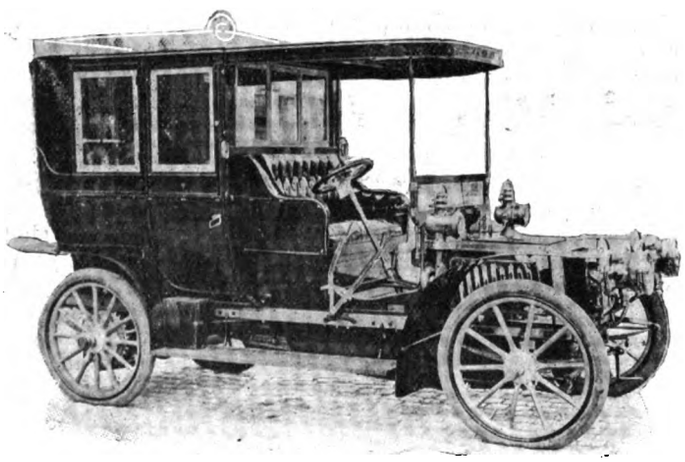


Fig. 25.—A "Pipe" Coupe-Limousine.

arrangements are made so that more oil can be fed to any desired bearing. The steering gear, differential shaft, and road wheels run on ball bearings. Some excellent specimens of side-entrance bodies are to be seen on the stand. We may add that the Victoria Carriage Works, of Long Acre, W.C., now hold the agency for the Leon Bollée cars in this country.

The COMPAGNIE BELGE DE CONSTRUCTION D'AUTOMOBILES, of Brussels, which is represented in England by the London Motor Garage Company, Limited, confine their exhibit to a *chassis* of the latest 18-22-h.p. Pipe car. The engine comprises four cylinders, cast in two pairs. The inlet and exhaust valves are all mechanically actuated off separate cam shafts. The valves are arranged in a somewhat unusual way—they open directly into the explosion chamber, not in a vertical line, as usual, but at an angle of 45°, the valve stems being actuated by rods and tappets. The ignition is by means of a gear-driven magneto; the radiator is of the framed rubber tube variety, the flywheel having its spokes arranged to act as a fan in drawing a current of air through the cooler. The clutch is of the metal-to-metal type; the gear-box, the shafts of which run on ball bearings, is arranged to give four speeds forward and a reverse. The Pipe cars have already an excellent reputation both in Belgium and England, which should be well maintained by the new models, which, in addition to the 18-22-h.p. above referred to, include 14-h.p. and 35-h.p. cars, both with four-cylinder engines.

Three splendidly-made *chassis* of respectively 18, 25, and 40-h.p. are to be seen at the stand of Messrs. CHARRON, GIRARDOT and VOIGT, who are represented in England by the

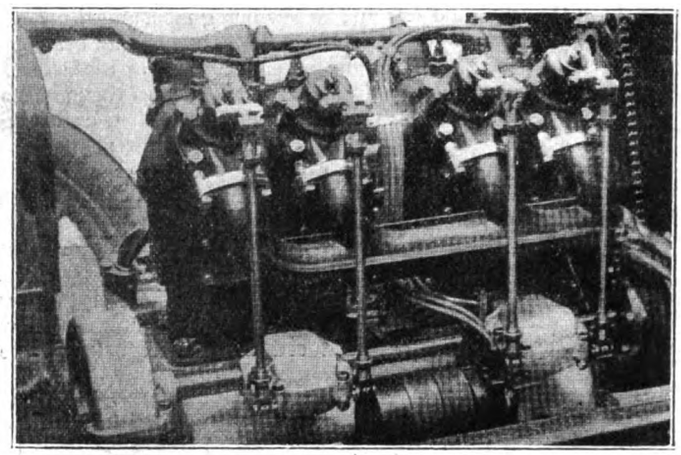


Fig. 26.—The new "Pipe" Motor.

London Motor Garage, Limited. The frame consists of a square steel tube filled with wood. The motor comprises four separate cylinders with mechanically-operated inlet valves. Both the pump and high-tension magneto are gear-driven. The carburettor is on the double-jet principle, with an automatic valve which closes the larger jet and opens the smaller when the engine is running at a low speed. The fly-wheel has its arms made in the form of a fan. The clutch is of an improved type, the aluminium male clutch member having a layer of rubber placed beneath the leather. A double cardan shaft is introduced on the shaft between the clutch and the gear-box. The

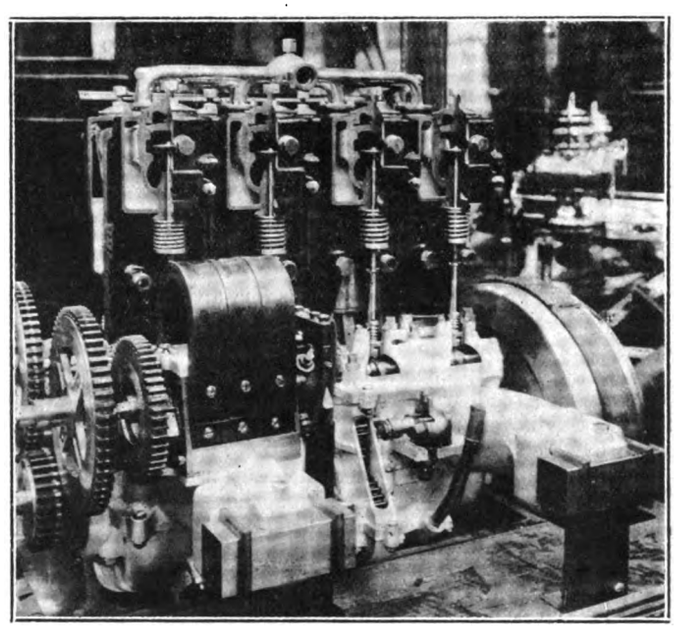


Fig. 27.—The C. G. V. Motor, cut in section to show operation of Valves

latter gives four speeds and reverse, with direct drive on the fourth; in it ball bearings are utilised. Altogether the C.G.V. cars are of the highest class, as an inspection of the various parts cut into sections displayed on the stand fully testifies. As regards the carriage bodies, these also are excellent specimens, and include a landaulet and a side-entrance Limousine.

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The stand of the HOTCHKISS COMPANY is again attracting attention. Two models are shown of 17 and 30 nominal h.p. respectively, and although the general lines are the same as last year, a number of detail improvements have been introduced. The 17-h.p. engine has cylinders 112 mm. diam. and 120 mm. bore and is stated to develop 28-h.p. The larger engine has cylinders 125 mm. by 150 mm., and is estimated to give 42-h.p. The frame is of stamped steel; the engine comprises four vertical cylinders, cast in pairs, both the inlet and exhaust valves being mechanically actuated and interchangeable. The crank shaft runs on ball bearings, and although there were many who were sceptical as to the desirability of this, we are informed that no trouble whatever has been experienced. The ignition is by low tension magneto gear driven. The radiator is of the honeycomb type, of a circular shape; the tubes of the honeycomb are of a triangular section, giving a large radiating surface. The fan, inducing a current of air through the tubes, is made in such a way that the inclination of the blades or vanes can be varied from the driver's seat, and the air draught increased as desired, as, for instance, in mounting long hills. The clutch is on novel lines; it is of the leather-faced type, and is provided with a locking device which prevents any tendency to slip. A special joint is introduced in the shaft between the

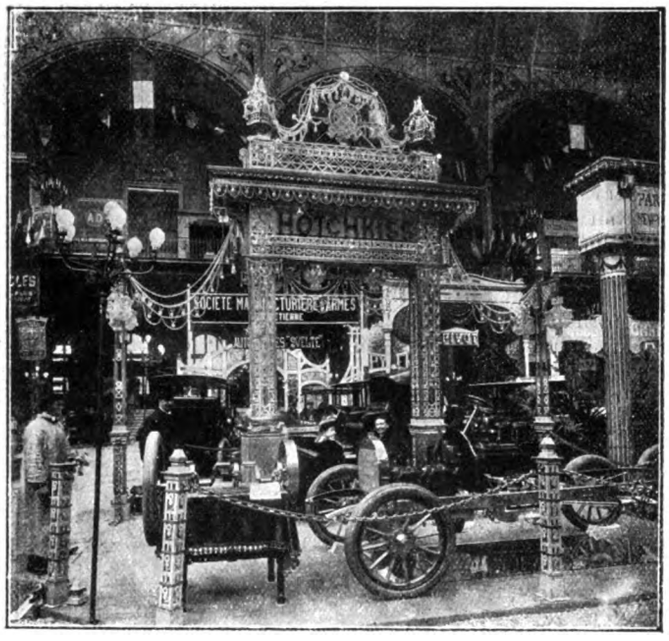


Fig. 28.—View of the Hotchkiss Stand.

clutch and the gear-box. Four speeds forward and a reverse are provided, the power on the top speed being transmitted direct to the rear live axle through a cardan shaft and bevel gearing. The rear axle is entirely enclosed and does not carry the weight of the car; the road wheels are mounted on the axle casing, and have the power transmitted to them through the axle ends; the case which encloses the differential and large bevel gear is divided in a horizontal, instead of, as usual, in a vertical plane. The bevel gear has been strengthened, a bearing being now provided behind the small bevel pinion. The pivots on which the front wheels are mounted lie in the centre of the hubs, and the steering rod is placed out of harm's way behind the forward axle. The brake on the countershaft is of the contracting band type, and those on the rear wheel hubs of the internal expanding variety, all being metal to metal. The frames are all of such a length as to receive side entrance bodies, several excellent examples of which are on view.

One of the most striking cars in the show is the Pope-Toledo Pullman, exhibited by an American concern—the POPE MOTOR CAR CO. The vehicle, of which an illustration is given in Fig. 29, is equipped with a four-cylinder engine of 50-h.p. The enclosed portion of the body has side entrances and seats five people, three facing forward and two backward. A folded table, which can be let down between the seats, is provided for writing or serving luncheon. The internal woodwork is natural mahogany, hand carved, while the upholstering is in pearl grey broadcloth. All the windows are arranged so that they can be lowered into the framework, rendering the car available for summer as well as winter use. The exhibit also includes examples of the Pope 20-h.p., 30-h.p., and 40-h.p. cars. All the vehicles have

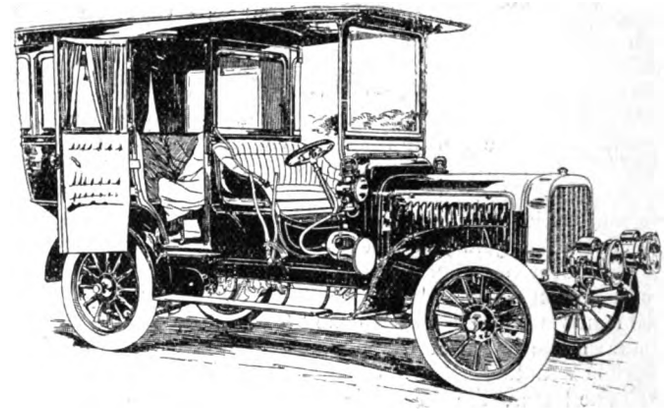


Fig. 29.—The Pope-Toledo 50-h.p. Saloon.

engines with four separate cylinders and copper water jackets. The inlet valves are of the suction type; the water circulation is maintained by a gear-driven pump and a special form of radiator, a current of air being drawn through the latter by the flywheel, whose arms are formed to act as a fan. Three speeds forward and a reverse are provided, the transmission being by side chains. The clutch is of the expanding segment type, while we noticed that the axles are of tubular construction.

LA SOCIETE L'ELECTRIQUE displays a number of its highly-finished "Gallia" electric carriages. Two electric motors are used, these being suspended at the rear in a special way, so that the body may rise and fall on uneven roads without affecting the motor. Accumulators of the "Supra" type are employed, these being arranged in two groups, one under the driver's seat and one at the rear. The forty-eight cell battery has a capacity of 220 ampere hours, sufficient to run the vehicle a distance of fifty to sixty-five miles at an average speed of twelve miles per

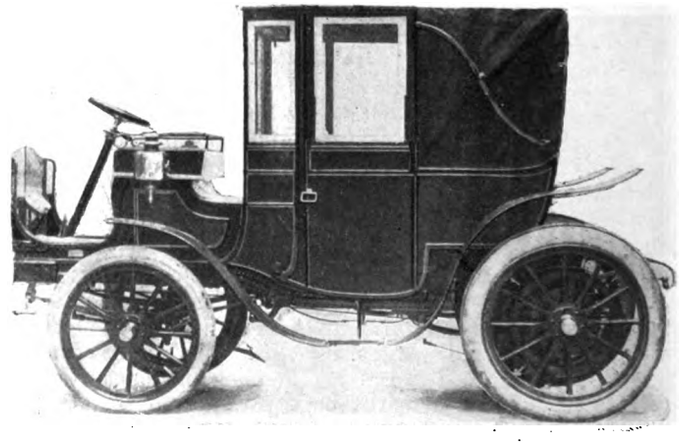


Fig. 30.—The "Gallia" Electric Landaulet.

hour. Steering is controlled by an inclined hand-wheel, and a special pedal is provided by means of which a resistance is inserted in the electrical circuit to permit of the car being started without jerk.

Messrs. BROWN BROS., LIMITED, have a large stand in the Gallery, on which they have an extensive display of all kinds of motor accessories.

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At the stand of Messrs. DUCELLIER we met Mr. André Godin, the British agent, who pointed out to us the new models of the well-known Ducellier lamps, both of the acetylene and paraffin variety. One gas lamp has what is known as a "catadrioptic" lens, which gives a light of immense power. We notice, too, that in addition to brass and plated lamps, the firm are now turning out lamps with an oxidised finish, these being of attractive appearance. An extensible lamp bracket which will accommodate

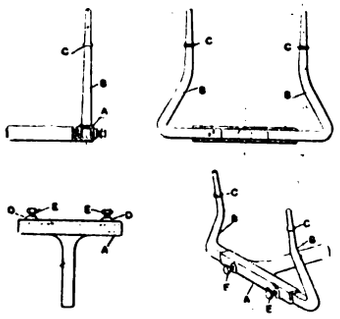


Fig. 31.—The Ducellier Extensible Lamp Bracket.

different sizes of lamps forms another interesting novelty at the stand of Messrs. Ducellier. Referring to the accompanying illustrations (Fig. 31), the T piece, A is that part of the apparatus which is secured permanently to the car in any suitable manner, the cross-head of the T being hollow and of square section. The lamp horns are made to slide into this square cross-head, one on either side, and can be moved in and out to accommodate not only the width between the sockets of any lamp to be carried, but within limits the position of the radial centre of such lamps can be varied. The adjustment between the centres of the horns CC varies from 5½ to 9½ in.

Quite a big display is made by the PEUGEOT COMPANY, the vehicles displayed ranging from the 6½-h.p. single-cylinder "Baby" to a 30-40-h.p. four-cylinder car. The 6½-h.p. car, which has been improved in many respects, has a frame of tubular construction. The engine, of which a sectional view is given in Fig. 32, is now provided with mechanically-operated

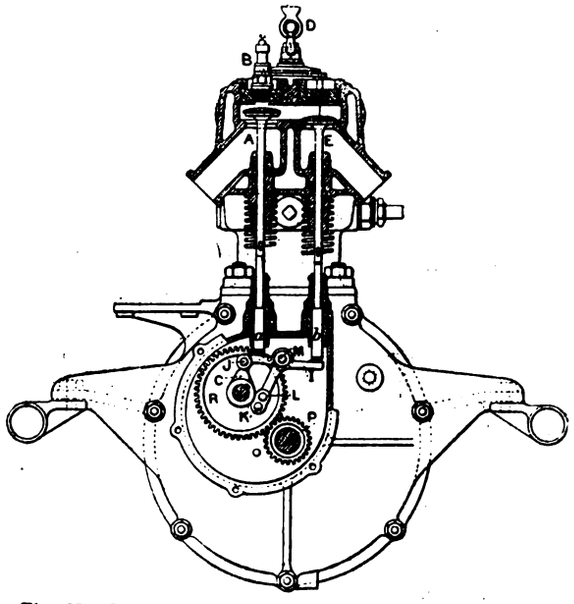


Fig. 32.—Section of Peugeot 6½-h.p. Single-cylinder Engine.

valves, a single cam actuating the inlet as well as the exhaust valve by means of the compound levers J, M, I, L. No governor is provided, but the clutch pedal is so connected up to the throttle valve that when the clutch is withdrawn the speed of the engine is automatically decreased. The water circulation is now maintained by a friction-driven pump in conjunction with a honeycomb radiator with fan. Three speeds forward and a reverse are provided, the top speed being direct on to the live axle. The two-cylinder Peugeot cars are only made in one power—12-h.p.—but in three lengths of *chassis*, the larger ones being intended to accommodate side-entrance bodies. Except that the frames are of wood and steel, the general details are similar to those of the Peugeot four-cylinder cars, to a reference to which we now pass. Three sizes of these are being made—12-16-h.p., 18-24-h.p., and 30-40-h.p., each being made with *chassis* of two different lengths—short for tonneau and long for side-entrance bodies. The frames are of pressed steel. The motors have the four cylinders cast in two pairs, and all the valves mechanically actuated, the inlets being on one side and the exhausts on the other. Magneto-ignition is fitted. The largest type has also the high-tension system by coil and accumulator as a reserve. One of the most novel features in the new four-cylinder cars is the automatic carburettor, an illustrated description of which was given in a recent issue of the *Journal*. The arrangement is most ingenious, the air admission being not only automatically regulated but also the feed of petrol through the spraying nozzle. To facilitate the starting of the engines a compression-easing lever is fitted close to the starting handle. The water circulation is maintained by a honeycomb radiator with adjustable belt-driven fan and gear-driven pump. With the view of rendering the vehicles free from jolting when travelling over rough roads, the Peugeot

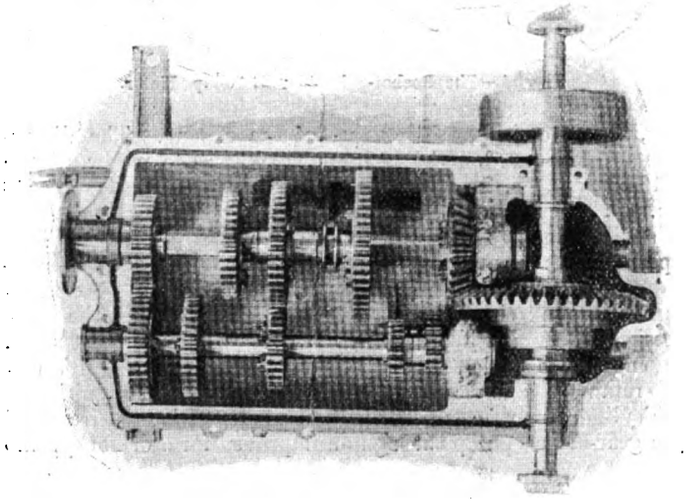


Fig. 33.—The Peugeot Change-speed Gear.

Company are still employing the cushioning arrangement devised by M. Truffault, which acts as a sort of brake on the springs, preventing them from rebounding on the frame. The change-speed gear box is adapted to give four speeds and a reverse, and a noteworthy feature is the provision of a groove extending right round the edge of the lower half of the gear box. Oil is fed to this groove and is conveyed to the bearings by means of chain-ring lubricators. The brakes are of the metal to metal expanding type. Attention may also be drawn to the fact that the magneto, which is gear driven, is so arranged that it may instantly be removed from its place whenever necessary. Altogether the Peugeot Company, whose destinies in England are controlled by Messrs. Friswell, Limited, has a display worthy of its reputation, and with such a wide range of cars, appealing to motorists of all classes, from the man of moderate means, upwards, there can be no doubt of these vehicles being as popular as ever in the coming season.

A new comer is LES CHANTIER DE LA BUIRE, of Lyons, which is showing two types of cars—16-h.p. and 30-h.p. A chassis, a coupé, and a double phaeton of the former are included in the exhibit, as well as a 30-h.p. Limousine. The frames are of pressed steel, and the engines have the four cylinders cast in two pairs, and the valves arranged on each side, all being mechanically actuated. The ignition is by gear-driven magneto. A special form of metal-to-metal clutch is employed; the transmission is by side chains, four speeds and a reverse being provided. In the 30-h.p. car the drive is direct on the third and fourth speeds.

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For the 1905 season the ROCHET-SCHNEIDER Co., of Lyons, for which Messrs. Donne and Willans, Limited, are the British agents, is confining its attention to two models of four-cylinder cars, 24-30-h.p. and 35-40-h.p. Both types have pressed steel frames of sufficient length to permit of side-entrance bodies to be fitted. The 24-30-h.p. has its engine cylinders cast in two

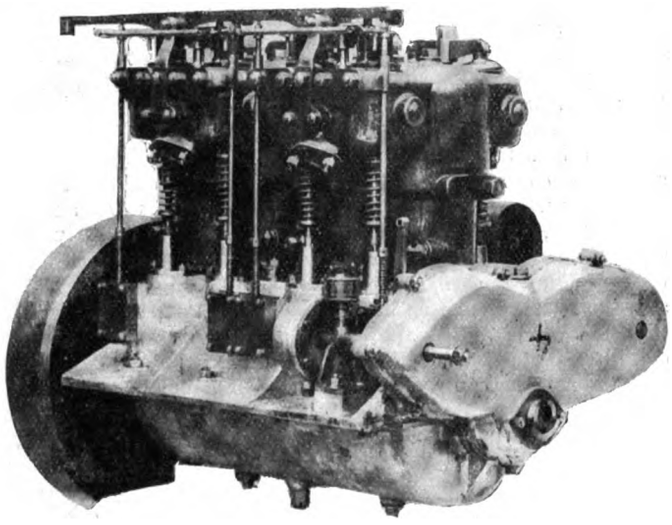


Fig. 34.—The Rochet-Schneider 24-30-h.p. Motor.

pairs, the water jackets being part of the casting. The dimensions are 120 mm. bore by 140 mm. stroke. The motor of the 35-40-h.p. car, on the other hand, has separate cylinders, each 140 mm. dia. by 160 mm. stroke. In other respects the cars are on similar lines, so that the following remarks apply to both types. The inlet valves are mechanically operated and are interchangeable with the exhaust valve. A device is now fitted whereby, on placing the starting handle in position, the compression is automatically released, so facilitating the starting of the engine. The low-tension system of magneto ignition is still retained, a device being provided whereby the ignition of each cylinder may be tested separately. The water is circulated by a gear-driven pump through an improved form of honeycomb radiator with fan; the latter runs on ball bearings, and is driven by an adjustable belt. All the gear wheels, including those operating the pump and magneto, are entirely closed. The mixture is furnished by an automatic carburettor of the company's own design. The change-speed gear has been considerably modified, the two shafts being now arranged in the same horizontal plane. Four speeds forward and a reverse, with direct drive on top speed, are provided, the transmission from the differential countershaft being by side chains. The clutch is of the metal-to-metal type, arranged in such a way as to give a gradual engagement. The steering gear, which is of the worm and worm wheel type, has been considerably strengthened. In addition to the usual hand-operated internal expanding brakes connected with the hubs of the rear wheels, two pedal-operated brakes are mounted on the countershaft. The axles are of nickel steel of H section, while the equal-sized road wheels run on ball bearings. In addition to a 24-h.p. *chassis*, two beautifully-finished side-entrance limousines—one of 24-30-h.p., and one of 35-40-h.p.—are shown.

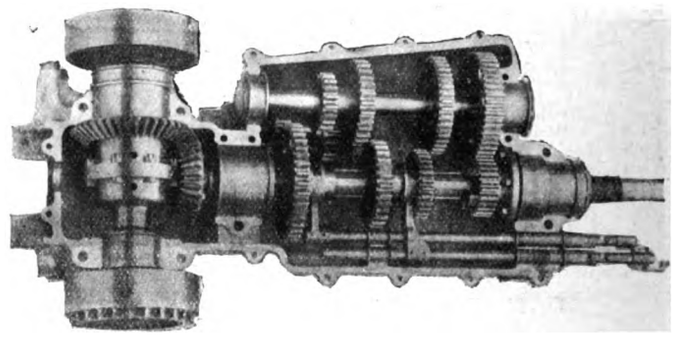


Fig. 35.—The Rochet-Schneider Change-Speed Gear.

A new-comer among electric motor-carriage builders is M. ALFRED DININ, of Puteaux, represented in this country by Mr. André Godin. Three cars are shown, differing only as regards the bodies. Outwardly the vehicles have the appearance of petrol cars, a false bonnet being provided in front of the dash. The battery consists of 42 Dinin accumulators, two-thirds of which are carried at the rear and one-third under the bonnet, the capacity being sufficient for a run of 100 kilometres at a speed of 30 kilometres per hour. The control is obtained through one pedal; when fully depressed it applies a brake on the rear wheels, and as the pedal is released the power is increased until, at the top speed, the foot can be removed from the pedal. By means of a two-way switch on the steering wheel, the current can be cut out or switched to the positions for forward movement and for reverse. An arrangement blocks the switch, so that the current cannot be switched on unless the pedal is depressed. One electric motor is employed, this driving the rear axle through spur gearing. The cars have a neat appearance and are relatively light, the two-seated vehicle weighing complete with battery only about 11½ cwt.

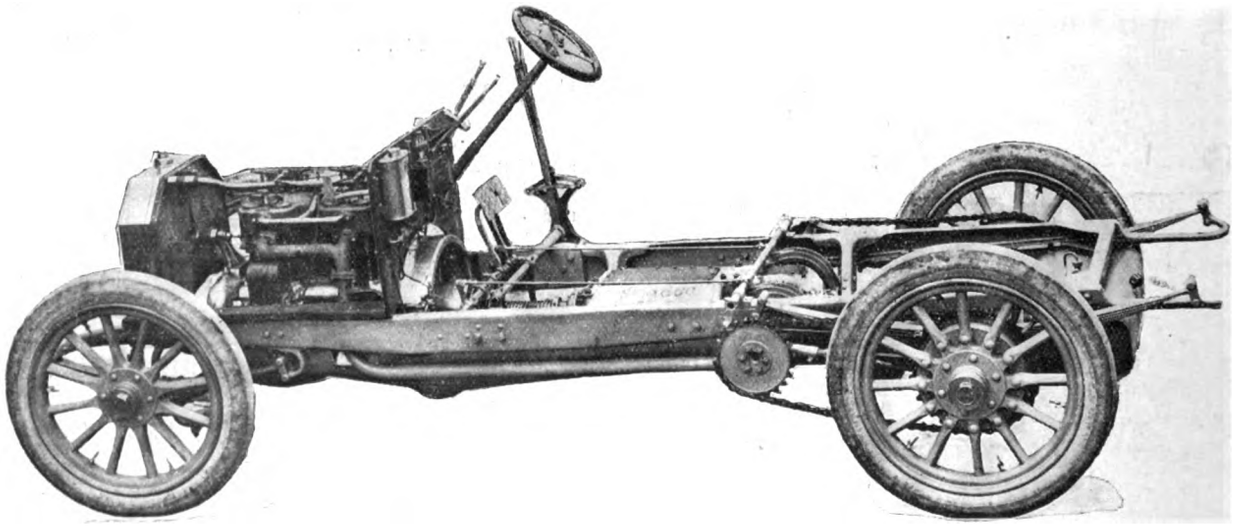


Fig. 36.—View of Chassis of Rochet-Schneider 24-30-h.p. Car.

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The petrol car without a change-speed gear, briefly referred to in a recent issue of the *Journal*, forms one of the attractions of the Exhibition. The car, which is known as the "Direct," is to be seen at the stand of LA SOCIETE DE CONSTRUCTION MECANIQUE ET D'AUTOMOBILES, and has been built to the design of M. R. Goldschmidt. The frame is of pressed steel, and, so far as the general arrangement is concerned, the vehicle follows that adopted in chain-driven cars. The motive power is supplied by

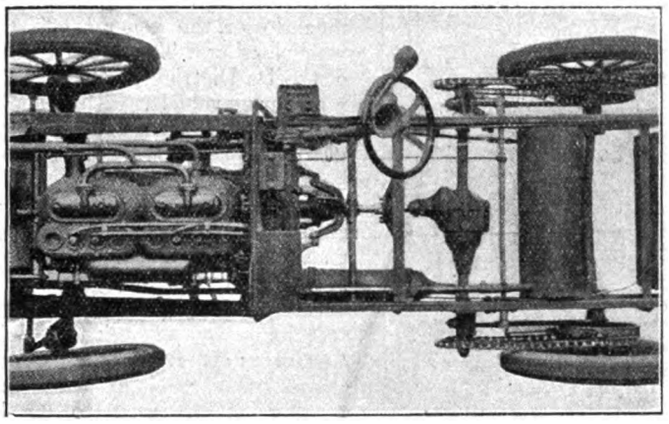


Fig. 37.—Plan of "Direct" Car with no Gear Case.

a four-cylinder engine developing 40-50-h.p. The valves are mechanically actuated, the feature being the arrangement of the cam shaft, which is such that the direction of rotation of the engine can be reversed. The shaft can be slid longitudinally, in order to bring a second set of cams in operation, the change being made by means of a small lever on the steering wheel. The cams themselves are of a special form, enabling the time the inlet valves are kept open to be varied, so regulating the amount of mixture admitted to the engine, and consequently the speed of the latter. The clutch is of a special metal-to-metal type. It consists of three steel discs one round the other, which can be progressively pressed together against the flywheel. The pressure is regulated by four compound levers worked by a sliding cone-shaped sleeve operated by the pedal. Thus the innermost disc is first brought into contact with the flywheel, as the pressure is removed from the pedal, then the second or central disc, and finally the third or outermost disc, the load being thus taken up gradually. From the clutch the power is conveyed by a jointed shaft to the differential shaft, and thence by side chains to the rear axle. It is claimed that the engine can be run at any speed from 80 to 1,100 revolutions per minute, and so drive the vehicle at a rate ranging from a crawl up to the maximum. The car has been subjected to a lengthy test in Belgium ere being put on the market, and we may add that arrangements are in hand for its introduction into England at an early date.

Another new-comer in the motor world is LA SOCIETE DES USINES DE DELAUNAY-BELLEVILLE, the well-known boiler makers of St. Denis. Three sizes of four-cylinder cars are being made—16-20-h.p., 24-28-h.p., and 40-45-h.p., the first-named having a bevel gear and live axle drive and the others side chain transmission. The exhibit at the *Salon* consists of a *chassis* of the largest type, and so surrounded was it by interested admirers that it was only with difficulty that we could get an opportunity of inspecting it. The frame is, as in all modern large cars, of pressed steel. The engine has four separate cylinders, 130 mm. diameter by 140 mm. stroke, with the inlet valves arranged on one side and the exhaust valves on the other, all being mechanically actuated. The ignition is by low-tension magneto, while the water circulation is maintained by a gear-driven centrifugal pump and a framed ribbed-pipe radiator. The latter is circular in shape, like the Hotchkiss, and the belt-driven fan covers the whole of the rear surface. The engine, which is lubricated by oil fed under pressure by a valveless oscillating pump, driven off the crank shaft, develops 40-h.p. at 900 revolutions per minute, but can be accelerated to 1,300 revolutions. The power is transmitted through a leather-faced cone clutch, a gear-box giving four speeds forward and a reverse, and side chains. The brakes are of the metal-to-metal type, that on the countershaft being water-cooled. Ball bearings are used throughout, with the exception of the engine. The front axle is of novel design, as not only is it bent in curves after the Mercedes fashion, but has an additional forward sweep in the middle. The usual longitudinal springs are supplemented by a transverse one at the rear. The lock of the front wheels is, it is claimed, such as to enable the large car to turn completely round in a circle of eleven yards diameter. A small knob is provided near the starting handle, by pulling out which the compression can be released to facilitate the starting of the engine. In connection with the discussion at present taking place in the correspondence columns of the *Journal*, it is interesting to note that no fewer than four pedals are placed close to one another on the footboard. The pedals from left to right control respectively the throttle, the clutch, a ratchet sprag to prevent the car running backwards, and the clutch and foot-brake together. Levers on the steering-wheel controlling the throttle and ignition are also provided. The workmanship throughout is of the highest class, the makers having evidently entered the industry with the firm object of bringing the "E.D.B." car, as it is known, into the front rank of automobiles.

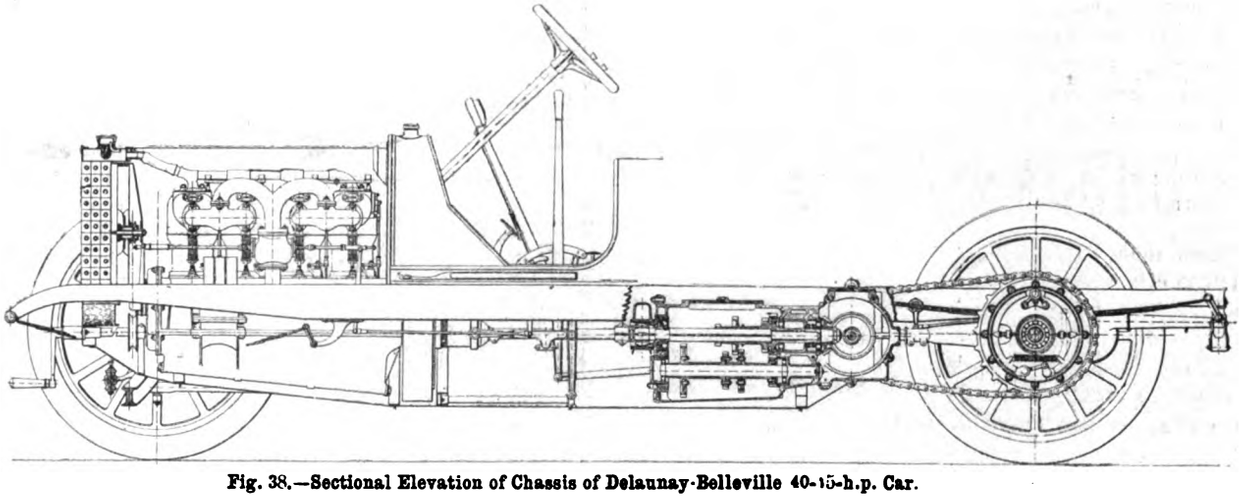


Fig. 38.—Sectional Elevation of Chassis of Delaunay-Belleville 40-45-h.p. Car.

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The DE DIETRICH stand is one of the most striking in the Exhibition. The sign is of iron construction with revolving centre announcing the name of the firm. As a point of interest we may mention that the sign, with its electric lighting, cost upwards of £1,000. For the 1905 season four types are being made, viz., 16-h.p, 24-h.p., 40-h.p. and 60-h.p., in which several striking alterations and a number of important modifications have been made, and which were pointed out to us by Mr. C. Jarrott. The length of the wheel base of all the cars has been increased and they are now arranged for the fitting of side-entrance carriage bodies. The appearance has been considerably changed by the adoption of a honeycomb radiator of a new and ingenious pattern. Cooling is assisted by a belt-driven fan, the flywheel being also of fanlike design to induce increased draught. The flywheel is of much larger diameter than hitherto, as also is the clutch. The motor itself is of an entirely new model. It is fitted with an improved carburettor with a very finely graduated throttle to enable the motor to be set to run at any speed. The throttle is worked by a lever arranged on the steering wheel, a second lever controlling the ignition. An accelerator is also arranged for easy and quick acceleration in traffic driving and starting up-hill. An ingenious device whereby, when the throttle lever is opened wide, the action of drawing out the clutch immediately throttles the engine, is another important improvement. On the 40-h.p. *chassis* we notice that a half-compression lever is provided for easy starting. The petrol tank is now of a flat shape and is placed at the rear of the frame, and can easily be filled without disturbing any of the passengers. The change-speed gear box is of a new pattern, and cardan joints are provided on the differential shaft to obviate any strain being transmitted to the gear box bearings, and for the same purpose a cardan joint is arranged between the gear-box and the clutch. Another drastic change is the fitting of ball bearings to the gear-box shafts and the road wheels. The side brakes are of a much lighter design than formerly; they are internal-expanding, and enclosed from dirt and mud. A compensating arrangement is fitted whereby equal tension is put upon the brakes on both the road wheels. The steering bar is now arranged behind the front axle; the foot pedals have also been changed, and are large and square, affording comfortable driving. A new type of bonnet, with low dashboard, sloping footboard, and sharper rake of the steering wheel, give the cars a considerably smarter and more stylish appearance than the old type, and as the *chassis*, to ensure stability, is much lower, the general effect is very pleasing. The great feature of the De Dietrich display is a 40-h.p. touring vehicle, which embodies a saloon provided with beds, seats, writing table, electric light, electric bells, and dressing-room. It is completely equipped with every requisite, and is one of the attractions of the *Salon*.

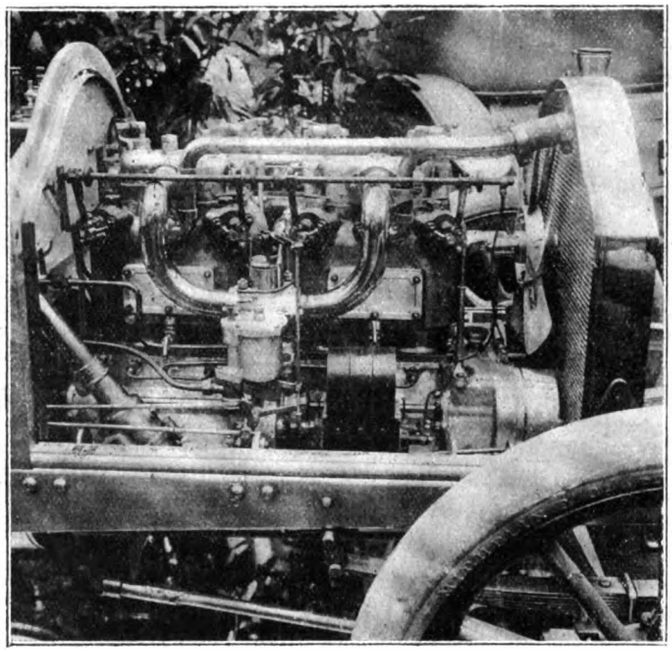


Fig. 40.—The De Dietrich 24-h.p. Motor.

M. L. BLERIOT makes a big display of his well-known acetylene lamps. The chief feature of interest is the new generator, all parts of which are, as was demonstrated to us by M. Norbert Chereau, readily detachable for cleansing purposes. The generator is intended to work with the cartridges or sealed tins of coated carbide supplied by this firm; this is placed in the generator, the tin being pierced by a pointed tube forming part of the cone-shaped top of the generator. The latter is hermetically sealed, enabling the lamp to be turned out and relighted as desired. One generator with its charge is estimated to give a light for six hours, but a lamp is made with two generators, so that twelve hours' light is available, the reserve set being used as an extra gas reservoir. The generators are also supplied separately in boxes containing one, two, or three sets. In the lamps themselves, which are made in a wide range of patterns, we notice some detail improvements, notably the fitting of an unbreakable glass chimney, by the use of which the reflectors are kept clean, and a new arrangement of double-hinged doors, one for the glass and one for the lens. A new adjustable lamp bracket is also worthy of notice, the two arms being bent in such a way that by unfastening a screw at the bottom the distance between the two may be easily regulated.

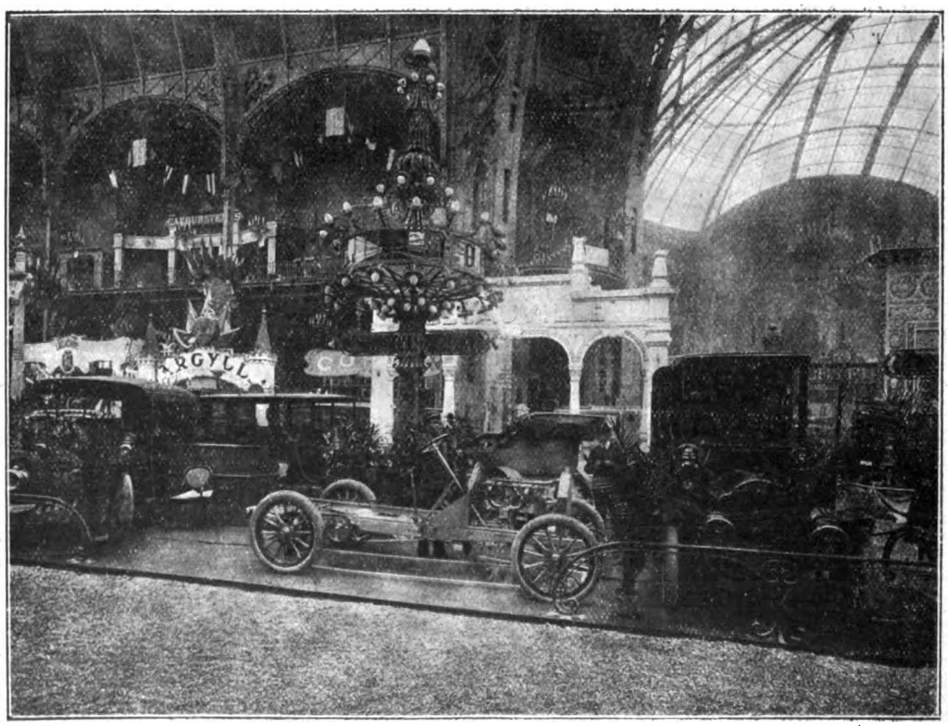


Fig. 41.—View of the De Dietrich Co.'s Stand.

(To be continued.)

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HERE AND THERE.

THE Crown Prince Vladimir of Russia has ordered an Opel-Darracq coupé.

THE GREAT WESTERN RAILWAY COMPANY will run a motor-car service between Chippenham and Calne, commencing early next month.

DURING motor runs aggregating 4,000 to 5,000 miles ex-Councillor H. R. Gillham, of Redhill, has only had four punctures.



He was one of the earliest motorists in the district, and is shown in the accompanying illustration just starting for a spin with some lady members of his family.

"MOTOR CAR BODIES" forms the subject of the new list of the Lacre Motor Car Company, Limited, included in which are some stylish designs.

MISS PERRY, a Dublin motorist, has been charged at the police court with causing the death of a woman while motoring in Baggot Street, Dublin.

MR. MAURICE DE BREYNE, at one time well known in the London motor trade, will be found by motorists visiting the Riviera at the garage of the Auto Car Company, at Nice.

LORD BALCARRES, M.P. for the Chorley division of Lancashire, is making a motor-car tour through his constituency on a 12-h.p. Whitlock-Aster belonging to Mr. Timberlake, of Wigan.

WE learn that Messrs. J. I. Thornycroft and Company, Limited, have an order in hand for five 5-ton petrol lorries for Bombay. They are also supplying one of their 20-h.p. cars to Princess Christian.

THE first entry for the new race announced by the Automobile Club for tourist cars has been made by Messrs. C. S. Rolls and Company with one of their Rolls-Royce cars, described in last week's *Journal*.

A "WHITE" steam car has been presented to Mr. W. E. Scarritt, the retiring president of the Automobile Club of America, by the members of that organisation, in recognition of his services during his term of office.

A PUBLIC motor-car service has just been inaugurated between Yverdon and Moudon, Switzerland. The vehicles, which are of 20-h.p., were constructed by Messrs. Martini, and have accommodation for sixteen passengers.

"WILLING'S Press Guide" for 1905 comes again in a familiar form. Particular care has been given to presenting an accurate view of the press, not only of Great Britain, but also of the Continent and America. The care with which the compilation has been made will retain the work at the head of such publications.

THE Bradford Tramways Committee has ordered three motor-vans.

"THE CROWN" Hotel, at Kingsclere, has good accommodation for motoring visitors.

THE physicians of Paris are rapidly discarding horses for their professional work and taking up automobiles.

MR. T. H. HOLDING, of Maddox Street, W., has sufficiently recovered from his recent accident to be able to leave home.

THE Town Council of Pollokshaws has approached the Secretary for Scotland with a view to a restriction of the speed of motor-cars passing through the borough.

THE "Stepney" patent wheel, recently described in our columns, has been adopted by Lord Iveagh, the Hon. G. N. Irby and Mr. J. C. Drew, of Wadhurst Hall, Sussex.

LA SOCIETE DES VOITURES ELECTRIQUES VEDRINE is the name of a new company which has been formed in Paris with a capital of £6,000 to manufacture electrical motor-cars.

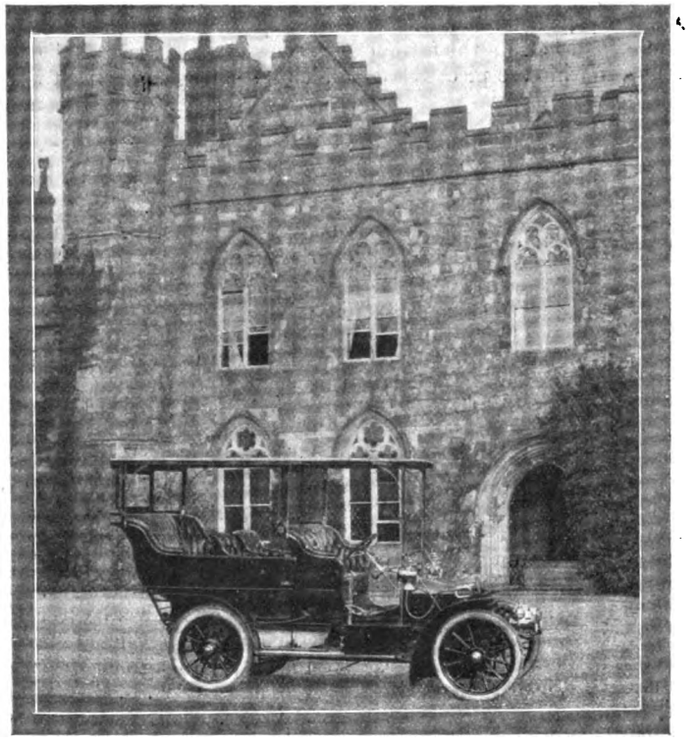
THE Giffnock (Scotland) ratepayers' committee is inviting the County Council to secure the limitation of the speed of motor-cars passing through that district to ten miles an hour.

THE TRAMWAYS AND LIGHT RAILWAYS ASSOCIATION are petitioning the Board of Trade with a view of securing the extension of the speed limit of twenty miles an hour to tram-cars.

A REQUEST is to be made to the Great Eastern Railway Company to run a motor-'bus service between Hornchurch and Romford railway station, to meet the trains both morning and evening.

THE Earl of Selborne, First Lord of the Admiralty, visited Portsmouth the other day, and proceeded in his motor-car to the Royal Marine Artillery Barracks, where he made an inspection of the Royal Naval School of Music.

THE accompanying illustration depicts Mr. Grace's 24-h.p. Wolseley, fitted with a special body by the Lacre Motor Car Company, Limited. The car, which can seat seven persons, is



luxuriously upholstered in green. The background of the picture is Battle Abbey, Sussex, Mr. Grace's latest residence.

AN attractive stand at the Paris *Salon* is that of the "General Accident" Company, of Perth. It is in a prominent position in the Grand Palais, and is decorated throughout with Rob Toy tartan relieved by silver badges of the Scotch thistle and the arms of Perth.

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THE Civil Service Motor and Cycle Agency, Limited, are putting upon the market the neat little idea in sparking plugs which is shown in the accompanying illustration (Fig. 1), and which they call the Service Quick Snap sparking plug. As will be readily seen, the cap fits on like a glove fastener, and is always ready to hand, saving the time and trouble of looking for the fixing screw, as has to be done with the ordinary sparking plug. In connection with sparking plug connections, reference may also be made to the device shown at the Paris Salon by M. Ruffier, of 20, Rue Galvani, Paris. Instead of a glove-button fastening,

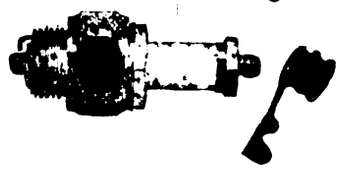
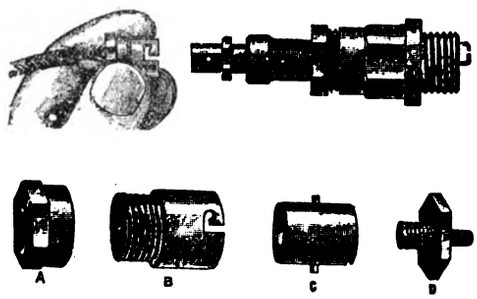


Fig. 1.



Figs. 2 and 3.

M. Ruffier has adopted the bayonet fastener, on the lines of that adopted in connection with electric incandescent lamps. Reference to Figs. 2 and 3 will show that it consists of four parts—A, to which the high-tension wire is attached; B, one part of the fastener which screws into A; D, a double screw piece, which at one end is screwed into the plug and at the other receives the second half of the fastener C. The latter has two projecting studs. Within the piece B is concealed a small spring, so that when the attachment is made there is no danger of it becoming detached owing to vibration or jolting.

IT is stated that no less than 1,900 men are at present employed at the works of the Daimler Motoren Gesellschaft at Unterturkheim, where the Mercedes cars are built.

MR. SHIELL, of Perth, has supplied Messrs. J. Pullar and Sons, of the dyeworks there, with a motor delivery van of 9½-h.p.

A RESIDENT of county Kildare has obtained a verdict for £15 and damages against a Dublin motorist for injuries caused to him and his pony trap by the defendant's motor-car.

THE Speedwell Motor and Engineering Company, Limited, announce that they have entirely remodelled the whole of the Speedwell series of cars for 1905. They have a comprehensive range of models, commencing with a light 6-h.p. car, and extending up to the imposing 25-h.p. touring Speedwell.

OWING to the pressure of work as managing director of Clement-Talbot, Limited, Mr. D. M. Weigel informs us that he has been forced to resign his position of managing director of the British Automobile Commercial Syndicate, Limited, of which concern Mr. F. F. Wellington has been appointed manager.

THE Warminster Motor Company, Limited, has been registered with a capital of £5 000, to carry on the business of manufacturers of motor-cars, etc., and to adopt an agreement with Mr. L. C. Willcox. The first directors are Messrs. L. C. Willcox, R. Hopkins, H. T. Cookson, and F. Garton. The registered office is at 21, George-street, Warminster.

AT Caxton Hall, Westminster, Mr. John Troutbeck, sitting as high bailiff, with a special jury, heard the case of "Mills v. the London County Council," which was a claim for compensation for the compulsory acquisition of certain premises in Horse and Groom Yard, Wood Street, Westminster, used as a motor garage, required by the Council in connection with the Thames Embankment and Westminster Improvement scheme; £622 was awarded.

A REXETTE car will be on exhibition at the Turin show next month.

THE A. G. Mulliner Motor Body Company, Limited, have removed to Rimrose Road, Bootle.

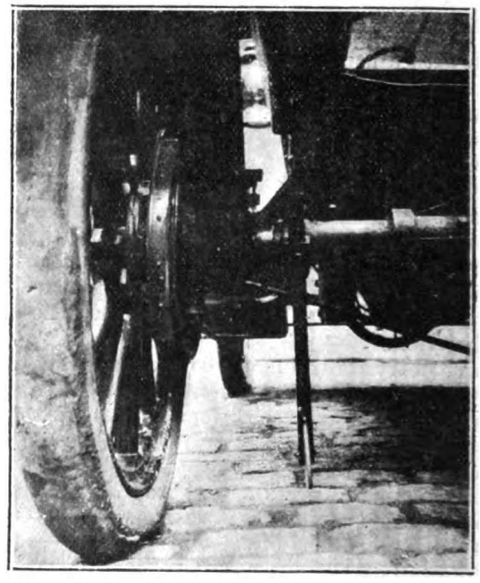
WE learn that Messrs. Clement Talbot, Limited, have decided to fit the whole of their output during 1905 with Clincher tyres.

A MOTOR transit scheme between Gorey and Enniscorthy, in North Wexford, is being advocated locally, and financial support is apparently being secured.

ACCORDING to a statement issued by the Provincial Secretary of Ontario, 604 new automobile licences have been issued in that province since October, 1901. This is an indication of the growing popularity of motoring in Canada. It has taken hold in earnest of the wealthier class of citizens, many of whom are now enthusiasts. At present discussion is rife on the subject of new cars, and judging by current talk there will be a regular boom in motoring in Canada next year.

THE annual report of General Greely, the Chief Signal Officer of the United States army, which has just been submitted to the United States Secretary of War, contains some reference to automobiles. The General says, in substance, that the evident value of motor-propelled vehicles as parts of telegraph and balloon trains has led him to continue experiments with automobiles. While motor-cars in their present state are evidently unsuited for general transportation in the field, yet the experiences of the signal corps have demonstrated the practicability and advisability of self-propelled vehicles for special military purposes. While the good points of electric and steam vehicles are thoroughly recognised, yet the internal combustion type, using kerosene or other oil, seems better suited for war purposes.

A NEW puncture tell-tale device is being introduced by Mr. H. Hunt, of 141, Essex Road, Islington, N. As will be seen from the accompanying illustration, it consists of a lever supported from the back axle and terminating in a light rubber wheel. The lever is adjustable as to length, and is so arranged that when the tyre is fully inflated the rubber wheel is clear of the ground. Should the tyre be punctured and consequently deflated, the rubber



wheel is lowered until it eventually touches the ground. The spindle of the rubber wheel is carried in the lever in such a way that when contact with the ground is made it is raised in its supporting slots, so completing an electrical circuit and causing an electrical bell near the driver's seat to ring. It is intended that each of the rear wheels should be provided with its tell-tale device, which, as will be seen from the illustration, is not unsightly, and adds but slightly to the weight.

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IMPRESSIONS OF THE PARIS MOTOR-CAR EXHIBITION.

By S. F. Edge.

I THOUGHT it might be of interest to give my impressions of the present French Automobile Show. These impressions are of a most pleasant description, particularly looked at from a British point of view. The show itself as a spectacle is unequalled. The building is magnificent, and I am afraid cannot be reproduced in this country. The scheme of electric lighting is everything that an artistic eye can ask for, and even on this point I think we shall have great difficulty in this country in equalling our French friends. Their arrangement of bands and music could not be bettered, and the money lavished by the individual firms on the decorations of their stands I do not expect to see equalled over here for many a long day, if ever, as they only appear to advantage after darkness has set in, at which period people interested in buying and investigating motor-cars generally go out, it apparently being found that when the lights go up it brings such an enormous crowd of enthusiastic sightseers to listen to the band and to see the illuminations that the reason and cause of the Exhibition is completely forgotten.

I think the French are unquestionably very wise in trying by every means in their power to increase the prestige and success of their Exhibition, but at the moment I am of opinion that this lavish expenditure on the stands and beautiful decorations of the building are tending to make the show too much of an attraction to the franc-a-time sightseer rather than the serious mechanically-minded person or would-be buyer of an automobile, as the time is now restricted to a few hours in the morning, when he can see the exhibits with some degree of comfort undisturbed by the sight-seeing crowd.

When we come to deal with the exhibits themselves, the motor-cars, coach-building, engines and boats, as the case may be, we find every cause for satisfaction from a British point of view. There are no sweeping improvements or striking changes. The French brains which have done so much for the automobile industry appear to have run to their limit on broad lines for the moment, and it is open for any good engineering firm with motor-car knowledge to-day to start and build a car practically as good as the best French production, without feeling when doing this that by the time their car is produced it will be out of date. This marking time on the part of the French manufacturers has enabled other manufacturing countries to catch them up, with the result that we see to-day alongside with French productions motor-cars from Germany, Italy, Belgium, America, and Great Britain equal in design, workmanship, and price to the best that France can produce, so that we are now in the position of these countries toeing the starting line for 1905 on an equal basis, with equal knowledge, and in the case of some countries with a superiority of machinery and workmen.

There is a curious backward tendency in one direction in France, and that is to see that the weights of the *chassis* are rising very rapidly. One has only to look at four or five of the leading firms' exhibits to notice that their *chassis* are considerably heavier for 1905 than they were two years ago, even allowing for the increase of horse power. This points to the fact that the superiority originally claimed for France that they could build lighter vehicles than other countries to do the same work was not quite justified, but that merely owing to their great reputation people believed that a hundredweight of French material would stand more than a hundredweight of material supplied by another country. Time has proved that this was wrong, and the French manufacturers are now making desperate efforts to get even with those countries which put the necessary weight into their vehicles to give them lengthy wearing qualities.

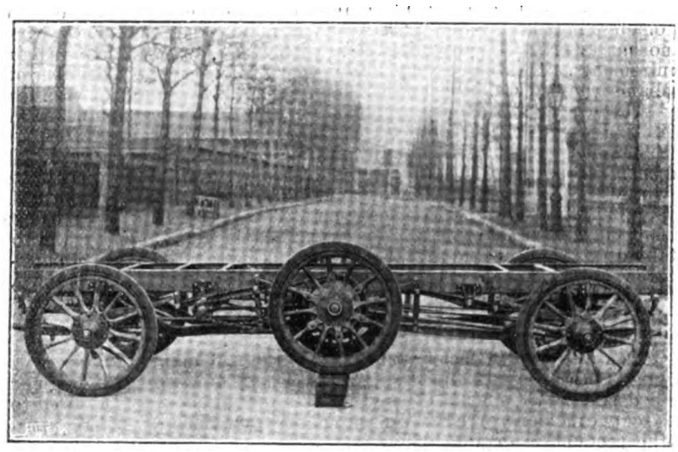
Another point in which France seems to have dropped behind, if we except one or two firms such as De Dion and Peugeot, is the manufacture of the small single-cylinder car, cheap both in upkeep and prime cost, and the example in this direction shown by a British firm, the Wolseley, is something to be proud of, and we realise that in the small car trade France has practically, with the two exceptions above referred to, dropped back. In medium-priced four-cylinder cars I think France to-day still holds an exceedingly strong position, and through the enterprise and engineering skill of two or three firms still looks like holding her own in this direction.

From a coach-building point of view, many of the vehicles are beautiful, have fine lines and perfect finish, nothing strikingly original, however, and none of the workmanship better than can be given by the leading English firms; in fact, speaking as a carriage-body buyer in the high-class trade, I can actually get pound for pound better value in this country than I can in France from the highest class builders in that country.

The motor-boat section is disappointing, to say the least of it; there is nothing original or new shown at all. Most of the boats are both rough and cheap, and there are many English boat builders whose work is far in advance of the bulk of that which is shown, and I think it will be found that at the forthcoming English shows far better samples of pleasure motor-boats will be on view than the best shown in France.

When we come to the machinery section, it is very interesting to note that of the large number of gas engines in use only three are of French manufacture, nearly all the others being of English make. Of the special motor-car tools in use, practically all are English or German.

It is interesting and satisfactory to note that there are still French firms adhering to the obsolete method of transmitting large horse-power through leather-lined clutches. The Panhard Company have in their newest model adopted the metal to metal clutch, and undoubtedly every firm must do the same for high-powered cars, and will, I think, eventually do it for every power car. To give a little example of what appears to me to be a desperate effort on the part of some of the French firms to alter their vehicles from last year without improving them, what can one see worse than a firm who actuate their inlet valves from the top of their cylinders with rocking levers, and who do not take advantage of the valve being on top by placing it over the exhaust valve so that the inrushing fresh mixture may tend to keep the exhaust valve cool? It seems to me no better example can be shown of their efforts to be different to other people without really having a material advantage to offer.



The Renard Road Train.—View of six-wheel Compensated Trailer.
(See page 872 last issue.)

THE entry list for the American team for the 1905 Gordon Bennett race closed on the 15th inst., and we learn by telegraph that only three cars had been entered, these comprising two 90-h.p. Pope-Toledo cars and a 90-h.p. Locomobile petrol vehicle.

THE Stevens Motor Manufacturing Co., Ltd., has been registered with a capital of £5,000 to acquire the Stevens Motor Manufacturing Co., at Tempest Street, Wolverhampton. The first directors are Messrs. J. Stevens, W. Barnett, and W. H. Haden.

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CORRESPONDENCE.

THE PARIS EXHIBITION AND THE BRITISH AUTOMOBILE INDUSTRY.

To the Editor of *The Motor-Car Journal.*

Sir,—I should like in a few lines to give my impressions of the Paris Exhibition, and in connection therewith developments which undoubtedly affect the British automobile industry. In the first place it is pleasant to note that all the leading makers have made no decided alterations for next year's models. The modifications one sees are only what may be expected by the process of evolution. Probably the most striking development is the general adoption of magneto ignition in some form or another. I look upon this lack of important or radical alterations as one which is of the greatest importance to English manufacturers, as it goes to show that the trade generally is sure of its ground and that the types already existing have proved successful. Radical alterations only tend to increase the manufacturer's risk and make the buying public very undecided. A general uniformity of design cannot but be helpful to the intending purchaser and the trade generally.

The feature of the show is, however, to my mind, to be found in the galleries, and I think that an inspection of the same is well worth the visit to Paris. Here one found the source from which the French manufacturers and a great many English manufacturers obtain their supplies of forgings, castings and accessories, as of course it is impossible for any manufacturer, either foreign or English, to make every part of the machine in his own works. In addition to the large number of makers of electric fittings, radiators, lubricators and scores of other accessories, there were a large number of exhibits of steel and iron parts, both in the forged and finished state. Several of the largest steel and iron firms in France, Belgium, and Germany had most interesting exhibits of steel, etc., required for motor-car construction. These samples were exhibited in a way which appeals to every manufacturer, and it would appear to me that the steel manufacturers of the Continent are fully alive to the importance of the automobile industry, and are assisting the manufacturers of motor-cars in no small degree, by providing them with materials suitable for their requirements. I have noticed year by year in Paris that the number of steel and iron firms exhibiting increases, but I have looked in vain for any great English firm coming into the market on the same lines and exhibiting their goods either at the Paris or other exhibitions.

There is no doubt in my mind that the French industry has prospered and been encouraged to a great extent by the enterprise which has been shown by such firms as Lemoine, Krupps and many other continental firms. It is in my recollection that some years ago I was obliged to buy axles from abroad for the reason that I could get no English firm to take up the matter and give the same quality as the foreign manufacturer. I was, of course, informed that the English goods were the best, but when it came to a question of having the two articles tested, the English manufacturer had to admit that he was beaten—and he will remain beaten if he does not show more enterprise.

It is a well-known fact that nearly all English manufacturers still buy many of the component parts from abroad, either in the rough or finished state. This is not the state of affairs that should be allowed to exist for one moment. We have in this country everything that is required for the production of the highest class type of motor-car. We have skilled steel manufacturers and iron founders, who are well able to do whatever can be done by the foreigner, and more if they desire. I know that several large firms of steel manufacturers have been approached to take up the question of the manufacture of special steel for motor-cars, but they certainly have not shown determination or gone to the expense in experiments to anything like the extent which we find on the Continent, where it appears that everything is done by firms dealing in specialities to give motor-car constructors the very best article that science and skill can produce. Hoping this communication will be the means of ventilating this subject, which at the present time in my opinion is of the utmost importance to the British automobile industry.—Yours truly,

J. S. Critchley.

AN INTERESTING MOTOR QUERY.

To the Editor of *The Motor-Car Journal.*

Sir,—I observed in your issue of the 10th inst. a letter signed "Inquisitive One," in which the writer states that, after sundown on a bright, warm day, he has noticed a distinct increase in the power of his engine. It is owing to the appearance of a reply to this from the Economic Company, the perusal of which forces one to suspect the perpetration of the gentle hoax, that I am moved to try and supply your correspondent with the true explanation. Assume the engine running full power and the atmosphere dry. Then a perfect carburettor will supply a full charge of exactly such proportions of petrol vapour and air as will result in complete combustion. Now if we suppose the atmosphere to hold a certain quantity of water vapour in suspension, as is the case in damp weather, I think consideration will show that for every reason loss of power will follow: For (1) the atmosphere is less dense and there is less pressure to force the charge into the cylinder, (2) the water vapour will be converted into steam on entering the hot cylinder, and so greater resistance to compression will be offered, (3) the heat developed by the first part of the explosion will be taken up in part in expanding the free steam, and combustion will consequently be checked, and (4) (most important of all), the air being less dense, there will not be the same proportion of oxygen available, and combustion will therefore not be complete.

In considering these points, the simple principle of the petrol engine should be borne clearly in mind, namely, that the mixture of petrol vapour and air, when ignited, burns and forms carbonic acid gas and water (in the form of steam), and that it is the expansion of these gases, caused by the heat generated on their formation, which gives the power. The greater the heat, therefore, the greater the power.

Now to apply the above (which, for clearness sake, has been necessarily rather long-winded) to the particular point raised by "Inquisitive One." On a bright, clear day the radiation of heat from the earth's surface is free and uninterrupted owing to the absence of clouds.

When the sun sets, this radiation is very rapid and quickly cools down the air in the neighbourhood. This fall in temperature causes a portion of the moisture in the air to condense and be deposited; consequently the air is rendered a more efficient component for the mixture, and any engine inhaling it should develop greater power.

This explanation is that given to account for the familiar phenomenon known as "fall of dew," and will be found in any text book on physics.—Yours truly,

Ayr.

To the Editor of *The Motor-Car Journal.*

Sir,—In reply to "Inquisitive One," in the *Journal* of the 10th inst., may I suggest two probable causes? I may say that I have exactly the same experience, and will try to explain to what I ascribe the increase in power. I come into town in the morning by about a seven miles run, and during the day have several runs of about eight or ten miles each. During the run home again, towards evening, I find the car has more power on hills and is much speedier on the level, actually seeming, as your correspondent says, "to take the bit in its teeth" and fairly romp home.

Now I believe, to get the maximum of work from a petrol engine, the cylinder must be hot (not overheated) and these short runs tend to thoroughly warm up the cylinder, thereby thinning the coating of lubricating oil, and, if the piston rings are in good condition and a good fit, allowing the piston to work easier (without loss of compression) than if the cylinder were cold and the oil therefore thicker, tending to clog the piston ring.

But not only this, the hot cylinder warms the gaseous mixture at points furthest from the point of ignition, making it of a more even and higher temperature all through, this I believe tending to quicker and more instantaneous combustion than would be the case if some portions of the mixture were of a lower temperature than others, the colder portions having more of a burning action than an explosive one.

Now, as a secondary cause, I have observed that on approaching the country from the town the engine runs better, due to the air being purer, this purer air aiding combustion owing to the greater proportion of oxygen which it contains.

I would suggest the theory, therefore, and would be glad of confirmation or correction, that during the day the sun absorbs a certain amount of oxygen from the air, varying in proportion as the sun shines brightly for hours or only intermittently, and that as the sun goes down and night approaches the air gets cooler, this cooler air containing a greater proportion of oxygen, therefore forming a better mixture.

To this I ascribe the fact that an engine developing a certain power requires less air in the colder months than in the warmer months to develop this power, the smaller volume of cold air containing about the same amount of oxygen as a proportionally larger volume of warm air.

Like your correspondent, I should be glad to have an expert's view on this matter.—Yours truly,

Wm. F. Fortune.

To the Editor of *The Motor-Car Journal.*

Sir,—I was very pleased to see in the *Motor-Car Journal* of the 10th inst. an interesting motor query) brought forward by "Inquisitive One." I have come to the conclusion that in the evening, as "Inquisitive One" says, the motor fairly takes the bit in its teeth. This is caused by the higher atmospheric gases that come from the leafage, trees, etc., which does not show itself in the day-time. This causes a richer mixture, a better explosion, and so more power in the engine. I should be very pleased to hear of other readers' views on this subject, as I feel sure there are many motorists who would like to hear this phenomenon explained.—Yours truly,

Saxilby.

REPAIR SHOP EQUIPMENT.

To the Editor of *The Motor-Car Journal.*

Sir,—I am starting a business for the sale and repair of motor-cars, in partnership with a working mechanic. We intend to build a garage for three or four cars, capable of extension when necessary. Can any readers of the *Journal* oblige me with any suggestions as to fittings, benches, etc., or any special tools likely to be useful? My partner has

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already a very complete outfit of tools for motor-cycle repairing, etc We should have a difficulty in getting drainage for an inspection pit. Would a Webb's cradle do as well ?—Yours truly,

IN-26.

AN OLDSMOBILE QUERY.

TO THE EDITOR OF *The Motor-Car Journal.*

SIR,—I have a 1902 Oldsmobile, which has run exceedingly well during the short time I have had it, until one day last week, when it ran a few yards and refused to be coaxed further for a long while. On the previous day nearly a cupful of oil ran through the lubricator into the cylinder, owing to an oversight, and the car was not used until the next day, with the above result. I found the plug was covered with soot, and cleaned it. Started again splendidly, but soon stopped, and the same operation had to be repeated until the oil was all burned away. But although the engine ran well and strongly with the car standing, directly I got away on the slow gear and tried to go on the high gear the engine slowed down and stopped—seemed to have scarcely any power left. I examined the plug, but it was quite clean. Compression as near perfect as possible. Mixture as for usual running, although no amount of adjustment gave any improvement, and, strange to say, while the engine could just manage the slow speed with throttle closed, directly the accelerator was depressed the engine seemed to be choked.

The only solution I can guess at is that in cleaning the plug the points were forced too far apart, and a long thin spark resulted. Would this be sufficient to fire a small quantity of mixture, but not the full amount, when the speeder was open ?—Yours truly,

BOTHERED.

[We would advise "Bothered" to give his engine a good wash out with paraffin, as no doubt after the quantity of lubricating oil which passed into the cylinder, the valves, etc., are thoroughly gummed up; we should also advise the removal of valves and inspection of same, also the closing of the points of the sparking plug. The distance apart for the points should be approximately 1-32 in.]

THE SUNRISING HILL CLIMB.

TO THE EDITOR OF *The Motor-Car Journal.*

SIR,—We are pleased to see by this week's papers that the management of this hill climb admit an error in what at first sight appeared to be an almost unaccountable award. We are also glad that they have published the formula upon which the results were based, because it shows us the entirely erroneous and unfair factor which has been taken, and the reason for the placing of our car, which we could not previously understand. Seeing that our 12-h.p. car in actual results beat a number of cars of very much higher horse-power, we had expected to find ourselves figuring rather higher than lower in the list than shown by actual results, yet all the cars we defeated we find placed very much above us, and our own position is given very far down the list. Now we desire to protest against the factor of engine revolutions being used at all. Had we known the formula which would form the basis of the handicap we should certainly have declined to enter, and we desire to say that we shall never again enter any competition where we have to be judged by a secret and unpublished formula. Had the framers of the handicap taken piston speed as a factor we could have understood it, but to take 1,000 revolutions as the unit is most unfair to all cars such as ours with slow-speed engines. Our 12-h.p. engine gives its 12-h.p. at 600 revolutions, and it is not designed to run beyond 800 or 900, and it will not give proportionate results to engine speed at the higher rating. If you compare our case with that of a car fitted with an engine designed to run normally and give its power at 1,200 to 1,500 or 1,000 revolutions, it will be seen how very unfair to the slow-running engines such a "hit and miss" sort of formula must be. In future we trust that promoters of hill-climbing, and any other competitions which are not judged upon direct results, will, in fairness to the competitors, publish the formula upon which results will depend with the programme announcing the contest. Competitors will then be in a position to decide whether the handicap is a fair one or otherwise. In our case it was distinctly unfair, and we certainly should not have entered had we known what it was going to be.—Yours truly,

THE DURYEA COMPANY, LTD.

THE UNITED KINGDOM TROPHY.

TO THE EDITOR OF *The Motor-Car Journal.*

SIR,—Whilst congratulating the committee generally upon the very practical set of rules they have put forward for the above contest, may we point out that if these rules are to be considered final they will have the effect of shutting out several cars from any possibility of taking part therein, however much their makers may desire to do so; and as these cars are all essentially touring vehicles and it is the development of the touring car that the contest is intended to promote, it seems that the rules as they stand somewhat defeat the object of the whole proceedings. The particular clause which is insurmountable is that "The platform behind the dashboard shall not be less than 6 ft. 6 in. long nor less than 30 in. wide." Now, the first part of this clause would effectually debar either the Lanchester, the Arrol-Johnston, or the Duryea from taking part, for they have no "dashboard" at all, whilst the central and more or less elevated position of the engine in each results in there being no long "platform," as in the ordinary type of car. Another point to which exception may be taken is specifying that "Efficient mudguards to the front wheels shall be fitted to the *chassis*." Again, we hardly see the reason for the requirement that seats should be thirty-four inches from the ground. We take it the Committee do not want "freak" machines, but cars which, except in the matter of the size of the petrol tank, shall in every way be the standard vehicles of the competing firms. Further, we note the weight of the drivers is to average eleven stones, instead of the usual ten. Surely the better way would be to require that the weight carried, inclusive of the two occupants of the car, should be 950 lbs., and specify no particular weights for the passengers. As all cars have to carry the same net load, there would be no gain to a competing firm in selecting specially light men, because a live load always carries easier than dead weight, and as the rule now stands a firm whose best men for the job happen to weigh more than twenty-two stone together would be handicapped by their additional weight, as they would still have to carry "not less than 300 lbs. ballast."—Yours truly,

T. D. C. L.

ENGINE TROUBLES.

TO THE EDITOR OF *The Motor-Car Journal.*

SIR,—In answer to "A Reader of the *Journal's*" letter in the last issue, it would appear to me that upon fitting his new cylinder he still used his old connecting-rod. If this is the case, he will undoubtedly find that the piston does not go high enough up the cylinder to give the proper compression; this would cause the irregularity in running. Failing this to be the cause, he might turn his attention to the flywheels, as ¾ in. is a great increase in the cylinder-bore, the existing wheel only being sufficient for the previous-sized cylinder. The water circulation has, no doubt, a syphon formed by having the pipe bent down to such a great degree, or perhaps the pump is not large enough to maintain a sufficient supply of water in the increased size of jacket. The lubrication would be greatly aided if a small quantity were occasionally put into the crank-case in addition to that which is fed from the lubricator. The silencer is, without doubt, too small for the size of engine, and should be quite double the size.—Yours truly,

H. J. T.

PISTON RINGS.

TO THE EDITOR OF *The Motor-Car Journal.*

SIR,—Could you or any of the readers of the *Journal* tell me the correct method of turning piston rings for petrol motor engines? I am a turner and have a small car to drive; my foreman insists that I must turn the rings somewhat larger than the bore of the cylinder, and then split and file at the joint until they go in. I was always under the impression that to have a piston ring a perfect fit it should be turned larger than the cylinder, cut a certain amount out, close the ring together and then turn the exact size of cylinder; also set ring in the lathe so that the thinnest part is at the joint to give the ring a good tension. I should be pleased if anyone could give me some advice on the subject.—Yours truly,

A MECHANIC.

["A Mechanic's" method of turning piston rings is the correct one. It is, however, very seldom practised, the other method being much cheaper.]

THE DURYEA CAR.

TO THE EDITOR OF *The Motor-Car Journal.*

SIR,—Will any private owner of a 12-h.p. Duryea car kindly answer the following questions: Is the power drum satisfactory? Is the steering gear strong enough? How many miles can be run on a gallon of petrol? Is it generally a satisfactory car for a moderate speed over very bad roads?—Yours truly,

Y.

THE USE OF THE ACCELERATOR.—FOOT v. HAND CONTROL.

TO THE EDITOR OF *The Motor-Car Journal.*

SIR,—With reference to the article by Mr. Percy Richardson, in the *Journal* of the 10th inst., I am glad that he agrees with me on this subject. What he says as to the likelihood of accidents caused through the accelerator pedal being pressed down in cases of emergency instead of the brake pedal is quite true, as it is at such moments that one's eyes are on the road, and should the driver lose his nerve for an instant an accident would very likely be the result of his using the wrong pedal. Excellent though the system fitted to the Fiat cars is, it certainly has the above disadvantage, and fitting three pedals close to one another to be worked by two feet is bad practice. I await with interest further particulars of the car Mr. P. Richardson has designed and constructed, in which he states he has perfected a method of control for the engine which does away with all hand levers and only necessitates two foot levers. Simplicity of control should be a leading feature in a car, and the invention in question is of great importance, and will assuredly be

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received very favourably. I trust Mr. P. Richardson's invention will receive the support it deserves, as it is yet another step towards perfecting that truly wonderful thing, the modern motor-car.—Your truly,

R. G. PRIEST.

TO THE EDITOR OF *The Motor-Car Journal.*

SIR,—Referring to the article in your issue of the 10th inst. on the use of the accelerator or foot and hand control, the arrangement which I find very excellent and which I use in Napier cars is, to have the governor so arranged that the car will give very fair speeds—say from one half to two-thirds of its maximum speed—without using the accelerator, but if higher speeds than this are required then the accelerator must be brought more or less into use.

I think that the car which depends upon hand control only to prevent the engine from racing is bad in every respect, as it means that before one can change speed you have actually to make a movement with the hand—the accelerator is placed on the right hand side of the car, which means that when you apply the foot brake the foot has to be taken off the accelerator, so that automatically the speed and power of the engine is reduced immediately one puts on the foot brake. You then have your hand control for slowing the engine down or reducing the power below that which it is set at as much as you like, but you cannot increase it up to a dangerous extent by the use of the hand control only. The dangers of hand control only are not sufficiently understood; just think for one moment what it means when your hand control is full open on a type of car that is not governor controlled: the driver may be going along very fast, he comes suddenly to a corner, he withdraws his clutch, and one hand also being occupied in putting on the side brake and one in steering, the engine immediately races away at terrific speed and the gyroscopic action of the flywheel is, in my opinion, sufficient in many cases to cause those mysterious accidents which occurred abroad last year. It is only necessary to work out the enormous power that the fly-wheel can exert in keeping the car in a straight line to see the dangers of hand control alone.—Yours truly,

S. F. EDGE.

EMPLOYMENT REGISTRIES.

TO THE EDITOR OF *The Motor-Car Journal.*

SIR,—Recently, in response to an advertisement in one of the papers, I sent 2s. 6d. as fee for registration with an employment agency. Although I have since written several times I can get no reply, and write to warn intending drivers not to pay fees for registration. In fact, if they are wise, they will pay nothing until they are suited with a situation.

I have just heard of a case in which an agency claiming to find situations merely took names and addresses from your *Journal* and gave these to those men on their list, telling them to go and apply for the situations. For this half-a-crown was charged, whereas the applicants could have obtained more prompt information by looking down the columns of the *Motor-Car Journal.*

It seems a grievous shame that, at the beginning of a new industry, the outlook should be spoiled by the starting of agencies which, while professing much, do little for those who pay fees.

Whether the same remark applies to many of the schemes of motor instruction I do not know; but it is clear there are many abuses already creeping along, and I would advise everyone to keep their money in their pockets until secure in a situation.—Yours truly,

DRIVER.

HINTS RE DARRACQ CARS.

TO THE EDITOR OF *The Motor-Car Journal.*

SIR,—The following hints regarding Darracq cars may be useful to users of these vehicles:—

If the clutch is very fierce, a good dose of castor or other oil will generally stop it, and keep the leather in good condition.

The commutator.—This does not need much attention beyond the cleaning and adjustment of the platinum pointed screws once in every 200 miles or so.

The brakes are very good, and if cleaned with petrol every few days will give no trouble at all; the side brake should be used with caution, as, if used roughly, it will cause wear on the tyres.

The accumulators require charging once every 1,000 miles or so. It is much the best plan to pay a little more and get them done well than get them spoilt at the cheap man's hands.—Yours truly,

CHAS. STORR.

TUITION.

TO THE EDITOR OF *The Motor-Car Journal.*

SIR,—I should like to bring an important matter before your readers equally concerning owners of cars, manufacturers and drivers. Many persons are giving driving lessons which only extend over a short period. What good is that to an intending *chauffeur*, probably a young man who has been a clerk or draper's assistant? He pays about £5 to be put on a car about three times in some quiet spot, and then is given a so-called certificate, and made to believe he is a really competent driver. Probably with luck he may get a situation with someone who has bought a new car, and who has never had a vehicle before. The result is that the owner and manufacturer suffer, one with expense of repairs, and the other with loss of reputation. Something ought to be done. It is the duty of qualified drivers to take the matter in hand and start a Motor Drivers' Union, each member of which should prove himself efficient.—Yours truly,

TERMINAL.

CHANGING IGNITION.

TO THE EDITOR OF *The Motor-Car Journal.*

SIR,—Will any reader kindly indicate the best plan for applying electric ignition instead of tube ignition to a Leon Bollée tandem? My difficulty is how to get the timing gear adapted.

I have thought of getting it applied on the main shaft between the body of the machine and the flywheel. This could be done by removing part or whole of the small collar which regulates the governor.

Again, it has occurred to me that a device could be attached to the inner end of spindle of the cam wheel. I do not approve of a chain inside the gear-box. Can anyone recommend a better plan?—Yours truly,

FREE MANSE.

IS NOISELESSNESS DESIRABLE?

TO THE EDITOR OF *The Motor-Car Journal.*

SIR,—Many motorists who are accustomed to driving both steam and petrol cars profess to find a disadvantage at times in the noiselessness of the former. Working through ordinary traffic the motorist experiences a constant need of making careless and thoughtless people aware of his approach. On many petrol cars this is automatically accomplished, as the noise of the engine and gear, etc., is generally sufficient to convey the necessary warning. Being a continuous sound it comes to the ear of the pedestrian or other driver without the shock of suddenness produced by the striking of an intermittent alarum. He is prepared for it in a manner, and has time to collect his wits. The steam car, however, approaches almost noiselessly, and if the driver is maladroit in sounding his horn, the effect may be discomposing. A pedestrian or horse driver roused from his road reverie by a strident alarm tends towards panic. To avoid producing these sudden shocks the motorist very often is constrained to keep sounding his horn continuously, and it is not pleasant to his ears. The bicycle is the only other noiseless vehicle on the highway, and riders have frequently found this property productive of accident. Every other vehicle makes a certain kind of noise, and this may often vary with the speed, so that the pedestrian, without looking round, can approximately judge of the pace at which such vehicle is approaching. This automatic noise reaches up side streets and cross roads, and warns approaching objects of its proximity. The driver of the noiseless vehicle, on the contrary, must look out for such crossings and openings and sound his horn, or something may crash into him. On the whole, perhaps, he is constrained to greater watchfulness. Far be it from my intention, however, to deprecate silence, for no one who has enjoyed the silent-running car will be inclined to consider the quality undesirable, though he may have to admit that it is not without its minor disadvantages.—Yours truly,

DEVONIAN.

INVICTA ACCUMULATORS.—The Invicta Motor Accessories Co., Ltd., 67, St. John's Street, Coventry, ask us to mention that they are the agents for the "Invicta" accumulators in this country.

GLADIATOR CARS.—Another "Inquisitive One" writes:—"Having had both back wheels of two 10-h.p. Gladiator cars go to pieces after very little wear, I should be glad to learn, through the medium of your paper, of other owners of these cars who have had similar trouble, as it would be interesting to know if this is a general fault or only confined to my two particular cars."

SPARE PARTS FOR AMERICAN STEAM CARS.—A West of England steam-car owner writes complaining of the difficulty of obtaining spare parts for American steam cars.

TIMING A MOTOR.—"Denham" writes:—"I should be very glad if any of your readers would inform me how to time a single-cylinder engine; it has tube ignition."

MAGNETO IGNITION.—"Aitch Emm" writes:—"I should like to know if there are any books published dealing with magneto ignition: especially the Simms-Bosch high tension; also induction coils as applied to motor-cars."

ANONYMITY.—Under the *nom de plume* of "Purity" a correspondent writes from Glasgow, but does not send his name and address. We do not publish letters from correspondents who omit these particulars.

THE LOCOMOBILE.—A Croydon correspondent asks if the Locomobile is easy to manipulate and a good hill-climber. He also wants to know if the boiler is a cause of anxiety.

GAS ENGINE OPERATION.—J. Melville writes:—"Can any of your readers say if it is possible to work a 4-h.p. Tangye gas engine with petrol or acetylene gas? If so, what kind of fittings would be required?"

STEAM WAGON INSTRUCTION.—A correspondent wants to know how to obtain competent instruction in driving steam wagons.

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THE GRAPHITIC LUBRICATION OF PETROL MOTORS.

By F. N. Blake.

On account of the great heat to which it is subjected, and also because of its need of thorough lubrication, the cylinder of a petrol motor is a most appropriate place in which to use such an indestructible and efficient lubricant as graphite. It is unfortunate that there are difficulties in the way of feeding it continuously, in the same manner as oil is used; if mixed with oil it obstructs its flow through the ordinary oil cup, and soon settles and stops the flow altogether, thus defeating the purpose it is intended to serve. Fortunately, the intermittent use of graphite is attended with substantial and comparatively lasting benefit, and until some better way is devised it will pay the user of a petrol engine to put in a dose of graphite from time to time, say, every day or two, even though it costs him a little time and trouble to do so. One user has recommended blowing the graphite into the cylinder through the sparking plug opening, first having placed the piston at the opposite end of the cylinder so as to leave as much as possible of the cylinder wall exposed to the flying particles. The oily interior of the cylinder catches some of the powder, and a noticeable improvement in the running of the motor is effected by this periodical treatment.

A better way to introduce the graphite is to unscrew the sparking plug and screw into its place a short nipple having a little hopper or funnel soldered to one end, and having an opening of, say, one-sixteenth of an inch; turn the flywheel until the piston is beginning the power stroke, and then put about half a thimbleful of graphite into the hopper and turn the flywheel forward half a revolution, and so suck the graphite into the cylinder in a form which may be compared with spray; if some of the graphite is inclined to stick to the side of the funnel, a few taps on the side of the nipple will dislodge and send it in with the rest. If the engine has an automatic inlet valve, the latter should be held closed if practicable, or, if possible, the opening admitting air to the carburettor should be closed; if neither of these things can be done, then most of the inlet can be closed by means of the throttle. Do not turn the flywheel far enough to open the exhaust valve, or some of the powder may be expelled through it. A quick and easy way to tell when the power cycle is about to begin is to set the ignition lever for late firing, switch on the current, and then turn the crank slowly, stopping when the trembler and the coil begins to buzz. This will indicate the beginning of the power stroke, if the adjustment is right.

Before putting graphite into the cylinder by either of the methods mentioned, the cylinder should be oiled freely, so that its interior will be in the best condition to catch and retain the powder. The use of graphite is not to take the place of the usual oil, but rather to act with it and add to the general lubrication, which it does very effectively. The periodical use of graphite exerts a beneficial influence on the cylinder and piston for a much longer time than would be expected, and its occasional use not only helps the engine for the time immediately following, but also helps out at times when the oiling device is either partially or wholly clogged, or when the operator forgets to turn on the oil; sometimes partially empty oil cups are overlooked, and not refilled; at other times the cups have an unaccountable way of feeding a hundred-mile supply of oil, while going only half that distance. Thus there are plenty of times when the cylinder stands in need of all the help which can be given it.

With some engines, or with some sparking plugs, or with certain locations of plugs, there is a possibility of trouble in using graphite from its short-circuiting the plugs, though probably this could be avoided by using a smaller quantity at a time; but it is worth while to use the graphite, even if some temporary inconvenience is occasioned thereby; the chances are that it will give no trouble, and if it should, the plug can be cleaned and less graphite used the next time. Those motorists who have not already done so should make a trial of graphite, in spite of the fact that the method of using it is far from an ideal one theoretically. They will not fail to notice that after using graphite a few times, other conditions being equal, the engine will run faster than it did before, proving that part of the power formerly employed in overcoming friction—and wearing out the engine—is now available for doing useful work instead of actual damage.—*The Horseless Age.*

[Should any readers of the *Journal* give the experiment outlined above a trial, we should be glad to hear from them regarding the results obtained.—Ed. *M.C.J.*]

CLUBS AND ASSOCIATIONS.

NORTHAMPTONSHIRE.

Major Payling presided at a meeting of the members of the Northamptonshire Automobile Club at the Great Northern Hotel, Peterborough, on Friday of last week. Amongst those present were Messrs. A. Adams, T. W. Southwell, F. W. Southwell, R. S. Parris, J. Montgomery, C. Godfrey, F. J. Goddard, F. W. Percival, R. Impey, F. J. Colls, R. Julyan, J. Rowe, F. J. Redhead, W. Walshaw, and E. H. M. Wood (the club secretary). It was intimated that an automobile club was being organised at Northampton, and that they wished to give it the county name. The present Northamptonshire Club consisted only of members residing in Peterborough and the surrounding district, and it was thought that the Club should be re-named. After some discussion Mr. T. W. Southwell proposed that the club should be called "The Peterborough and Counties Automobile Club." Mr. Godfrey seconded, and the matter will be further considered at a general meeting of the members on January 27th. It has been decided to hold the club's annual dinner at headquarters on January 19th, 1905.

After the meeting, Mr. J. Montgomery gave a lecture on "Coils and Accumulators." In the course of his remarks he mentioned that in batteries each cell gave off a pressure of 2·2 volts to make a 4 volt battery. It was a bad practice to make a connection between the two cells. They should be joined with a fuse wire in case of a wire becoming chafed and causing a short circuit. In the case of a car having a short circuit the wire would at once fuse; the current would, of course, cease to flow, and the motor would stop. The driver would look at the battery and notice that a "short" had done the mischief. The "short" having been found and put right, the fuse wire should be replaced, and he would then be able to start with undamaged accumulators. But if a "short" had taken place with a permanent connection it would not of necessity stop the motor, and might run another twenty miles. But the result would be disastrous. The "short" would discharge the battery very rapidly and most probably run it right down. It was a mistake to suppose that an accumulator actually stored electricity. It was made to give off electricity by being subject to a slow charge from an outside source. An accumulator might be damaged in many ways other than by violence. The quickest way to destroy a cell was to connect the terminal with a short piece of wire, causing a rapid current to flow. The plates would, however, be loosened. The only way to keep the plates intact was to never run the cell down below 3·8. Accumulators should be charged every week, even if they did not want it, as it would improve the plates. If the accumulator was going to remain idle for some time it should be left fully charged. The outside cells should be kept as dry as possible, and the terminals should be coated with vaseline or tallow candle, thus preventing the acid corroding and eating them away. The lecturer concluded a most instructive demonstration by a reference to the induction coil, which he said had not only made electric ignition possible, but a success. Votes of thanks to the lecturer and to Major Payling for presiding concluded a successful evening.

SHEFFIELD.

The gold medal, given by Mr. Jas. Barber, for the longest non-stop run made by a member of the car section has been awarded to Mr. Ben Hind, who covered 172 miles in 9 hours 55 minutes in his 9-h.p. Clement-Talbot. The gold medal given by Mr. J. T. Thompson for the longest non-stop run made by a member on a motor-cycle has been awarded to Mr. A. T. Dewhirst, who covered 50½ miles without stopping on his motor-bicycle.

The committee have received an intimation from the Chief Constable respecting the driving of cars at excessive speeds within the borough boundary, and they hope that members will exercise every care, having regard to the exigencies of traffic, and by so doing keep up the *entente cordiale* which has hitherto existed between the authorities and motorists in this district.

A run to Ollerton has been arranged for Boxing Day, meeting opposite the Town Hall, Surrey Street, at 10.30 a.m.

MANCHESTER.

Mr. Frederic Smith, the chairman of the Manchester Automobile Club, presided over the third house dinner of the Manchester Club at the Midland Hotel. About sixty members and friends were present. The dinner was followed by the first smoking concert of the winter session. Mr. W. E. Rowcliffe arranged an excellent programme, and was fortunate in obtaining the assistance of several first-class artistes, so that the concert was a great success.



A Heavy Load. [*Motor Age.*

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VICTORIA (AUSTRALIA).

THE opening run of the 1904-5 season of the Automobile Club of Victoria (Australia) was held on Saturday, November 5th. The meet was at Princes' Bridge, Melbourne, and the route taken was around the Albert Park Lagoon, Beaconsfield Parade, and thence to Aspendale Park *via* Cheltenham and Mordialloc. Amongst those present were Mr. T. Rand, vice-president (16-h.p. Decauville), Mr. W. H. Felstead (10-h.p. Argyll), Mr. Tarrant (10-h.p. Argyll), Mr. W. J. Proctor (12-h.p. De Dion), Mr. Harry Maddox (who led the way on a 6-h.p. De Dion), Mr. G. Irish (8-h.p. Talbot), Mr. W. C. Knight (6-h.p. De Dion) Mr. Syd Day (8-h.p. De Dion), Messrs. J. Moffat, G. Moffat, R. Moffat, F. B. Roche, all on 6-h.p. De Dions; Messrs. S. Darby (16-h.p. Rambler), F. Bennett (7-h.p. Rambler), H. Darby (7-h.p. Rambler), T. Rollasson (7-h.p. Swift) J. Coleman (7-h.p. Swift), W. Warden (10-h.p. Oldsmobile), H. Walls (10-h.p. Oldsmobile), J. Davidson (10-h.p. Oldsmobile), Dr. W. S. Grimwade (5-h.p. Hun berette), J. Wallace (12-h.p. Benz), E. Beauchamp and C. Mayman (7-h.p. Beauchamp), Gerald Buckley (9-h.p. De Dion), etc., etc. Afternoon tea was enjoyed at "The Chalet," and after spending a pleasant two hours there the party returned to Melbourne. Whilst going down Mr. G. Buckley's car turned a complete somersault, pinning him by one leg to the ground. He was at once placed under medical care and taken home in one of the cars, where he is likely to remain for at least a couple of weeks.

The club arranged a three days' run, starting from the club rooms, Collins Street, Melbourne, at 2·30 p.m. on November 12th, returning again at 6 p.m. on Monday, the 14th. The weather throughout was simply perfect; the roads in some places simply horrible. The road chosen was *via* Rew, Box Hill, Lilydale, Healesville, Fernshawe, Narbeahong to Marysville, the return being *via* Healesville, Yarra Glen, Christmas Hills, Kangaroo Grounds, Eltham and Heidelberg. Some of the hills in the mountainous district were from one to three miles in length and grades of one in six and one in seven were plentiful. Twelve cars started, and all got through and returned within a few minutes of each other, with nothing more serious than tyre troubles and a little boiling water. Several ladies were included in the party, and altogether the outing was one of the most enjoyable held in connection with the club.

IMPORTS OF AUTOMOBILES.

BELOW we publish our monthly official list of the imports of motor-cars, motor-cycles, and the parts thereof, into the United Kingdom during the month of October, 1904:—

FRANCE.

Shipped from	To	Description.	No.	Value.
Boulogne	Folkestone	Motor-cars	31	£9,932
,,	,,	,, car parts	—	6,264
,,	Goole	,, cars	3	3,270
,,	,,	,, car parts	—	612
,,	London	,, cars	81	40,506
,,	,,	,, car parts	—	2,846
Calais	Dover	,, cars	2	1,260
,,	,,	,, car parts	—	398
,,	Leith	,, car	1	500
Dieppe	Grimsby	,, car parts	—	90
,,	Newhaven	,, cars	50	24,838
,,	,,	,, cycles	3	68
,,	,,	,, car parts	—	8,197
Dunkirk	Hull	,, cars	11	3,045
,,	London	,, cycle	1	50
Havre	Liverpool	,, car	1	500
,,	,,	,, car parts	—	420
,,	Southampton	,, cars	7	1,450
Rouen	Glasgow	,, ,,	1	365
,,	,,	,, car parts	—	145
,,	London	,, cycle	1	50
Treport	Leith	,, car parts	—	355
,,	London	,, cars	31	8,124
,,	,,	,, car parts	—	23
,,	Manchester	,, car	1	450

Total value of imports from France in October, 1904 ... £113,758
Total value of imports from France, Jan.–October, 1904 £1,768,521

GERMANY.

				£
Bremen	London	Motor-cars	11	4,316
,,	,,	,, ,, parts	—	70
Hamburg	Harwich	,, ,, ,,	—	8
Stettin	London	,, ,, ,,	—	3

Total value of imports from Germany in October, 1904 ... £4,397
Total value of imports from Germany, Jan.–October, 1904 ... £54,605

BELGIUM.

Shipped from	To	Description.	No.	Value. £
Antwerp	Grimsby	Motor-cycle	1	40
,,	Harwich	,, cars	2	600
,,	,,	,, cycles	3	160
,,	,,	,, car parts	—	77
,,	,,	,, cycle ,,	—	770
,,	London	,, car	1	824
,,	,,	,, cycles	4	36
Brussels	,,	,, cars	4	1,460
,,	,,	,, cycles	9	225
,,	,,	,, car parts	—	169
Ghent	,,	,, ,, ,,	—	7
Ostend	Dover	,, ,, ,,	—	26
,,	London	,, cars	24	15,160
,,	,,	,, cycles	10	323
,,	,,	,, car parts	—	1,538
,,	,,	,, cycle ,,	—	164

Total value of imports from Belgium in October, 1904 ... £21,595
Total value of imports from Belgium, Jan.–October, 1904 ... £205,901

HOLLAND.

				£
Amsterdam	Goole	Motor-cars	3	1,370
Flushing	Queenboro'	,, car parts	—	13
Rotterdam	Harwich	,, ,, ,,	—	640
,,	London	,, ,, ,,	—	55

Total value of imports from Holland in October, 1904 ... £2,078
Total value of imports from Holland, Jan.–October, 1904 ... £36,169

ITALY.

				£
Naples	Cardiff	Motor-car	1	650

Total value of imports from Italy in October, 1904 ... £650
Total value of imports from Italy, Jan.–October, 1904 ... £1,865

UNITED STATES.

				£
Boston	Liverpool	Motor-car	1	124
,,	London	,, ,,	2	142
,,	Manchester	,, ,,	2	200
New York	Hull	,, ,,	3	860
,,	Glasgow	,, ,,	1	180
,,	,,	,, cycle	1	45
,,	Liverpool	,, cars	3	750
,,	London	,, car parts	—	714
,,	Southampton	,, ,, ,,	—	13

Total value of imports from the United States in Oct., 1904 £3,028
Total value of imports from the United States, Jan.–Oct., 1904 £119,242

MESSRS. JOHN LAWMAN AND COMPANY, of New Kent Road, S.E., send us a price list of their flexible metallic tubing of which they are making a speciality. The tubing is stated to be unaffected by heat and cold and to retain its flexibility at all temperatures.

TO CORRESPONDENTS.

All communications intended for insertion in this Journal or relating to Editorial matters should be addressed to THE EDITORIAL DEPARTMENT, MOTOR-CAR JOURNAL, *39 and 40, Shoe Lane, London, E.C., and must be written on one side of the paper only. Letters must in all cases be accompanied by the name and address of the writer, as no notice will be taken of anonymous communications.*

The Editors cannot undertake to return MSS. or drawings, although every effort will be made to do so in the case of rejected communications. Where such are regarded as of value, correspondents are requested to retain copies.

To insure insertion communications and contributions must be in the Editor's hands by Tuesday forenoon of the week in which the same are intended to appear. Disappointment may be caused by non-compliance with this rule, and to avoid this earlier receipt, if possible, is necessary.

The Editors do not hold themselves responsible for the opinions expressed by their correspondents, or for statements and facts which do not appear in the editorial columns.

The Editors and Publishers beg also to state that they will accept no responsibility for unsolicited contributions, even if used, unless payment for same is directly specified in forwarding, and the terms arranged before publication.

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THE

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COMMENTS.



MOTORISTS have closed a year which was, on the whole, delightful. July and August were glorious months that enabled them to taste the joys of our English scenery in a way that the weather had previously prevented. Hundreds of motorists explored the out-of-the-way corners of their native land which had hitherto been unknown; they studied geography on the spot, and realised that, however enticing may be the beauties of the Continent, our own little island has many wondrous scenes to reveal if the opportunity be given to the tourist to reach them. The automobile has made this possible. And the automobile need not be of a great horse-power, for even the motor-bicycle can be made a means of pleasure, especially when two or more are utilised in a family. Mr. and Mrs. Kennard, famous in the hunting field and in the world of books, are examples of motorists who despise not the little "bike," but who, on the contrary, have pleasure in its use.

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The Tri-car.

AS an unit, the motor-bicycle may be regarded as a solitary, unsociable sort of machine—fit only for young men fond of being alone or of rushing about the country at a speed of, say, the legal limit. Mr. and Mrs. Kennard could, however, testify to its value as an automobile which extends the range of social friendship, and adds to the pleasures of the country. The fore-carriage, or the sociable—or the latest development, the tri-car—is a step in advance, and have each their delights, and we know the secretary of an automobile club who prefers his miniature car to any of high degree. It goes well on the flat and romps up-hill in a manner "almost Japanese." We know a man who recently toured far and wide in Yorkshire on such a vehicle. On the broad Yorkshire acres he had found delights which, to one hitherto only familiar with Surrey, were pleasant in their novelty.

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Motor-Wagon Road Rules.

A DRIVER employed by the Hercules Motor-wagon Company was summoned before the Manchester city justices for not keeping a motor-wagon, of which he was in charge, on the left, or near, side of the road while passing along Dickenson Road about a fortnight ago. The Act of Parliament, it was stated, makes it the duty of the driver in all cases to keep a motor-wagon near the kerbstone, and he is required not to deviate from the near side of the road, except in case of actual necessity and for sufficient reason. On the occasion referred to an electric car was passing along Dickenson Road, and the defendant with his wagon was in front of it near the junction of that road with Stockport Road. The car driver said that his passage was obstructed on account of the defendant not keeping near to the kerbstone on his left side. The defence was that there was ice on the roadway, and that for the motor-wagon to have approached any nearer to the kerb would have been dangerous. The magistrates held that there was sufficient justification for the "deviation" of the motor-wagon, and they intimated that the summons would be dismissed. They were of opinion that the charge should have been one of obstruction. Mr. W. E. Rowcliffe appeared for the defendant.

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Motor 'Buses v. Tram-Cars.

AT the Wardmote for Bassishaw, Sir Alfred Newton, the presiding alderman, made reference to tramways in the City of London, and said that in his judgment the time was rapidly approaching when fixed tram-rails should be abandoned, and motor-'buses should take their places in crowded thoroughfares. This is a view that is steadily forcing itself upon the minds of all who have given any study to the problem of locomotion in our large towns and cities. Motor-'buses can be profitably employed on minor routes where tram-cars could never find a profit. They do not require a specially laid track, and have the advantage of being divertible from routes which are likely, after some experience, to prove unremunerative.

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Coachmen as Chauffeurs.

IN the course of a lecture on motor-cars the other evening in the Coachmen's Club, Dundee, Mr. Thomas Shaw compared the automobile with the horse, and pointed out the improvements that had been made on automobiles during the last six years. He said chauffeurs did not require to be engineers, but men with a good general knowledge of traffic. In his opinion, coachmen made the best motor drivers. This is a point upon which owners and mechanicians have shown little agreement in the past. There is, however, a general opinion that the man who has had engineering experience is not always so careful of the appearance of the carriage work as is the man whose work has been mainly in that direction. Chauffeurs, by taking a pride in the way they place their vehicles upon the road, can do much to allay the prejudice against the "unsightly motor," and they must realise that appearance counts for a great deal in that connection.

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Police Traps.

OWING to the weather, motorists have been indoor folk this Christmas, and comparatively few cars have been seen on the roads. Where the fogs have cleared other dangers have lurked, and a police trap on the Bath road has resulted in fines amounting to £50 being inflicted at the Brentford Police Court. When northern motorists are congratulating themselves on the absence of such persecution, it is significant that the south is still subject to these methods. Hence the feeling that has been excited against the police in many counties below the Trent.

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The Danger of Dogs.

THE dangers that motorists run when dogs jump about the roadway in proximity to a car has been exemplified in a very sad way at Derby. Dr. Henderson Pounds, a well-known surgeon, has just died there as the result of an accident sustained whilst motoring. A dog ran under his car, deflected

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the steering gear, and threw him into a hedge, inflicting injuries which have proved fatal. Owners of dogs who are inclined to regard motorists as foes to their pets should remember that cases like this give motorists real cause to be alarmed when dogs rush out into the roadway in a menacing fashion.

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A Scottish Worthy.

MOTORISTS will join in congratulations to Lord Kingsburgh, who entered his sixty-ninth year on Tuesday. Those who participated in the historic 1,000-mile trial will remember the keen interest the Lord Justice-Clerk of Scotland took in that event, and the great support he has always given the automobile movement. Sir J. H. A. Macdonald has had a busy and varied life, having sat in Parliament and having been a member of many important Commissions. An enthusiast for the Volunteer movement, he is the Honorary Colonel of the Motor Volunteer Corps. Several inventions relating to the saving of life have been introduced by him, and his persistent advocacy of the post-card led to its adoption in the British postal service.

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A Street Danger Signal.

RED equilateral triangles are likely to become familiar objects in the landscape, these being the means sanctioned by the Local Government Board for warning motorists of dangerous corners, cross roads, or precipitous places. The sides of the triangle have to be eighteen inches in length, and some idea of the appearance of such sign-posts can be gleaned from the accompanying photograph, taken at Beckenham. There a dangerous corner is now indicated in the official manner with the sign-post as shown. This has been supplemented by the signal being also painted on the glass of the street lamp, so that it can be seen by night or day, a wise innovation.



Photo by] [*Clarke and Hyde.*

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The Pedrail.

A PRACTICAL demonstration of the capabilities of the pedrail tractor, Mr. Diplock's attempt to solve the problem of heavy-weight haulage, was made last week in the clearing-yard of the Prince's Dock, Liverpool. Assembled to witness the working of the machine were some of the leading business men and engineering experts of the city, including members of the Liverpool City Council and their engineer, Mr. J. A. Brodie; members of the Mersey Docks and Harbour Board, with Mr. Lyster, their engineer, and others. After the demonstration Professor Hele-Shaw said that he regarded the invention as the first successful attempt to design an engine to carry its own railway with it. The inventor pointed out that the machine had been severely tested in actual working and by a trial run from Lincoln to London over very bad and soft ground. The present machine had an average speed of four or five miles an hour, and he was now designing one to average eight. He saw no difficulty whatever in making certain adjustments which would render feasible a speed of fifteen or twenty miles an hour, and looked to see the day when tramcars would be fitted so that they would run along the road without any other form of rails than the self-contained rail within the mechanism of the pedrail itself. Next month, at the request of the War Office, an attempt will be made to show what the machine is capable of doing in the way of hauling heavy loads over soft ground by pulling a big gun up the Long Valley at Aldershot.

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The Education of J.P.'s.

LOOKING back on the past year, motorists have little to be thankful for — so far as the administration of the law is concerned. Justices do not seem to have become less prejudiced, and there is still need for education in automobile matters among those who sit in judgment on county benches. It might be well if, during the coming year, a complete and systematic propaganda was undertaken among J.P.'s with a view to convincing them as to the reliability of the modern motor-car and the control which the driver possesses over its mechanism. Where county or local clubs exist, they should take up the idea, and, dividing the lists of magistrates among their members, make certain that none escape from an invitation for a trip by motor-car. That would give favourable opportunity for explanations on many points connected with traffic that are at present obscure to the average magistrate. We feel convinced that such a plan, generally adopted, would have very agreeable results.

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A National Undertaking.

WHERE local organisations are non-existent, the A.C.G.B.I. might take up the work. It has members throughout the country, and not a county is without its quota of motorists who, if approached, would be willing to assist by allowing magistrates to take trips by cars, and so complete the universal plan advocated. In the early days of the movement such demonstrations before county and other councillors had a softening effect on opponents; it is about time the idea was extended, so that the work of education may have a continuity which, in time, will effect a great change in public opinion. Now that clubs are making arrangements for their open-air doings in 1905 we trust the plan of combining the education of opponents with the pleasure of converts will be widely followed. In this way not only will the progress of automobilism be advanced, but the prosperity of the trade will be increased.

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The Dangers of the Road.

WHAT has been heralded in the Press as a "Dublin motor fatality" has passed the ordeal of the coroner's inquiry and the magistrate's court with a verdict of acquittal against the motorist in each instance. Miss Perry, who is a well-known motorist in the Irish capital, was proceeding slowly along Baggot Street, Dublin, when a lady about seventy years of age, and with sight that was dim, attempting to cross the roadway was knocked down. She died from the injuries received. The coroner's jury returned a verdict that "the occurrence was purely accidental and could not have been avoided by the driver of the motor-car." The magistrate's view was coincident with that opinion, and the public have had another warning as to the necessity for exercising care when crossing busy streets. Even when the traffic is of the slow moving kind caution and prudence should prevail.

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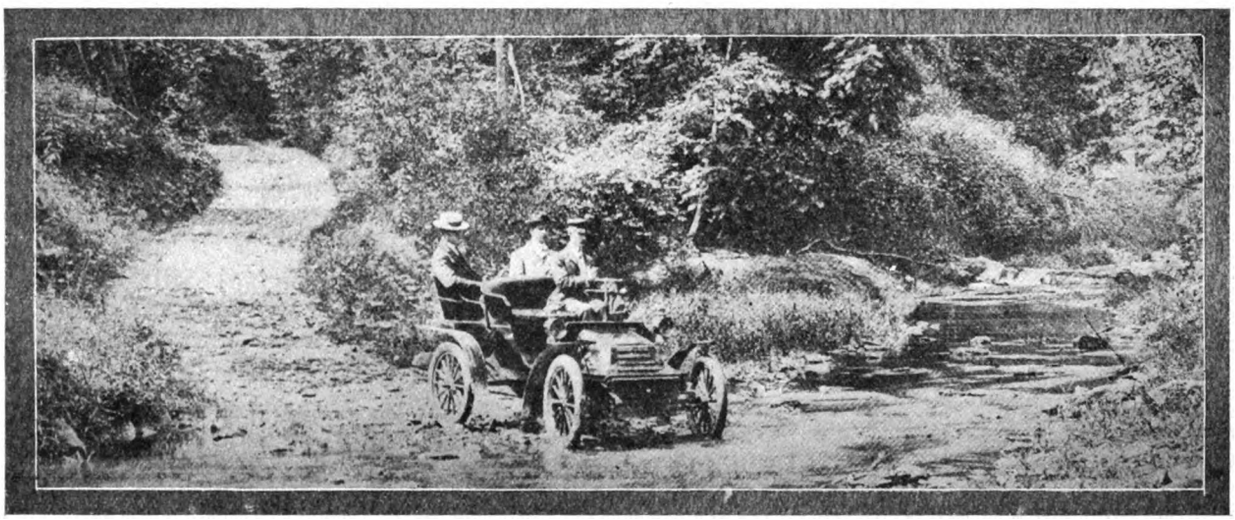
The 1905 Exhibition.

ALREADY interest in motoring circles is being aroused in the exhibition programme for the coming year, and the recurrence of the annual display at the Agricultural Hall, London, is being commented upon by the general Press in terms that admit of no doubt as to the concern of the public in the latest development of automobilism. Several types of vehicles—English as well as foreign—which cannot possibly be got ready for the earlier displays will be seen at the March show, and those who are inclined to believe that the selling season will not really begin till the spring are naturally booking spaces. The last month has seen a notable accession of exhibitors in the light car section. The heavy vehicle department will, as we have already stated, be the most complete display of the kind ever seen.

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Ripon Wants Prohibition.

IN Yorkshire several attempts have been made to reduce the speed of motor vehicles, and, in fact, to prohibit them altogether from several roads. The latest authority to consider the matter is the Rural Council of Ripon. This august body appointed a committee to examine the matter in all its relationships, and in the end it has been resolved to schedule some of the roads with a view to the Local Government Board prohibiting automobile traffic thereon. These are the roads between High and Low Grantley; Grantley to Thwaite; Warren Lane to Laverton; and Dishforth to Copt Howick. No recommendations are to be made with regard to the restricted speed of ten miles an hour, but the idea of prohibition is sufficiently alarming to cause the hope that the Yorkshire Club will be characteristically alert in safeguarding the national interest of motorists.



Fording the Stream—A Reminiscence of Summer.

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Subsidised Services.

WITH a view to the advancement of the public interest, the Government of Italy is proposing to grant subsidies to local bodies that are prepared to establish motor-car services—provided that neither tramways nor railways already exist in such districts. These subsidies are likely to be at the maximum rate of £20 a kilometre for a service for passengers and goods traffic; £16 where only passengers are served, and £8 where only goods are conveyed. This is interesting as showing how international is the area of motor-car development. Whilst on the Continent the State seems anxious to help such works of utility, private men of public spirit are rendering almost similar service in South Africa, and owing to unsatisfactory railway arrangements certain Paarl financiers have been approached to run a motor service between Wellington and Capetown, to which they have consented, provided a sufficient number guarantee to make use of the service for a certain period.

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Dust in 1800.

THE dust, like the poor, is always with us. Modern men must not imagine that the clouds of dust sometimes seen on main roads are the minatory churnings of the motor-car. Even De Quincey found the dust a nuisance long before Hancock's daily journeyings from one end of London to the other. It was in May, 1800, that the opium eater first saw the great Metropolis. "We," he wrote, "were in an open carriage, and, chiefly to avoid the dust, we approached London by rural lanes, where any such could be found, or, at least, along bye-roads, quiet and shady, collateral to the main roads." That was more than a hundred years ago.

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A Farmers' Resolution.

THE members of the Taunton and West Somerset Farmers' Club are a delightful set of fellows, with no partiality for automobiles, and at a meeting just held have passed a resolution of a very meaningless description, which doubtless is regarded locally as having driven motor-cars off the roads. Mr. S. Kidner was the proposer of the resolution, which reads as follows:—"That the whole question of the public rights and safety be re-considered as regards motor traffic on public roads." What effect this will have we will not venture to imagine, but Mr. Kidner's oration in support of his motion was almost picturesque. The old-time governess cart was trotted out; the carriage driven by a lady was gallantly drawn, and pathos was introduced in the shape of sweet innocent children having to scuttle from their road-playground or else be mangled, maimed, or murdered by a scorching motor-car. The retort that motor-cars had come to stay was rejected as a mere "canting cry," and after such a flood of vapid eloquence the farmers resolved that the question should be re-considered, but omitted to say by whom.

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Domesticating Speed.

LADY HENRY SOMERSET has given us a new phrase. The motor-car, she says, has "domesticated speed," and has "added a joy to life which is a distinct asset to existence." With both of these assertions we agree, and there is no doubt that the coming of the car is quickening the movement of traffic in all the main streets. While it is true that progress is always restricted to the rate pursued by the slowest moving vehicles, the growing irritation at their lack of rapid motion is tending towards speedier movement. We are becoming

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accustomed to more accelerated travel on the roads, and Lady Somerset's saying that the motor-car has "domesticated speed" is not only neat but has the advantage of being true.

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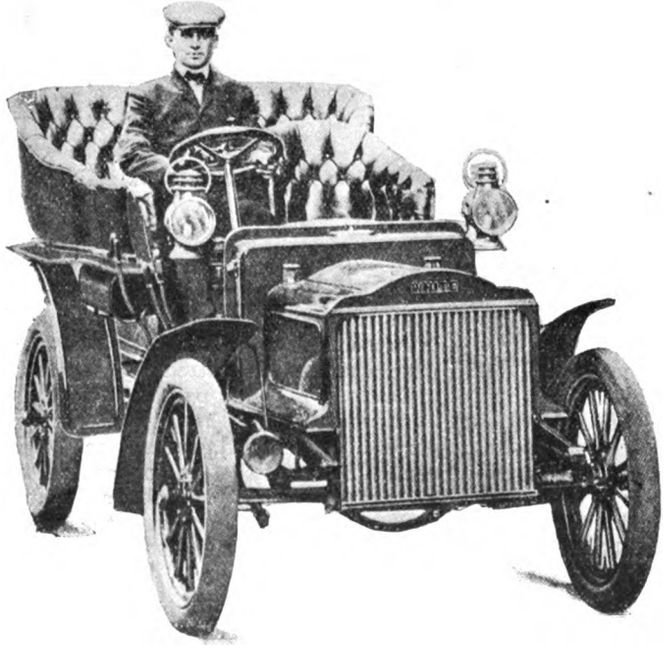
The Lohner-Porsche Electric Vehicle used by the Fire Brigade of Frankfort-am-Main.

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See to the Brakes.

It is unfortunate that some motorists venture out with their brakes in bad order, but such is the case, and about the worst possible thing that could happen to a motorist is his car colliding with anything owing to defective brakes. Motor-cars have the reputation of being able to pull up in a few yards; surely it is better that they should live up to it. Always look after the brakes, and if one is faulty do not go out till it is repaired. Some motorists put resin on their band brakes to ensure a good grip, but it is not an advisable practice, as it is detrimental to the brake. A really good brake does not need it; all that is required is a little adjustment from time to time.

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The New White Steam Car, with Mr. Rollin White, its Designer, at the Wheel.

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Delhi to Bombay.

The Reliability Trials from Delhi to Bombay began this week, no fewer than thirty motor vehicles actually starting in the contest. The first day's run was to Agra, a distance of 130 miles from Delhi, and English motorists were delighted with the condition of the roads. Several non-stop runs were reported, h› chief incidents being a few tyres damaged by the nails from bullock shoes. Mr. Basil Johnson on a Napier arrived first at Agra and was equally prominent on the second day's run to Gwalior. The event should do much to popularise the motor-car in the Indian Dependency, and has certainly provided the natives with a new sensation.

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A Club for Ceylon.

Not only in India, but in Ceylon as well, interest in motoring matters increases continuously. The Automobile Club, which has just been formed with headquarters at Colombo, has already seventy-seven members. Mr. Harold North is the hon. secretary for the organisation, which holds its meetings at the Queen's Hotel, Colombo. We understand one of the objects it has in view is to secure direct relations with some English houses dealing in motor accessories and the like.

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27-33, Charing Cross Road, W.C.

Letters sent to *The Motor-Car Journal* next week should be addressed to 39-40, Shoe Lane, E.C. After the 7th prox., however, the offices will be removed to 27-33, Charing Cross Road, London, W.C., where we shall be in the centre of the London motor industry—a matter of convenience to advertisers and subscribers in the Metropolis. We make this early announcement for the benefit of our correspondents in Europe and the United States, who are asked to make prompt note of the new address of the *Motor-Car Journal*.

A sports meeting is being arranged by the Auckland (N. Z.) Automobile Association.

An automobile service for the carriage of the mails between Lille-le-Guillaume and Mayenne, France, is shortly to be inaugurated.

It is announced that instead of the Nice automobile week taking place in February, as originally determined, it is to be postponed until the latter part of April.

A syndicate has been formed to establish a public motor-car service between Northeim and Echte, Germany. The mails between the two places are also to be carried. A service has also been inaugurated between Traunstein and Chiemsee, Bavaria.

It has been decided that the Spa automobile week shall be held from the 3rd to the 10th of September next. The provisional programme comprises a balloon chase, a touring car competition, the Spa-Malchamps hill-climbing test, and a flower fete.

Messrs. Wallis and Watson, of Leeds, inform us that they have purchased the *chassis* of the new 20–24-h.p. Argyll shown at the Paris *Salon*, and that they have taken up the sole agency for the Argyll cars for Leeds, Knaresboro', York, and intervening districts.

Messrs. Muratti, Sons and Co., Ltd., have agreed to present the Ulster Centre of the Motor Cycle Union of Ireland with a massive silver cup, of unique design, as a trophy for a motor-cycle contest to be decided under the auspices of the Motor Union next year. The cup is to become the property of the person who wins it three times. The contest will take place about the end of July next year, but the other details of the event have to be decided.

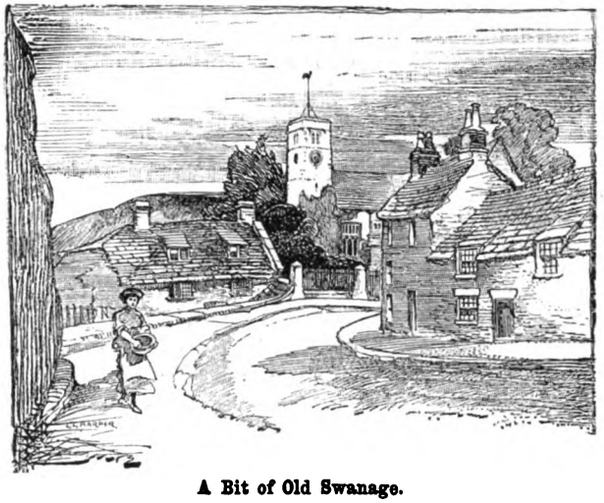
The new world's motor-bicycle records established by Anzani, referred to in a recent issue of the *Journal*, have not been allowed to stand long, for the other day, on the Parc des Princes track, in Paris, Giupponé, on a Peugeot machine, set up new record times both for the hour and for the 100 kilometres. Within 60 minutes he rode a distance of no less than 56 4-5th miles, and completed the 100 kilometres (62½ miles) in 1 hour 6 min. 36 2-5th sec.

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THE HARDY COUNTRY.

ACCORDING to the fashionable bookseller motoring has invaded his profits and whirled people from the library to the country. They no longer find time for the popular novel and have no delight in the *belles lettres*. The fascination of a rush through a dozen counties, with glimpses of ancient churches peering through the breaks in the lines of trees, takes the modern man from his books; and the bookseller has become a dolorous person delighting only in reminiscences of the good old days of not so very long ago. He is a person without hope for the future, when the modern craze, widening and developing, will destroy a taste for reading and he will have to enter the automobile business for means of sustenance.

If occasional paragraphs, thoughtlessly written for popular prints, can be credited, such is the outlook of the bookseller. True the



A Bit of Old Swanage.

motor-car has entered into rivalry with the bookshelf; but it has also opened new avenues of literature which were formerly restricted. And in the outpourings of guides and road histories is evidence of a supply to meet the demands, to a large degree, of the motoring section of the community. We study literature in pilgrimages; a glance at an early English church raises a thirst for more knowledge of architecture; scampering across hills and dales whets the desire for closer study of nature, and the newer life led in hotels has opened up definite study of social questions that were of transient interest before. So that in bookselling, as in other things, the "demand" may have been diverted into channels where the tide has not yet risen, but it is in existence, and in due course will be met by modern writers. As Thackeray wrote in his introduction to the "Book of Snobs," the Occasion never arises which does not bring the Man to deal with it.

The series of literary pilgrimages which Messrs. A. and C. Black are publishing is an instance in proof. Circling round authors like Scott, Dickens and Burns are pages of pleasant history and modern happenings. They are more than guides to places teeming with recollections of bookish friends; they are inciting companions to the man with a car, whose trips are likely to be more enjoyably spent with such volumes as signposts than merely touring with his fancy as an alluring mirage.

Literary landmarks of the Wessex novels of Mr. Thomas Hardy are the pegs whereon Mr. C. G. Harper, whose "Ingoldsby Country" opened up the county of Kent in quite a new way, hangs three hundred pages of writing that should be the preliminary stage to the reading of the novels themselves. Outside that part of the country so familiar to Mr. Hardy who knows that "Melchester" is Salisbury, that "Casterbridge" is Dorchester, that "Shottsford Forum" is Blandford, that "Knollsea" is Swanage, that "Anglebury" is Wareham, and so on? Realise these locations and interest is intensified; visit the places and the novels will be read, not scanned.

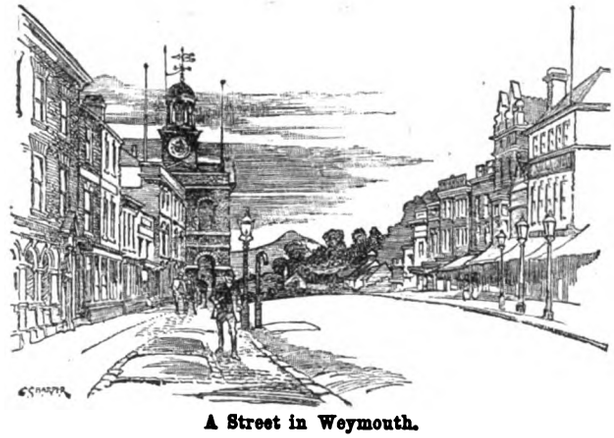
We know of no better book in this category than Mr. C. G. Harper's "The Hardy Country," which he introduces as follows:—

"In the literary partition of England, wherein the pilgrim may discover tracts definitely and indissolubly dedicated to Dickens, to Tennyson, to Ingoldsby, and many another, no province has been so thoroughly annexed or so effectively occupied as that associated with the Wessex novels written by Mr. Thomas Hardy. He holds Wessex in fee-simple, to the exclusion of all others; and so richly topographical are all those romances that, long ere sketch-maps showing his literary occupancy of it were prepared and published in the uniform edition of his works, there were those to whom the identity of most of his scenes offered no manner of doubt. By the circumstances of birth and of lifelong residence the "Wessex" of the novels has come to denote chiefly his native county of Dorset, and in especial the neighbourhood of Dorchester, the county town; but Mr. Hardy was early an expansionist, and his outposts were long ago thrown forward, to at last make his Wessex in the domain of letters almost coterminous with that ancient kingdom of Saxon times, which included all England south of the Thames and west of Sussex, with the exception of Cornwall."

Mr. Harper is no mere litterateur, gliding from one subject to another with butterfly lightness, but he is an observer, and has gone behind the cobwalls and probed deeper than the thatch into the ways and customs of the people with whom he has spent many pleasant days. We have reminiscences of the past—kings and battles are presented with a wealth of historical lore redolent of Hume and Macaulay; but there is a keen insight into the present ordinary life of the Dorsetshire peasant, as the following excerpt will show:—

"The old country life still closely encircles the county town, and on market-days takes the place by storm; so that when, by midday, most of the carriers from a ten or fifteen miles radius have deposited their country folk, and the farmers have come in on horseback, or driving, or perhaps by train, the slighter forms, less ruddy faces, and more urban dress of the townsfolk are lost amid the great army of occupation that from farms, cottages, dairies, and sheep-pastures has for the rest of the day taken possession of the streets. The talk is all of the goodness or badness of the hay crop, the prospects of the harvest, how swedes are doing, and the condition of cows, sheep, and pigs; or, if it be on toward autumn, when the hiring of farm-labourers, shepherds, and rural servants in general for the next twelve months is the engrossing topic, then the scarcity of hands and their extravagant demands are the themes of much animated talk."

The author is as facile with his brush as with his pen, and the illustrations scattered about the volume, though having a sameness in style which grows almost reminiscent towards the end, add to the interest of the volume, as will be imagined from the sketches we reproduce by favour of the publishers, Messrs. A. and C. Black. As hinted in the first chapter, the travels are not wholly restricted to Dorsetshire, and the work will be welcome to all



A Street in Weymouth.

who travel westward from London. Mr. Harper delights in contrasts, and some of the most effective writing brings monotony and variety or old and new together in pleasant fashion, as witness our last quotation:—

"The juxtaposition of a place so new as Bournemouth with one so ancient as Poole is a piquant circumstance. When Bournemouth rose, not like Britannia, from the azure main, but from beside it, there was a considerable interval of open country between the hoary seaport and the mint-new pleasure-town. That interval has now shrunk to vanishing-point; for, what with Bournemouth's expansion, growing Parkstone's position midway, and Poole's own attempt to sprout in an eastwardly

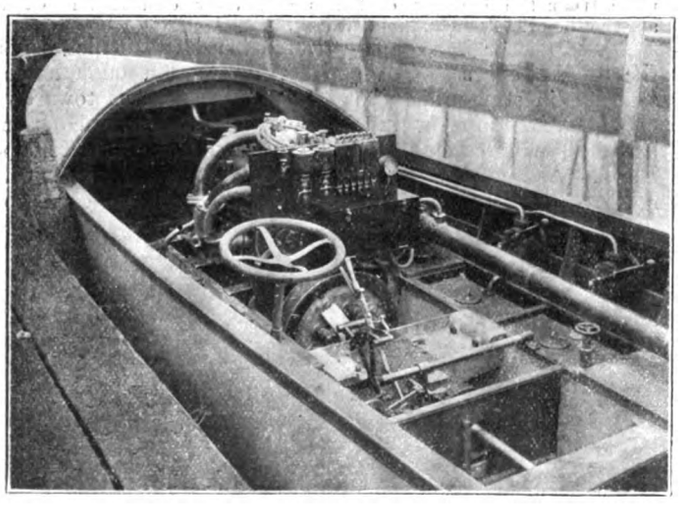
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direction, to meet those manifestations, the green country has been abolished beneath an irruption of bricks and mortar. Poole, besides being ancient, has been a place to reckon with. Already, in 1220, when by a proclamation by Henry III. the ships of many ports were sealed up, Poole appeared among the number. In 1347 its contribution towards the siege of Calais was four ships and ninety-four men, and it was the base from which the English army in France was provisioned. Then in 1349 came that fourteenth century scourge, the Black Death, and Poole, among other towns, was almost depopulated, and lost the Parliamentary representation it had long enjoyed. But it made a good recovery, and in the time of Henry VI. regainedits parliamentary representation. Leland, writing of the place, describes it, two hundred years later, as 'a poore fisshar village, much increased with fair building and use of merchaundise of old tyme.' Poole, after the description was penned, continued to recover itself, and fully regained its lost prosperity.'

In closing this notice of the volume we are tempted to say that motoring and literature are likely to be closely associated in the future. Several writers have already contributed, both learnedly and lightly, to the automobile library that is steadily being formed, and, on the other hand, writers like Conan Doyle, Max Pemberton, Rudyard Kipling, and others have adopted the motor-car as a means of health and pleasure. Had Carlyle been a motorist, some of his more sombre chapters might never have been penned; had Browning ever known the motor-car the Pied Piper of Hamelin might have developed strangely; but we will not reflect long in that strain. Suffice it to say that automobilism is casting its spell over the world of books as well as over the face of the globe.

THE "NAPIER MINOR" MOTOR-BOAT.

SOME particulars of the Napier Minor motor-boat which won the 1904 race for the Harmsworth Cup, but which, under a protest, was awarded to France, may not be without interest. The accompanying picture clearly shows the engine, the steering wheel, clutch and control levers. As in a motor-car the motor is placed forward of the dashboard, which



in motor-launch parlance is termed the instrument board. The boat, which was built for Messrs. S. F. Edge, Limited, by Messrs. Saunders, of Goring-on-Thames, is 35 ft. long and 5 ft. beam. She is constructed on the Saunders sewn principle of cedar and mahogany, with oak beams. The hull is enamelled grey, and the decks are white, and ample accommodation has been provided for about fifteen passengers. The boat is divided into two portions, the fore part containing the machinery, consisting of a 53-m.p. 4-cylinder standard Napier marine motor. The steering and control apparatus are all regulated by one man, who is well protected by the whaleback. The after part of the boat contains a long cockpit, and is fitted with the usual cushions and grating, and has a hood to protect the passengers from rain or spray. The exhaust has been installed in such a manner that no heat emanates from the same, and the discharge is invisible and noiseless.

THE HORSE POWER OF PETROL MOTORS.

ONE of the most puzzling things to the intending purchaser of a motor-car is the apparently incomprehensible and arbitrary horse power ratings of petrol motors. He is shown a certain engine that is rated at 16-h.p., and in the next saleroom is shown one vastly larger in bulk but rated at the same power, while in still another an engine of obviously smaller outside dimensions than the first is stated to be of 20-h.p. Then, again, he is confronted with combinations such as 18-24-h.p., 30-35-h.p., etc. In each case the salesman has a plausible explanation, but as the various explanations do not agree, the purchaser is just as much, or even more, at sea than ever.

Some salesmen explain the 18-24-h.p. expression by saying that 18-h.p. is the French value and 24-h.p. the English. This impression is rather widespread, but that it is not correct is easily shown by the following figures, which may be useful to remember:—An English horse power is equal to 33,000 pounds raised one foot in one minute, or 550 foot-pounds per second. The French horse power (cheval-vapeur) is equal to 542·5 foot-pounds per second, or is ·9863 of an English horse power, or, one English horse power equals 1·0139 French "cheval-vapeur." It will, therefore, be seen that the horse power is larger than the "cheval-vapeur," but that the difference is only about 2 per cent. The French, however, use also the "poncelet" as a unit of power, which is 33 1-3 per cent. larger than the "cheval-vapeur," but as it is mainly used in scientific tests and seldom appears as the power rating of motors in makers' catalogues, there is little excuse for confusion. The "poncelet" is 100 kilogramme-metres per second; the "cheval-vapeur" is 75 kilogramme-metres per second, and the horse power is 76·04kilogramme-metres per second.

In attempting to devise a simple method of computing the approximate power of an engine for the use of the non-technical purchaser, one is at once confronted with the two radically different types of engines now on the market; namely, the horizontal engine of slow speed, and the vertical motor of one or more cylinders. As the latter type, if of average good design, will run as fast as 1,400 or 1,600 revolutions per minute, it may be taken roughly that they will develop one horse power for each ten cubic inches of piston displacement. For example, a four-cylinder engine, having cylinders of four inches bore and five inches stroke, might be figured roughly thus:—$4 \times 4 = 16$, 3-4 of $16 = 12$ = area of piston in square inches. Multiplying this by the stroke, 5 inches, gives 60 cubic inches as the piston displacement (it is 62·83 exactly). Dividing by 10 cubic inches per horse power and multiplying by 4, the number of cylinders, gives 24-h.p., which is very close to the actual horse power; in fact, it is close enough for all practical purposes. With the slow speed engines it is difficult to give even an approximate rule, as their "characteristic" curve of speed and power varies greatly. An approximately correct value may be obtained by allowing from 12 to 20 cubic inches per horse power, according to the speed that the engine is capable of. Thus, if the cylinder dimensions are known, any one can in a few minutes obtain a fairly accurate idea of the power of any given engine irrespective of its catalogue rating or the claims of the salesman.

While the above is true for the average engine under average conditions, yet many motors will, states our American contemporary "The Automobile," do much better because of better design and workmanship. Many engines are rated much below their maximum capacity for various reasons, one being that a low rating avoids disputes as to incapacity to develop the stated power. While it would be highly beneficial to the industry and convenient for the purchasing public for the manufacturers to adopt a uniform rule for rating petrol motors, yet it seems too much to hope for at present.

A MOTION for the purchase of a motor-car for the use of the Glamorgan county surveyor has been remitted back to the committee that proposed it by the County Council.

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CONTINENTAL NOTES.

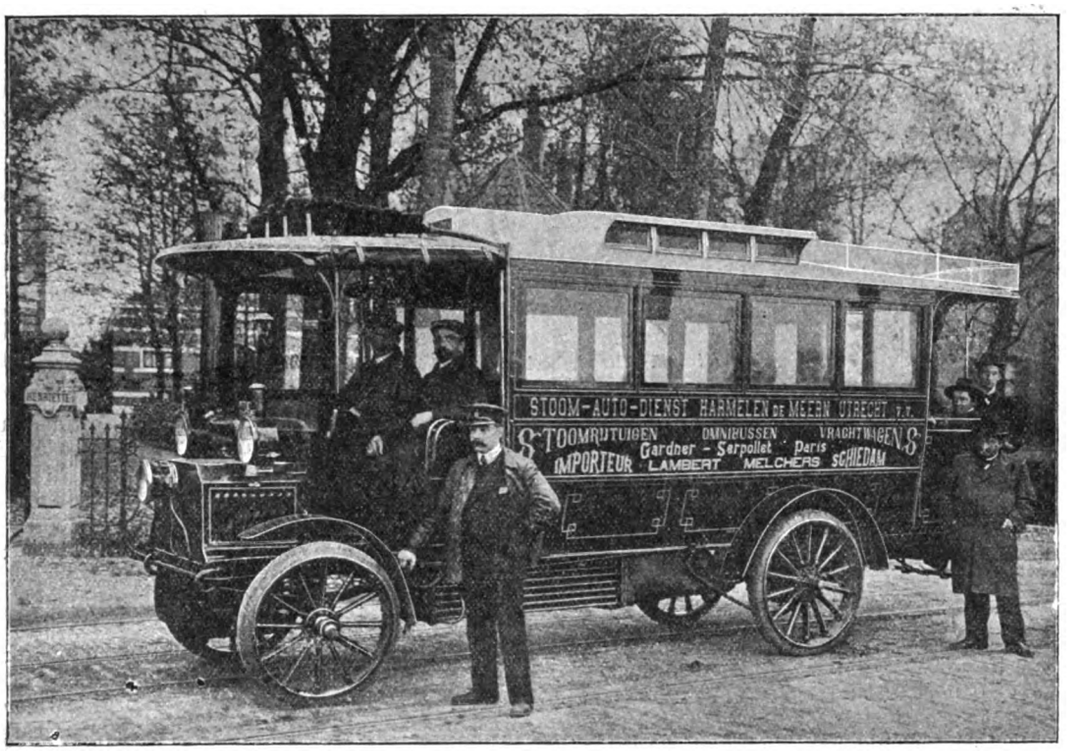
The Gordon Bennett Race.

A good deal of attention is just now being devoted to the question as to where the 1905 Gordon Bennett race is to be held. New circuits are being proposed daily, but no definite decision has been arrived at, although prospects seem in favour of what is known as the Circuit d'Auvergne, which is the one proposed by M. Michelin. If selected, however, the course will have to be modified at certain points, notably at Rochefort, where the turning forms such an acute angle that the cars would have to almost stop in order to negotiate the corner.

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A Dutch Public Service.

A public automobile service has lately been inaugurated between Utrecht and Harmelen. The accompanying illustration depicts the type of vehicle being used; it is a 20-h.p. Serpollet "steamer," the *chassis* having been imported by Mr. Lambert Melchers, of Schiedam, and fitted with a Dutch-built body having accommodation for twenty-four passengers.



A Dutch Public Motor-Car Service. [*De Aut*

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The International Motor-Boat Congress.

An International Motor-Boat Congress was held in Paris last week, when the rules and regulations in regard to motor-boat races to come into force in 1906 were discussed. It was agreed that every possible scope should be accorded to builders of engines and hulls, and that there should be no restrictions capable of acting as a handicap against types of machinery or boats not now in common practice. Commencing from 1906, the classification of motor-boats will be made according to metrical dimensions. Length, it was decided, should be the sole rating of racing boats, no limit being imposed on engine power.

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An International Federation of Motor-Cycle Clubs.

A congress of representatives of the principal motor-cycle clubs of France, Germany, Belgium, Austria and Great Britain (Messrs. M. O'Gorman and Pennell representing the Auto-Cycle Club) was held in Paris last week, when it was resolved to form a Federation Internationale des Clubs Motocyclettistes. The leading club in each country is to appoint a delegate to attend the half-yearly meeting of the F.I.C.M., as the new body is to be known. It has been decided that the 1905 race for the International Motor-Bicycle Cup shall be held on May 14th next.

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The Paris Salon "Tombola."

Every visitor to the Paris Salon received a numbered ticket entitling him to participate in the "Tombola" or draw for the hundred or so prizes which are annually offered by various firms in connection with the Exhibition. The draw took place on Sunday evening; we have not space to give the whole list of prize-winning numbers, but, in case some English visitors hold lucky numbers we give the first three:—

			Winning No.
1.	...	a 10-h.p. Richard-Brasier Car ...	317586
2.	...	a Dufayel Piano ...	359243
3.	...	a Rheda Car Body ...	221589

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The De Caters Cup.

Baron de Caters announces the offer of a valuable cup for an international tourist car non-stop competition over a distance of 500 kilometres. Broadly speaking, the idea is that the cars shall be of the ordinary type as sold complete by the manufacturers, but it is proposed that a minimum weight shall be fixed, according to the *chassis*, for the body portion of the car. No detailed rules are at present laid down, it being thought best to take the views of all those who are interested in the matter before drawing up the conditions.

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A Much-copied Car.

The firm of Rochet-Schneider, of Lyons, occupies a unique position, as cars from its designs are being made under licence in Switzerland, Belgium, and Italy. Specimens of the vehicles turned out in each of these countries were on view at the *Salon*, the Swiss type being represented by Messrs. Martini and Company; the Belgian by La Société la Locomotrice, of Liege, and the Italian by La Fabbrica di Automobili Florentia, of Florence.

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The Paris Motor-Car Exhibition—III.

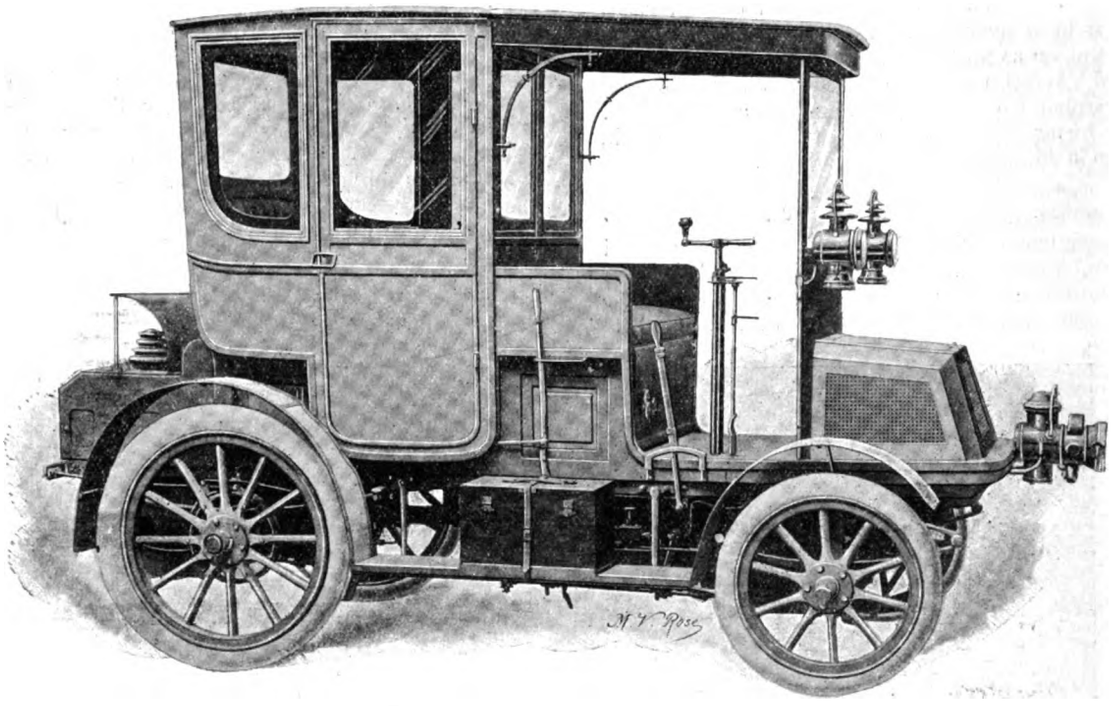


Fig. 42.—The Chaboche Steam Coupe.

THE seventh annual *Salon* in Paris was brought to a close on Sunday last, amidst a display of thousands of Bengal lights. Throughout the day the Grand Palais was invaded by a vast crowd of sightseers—a term we use advisedly, as it was impossible for anyone interested in the cars on view to get sufficiently near to give them close inspection. The final day was marked by a visit from M. Pelletan, the Minister of the French Navy.

M. CHABOCHE displayed several of his 12-h.p. and 20-h.p. steam cars with a double-cylinder vertical engine under the bonnet. The vehicles, which outwardly resemble petrol cars, are driven by means of a cardan shaft and bevel gear on to the rear live axle. The generator, which is located at the rear, has been improved in so far that should anything go wrong with either of the last two elements it may be readily disconnected without preventing the boiler from working. Any form of carriage body can be fitted to the *chassis*, Fig. 42, showing a four-seated coupe.

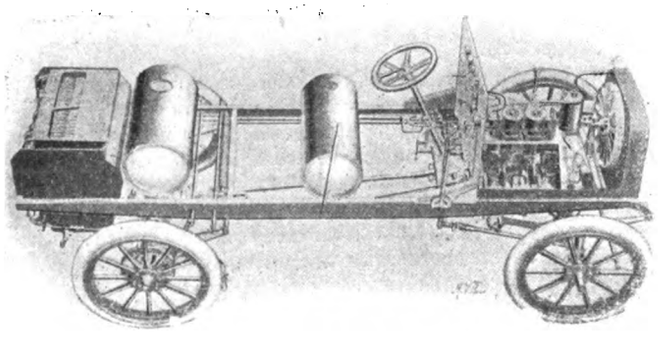


Fig. 43.—View of Chassis of Chaboche 20-h.p. Steam Car.

A novel pneumatic buffer for the springs of motor-cars was to be seen at the stand of Mr. LEONARD HARRIS. As will be seen from Fig. 44, it consists of two light metal saucer-shaped pieces, between which a rubber sphere is inserted. Within the latter is a rubber ball fitted with a valve, so that it may be inflated to any desired pressure. The buffers, which can be fitted to both the front and rear springs, are claimed to not only relieve the springs of all strain, but to take up fully half the shocks received by the tyres, so increasing the life of the latter and the general comfort of the vehicle.

MESSRS. DROUELLE AND COMPANY exhibited a number of electric cars which are being introduced into England by the Garcin-Renault Electric Cars and Accumulators, Limited. The *chassis* consists of a perfectly straight platform to which all the mechanical parts are attached, and upon which practically any form of body can be fitted. The motor is carried in the front end of the frame nearly over the front wheels. It is designed to run at speeds ranging from 300 to 750 revolutions per minute, and is capable of developing 14-h.p. The power is transmitted by means of a cardan shaft direct to the rear live axle, no gear whatever, except that for the differential, being necessary. The battery consists of forty-four cells, of a capacity sufficient to run the car about sixty miles over ordinary roads. The lever by which the speeds are operated is placed just below the steering-wheel. In addition to the electric brake there are two mechanical brakes, one acting on the cardan shaft and the other on the rear wheels.

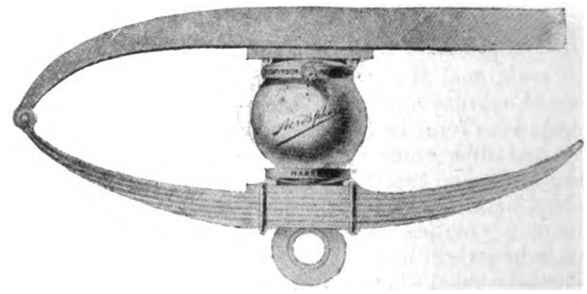


Fig. 44.—The "Aeros" Pneumatic Spring.

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In addition to the 10-h.p. car, the new features of which have already been described in the *Journal*, LA SOCIETE DES AUTOMOBILES MOTOBLOC, of Bordeaux, represented in England by Messrs. Montague Hawnt and Co., are bringing out a 16-20-h.p. car with a four-cylinder vertical engine. The cylinders, which are 95 mm. diameter by 120 mm. stroke, are cast in two pairs. The valves are all mechanically actuated; the inlets are arranged

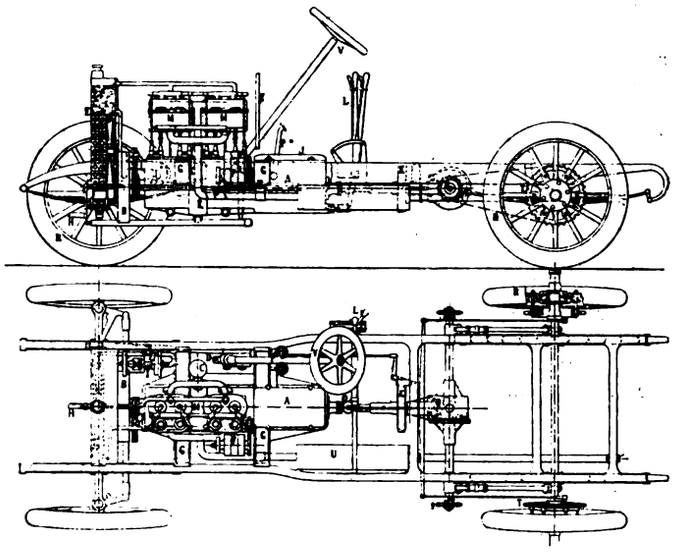


Fig. 45.—Elevation and Plan of Motobloc 16-20-h.p. Car.

in the cylinder heads and are provided with a simple, yet ingenious, variable lift device acted upon both by the governor and by a lever on the steering wheel, by means of which the speed of the engine can be regulated as desired. The water circulation is maintained by a friction-driven pump and a framed ribbed-pipe radiator. The ignition is by a chain-driven low-tension magneto. As in the 10-h.p. car the engine and change-speed gear box form a single "block," the gear box being practically an extension of the engine crank case. The latter encloses a small flywheel, while a second external one is mounted on the *forward* end of the crank shaft. The clutch, which is of relatively small diameter, is of the metal-to-metal type and is enclosed in

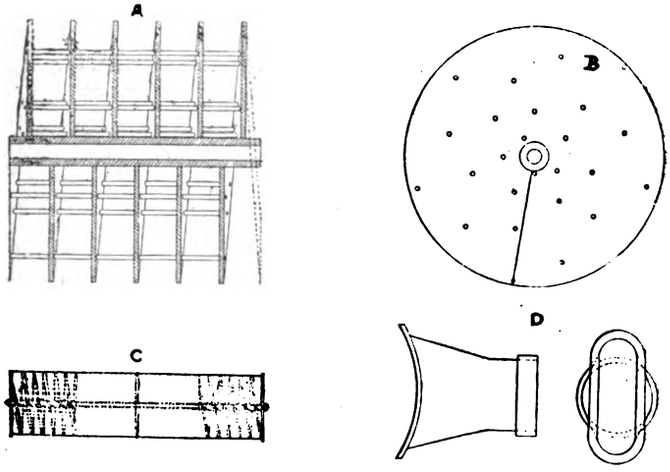


Fig. 46.—Details of "Stanley Perfect" Silencer.

the gear box. The change-speed gear is of the sliding type, giving three speeds forward and a reverse with direct drive on top. A universal joint is provided on the shaft between the gear-box and the differential shaft, side chains connecting the latter with the rear road wheels. It may be added that the frame of the car, which is of pressed steel, is sufficiently long to receive side-entrance bodies. The new 16-20-h.p. Motobloc is altogether an interesting model, and will, we understand, make its appearance in England at the Exhibition at the Agricultural Hall in March next.

The new firm of Messrs. GEORGES RICHARD AND CO. had on view an unfinished *chassis* of their 12-h.p. "Unic" car. The frame is of pressed steel fitted with a governed two-cylinder engine cast in one piece. The valves are all mechanically actuated, the exhaust valves being on the left side and the inlets on the right side of the motor. The valve caps are held in place by yokes, as is also the exhaust pipe casting. The carburettor is of a new self-regulating type. On the starting handle shaft a lever system is introduced, so that as the handle is engaged with the crank-shaft the ignition is automatically retarded; the ignition is by magneto. Three speeds and a reverse, with a direct drive on the top, are provided, the transmission being by a cardan shaft to a live axle. The latter is provided with special radius rods, these being held at their forward ends in spring supports. In addition to the long springs, the easy riding qualities of the vehicle are enhanced by the adoption of the Truffault anti-shock device.

M. P. RAMIER, of Puteaux, the French agent for the Stanley silencer, showed the latest form of this apparatus as devised by Mr. Stanley W. Andrews, whose object has been to provide a light and compact silencer, and which can be readily opened out for cleaning or repairs. Referring to Fig. 46, it will be observed from drawing C, which is a sectional view of the complete silencer, that a spiral path is first provided for the gas to pass through, after which it passes into an expansion chamber divided at its centre by a perforated wall; the gas then passes down a second spiral path exactly similar to the first, before escaping to the open air. Drawing D shows the construction of the special inlet connection. Its round end is, of course, of the

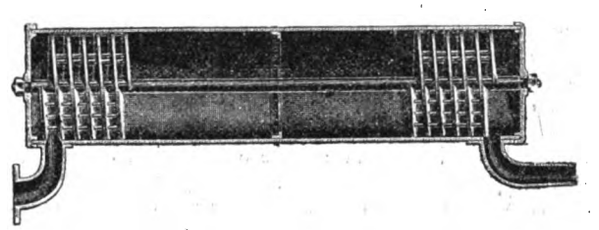


Fig. 47.—Section of "Stanley Perfect" Silencer.

same diameter as the exhaust pipe to which it is connected. The other end of the connection, although different in shape, still retains the same area as the exhaust pipe. Drawing A shows one of the spiral paths contained in the silencer. It is a single casting, having six or seven spiral turns about its centre. The gas in the passage through the spiral path becomes broken up. This is accomplished by means of rods passing through the spiral, as seen in A (as well as in B, which is an end view). These rods, although placed in different positions in the spiral, if brought together into one line, would completely close the space provided for the exhaust gases; but by placing the rods in various positions, taking great care that no two rods cover, the gas is allowed to pass, consequently being completely broken up. It is claimed that the silencer gives rise to no back pressure, and that the gas emerges into the air without any force or noise. The silencer is made in a variety of sizes suitable for engines of from 3-h.p. up to 30-h.p.

Messrs. BENZ AND CO. staged several of their Benz Parsifal cars, which for the 1905 season comprise five models—14-18-h.p., 18-22-h.p., 24-30-h.p., 35-40-h.p., and 60-h.p. All have four-cylinder engines with mechanically-operated inlet valves. The transmission can either be by side chains or by cardan shaft and live axle. The general design is unchanged, but a number of detail improvements have been introduced which render the vehicles well worthy of inspection. A somewhat novel form of petrol car was shown by M. GELAS, of Havre. It is of 12-h.p., and has the engine and transmission gear all supported by and driving the front wheels. No less than six speeds are provided, and a notable feature is the absence of pedals, the clutch and brake being actuated by the driver pulling the pivoted inclined steering column towards him.

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One of the most interesting exhibits in the *Salon* was that of the COMPAGNIE DE L'INDUSTRIE ELECTRIQUE ET MECANIQUE of Geneva, which exhibited *chassis* of their 8-12-h.p. double-cylinder and 16-24-h.p. four-cylinder vehicles. As regards the engines themselves, the company appear to have reduced the detachability of the various parts almost to a fine art. By removing half a dozen nuts, for instance, the valve lifting rods can be removed, and by taking off the plate above the cam shaft this can be lifted out, the whole operation taking scarcely more

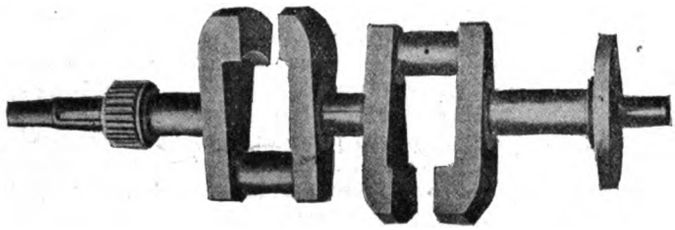


Fig. 48.—The C.I.E.M. Two-Throw Balanced Crank Shaft.

than a minute. The cylinders are cast separately, with the inlet and exhaust valves operated off one cam shaft, all parts being interchangeable. The ignition is by gear-driven magneto, the water-circulating pump being driven off the same shaft. Fig. 49 gives a view of the four-cylinder engine, and Fig. 48 depicts the crank shafts of the double-cylinder motor; from the latter it will be seen that the crank shaft is provided with special counterweights to give a perfect balance. The lubrication of the engine is ensured by pump oil circulation. The pump is driven off the magneto shaft, and sends oil to all the moving parts, where it has a constant circulation through the hollow crank and gear shafts, and is distributed through small holes into all the bearings. The frames of the cars are of pressed steel construction; three speeds and a reverse are provided. The propeller shaft has double cardan joints, and terminates at the gear box end in a sleeve forming part of a yoke, the ends of which are hinged on vertical pieces connected with the cross member supporting the gear box. The joints of the yoke are thus kept in perfect alignment with the ends of the radius rods so as to prevent any possibility of side strain on this part of the

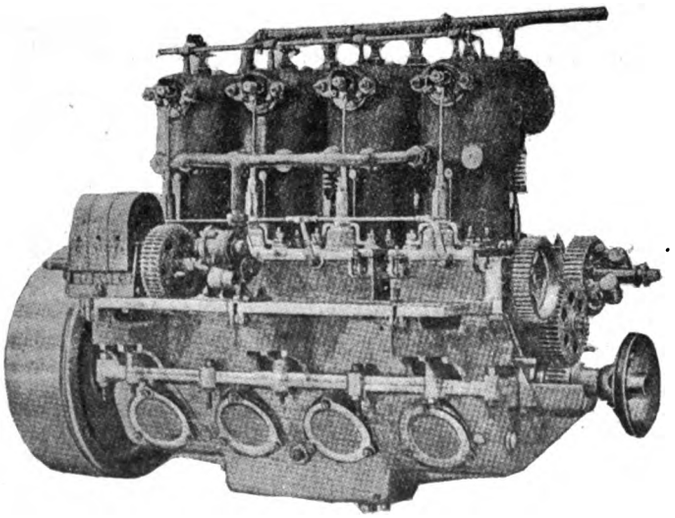
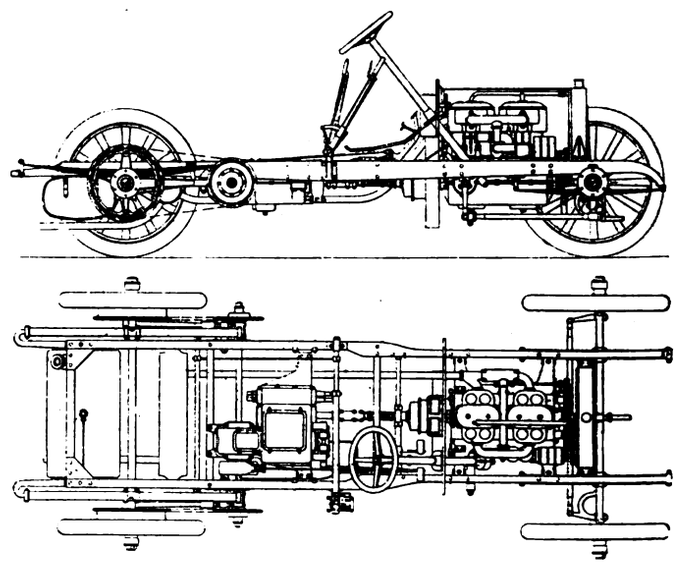


Fig. 49.—The C.I.E.M. 16-24-h.p. Four-Cylinder Motor.

mechanism. There are two rear axles, one of tubular form carrying the road wheels, and the other a live axle terminating in pinions gearing with internally toothed wheels bolted to the road wheels. One of the cars was fitted with a novel self-starting arrangement invented by M. Batault. This consists of a cylinder in which is a piston and a rack kept under tension by a spiral spring. The lower part of the cylinder is cut away to allow of the rack gearing with a toothed ring cut on the flywheel rim. At one end of the cylinder is a valve opened by a hand lever, which on being pushed forward brings the rack of the cylinder into mesh with the teeth on the flywheel. A charge of carbonic acid is at the same time admitted into the cylinder, which, expanding, drives the piston forward, giving half a turn to the engine through the flywheel. Immediately the motor starts the cylinder rises clear, a spring bringing the piston back to its former position. The carbonic acid is carried in a cylinder near the dashboard, the capacity being sufficient for 150 charges.

THE Fiat Company exhibited a *chassis* of their 1905 24-32-h.p. car, which, while comprising no startling departure, embodies a number of detail improvements, more especially as regards the clutch, carburettor and the brakes. The pressed steel frame is now narrowed in front to allow of a larger lock to the front wheels, and the wheel base has been lengthened. The four-cylinder engine has all its valves mechanically operated. The ignition, which is by low-tension magneto with pure nickel make and break tappets, is arranged to be automatically advanced or retarded in accordance with the speed of the engine. Both hand and foot accelerator levers are provided. The clutch is of an entirely new design, it being of the disc type. The change speed gear wheels are of smaller diameter than hitherto, the sprockets being correspondingly larger. The rear wheel brakes are of the internally-expanding variety; water-cooled band brakes are



Figs. 50 and 51.—Elevation and Plan of Fiat 24-32-h.p. Car.

provided on the differential shaft and also on the forward end of the side shaft in the gear box, the latter being automatically applied when the differential brake is full on. For the 1905 season three sizes are being made—16-20-h.p., 24-32-h.p., and 60-h.p.—all with four-cylinder engines.

MESSRS. GREGOIRE AND CO., of Poissy, exhibited an interesting light car which is about to be introduced into country by Messrs. Osborn and Lord. The vehicle is fitted with a pressed steel frame and a double-cylinder engine (80 mm. bore by 110 mm. stroke). The valves are all mechanically actuated off a single cam shaft. The radiator, which is carried in front of the bonnet, is of the framed ribbed pipe type, and the water is circulated on the thermo-syphon system. A two-way switch is attached to the dashboard, as are also sight-feed lubricators leading to the engine and change-speed gear mechanism. Three speeds and a reverse are provided with direct drive on top speed. The transmission is through a large diameter clutch, universal joint, gear box, and from the differential shaft by side chains to the rear wheels.

LES USINES DU PARTINIUM, of Puteaux, represented in this country by Messrs. Gautier and Co., had an excellent display of castings in their special light metal, Partinium, which, judging from the names thereon, appear to be used by all the leading motor-car builders in France.

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The stand of the RICHARD-BRASIER CO. was continuously surrounded by a crowd of admirers, the attraction being the identical car on which Thery won the 1904 Gordon Bennett race, the cup itself being displayed on the bonnet of the vehicle. The 1905 models of the Richard-Brasier cars, the British agents for which are Messrs. Mann and Overton, comprise 8-h.p. double cylinder, and 12-16-h.p., 16-20-h.p., 24-30-h.p., and 40-50-h.p. four-cylinder cars. Except that the 8-h.p. car has only three speeds forward in addition to the reverse, while the others have four, the following remarks apply to all five vehicles. The main frame is of stamped steel, the engine and gear being supported on a secondary frame of tubular construction. The cylinders, which are cast in pairs, have mechanically-operated inlet valves, these being set on the opposite side to the exhaust valves. Magneto ignition is being retained, as is also the thermo-syphon system of water circulation in conjunction with a fan-cooled radiator. We noticed that the radiating surface has been increased and the fan improved; it may be added, however, that a pump is used on the 40-50-h.p. car. The carburettor is an automatic air-regulation one of the company's own patent; it comprises two spraying nozzles set at an angle to each other, similarly to twin burners in acetylene

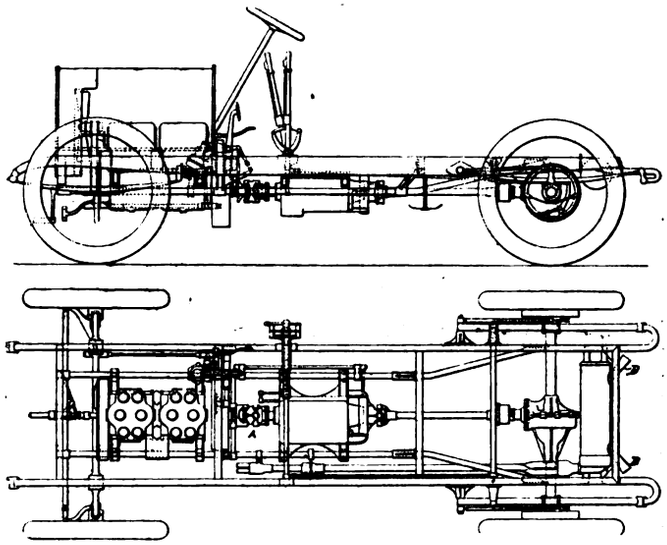


Fig. 52 and 53.—Elevation and Plan of 16-20-h.p. Richard-Brasier Car.

lamps. Except in the case of the 40-50-h.p. car, which is chain driven, the transmission is by means of a cardan shaft and bevel gear on to a live axle. A double universal joint A is introduced (Fig. 53) between the engine and gear-box, this not only relieving the shafts of the latter of all strain, but permitting the clutch to be dismounted without interfering with the gear box in any way. With the object of rendering the cars quieter than ever, and also of keeping down the dust, a new form of silencer is being adopted; it is of large size and is placed transversely across the rear of the car, the burnt gases finally emerging through two flattened pipes B projecting at an angle to the silencer. Enclosed internally-expanding metal-to-metal brakes are now fitted to the hubs of the rear wheels, while a point which will appeal to all who have suffered from "back kicks" of the motor, owing to the ignition not having been retarded, is an arrangement whereby the act of putting the starting handle into gear at the same time automatically retards the ignition; the moment the handle is released the ignition returns to its normal position. Long springs are employed, and we notice that the Truffault anti-shock device hitherto only found on Peugeot cars has been adopted. The frames are of sufficient length to allow roomy side-entrance bodies to be fitted.

A somewhat novel and strange-looking two-seated vehicle was exhibited by LA SOCIETE INDUSTRIELLE D'ALBERT, of Albert (Somme). It is known as the Rochet cab and is illustrated in Fig 54. As will be seen, it is entirely enclosed, the driver sitting and controlling the car entirely from the interior. The 4½-h.p. water-cooled engine is placed at the rear, driving direct on to the differential through the gear, which gives two speeds and reverse. A similar vehicle but fitted with a separate driver's seat was also shown, this being eminently suited for doctor's use.

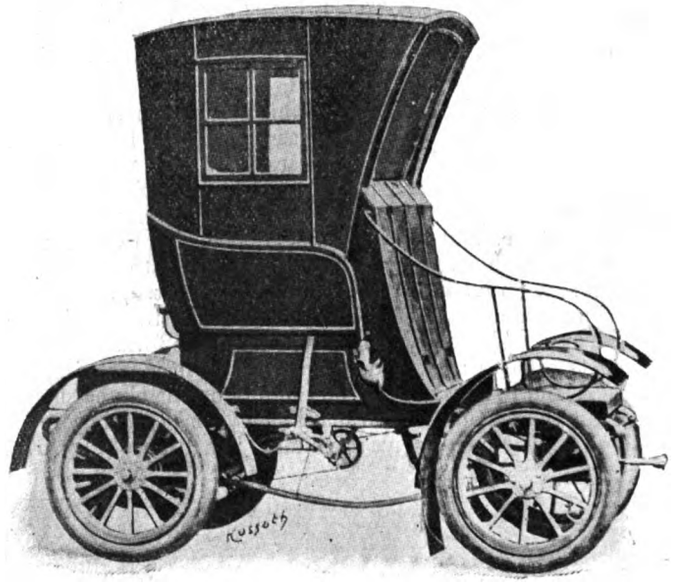


Fig. 54.—The Rochet Cab.

Messrs. CH. MILDE, FILS, AND CO. had an interesting stand on which were shown both electric and petrol-electric cars. The Mildé electric vehicles have already been described in the *Journal*. The motor is of the compound-wound differential type, carried at the centre of the hind axle and driving both rear wheels through internal spur gearing. Although larger batteries can be fitted, the standard one consists of forty-two cells, sufficient for a run of about forty miles on one charge. Fig. 55 illustrates

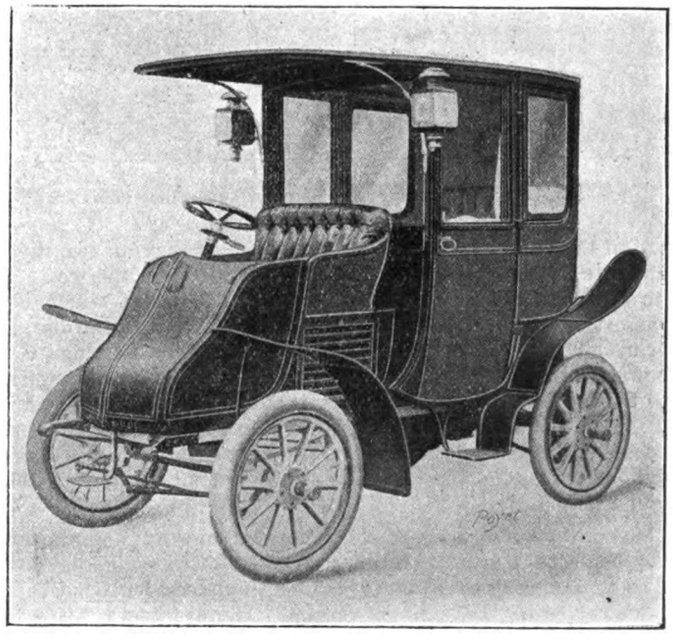


Fig. 55.—The Milde Electrical Coupe.

the latest type of Mildé electric car, specially designed for the use of travellers, doctors, and other professional men. As will be seen, it is of neat design, a noticeable feature being the provision for the protection of the driver. Since the Mildé petrol-electric car was first introduced it has been considerably

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improved. It is being made in two sizes, 6-h.p. and 12-h.p., the first having a single-cylinder and the second a double-cylinder petrol motor. In this system the current generated by the dynamo is sent to a light battery of accumulators located under the rear seats, and thence to the electric motor. The car, having its own power-generating mechanism, is therefore not confined to town work, but can be used as a touring vehicle, while the engine and dynamo can even be used as a portable electric lighting plant.

The GILLET-FOREST Co., which has hitherto advocated the horizontal type of engine, has fallen into line with other makers, and exhibited a range of cars fitted with vertical motors. The latter are made under licence from La Société Metallurgique, an important Belgian concern, and are built in a number of sizes, including 8-h.p. and 12-h.p. two-cylinder and 16-h.p., 24-h.p., 30-h.p., and 40-h.p. four-cylinder. The main features are pressed steel frames, an internally-expanding metal clutch, and a spring drive on the rear end of the cardan shaft, the transmission being by live axle. The expanding clutch takes the form of two brake segments, which are expanded against the inside surface of the flywheel rim by means of a cone sliding on the clutch-shaft, and actuating the segments by means of short arms carrying rollers at their ends. The spring drive is mounted in a drum, *b* (Figs. 57, 58),

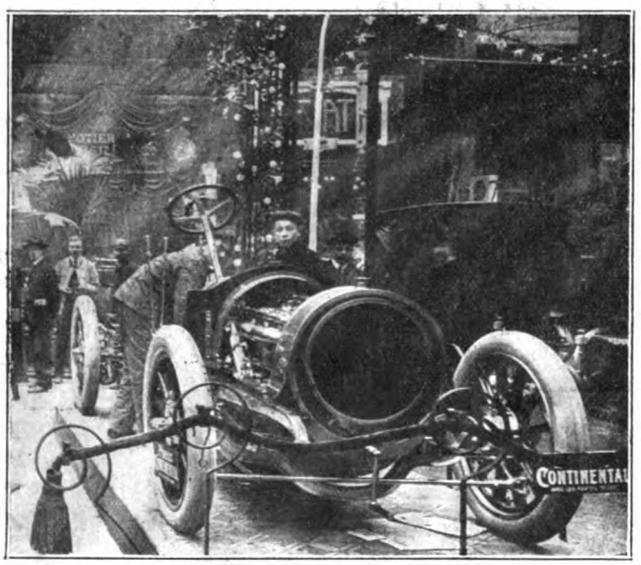
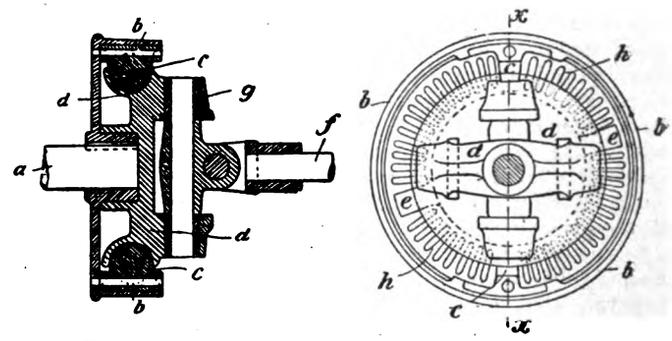


Fig. 56.—Front View of 40-45-h.p. Delaunay-Belleville Car.
(See page 893 last issue).

set on the end of the bevel pinion spindle, *a*, having two lugs, *c*, opposite to each other projecting inwards from the rim. The cardan shaft ends in a forked piece, *d*, each end of which bears against one end of a spiral spring, *h*, laid round the disc, and bearing as to its other end on one of the projecting lugs, *c*, the power being transmitted through the forked ends, the springs, to the lugs on the drum, and by the latter to the bevel pinion. The device is claimed to prevent shock on the bevel drive and to considerably reduce the noise. The horizontal type of engine is still employed in the Gillet-Forest industrial vehicles of 8-h.p. and 12-h.p.

An ingenious form of clutch is used on the "Radia" cars of the SOCIETE L'AUTOMOTRICE, which exhibited a 35-h.p. *chassis*. The engine comprises four separate cylinders, with mechanical inlet valves in the cylinder heads. The flywheel is made with arms which act as a fan to draw a current of air through the radiator. The coil clutch is somewhat on the lines of the Mercedes, but is actuated in a novel way, the coil on the clutch shaft being tightened by means of a pedal-actuated leather cone, which can be brought into engagement with the flywheel. It is only when the leather cone is rotated by the flywheel that the coil is tightened on the shaft, and the power of the engine transmitted to the gear box. A special form of internally-expanding band brake on drums connected with the hubs of the rear wheels forms another feature worthy of notice in the Radia cars.

At the stand of LES USINES PRUNEL, Mr. Foster, of the firm of Messrs. Delamotte and Foster, the British agents, pointed out to us the new features. We first inspected the *chassis* of a 24–30-h.p. car, which has a pressed steel frame. The engine



Figs. 57 and 58.—Details of Gillet-Forest Spring Drive.

has four separate cylinders with the mechanically-operated inlets set on the opposite side to the exhaust valves. In addition to the water circulating pump, the engine is provided with a pump which ensures a constant supply of oil to the various bearings. The gear-box, which gives four speeds and a reverse, is so arranged that it can be removed from the frame with a minimum of trouble. The car has wheel control, push pedals, metal-to-metal expanding brakes and other features of modern vehicles. The Prunel cars also include a double cylinder 10-h.p., a two-cylinder 12-h.p., a single-cylinder 9-h.p, and a four-cylinder 16–20-h.p., all of which appear to be of sound construction and of moderate price.

An extensive range of cars is being made by the DELAHAYE COMPANY for next season, extending from 8 to 25 h.p. They comprise a number of special features, and are excellent specimens of modern automobile construction. The 12-h.p. car is provided with a twin-cylinder vertical engine (100 mm. by 140 mm.), while those of the 16-h.p. and 25-h.p. vehicles have four separate cylinders with the mechanically-operated valves arranged on each side. The larger cars are driven by side chains, and in the 12-h.p. and 24-h.p. types the gear-box does not enclose the differential; in this way, by increasing the length of the shaft between the gear-box and the differential, any desired length of frame for side-entrance cars can be obtained. Among other new features in the Delahaye cars are a water-cooled exhaust, large push pedals of the Mercedes type and double-shaft change-speed gear.

A somewhat novel form of *chassis* construction is adopted by Messrs. LUC COURT AND CO., Lyons, who exhibited a 20–24-h.p.

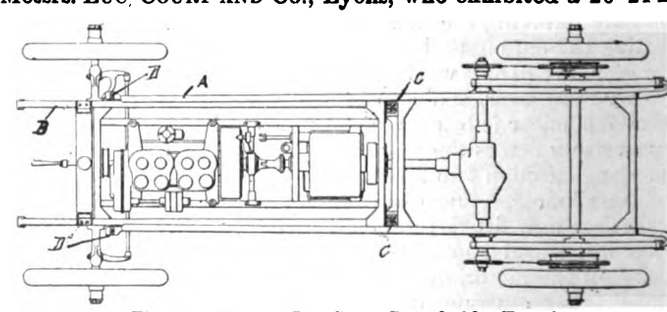


Fig. 59.—Plan of Luc-Court Detachable Chassis.

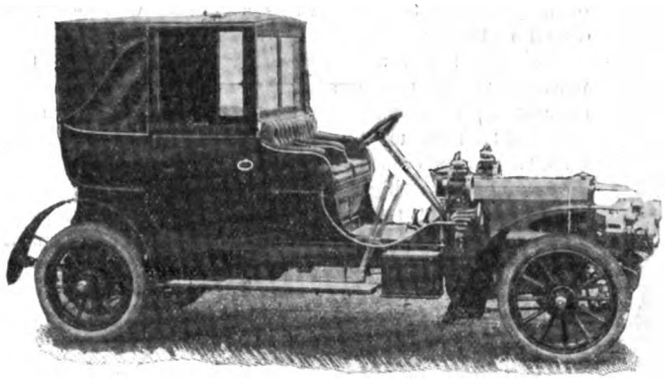
four-cylinder car, built on their special system. The frame is in two parts; one, A, carries the differential shaft and rear axle, and is of the usual length; the front wheels, engine and gear-box are mounted on a separate frame, B. The two parts of the frame are bolted together at the points C, D, so that they can be readily detached when necessary for repairs. In other respects the vehicles follow the usual lines of modern chain-driven vehicles.

(To be continued.)

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HERE AND THERE.

THE accompanying illustration depicts one of the latest 15-20-h.p. "Brooke" landaulets. The engine is of the four-cylinder type and is fitted with the Brooke new automatic carburettor, which renders it very silent and flexible. The long pressed steel frame enables a body with a wide side entrance door and a



The "Brooke" 15-20-h.p. Landaulet.

large amount of room at the back to be fitted. The wheel base is 10 ft., but, owing to the wide gauge, Messrs. J. W. Brooke and Company, Limited, state that a big lock is obtained, the car, even with this wheel base, being as easily manipulated as one with a base of 7 ft. 6 in.

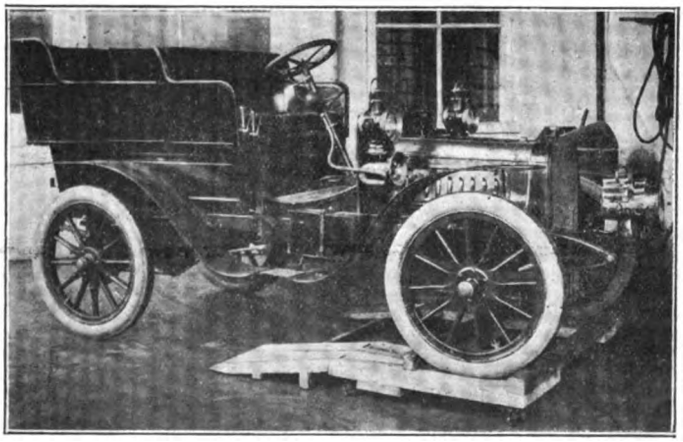
THE first annual subscription dance of the Blackheath Automobile Club will be held in the Concert Hall, Blackheath, on the 28th prox.

THE DELAHAYE CO. have lately completed a 12-h.p. hospital van for the Associacao dos Empregados No Commercio, of Rio de Janeiro, Brazil.

THE GENERAL PETROLEUM CO. are now supplying their Shell motor spirit in gallon as well as two-gallon tins, a convenience for motor-cyclists.

THE AMERICAN MOTOR CAR AGENCY have recently shipped "Ford" cars to Durban and Cape Town, and also a 10-h.p. specially geared car to Captain Bell, of Malta, for military work.

WE illustrate herewith a small platform turntable Messrs. W. H. Johnson and Sons have used for some time with great success in their Motor Works at King's Lynn, and the great utility of which will be seen at a glance. The table, which is supported on four strong castors, can be folded up to economise space. When required for use the wedge boards are turned



down and the car driven on to the platform; it is then easily pushed round, the whole operation occupying about thirty seconds. Messrs. Johnson point out that this method of turning cars round in a workshop not only saves time, but also a considerable strain on the steering gear.

THE HYDE RUBBER WORKS, LIMITED, are making additions to their manufacturing plant.

JUST over 300 licences for motor vehicles have been issued in Brighton during the year now closing.

THE Austrian Club has officially entered three Austrian Mercedes cars for the 1905 Gordon Bennett race.

CLIMAX MOTORS, LIMITED, has been registered with a capital of £5,000, to manufacture and deal in motors and vehicles.

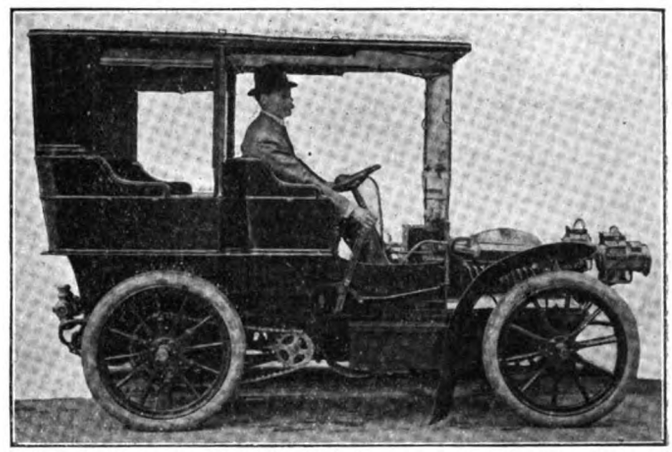
AN automobile school is to be established in San Francisco, U.S.A., under the auspices of the Young Men's Christian Association.

A PROPOSAL is being made to widen the county bridge carrying the main London and Eastbourne road over the river Medway near Forest Row.

MR. LEONARD BAYNES, 15, Kensington Court Mansions, W., has been appointed wholesale agent for the Wellsaline lubricants in the London district.

THE Eastern Counties Automobile Club has held its annual dinner at the White Hart Hotel, Ipswich. Mr. F. L. Bland, the chairman of the club, was in the chair.

THE Direct Motor Company, Limited, has been registered with a capital of £5,000, to manufacture, hire, purchase, or otherwise acquire, and deal in and with motor-cars.



Mr. W. R. Poynton, a well-known contractor and builder, of Durban, South Africa, on his 15-h.p. Napier Car.

HIS ROYAL HIGHNESS THE PRINCE OF WALES has consented to be Vice-Patron of the Automobile Club of Great Britain and Ireland, His Majesty the King being Patron.

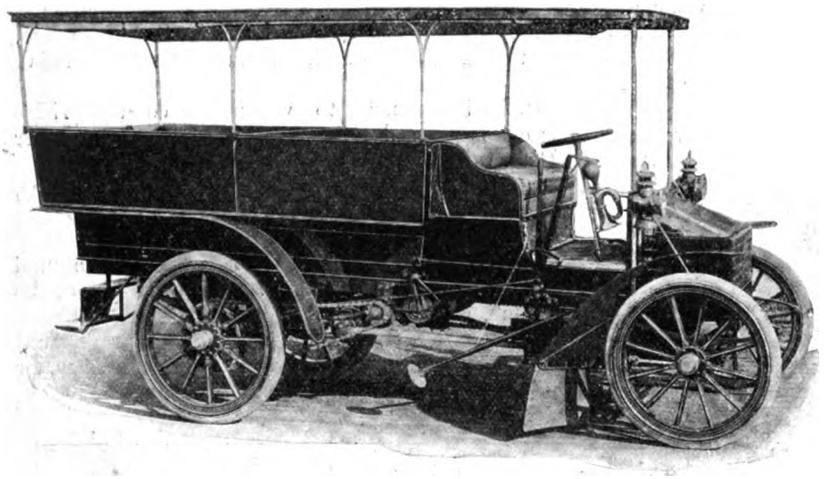
FROM the Panhard and Levassor Company, Paris, comes a handsomely got-up booklet descriptive of their immense works and of the latest models of Panhard vehicles, of which very clear illustrations are also given. Incidentally, it may be mentioned that to meet the demand for their cars the company are equipping a large branch factory at Rheims.

MESSRS. H. E. HALL AND CO., of Tonbridge, have secured the sole agency for the United Kingdom for the Bergmann "Liliput" two-seated car. The transmission is by friction drive, in which the necessary pressure between the friction disc and the fly-wheel is produced automatically by the forward movement of the driving wheels. The little vehicle, which sells at a popular price, is stated to be an excellent hill-climber.

A NEW idea in motor-hoods for lady automobilists has been brought out by Messrs. Lovegroves, of Piccadilly, W. The hood and shoulder tippet are one, and the former can be drawn up as tightly as necessary by the ribbon strings. In this way the wearer becomes entirely shielded from contact with the wind. It fits closely all round, and will in no way disturb the most elaborate coiffure. One good type of hood is made of soft pale blue leather, and lined with pure white fox. The design can, however, be executed in any colour and fur to suit any taste and requirements.

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THE accompanying illustration shows a special 24-h.p. passenger and mail van recently completed by the Wolseley Company for service in South Africa. The car is arranged to carry six passengers, exclusive of driver and conductor, and about half a ton of mails and luggage, the latter being carried in the space immediately behind the driver's seat. The total weight of the vehicle empty, but in running order, is about 30 cwt. A



standard 24-h.p. four-cylinder engine is fitted and four speeds ranging from seven to twenty-six miles per hour. The radiator is of the "Wolseley" type, and is made exceptionally large to enable the vehicle to run in a hot climate. The draught is induced by a fan driven by the motor.

THE COVENTRY WORKS, LIMITED, has been registered with a capital of £10,000 to carry on the business of manufacturers and factors of and dealers in motor-cycles and vehicles. The registered office is at Coventry Works, Arthur Street, Small Heath, Birmingham.

AUTOMOBILES and parts to the value of £26,178 were exported from the United States during October last, as compared with only £23,826 in the same month a year ago. For the ten months ending with October, the exports totalled £315,375, as against £262,392 for the corresponding period of 1903.

AT the Paris *Salon* about 700 wheels were fitted with Continental tyres—a great increase on the number exhibited last year. At the Continental Company's stand the chief interest centred round the model of Monsieur Lebaudy's airship. The silk skin used for the original airship was manufactured by the Continental Company, and this model was made by the man who constructed the airship for M. Lebaudy.

MESSRS. RENAULT FRERES, LIMITED, has been registered with a capital of £50,000 to acquire an English patent relating to motor-cars, now held by Messrs. Renault Frères, of Paris; to make and sell motor-cars and accessories under such patent in the United Kingdom; to acquire the agency for the sale of such cars recently held by the Roadway Autocar Company, Limited, and the lease of the premises on which the last-named company has carried on its business. The first directors are Messrs. F. Renault, W. L. McBride, G. de Wilde, H. Kapferer, and the Hon. E. A. Stonor.

A demonstration with the Pedrail Tractor has been made before the Liverpool Chamber of Commerce. A trial of this engine was recently made from Lincoln to London, 135 miles by road, under observation by respresentatives from the War Office and the Local Government Board, extending over a week. The Pedrail Tractor, a loaded wagon and a War Office van for the official observers took part in the trial, the total weight of the train, including the Pedrail Tractor, being about 13 tons. There was an absence of damage to the road surface as well as no signs of any appreciable wear on the rubber soles of the Pedrail feet.

THE Highways Protection League has been formed "to combat the motor nuisance."

STEAM motor-carriages are being introduced on their local services between Seacombe and Wrexham by the Great Central Railway Company.

THE Great Western Railway Company are extending the rail motor-car system to the Kidderminster, Bewdley, and Stourbridge districts. Cars have been built for service on branch lines in these localities, and they will be introduced in the New Year.

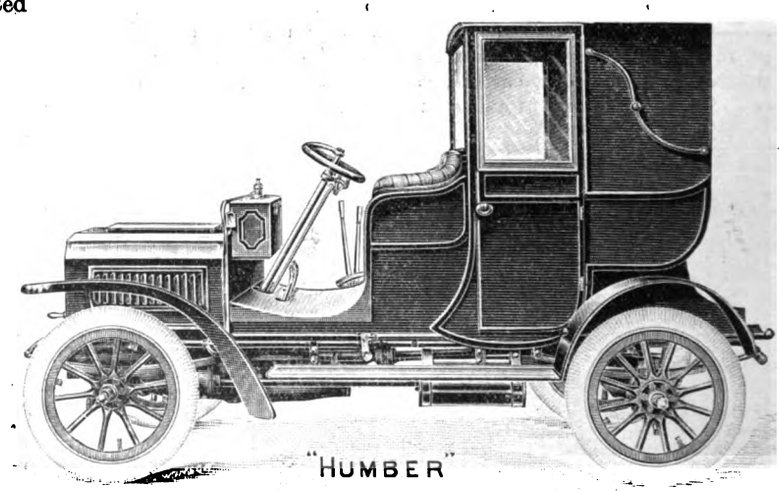
FRANCE has added another new word to the vocabulary of motoring — "domobile" — signifying covered touring cars with sleeping accommodation.

THE Purdue University, of Lafayette, Ind, U.S.A., is now completing plans for the installation of an automobile testing plant. It is intended to conduct this department somewhat along the lines of its locomotive testing plant, which has been in successful operation for more than ten years.

A COMPETITION for the best decorated stand was held in connection with the recent *Salon* in Paris. The Grand Prix du Conseil Municiple (gold medal) was awarded to the Delaunay-Belleville Company, the Grand Prix de L'Automobile Club de France (gold medal) to the Hotchkiss Company, gold medals to Richard-Brazier and Ducellier; silver-gilt medals were awarded to the following exhibitors, De Dietrich, Fémina, Fiat, La Francaise, Markt, Panhard, Renault, and La Société d'Industrie Mecanique.

AT the last meeting of the Ryde Rural District Council, the General Purposes Committee recommended that a letter be written to the Secretary to the Motor Omnibus Company, stating that, in the opinion of the Council, many of the roads on the routes which they have scheduled are unsuited to the proposed traffic, and that the Council will not hold themselves responsible for any accident which may occur owing to the narrowness of the roads, or to overhanging trees or shrubs, or to the weakness of the extreme sides of the roads.

THE new catalogue issued by Messrs. Alfred Dunhill, Limited, as a Christmas greeting is a combination of historic pictures with the fashions of the time. Interspersed with the pages illustrating their special "motorities" are the photographic views taken by Mr. Edward Kennard during the eliminating race in the Isle of Man; previous reference to these illustrations has



The Humber 10-12-h.p. Landaulet.

been made in our columns. Other pictures in the catalogue depict the Mocravat—a cleverly-designed muffler completely covering the throat while motoring. It fits closely to the neck and is adjusted by means of two stud fastenings at the back. Gauntlets, fur gloves and mittens for winter use are also illustrated, together with goggles, match-box cases, and other minor accessories, of which Messrs. A. Dunhill have an almost bewildering selection.

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CORRESPONDENCE.

THE USE OF THE ACCELERATOR.—FOOT v. HAND CONTROL.

To the Editor of *The Motor-Car Journal*.

Sir,—In regard to the correspondence which is taking place in the columns of the *Journal* in reference to the use of the accelerator—foot v. hand control—I agree entirely with the remarks made by Mr. Hutton, that is to say, that the happiest form of control is a combination of foot and hand control. For instance, the system adopted on the Crossley car is as follows:—There are two levers on the steering wheel, one to control the timing of the ignition and the other the throttle. The throttle lever can be set in any position according to the engine speed desired. For ordinary driving in traffic and in places where there is a great variation of speed required, the throttle lever is brought back to the position which reduces the engine speed to a minimum, and then the use of the foot accelerator enables the car to jump forward in an instant without taking either hand off the steering wheel. When the foot is taken off the foot accelerator, the throttle immediately goes back to the slow position to which it is set by the lever on the wheel.

This is practically the same control as that adopted by Jenatzy in the Gordon Bennett race in Germany. It is wonderfully effective, very quick, and has the advantage of both systems combined. The disadvantage in connection with the Mercedes control is that to retard the engine speed it is necessary to take one hand off the steering wheel. In an awkward place this might be dangerous. Foot and hand control is the right combination.—Yours truly,

Chas. Jarrott

To the Editor of *The Motor-Car Journal*.

Sir,—I am glad you invite discussion on this topic. I agree with much that Mr. Percy Richardson has said in his article. My experience of the foot pedal accelerator on a 12-14-h.p. Clement, which I drove from Windermere to Southport in safety, though with much nervousness, ended up in my driving the front of the car through a light board partition, just as I finished my journey, on entering my motor-house. Instead of putting my foot on the brake pedal I put it on the accelerator, with the result as above stated. For the moment I had lost my head, or the power to think, just at the critical moment; but this is just the thing to be guarded against, and why the control of a car should be made as proof as possible against this weakness of losing one's head.

I am not a novice, having driven cars for the past six years. I will not tolerate a foot accelerator on any car of mine. My ideal control is as follows:—(1) The car must be fitted with a good carburettor with automatic air supply, so as to dispense with the need of any levers or handles for this purpose being placed on the steering-wheel. (2) There must be two throttles, one to be operated by hand from the steering column, and the other must be connected by positive and well-adjusted levers and connections to the clutch pedal. This now leads me to another point. With this arrangement the governing mechanism, with all its complications and expense, can be abolished, and all the difficulties suggested by Mr. S. F. Edge in his letter in your issue of the 24th inst. will cease to exist. Of course there would be a lever or handle to advance or retard the ignition. We know that several makers are working on these lines, but why all do not do so I cannot understand, as the method is so simple. The law of evolution, I presume, is the reason, and it takes time to find out improvements and develop them.

Further, I am against the use of wire cables as connections for the control levers. I do not care for the idea of the control levers being placed on the top of the steering-wheel, owing to the complications which arise in the mechanical fitments made necessary on the steering column. The simpler forms of plain levers, rods and bell cranks appeal to me as being more practical and workable than many of the ingenious and complicated forms which one often meets on the best cars. I speak from experience on the road and not from theory.—Yours truly,

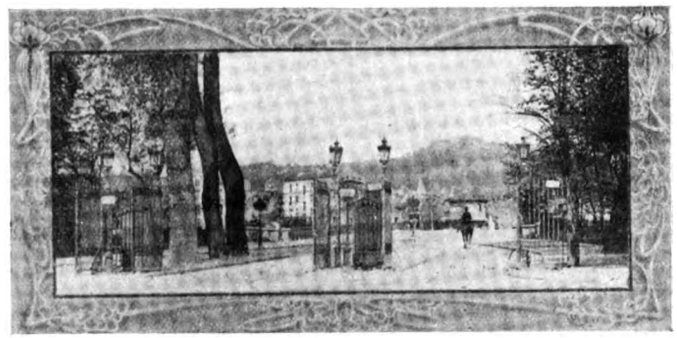
J. Coop.

To the Editor of *The Motor-Car Journal*.

Sir,—I read Mr. Percy Richardson's article in your issue of December 10th with much interest, and can quite endorse his remarks as to the feeling of security engendered by the knowledge that under one's foot is a control pedal to which the car will instantly respond in case of need. I have driven now for eighteen months a 14-h.p. Chenard and Walcker, and their system of control seems to me, except in one point, quite perfect. The usual change-speed lever and hand-brake are the only two parts the right hand is concerned with. The left hand never need leave the steering wheel, for there is nothing attached to it or its pillar. So much for the hand control. The left foot has, like the left hand, the post of honour, and has to manipulate the governing pedal, which, on this car, regulates the duration of the lift (not the extent, which is always constant) of the inlet valves, and hence the power and through it the speed of the car. The right foot has an easy time of it, except when changing speed or applying the foot brake, for its function is the manipulation of the clutch pedal. The clutch has a double duty. Its leather covered cone face, as usual, connects the flywheel and gear-box; but it has a reverse face of metal, and when the right foot depresses the pedal to the extreme, this reverse face is brought in contact with a stationary rim, and, by braking the clutch, gives a very sweet running and at the same time powerful brake, through the gear-box, to the car. The right foot soon acquires the knack of depressing to the right extent to free the clutch when changing speed, without fear of, by overdoing it, applying the brake; but, to aid the novice, the makers fit a third pedal, the function of which is to declutch only, but which in practice can be discarded, playing the part of leading rein until the rider can manage his mounts. The one drawback that this concentration of control has is that there is a chance which ought to be remote, but which is there all the same, that, if the gear is missed when changing up or down, the clutch brake is disconnected and one has to rely on the powerful hand brakes. With so flexible an engine, this, in practice, is of little moment, for in times of emergency the usual want is not to change speed, but to apply the brake, and this can be done at once by depressing the right pedal, thereby in one action releasing the clutch and putting on the brake. The hands, meanwhile, are absolutely free, and this very fact adds much moral support if the driver finds himself in a tight place, the word being "Forward: both feet up. Stop her: both feet down. Hands: stand by." The timing of the spark in the car being constant, when once set, there is no sparking lever to think of, and so flexible is the left foot control that the car will run down to five miles an hour on fourth speed.

If the trade would only adopt as a standard maxim "one foot one job," and a spare hand free to help in case of need, as Mr. Richardson suggests, one would hear less of cars going wrong owing to their new owners putting accelerators and brakes in simultaneous action, acting unconsciously on "Punch's" advice, as pourtrayed in his cartoon of October 26th. Owner (by roadside, to wife sitting in car, which starts backing downhill): "Pull everything you can see, and put your foot on everything else!"—Yours truly,

Cecil B. Cave-Browne-Cave.



The Port de Suresnes—A well-known spot in the Bois de Boulogne, Paris.

THE COST OF UPKEEP.

To the Editor of *The Motor-Car Journal*.

Sir,—I have read with much interest many letters on this subject, and I feel my own experience may be interesting and perhaps useful to your readers. I have been using a car in my business since 1897. Previous to 1897 for twenty-five years I had kept a horse, and sometimes two, to do the same work I have since been doing with my car. I am, therefore, after seven years' experience, well able to form an unmistakable opinion as to the relative expense and convenience of motor and horse.

I generally paid fifty or sixty guineas for a horse; my dogcart and harness, I suppose, were worth another thirty guineas; my coachman had 26s. per week. In 1897 I bought one of the first 3½-h.p. Benz cars, second-hand, two speeds, no reverse, solid tyres. For this I gave £92 10s.; new sprockets, chains, and a few etceteras brought the total cost up to £114. I drove this little car nearly 14,000 miles in about eighteen months, when I sold it, buying another at once. Since then I have had an ever present desire to drive "another car." My purchases have included a Bollée—two or three French cars, and two or three English. I am naturally fond of anything mechanical; this gives me such interest in any car that I am never quite happy unless I thoroughly understand it. I have bought a lathe, a vice, and a few tools, which enable me to do almost any repair short of forging. Since the repair of my first Benz, I have not spent £1 for mechanical assistance. I have had two slight accidents—once I cannoned a cow, and on another occasion a dog got mixed up with my steering arrangements, which caused a cannon with a chapel, the expense being—the cow episode, nothing—the dog 28s., which the owner of the dog paid.

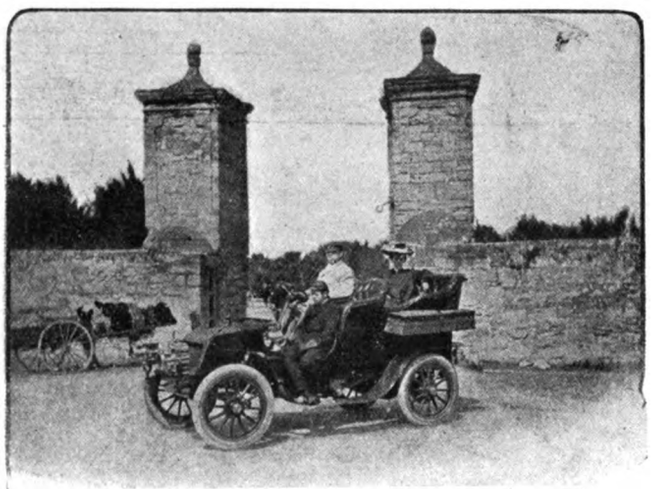
Now with regard to expense—keep of horse, shoeing, and vet., 15s. per week; man's wages; 26s., stable accommodation when on long journeys average 3s. per week; total £2 4s.; average mileage seventy miles per week. Expense of car—petrol 6s., boy to wash and clean 8s., lubricating oil, charging accumulators, say 4s.; total 18s. per week; average mileage 120, time spent on road not more than driving a horse seventy miles. This shows an actual save of 26s. per week, plus an additional

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fifty miles. You will notice I have not allowed anything for depreciation of cars. I consider depreciation on horse, trap, and harness is quite equal to that on cars. Another advantage in favour of cars is, when driving my horse in business I was obliged to have my man with me, because the nature of my business is such that during a day's drive I make five or six stoppages, each of about an hour, but I go alone in my car, leaving the boy at home to clean windows, run errands, and to make himself generally useful. I do not think anything can prove more conclusively than this the advantages of a car, but such a result can only be obtained by one who takes the trouble to understand his car, has sufficient mechanical ability to do his running repairs himself, and drives carefully. Judging by my experience with my first car, motoring is an expensive luxury if one calls in a repairer for every little adjustment which may be necessary.

Then again many would-be motorists fear the initial expense. This need not be heavy, because £50 or £60 is quite sufficient to purchase a car which will show the same result as my own, viz., a reduction of 26s. weekly as compared with a horse, provided one has a little mechanical ability and some perseverance. Any average man can easily gain as much knowledge of his car in a couple of months as the average chauffeur. A car costing, say, £60 will, of course, not be a Mercédès, but it will be one which will travel fifteen or twenty miles an hour, and last for some years. On the other hand, if one is more ambitious, and the purpose for which he intends using his car justifies the outlay of £100 or more, I should not purchase such a car as referred to, although one would be as reliable and probably as fast as the other. There is not the slightest doubt in my mind that anyone who keeps a horse, and the necessary man, for the purpose of his business can cover 50 per cent. more ground in the same time, save at least 25s. per week, and get an amount of pleasure unknown to any but motorists, and will after a few months come to the same conclusion as myself, *i.e.*, horses are slow, expensive, and dangerous.—Yours truly,

E. W. 125.



The Old Style and the New.

THE CONSTRUCTION OF SILENCERS.

To the Editor of *The Motor-Car Journal*.

Sir,—Referring to the article on this subject in the *Journal* of the 26th ult., it does not seem to be fully appreciated that to secure a noiseless discharge of the products of combustion in a petrol motor, it is necessary only to deprive these products of their heat. Heat is the cause of the pressure of the gases, and the sudden variations in pressure cause the puffing noise, which it is the object of the silencer to reduce to a minimum. The noise may be reduced essentially in two ways—by placing obstructions in the passage of the exhaust gases, thus causing their gradual expansion, and by depriving the exhaust gases of their heat. In most silencers the gases are forced through tortuous passages and small perforations, which greatly obstruct their free discharge, and while this secures the desired result of dampening the noise in a fair degree, it also causes considerable back pressure on the engine, thereby reducing the power of the latter. On the other hand, cooling the exhaust gases reduces their tension and the noise of discharge without increasing the back pressure. Of course, the expansion itself results in reducing the temperature of the gases, as the energy necessary for the expansion is abstracted from the heat of the gases; but the cooling effect referred to here is due to radiation. On this account I consider that the silencer should therefore be placed where it is subjected to a cooling draught, and should not be covered with asbestos, as it frequently is. The exhaust gases contain a considerable proportion of water vapour, and if the cooling facilities of the silencer are sufficient to partially condense this vapour, the noise of the exhaust will be much reduced.—Yours truly,

W. T. Millburn.

MOTOR-DRIVERS' ORGANISATION.

To the Editor of *The Motor-Car Journal*.

Sir,—In reference to "Terminal's" letter, I quite agree with him that it is time a motor-drivers' union was established. The society could be conducted on the same lines as others are, and every driver ought to have served as much apprenticeship as a motor mechanic—say about three years—and be able to prove himself capable of taking charge of any car. There are too many so-called "motor-drivers" who have had about three weeks' experience and paid a fee of about £5 for it. I myself have paid no fee and have no certificate, but I have my indentures to prove that I have served six years as bound apprentice to the motor trade. But what use are they? I cannot get employment. I have been looking for a situation now for eight weeks, and it is not for the want of trying that I am still out of work; it is owing to these so-called "drivers" offering to work for a small wage. I ask for a living wage. I think no qualified driver ought to work for less than 30s.

Another thing I wish to bring under your notice is the way drivers' licences are issued. Anybody can get a licence even if he has never seen a car before. Now I think if every one who applied for a licence had to pass a strict examination in the mechanism of cars there would be fewer accidents, and the owner and manufacturer would benefit thereby.—Yours truly,

A Would-be Member.

AN INTERESTING MOTOR QUERY.

To the Editor of *The Motor-Car Journal*.

Sir,—In connection with "Inquisitive One's" inquiry, I have been the owner of a motor launch for some years past, and have often noticed a similar state of things at sea after nightfall. The engine appears to go better and the boat faster, but in my opinion it is an illusion. Every boat and every car appears to travel faster by night, owing to the quicker disappearance of the wake in the former case, and of the road marks in the latter. It is well known that professional fishermen attribute the apparent increase in their boat's speed after dark to the "oil on the water at night," which is obviously imagination. A motor will naturally appear to a listener to throw better and produce better-defined explosions at night owing to the increased silence of the surroundings, and the greater attention one naturally concentrates on it in the dark. I have more than once taken the engine speed at night when I felt convinced that both motor and boat were doing more than usual, and both the revolutions per minute and the time of journey proved to be quite normal.—Yours truly,

Marine.

THE GRAPHITIC LUBRICATION OF PETROL MOTORS.

To the Editor of *The Motor-Car Journal*.

Sir,—Referring to the article on this subject in the last issue of the *Journal*, I have used graphite in petrol engines for a number of years, but mixed with the oil in the crank chamber. It is not only good for the cylinders, but for the crank bearings also. The only difficulty was to obtain graphite free from grit; this was overcome by washing and filtering.—Yours truly,

W. D. Bowman.

MOTONEER.

To the Editor of *The Motor-Car Journal*.

Sir,—I suggest as a suitable designation for a motor engineer the word "Motoneer," thereby meaning anyone connected with motor engines and applying in the same way as "Engineer" would be for one associated with, say, steam engine work. The word *chauffeur* means, I take it, the driver, but this hardly comprehends what is altogether intended to be expressed. You might perhaps put this before your readers, as the French word now in use is not altogether palatable nor pronounceable by the Britisher.—Yours truly,

Motoneer.

CHARGING ACCUMULATORS.

To the Editor of *The Motor-Car Journal*.

Sir,—I have read with much interest in your valuable *Journal* many useful queries, electrical and otherwise, and should be glad if you or someone who has had some experience with the Boron cells could give me a few hints. Having some trouble in getting my accumulators charged, I purchased a set of six Boron cells so that I might charge them myself. I have not, however, up to the present found them so satisfactory as I anticipated. The chemicals I use in each jar (or cell) are as follows:—4 oz. bichromate soda, 4 oz. of vitriol diluted with water to the capacity of the jar; porous pot (or cell), diluted vitriol 1 part to 12 of water. The zincs I find use up very quickly, even if they are kept well amalgamated. My accumulators are fifty and sixty ampère hours, and with six cells on I allow them twelve hours charging, and when taken off they register 4·5 volts. But with this charge the accumulators only run a four-cylinder car about 150 miles, sometimes less. The acid is about the right strength in accumulators, viz., 27 deg. Beaume. The chemicals I find have to be renewed practically every time, especially if left to stand a

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few days, with the addition of new zincs very often, which makes the charging very expensive.

I think my failure is possibly due to not having the proper amount of chemicals. Therefore I shall be very grateful if someone who is using these cells and getting good results from them would be good enough to give me some information how to use them; also the cheapest and best house to buy chemicals and zincs. I think this would be a most interesting topic to others as well as myself.—Yours truly,

CELLS.

THE COST OF MOTOR-CARS.

To the Editor of *The Motor-Car Journal*.

SIR,—The demand of the general public is always for lower prices, but the public does not fully appreciate the fact that a lower price must necessarily mean a lower quality of material and workmanship, which will result in untold annoyances and troubles to the user, and, consequently, a higher cost in the end. The work a motor-car is called upon to perform is so severe that satisfaction can only be expected if both material and workmanship are of the best—and these are always expensive. There are, I find, many members of the general public who are hugging the belief that motor-cars at present prices bring their manufacturers a net gain of several hundred per cent. Such a belief, however, is entirely unfounded; the profit is in most cases only a very reasonable one, and manufacturers who are determined to maintain a high standard of quality have been inclined to advance their prices rather than reduce them.

It is of the greatest importance to the industry in general that a high standard of quality be maintained. Cheapness of construction will lead to dissatisfaction, and the lasting injury that may be done by dissatisfied motorists is, to my idea, certainly a more serious consideration than the loss of a few customers who cannot discriminate between the good and the cheap, or who abstain from buying because, according to their ideas, prices are too high.—Yours truly,

ARIOSO.

REPAIR SHOP EQUIPMENT.

To the Editor of *The Motor-Car Journal*.

SIR,—In answer to "I. N. 26's" letter in the last issue of the *Journal*, it is a very difficult matter to give advice upon, as one always finds that for almost every repair that comes in a new tool is necessary, even if only a box spanner, but usually a fairly equipped shop suitable for engineering purposes would be found suitable also for car repair work. For first-class repair work machinery is indispensable, as in almost all cases lathe work is necessary. With regard to the cradle mentioned, this would answer very well, but personally I would recommend a pit, as much time is saved by the same.—Yours truly,

MOTOR MECHANIC.

QUERIES RE LIGHT CARS.—A VARIETY OF QUESTIONS.

To the Editor of *The Motor-Car Journal*.

SIR,—I should be glad if any readers of the *Journal* would give me some information on the following points. (1) Is it a serious objection to French and American cars that the screw threads are of different gauge to ours, so that if a nut is lost in a country place it may be necessary to write to town for another? (2) Does the carburettor of an Oldsmobile car ever get hot enough to melt solder? (3) Is there any advantage in putting puncture-proof jelly into a single-tube tyre?—Yours truly,

INQUISITIVE.

ON SIR HIRAM MAXIM'S BEHALF.

To the Editor of *The Motor-Car Journal*.

SIR,—We have been asked by our client Sir Hiram Stevens Maxim to call your attention to the advertisement which appears in your *Journal* of the Maxim Daniel Motor Company, 8, Boston Place, Marylebone, N.W., and to inform you that the name has nothing to do, either directly, or indirectly with him or any company with which he is connected or interested.

We think it only right to call the attention of yourself and your numerous readers and would-be motor-car purchasers to these facts.—Yours truly,

CROSSE AND SONS.

AMERICAN STEAM CARS.—Referring to the complaint in last week's *Journal* as to the difficulty of obtaining spare parts for steam cars, we are assured that this does not refer to the White Steam car.

SELF-STARTING MOTORS.—In reply to "Viator" in the *Journal* of the 17th inst., the Bolton Automobile and Steam Wagon Works, All Saints' Street, Bolton, write:—"We some time back commenced making a self-starting switch for motors having non-trembler coils, which we believe will overcome "Viator's" difficulty; if he decides to go on with this switch, which, we may say, requires little or no alteration to the present arrangement of fittings on his car, we shall be pleased to correspond with him on the subject.

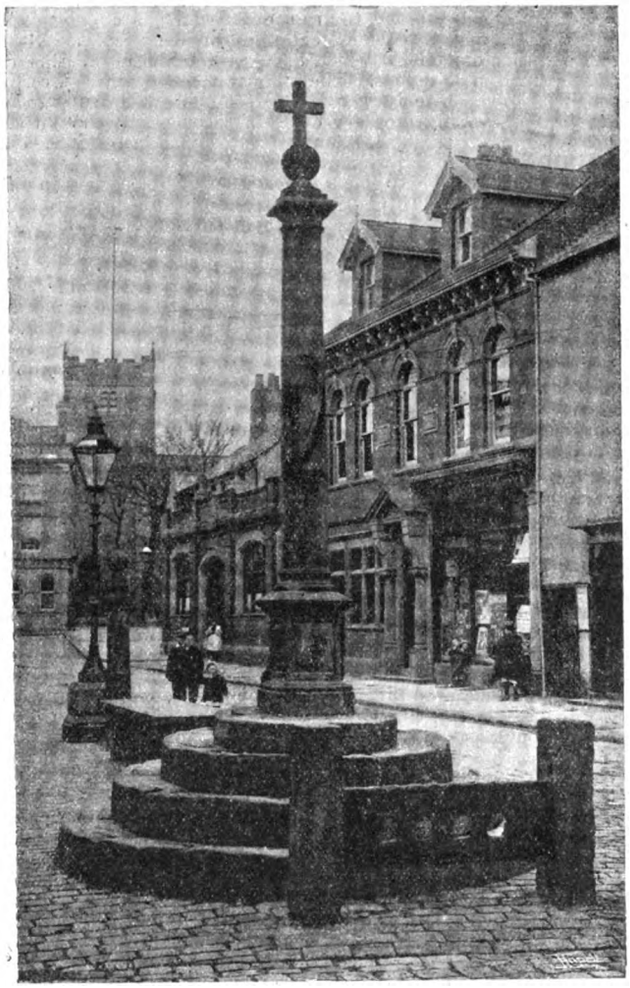
COLD WEATHER PRECAUTIONS.

NON-FREEZING CYLINDER COOLING LIQUIDS.

By Prof. JAMES L. HENSHAW.

THE problem of the care of motor-cars in winter looks a remarkably simple one at first sight, in the light of what has been done in cold storage work. Stated briefly, the problem is, first, to provide a liquid which can be kept in circulation, and can by so doing transfer the heat which is delivered to the engine cylinders from them to the atmospheric air, the liquid alternately receiving heat from the cylinders and delivering it to the air through the radiator. The problem is precisely similar to that which is dealt with in cold storage, where an evaporative condenser is used, and where brine coils are employed. As the temperature of the cold chamber must be at a temperature many degrees below freezing point, the liquid which is the agent employed to convey the heat from the chamber to the water, or the air which is the ultimate source of cold, must itself be so arranged that it will not freeze at the lowest temperature dealt with.

It would look as if all that was necessary was to provide the cylinders of an automobile engine with a cooling liquid that would not freeze,



The Ancient Stocks and Market Cross at Poulton-le-Fylde, Lancashire.

Photo by] [*R. W. Lord.*

and there the matter would end. But, unfortunately, the problem of cooling the engine of a motor-car is by no means so simple as that involved in cooling the air in a cold chamber by means of brine. In the cold chamber problem the brine circuit contains only one metal, usually, and though the temperature of the brine, and therefore of the pipes in which it circulates, is necessarily different at different points of the brine circuit, the difference is very trifling. The temperatures are all low. On the other hand, in the motor-car the cooling circuit often contains two or three metals, and the differences of temperature are very serious. In addition, the temperature at one part of the cooling circuit is very high, and everyone who has studied chemistry knows the effect of heat upon many salts. The salts we are familiar with in chemistry are held together by their chemical affinity, and this bond is very often ruptured by the agency of heat and of electricity.

In the cooling circuit of a motor-car the liquid is subject to the disruptive force of a high temperature, and of the equally disruptive force, in certain cases, of an electric pressure. Copper and iron, with a liquid between them, such as is used in cold storage work, for cooling purposes, form a galvanic battery, whose presence will lead to the gradual

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eating away of the iron. Chloride of sodium and chloride of calcium are the two liquids employed for brine in cold storage work, and both of these are decomposed by electric currents, especially when aided by heat, liberating chlorine gas, which acts upon the iron. Chloride of sodium has been practically given up in cold storage work, on account of its greater liability to attack the metal of the pipes carrying it, and, as mentioned, there is not the difference of temperature nor the electric pressure present in cold storage.

Glycerine also has been used with success by some automobilists, but has the troublesome property that it is also decomposed at high temperatures, such as are met with at times on the outside of the engine cylinders. Grease has also a troublesome effect upon india-rubber, as those who have had much to do with it know, hence, though glycerine may answer in special cases, it is not reliable. There is still another troublesome quality possessed by some of the cooling agents employed. Evaporation is constantly going on from the cooling liquid, and in some cases, notably that of glycerine, some of the substance which is used to lower the freezing point of the water in which it is dissolved is carried off with the water vapour. This would hardly be the case with sodium and calcium-chlorides, as they have such a capacity for absorbing moisture. Calcium chloride, in fact, is used, in the latest arrangement of cold storage, to dry the air which is circulating in the cold chamber, and if calcium chloride can be used, notwithstanding the other objections which have been mentioned, this quality would be much in its favour. The complaint made with glycerine and liquids which evaporate is that the percentage of the substance upon which the non-freezing property depends becomes smaller and smaller, and the effect is gradually lost unless more of the substance is added, while it is not easy to tell when it is needed.

It is hardly possible to give a remedy that will be certain in all cases, but it is possible to indicate in what direction the remedy is to be found, so that those who have the time, and the needful, may be able to follow the matter up. Cooling or freezing mixtures depend for their cooling effect upon the fact—which has only recently been worked out by the new school of chemical-physicists—that when a solid is dissolved in a liquid, the process is equivalent to raising the solid to the liquid condition, and demands that the heat which would have been required for liquefying the solid in the ordinary way shall be delivered to the solid, just as it would be if it was being raised to the liquid condition by the direct application of heat.

As the solvent is the substance nearest to the solid that is in process of solution, the necessary heat is taken from it in the first place, and by it from the surrounding bodies, hence the cooling effect produced. But the effect of dissolving a solid in any liquid is also to lower the freezing point of the liquid. The process of the solution of any non-volatile substance in a liquid is closely connected with the osmotic or vapor pressure, and this again is so directly connected with the freezing point that the measurement of the freezing point of a solution is one method of determining the vapour pressure. It had perhaps better be explained what is meant by osmotic or vapour pressure. It is also called surface tension. As is well known, water and other liquids evaporate at all temperatures. That is to say, vapour is always coming away from the surface of any liquid except under special conditions. This vapour exerts a certain pressure upon the atmosphere, or whatever may be above it—a pressure which can be measured by suitable appliances, one of which is the ability to force its way through a porous division. The vapour pressure, or the tension upon the surface of the liquid, is lowered by the addition to the liquid, by solution, of a non-volatile solid, and in a definite proportion. And with the depression of the vapour tension of the liquid its freezing point is also lowered under similar conditions.

Hence the problem resolves itself into the comparatively simple, though probably tedious one of testing different substances, which, when added to water, will lower the vapour pressure and the freezing point, and selecting one which has not the properties mentioned above—that is to say, which does not, when operated upon by heat, evolve substances which will act prejudicially upon the cooling circuit, and that has little or no electro-chemical action under the conditions. It is one of those cases, so well known to the practical chemist, where every known substance of certain groups has to be tested for certain properties, the list being gradually brought lower and lower, the number of substances possible smaller and smaller, till a certain small number remain, all of which will probably be suitable under certain conditions, but some of which will be more suitable for certain conditions than for others. There will be a large number of substances which will fulfil some of the conditions, and a careful examination of their known properties will save much time. One thing must be borne in mind—the final test must be actual practice on a motor-car, under all conditions. There is a formula, which the writer gives for the benefit of those who have time to follow the matter up, which shows the number of degrees the freezing point should be lowered by the addition of a given quantity of any substance to water by solution. The formula is:

$$t = E \frac{m}{M^1}$$

Where t is the number of degrees the freezing point is lowered: m is the number of grammes of the dissolved substance; and M^1 is the molecular weight of the dissolved substance. E is calculated from another formula, as follows:

$$E = \frac{\cdot 02T^2 n}{W}$$

Where E is the difference in the freezing points of the solvent and a solution therein, the solution containing n gramme-molecules of the dissolved substance in 100 grammes of the solvent, T is the absolute temperature, and W is the latent heat of fusion of one gramme of the solvent.

The writer has found one substance which he believes will fulfil the conditions—caustic soda. It is not a very nice substance to handle, but as it would only have to be used in cold weather, and then only handled very little, he believes that it will be found to answer the purpose while other substances are being looked into. A ten per cent. solution of caustic soda, the writer calculates, will not freeze under the conditions usually met with. It also presents favourable conditions in the matter of galvanic and chemical action. One thing, however, must be mentioned—caustic soda must not be used where aluminium is employed.—*The Automobile Magazine.*

CLUBS AND ASSOCIATIONS.

LINCOLNSHIRE.

A MEETING of the committee of the Lincolnshire Automobile Club was held at the White Hart Hotel, Sleaford, on Wednesday of last week. The Chairman, Capt. J. A. Cole, J.P., presided, and there were also present:—Mr. C. W. Pennell, J.P. (Lincoln), Mr. W. R. Pennell (Lincoln), Dr. Gilpin (Bourne), Dr. Godfrey Lowe (Lincoln), Mr. George Godson (Asgarby), and Dr. E. H. Cragg (the club secretary). A draft of the new club rules was before the meeting, and these were ordered to be circulated amongst the members for approval and confirmation at the general annual meeting to be held in February.

Three new members were enrolled, viz., Earl Brownlow (Lord Lieutenant of Lincolnshire), the Rev. J. Herbert Heath (Folkingham), and Dr. Stitt-Thomson (Lincoln).

MOTOR-CAR FATALITY.—DRIVER EXONERATED.

DR. F. J. WALDO has concluded an inquiry at Southwark into the circumstances attending the death of Emma Simpson, who was crossing New Kent Road, when she was knocked down by a motor-car, driven by Joseph Waters, of the Mo-car Syndicate, Paisley, Scotland, and carrying three sergeants of the Army Medical Corps and the Army Service Corps. She was removed to Guy's Hospital, where she died from severe internal injuries. Two witnesses declared that the car was travelling at the rate of sixteen or eighteen miles an hour; but the occupants of the car put the pace at eight to ten miles. The chauffeur said that the woman stopped when he sounded the horn, but started again, and was knocked down. The effect of the collision and applying the three brakes was to turn the car completely round, which accounted for some witnesses saying it was on the wrong side of the road, and had been travelling in the opposite direction. To show his care and skill as a driver he produced a testimonial from Major-General Wingate, the Sirdar, who had asked his firm to allow him to accompany the General to the Soudan and take a specially-built car there. Waters had carried out some trials for the Sirdar on the sea-shore, to test the car's fitness for desert work. The jury returned a verdict of accidental death, and exonerated Waters from all blame.

CASES AGAINST MOTORISTS.

Place.	Summoned for	Fine.
Kingston.....	Driving beyond legal limit	Dismissed.
Bow Street, London	Several cases of driving beyond regulation speed in Royal parks	40s., etc.
Lambeth	Using unregistered car	5s., etc.
Redditch	Unilluminated rear number	5s., etc.
Brentford	Several cases of furious driving.	Aggregate fines, £50.

TO CORRESPONDENTS.

All communications intended for insertion in this Journal or relating to Editorial matters should be addressed to THE EDITORIAL DEPARTMENT, MOTOR-CAR JOURNAL, 39 *and* 40, *Shoe Lane, London, E.C., and must be written on one side of the paper only. Letters must in all cases be accompanied by the name and address of the writer, as no notice will be taken of anonymous communications.*

The Editors cannot undertake to return MSS. or drawings, although every effort will be made to do so in the case of rejected communications. Where such are regarded as of value, correspondents are requested to retain copies.

To insure insertion communications and contributions must be in the Editor's hands by Tuesday forenoon of the week in which the same are intended to appear. Disappointment may be caused by non-compliance with this rule, and to avoid this earlier receipt, if possible, is necessary.

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THE

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COMMENTS.



THE development of the movement for technical instruction with regard to automobile matters in London Polytechnics is proceeding very satisfactorily, and early in the present month Mr. C. W. Higgs will commence a course of practical work at the Borough Polytechnic Institute, London, S.E. This course is intended for those who are connected with the industry as drivers and repairers, etc., and has the advantage of being conducted by a gentleman who is a practical motor engineer of experience in designing as well as driving. We could mention the case of another Institute in London where theoretical knowledge rather than practical acquaintance with the automobile industry has led to a slackening of interest among students, which augurs badly for the future classes at that particular place; but at the Borough Polytechnic, as at Battersea, practical work by a practical man should do much to establish on a permanent basis the success of the automobile department. Mr. Higgs proposes a lecture of an hour, to be followed by practical work; and as not more than twelve students will be permitted to take the latter at one time, it is evident that something like personal attention will be given. This should prove of material advantage to the students.

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Dorset's New Letters.

THE sensitiveness of the Dorsetshire motorists, who did not appreciate being labelled with the mystic letters B.F., has found its way to the Local Government Board, which has consented to an alteration. Of course those who prefer to retain the letters already obtained may continue to be thus distinguished among motorists; but doubtless many will prefer the new identification mark, F.X., which the Board has just sanctioned. Let us hope that Dorsetshire owners will now be happy, and go on their way without the inconvenience of police traps, and without the annoyance from small boys, who seem to have read strange meanings in the old symbols, which have official patronage no longer.

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An Appeal Allowed.

WHILE congratulating Mr. Louis Sinclair, M.P., on his successful appeal against the decision of petty justices, we would remark that his is no isolated case. The Recorder of Folkestone came to two conclusions:—First, that the evidence of the constable with regard to the speed of the motor-car was unreliable; second, that Mr. Sinclair did not appreciate the significance of the charge, and consequently did not tender legal evidence at the original hearing. Many convictions have been quietly acquiesced in by their victims where this latter view has been taken. Motorists in their novitiate have frequently been summoned, and, believing in the impartiality of British justice, have sent their drivers to defend the case, never dreaming of inconveniencing their friends who happened to be on the car by summoning them from distant places as witnesses. In practically every instance of that kind fines have followed, which, had the defendants realised the existing prejudice, might have been minimised by personal appearance. But we would remind the Recorder of Folkestone that, even had Mr. Sinclair thus appreciated the position, the difficulty of unreliable police evidence has to be encountered. Therein lies the crux of the matter so far as motorists are concerned.

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The English Entries for the Gordon Bennett Race.

ELSEWHERE we discuss the new conditions which have been introduced into this international contest. To the "man in the street," as distinguished from the man in the car, quite as interesting will be the news that the Eliminating Test for the British team, to be held in the Isle of Man, will be productive of a keen contest. There will be ten cars in the event. Mr. A. Rawlinson will drive a Darracq, and Mr. Lionel de Rothschild's Siddeley car will be driven by Mr. Sidney Girling, who will not on this occasion be found—as reported in a contemporary—at the wheel of a Wolseley. Two Star cars, two Wolseleys, and a quartette of Napier cars conclude the entries which were received up to Saturday—the last day. Messrs. John Hargreaves, Cecil Edge, Clifford Earp, and Arthur Macdonald will be the drivers of the latter.

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The Sussex Club.

AN Automobile Club is about to be formed for Sussex, and on the 28th instant a meeting for the purpose of inaugurating the organisation will be held at the Ship Hotel, Brighton, a rendezvous familiar to motorists. The news of the formation of this new club leads to a feeling of surprise that it was not thought of earlier, having regard to the prevalence of prejudice in that part of the county. Still, better late than never, and the motor-car meet which is being proposed for Brighton this year should give the Sussex Automobile Club an excellent opportunity of entering the automobile world with distinction.

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The Glidden Trophy.

TUESDAY, July 11th, has been fixed as the date for the start of the first contest for the Glidden Touring Trophy. The tour will take the place of the annual endurance run of the American Automobile Association. It will start from New York, and continue for two weeks over a course of one thousand miles. The route will be through Stamford, Bridgeport, New Haven, Hartford, Springfield, and Worcester to Boston. One day will be spent in a run of one hundred miles in the district round the latter city, the tourists afterwards proceeding to the White Mountains, and return to New York by way of Lowell, Worcester, Lenox, Albany, and Poughkeepsie. Two days will be spent in the White Mountains and one in the Berkshires. Each competing car will be credited with a given number of points at the beginning of the tour, and every stop.

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en route for repairs will be penalised at the rate of one point for each minute lost. The contest is to be decided on stops for repairs and petrol consumption. Tyre repairs which require stops will not count against competitors. The car which makes the best combined showing of fewest points lost and least petrol consumed per ton-mile will be declared the winner of the trophy. The runs each day will average less than one hundred miles, and violators of speed laws will be disqualified.

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Motor 'Buses for London.

At length one of the two great London 'bus companies has definitely determined to take the plunge and commit itself to the development of motor traction in place of the horsed vehicle which has been in the streets of the metropolis so long. "The time has now come," they say, "when the operation of substituting mechanically-driven vehicles for the present horse cars should be seriously commenced." The Road Car Co. is favourably placed for undertaking the change contemplated, as with its established organisation the adoption of mechanical traction should be a matter of easy accomplishment, and the directors anticipate that it can be carried through without any disorganisation of the present traffic. The directors report that they have entered into contracts with two of the leading concerns for delivery to the company of a considerable number of suitable motors; and further that they have obtained options for the supply of additional motors as required; and have secured from the companies in question the exclusive right of supply for use in London during the execution of the company's orders.



The Orion Motor-Omnibus.

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The Utilisation of Ordinary 'Bus Bodies.

One problem the 'bus companies are concerned with is the disposal of their present rolling stock. This has been one of the stumbling blocks to the introduction of the motor vehicles. Hitherto manufacturers have built bodies to suit their own particular design of *chassis*, but now Messrs. Moss and Woodd, of Kensal Rise, have conceived the idea of building an Orion *chassis* which will admit of the present 'bus body being used almost in its entirety—everything, in fact, except the wheels. So far as smooth running and comfort is concerned the result is entirely satisfactory. The motor employed is a two-cylinder of the opposed type, and develops 20-h.p.; it is fitted with Eisemann high tension magneto ignition. There are four speeds and reverse. Sirdar tyres are fitted on all wheels. The weight of engine and *chassis* is 36 cwt., and it is claimed the vehicle can be run seven miles with full load up on a gallon of petrol. It will be interesting to watch the progress of the vehicle, which is put upon the road by the London General Omnibus Company, and is already to be seen on the streets of the Metropolis.

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The Railways and Motor 'Buses.

The Midland Railway Company, judging from a clause in their new Bill, have determined to develop their omnibus business, and utilise motor-vehicles in their chief centres. This departure is said to indicate an intention on their part to tap the rural districts, as feeders of their lines. But it also gives power to the company to use motor-'buses in competition with tramways. This latter reprisal can hardly be said to be altogether unexpected. It must be regarded as the official "tit for tat" for the havoc which the modern tramcar is making with some of the shorter runs on the rails. All the great railway companies are beginning to recognise that if their revenues are to be maintained against the competition of the tram they will have to bring the motor-vehicle to their aid—not only as a feeder to their lines, but also as a means of carrying passengers to their destinations.

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The Motor Union and the Provinces.

The principle of holding some of the meetings of the general committee of the Motor Union in provincial centres like Manchester, Birmingham, Nottingham, and Leeds has been approved of by that body, and something definite will be reported next month. This organisation has a large membership beyond London, and the proposed innovation should have a good effect in stimulating provincial interest in the doings of the national organisation. London members of the committee, too, will have better opportunities of realising the enthusiasm with which the country clubs carry on their work, and doubtless the periodical visits of the Motor Union to provincial towns will be made the occasion for county reunions of interest and value to the movement.

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Dangers in Garages.

The recent fire at a motor garage in Brooklyn, U.S.A., has resulted in a spurt of activity on the part of the Bureau of Combustibles of the New York Fire Department, which has just issued a notice to the effect that "garage owners must hereafter obey the law—the spirit of the law as well as the letter. The regulations regarding the storage and sale of gasolene, which the automobile dealers themselves helped to frame, will be strictly enforced from now on." The Superintendent of the Bureau is also credited with the statement that "in future all heat, or steam used for heating, must come from outside the building, the use of stoves or furnaces being absolutely prohibited. No licence for the storage of gasolene will hereafter be granted where the 'day population of the building above the garage is one hundred people or more.' In cases where a licence has been granted, and it is found that such conditions exist, the licence will be revoked." At the garage of the Michelin Tyre Company, in New York, recently, it was found that 250 people were employed on the several floors above, and its petrol storage licence has consequently been revoked. The regulations for the storage of petrol, which will now be enforced to the letter, require that "in automobile storage stations the storage of naphtha (petrol) shall be by one of the following methods only:—(a) In an iron or steel tank of approved design and construction, buried underground, with the top at least two feet beneath the surface; the maximum amount stored therein not to exceed 275 gallons; not more than one tank shall be permitted upon the same premises. (b) In approved sealed metal cans, to a maximum amount not exceeding 50 gallons." Sand must be kept in buckets fit and available for absorbing

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waste oil that might fall upon the floor. The use of sawdust for this purpose is strictly prohibited. No naphtha shall be put into or taken out of an automobile within 50 feet of an open fire, nor until lamps or other apparatus intended to be carried upon the vehicle for illuminating purposes or as pilot lights have been extinguished. Buildings of this character must be lighted only by enclosed electric lamps.

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A 5,000 Mile Trial.

On Monday another long distance trial, under the auspices of the A.C.G.B.I., was commenced, a 12-h.p. two-cylinder Siddeley car being started on a pilgrimage of 5,000 miles. Mr. Sidney Girling, who drove a Wolseley car in last year's Gordon Bennett race, was at the wheel, and he will drive alternate days. Mr. A. E. Sutcliffe being the driver on the intervening occasions. It is the intention to make a daily trip of about 180 miles—Sundays excepted—so that the trial will extend into four weeks, thus giving the vehicle ample opportunity to prove its merits under varying climatic conditions. The month of January is not an ideal one for touring, and Mr. J. D. Siddeley's enterprise in thus putting his car to the test at a bad time of the year proves his belief in the reliability of the vehicle he has designed.

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The Siddeley Car.

Our readers are familiar with the main points of the car, to which full reference has previously been made in the *Journal*. It is of British construction, having been made at Crayford, Kent, and a similar automobile of 6-h.p. obtained a gold medal in the Reliability Trials at Hereford in September. The routes have been selected by the Club, and will be chiefly those which were covered in the recent 4,000 Miles Trial, including the Oxford Road, the Coventry Road, the Great North Road, the Bath Road, and other main highways. On Saturday, when the car was weighed in at the Club garage, an outburst of fine weather was cheering to the drivers, but when Monday morning arrived snow set in, followed by a drizzling rain, which made the roads greasy and dangerous. The trip was to North Leach and back, on the Oxford Road. On Tuesday the car journeyed to Coventry and back to London. At the time of going to press the automobile was still running well. Continental tyres have been adopted.

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Delhi to Bombay.

To those natives who have been prone to regard the motor-car as a mechanical means of murder on the high roads, the peaceful character of the reliability trials from Delhi to Bombay must have come as a revelation. A run of 1,000 miles was carried out in stages, and not a single mishap occurred to man or car. Tyre troubles, however, were frequent and worrying, and it is evident that the tyre manufacturers have a difficult problem to face in the Dependency, for nails from bullocks' shoes are familiar and frequent on the Indian roads. In the trial the small cars did well, a 6-h.p. Wolseley and a 12-h.p. Darracq covering the whole course without unauthorised stoppages and finishing without losing a single mark. A telegraphic advice says the Wolseley car was awarded the consolation prize offered by "The Times of India." The Gaekwar's Cup for the most reliable car was awarded to a De Dietrich car, and the Maharaja of Gwalior's Cup for the most economical machine to a Speedwell. The Maharaja of Mysore's trophy for the car finishing in the best condition, and the Raja of Kapurthala's Cup for the car doing the best district work, were both won by De Dion cars. The Nawab of Rampur's trophy for the absence of noise and vibration and ease in manipulation was awarded to a Fiat car, and Mr. Jeremiah



The Meet of the Automobile Club of Victoria at The Hermitage, near Melbourne, in November last.

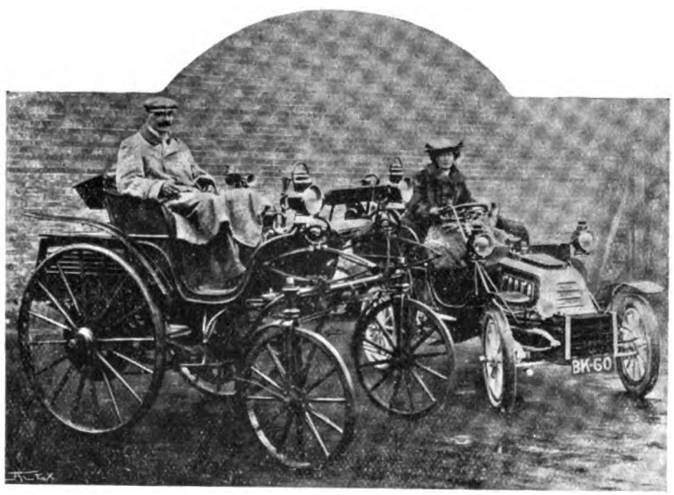
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Lyon's Cup for the most reliable car costing under £500 to a Darracq.

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Petrol in India.

Mr. J. F. Spring, of Madras, whose recent article in the *Journal* on Motor-Cars in India has attracted much attention in the British automobile industry, has been responsible for a representative gathering of motorists at the residence of Mr. Justice Boddam, at Madras. Most of those present drove in their motor vehicles, and no fewer than thirteen cars and four motor-cycles were counted. In opening the proceedings, Mr. Spring said that the present was a critical time in the history of Indian motoring, because a few weeks ago the Government published a set of draft rules under the Petroleum Act, some of which went too far. The proposed rule that petrol should be stored and transported in two-gallon steel drums would put all motorists to extreme inconvenience; for the petrol which went to Madras from Assam arrived in ten-gallon steel drums, while that which arrived from America, under the name of gasolene, was packed in eight-gallon steel drums. The latter drums were securely nailed up in strong pine cases, three-quarters of an inch thick, marked as having passed the test for transport of the New York Marine Insurance Union, for carriage below deck. Nobody could possibly desire stronger or better packing-cases, and yet, under the new rules, consumers would be compelled to carry out the risky operation of decanting their petrol out of these drums into new two-gallon drums, which he did not believe existed in Madras, even if they could be made there on a commercial scale.



Mr. J. A. Koosen's Motor Stud—an 1896 6-h.p. Lutzmann, which has covered over 100,000 miles, and a modern car of 9-h.p.

Indian Motor Union.

As regards a Motor Union, Mr. Spring thought that, for those first joining, an annual subscription of Rs. 10 for those owning a car or a motor-cycle, and Rs. 5 for those interested, but not themselves motorists, ought to serve; and that it would be time enough to talk of larger subscriptions when the Union had taken formal shape and attained respectable dimensions. Madras motorists were not the first in that part of the world to take action for their mutual protection and interest, for about 90 gentlemen had agreed to form an Automobile Club of Ceylon. The idea of a South Indian Motor Union was first suggested to him by Captain Sturrock, R.A., the Hon. Secretary of the recently formed Nilgiri Automobile Association. On the motion of Colonel Formby, it was unanimously agreed that Mr. Spring should be elected chairman of the new South Indian Motor Union, which was thus formed under very favourable auspices.

Official Haste.

Some idea of the absurd ways of those in official places was obtainable the other day at the South-West London Police Court, when Mr. G. D. Stevens was summoned by the Excise authorities for keeping a tri-car without a licence. Mr. Stevens is a recent accession to the ranks of motorists, and having registered his vehicle with the London County Council, thought that he had complied with all the official requirements. When he discovered that a licence had also to be obtained, he sent a cheque in payment. It was returned, with the intimation that payment must be made in cash. Within twenty minutes the money was forthcoming, but the Excise authorities had taken out a summons—a piece of haste that did not favourably impress the magistrate, who thought justice would be met by the defendant paying the costs only. Really, the ways of some public officials are entirely outside the pale of common sense, as the directions as to making the declaration expressly provide for payment by cheque.

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The Outlook in Scotland.

The article by the general secretary of the Scottish Automobile Club, which we publish in another column, will be read with interest by motorists on both sides of the Tweed. Speaking generally, Mr. Smith's impressions are corroborated by his confreres of the Yorkshire and Sheffield clubs. Down south motorists are not so satisfied as are those of the north, and it is evident that a spirit of wise toleration has been prevalent in Scotland, although it has been occasionally darkened by outbursts of ignorance on the part of Councils remote from the centres of automobile education. Mr. Smith would not be surprised to see the Motor Car Act relegated to the Expiring Laws Continuation Bill; but we should prefer to see some substantial amendments introduced to limit the exercise of the authority of the police, and to require more explicit evidence than they have been in the habit of producing.

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Inquiry at Leeds.

A notice has been given in the "London Gazette" that Mr. Edmund P. Burt, the Local Government Board Inspector, will hold an inquiry at the Town Hall, Leeds, on Wednesday next, into the application of the Leeds City Council to the Local Government Board for a regulation under the Motor Car Act, 1903, to constitute an area comprised within a two-mile radius circle from the junction of Briggate with Commercial Street and Kirkgate as a place within which motor-cars shall not be driven at a speed exceeding ten miles an hour.

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The Heavy Motor-Car Order, 1904.

After waiting a year for the issue of the Regulations of the Local Government Board with respect to heavy motor-vehicles, the industry will be glad to know that the official rules may now be obtained. The explanatory article on another page will sufficiently indicate the general purport of the new regulations, and show that, on the whole, the amended rules will not prove to the disadvantage of the industry. The Order prescribing the new regulations is termed the Heavy Motor Car Order, 1904, and, with the exemplification as to widths of tyres, is obtainable either directly or through any bookseller from Messrs. Wyman and Sons, Ltd.

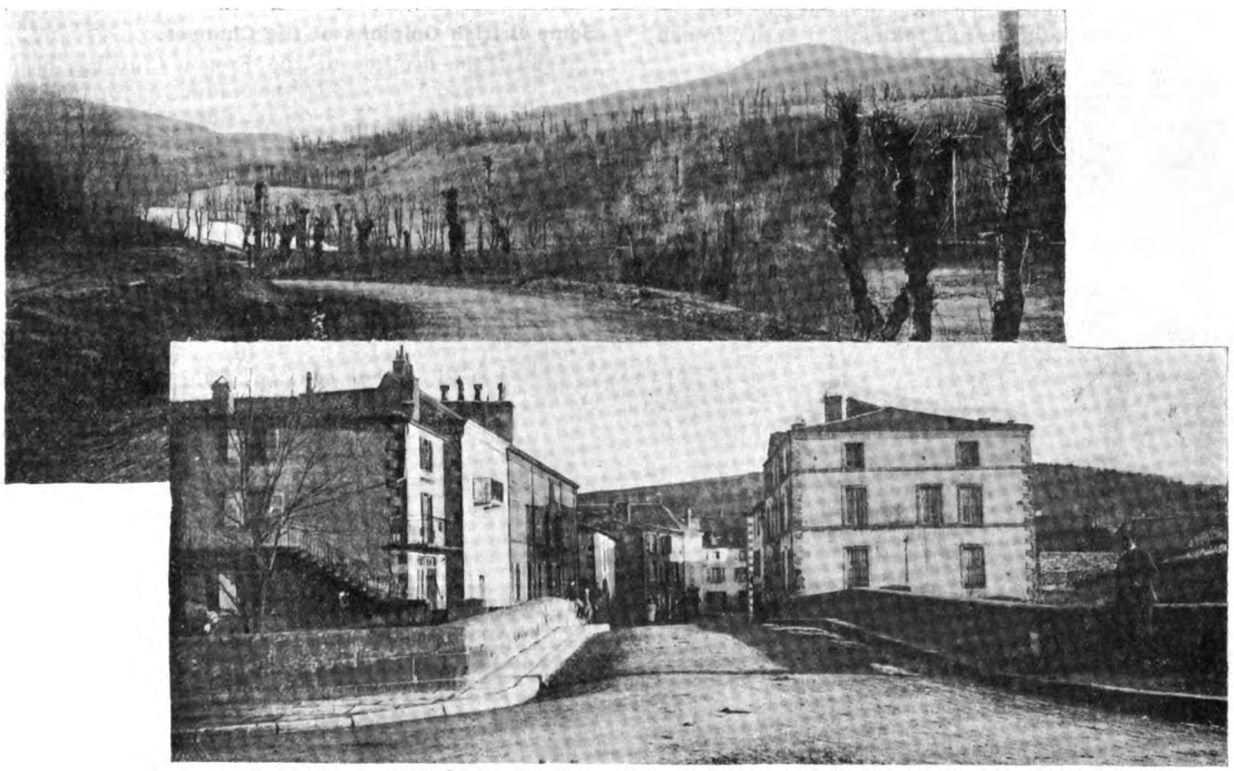
As intimated in last week's *Journal*, the offices of Messrs. Cordingley and Co. are being removed to 27-33, Charing Cross Road, London, W.C., to which address all communications should be sent in future.

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The 1905 Gordon Bennett Race.

DRASTIC CHANGES BY THE FRENCH CLUB.

THE great event of the past week has been the meeting of the committee of the French Automobile Club to decide as to the course over which the 1905 Gordon Bennett race shall be held. As will be seen, the selection of the course formed but a minor portion of the day's deliberations, as a result of which some very drastic changes have been decided upon. In the first place, it was resolved that the 1905 race is the last one in which the French Club will compete for the Gordon Bennett cup under the present conditions; it was, secondly, decided that combined with this year's event will be a race for the Grand Prix de l'Automobile Club de France, in which any number of cars may be entered by the different countries, so that each competitor may have an equal chance, and that in 1906 and subsequent years the A.C.F. will organise an annual international race for the Grand Prix.



A Nasty Turn near Bordas. The Entrance to Pontgibaud.

VIEWS ON THE AUVERGNE CIRCUIT.

The Selected Course.

Of the five circuits proposed, it was at first believed that the Aix-les-Bains district would be chosen, the municipality of that town having offered the organisers of the race a subsidy of £12,000. After some discussion, however, the Circuit de l'Auvergne, proposed by M. Michelin, was adopted both for the French eliminating contest and for the Gordon Bennett race. The course measures 134 kilometres (84 miles), and will therefore have to be covered approximately no less than five times. It starts at a point known as Les Quatres Routes, at the foot of the Puy de Dome mountain, 4,800 feet high, near the town of Clermont-Ferrand, where the Michelin tyre factory is situated, and runs west over the Moreno Pass to Rochefort and Bourg-Lastre, then north to Lastic, Herment and Pontaumur, west to Pontgibaud and back to the starting point. All accounts tend to show that the course is one of the most difficult so far selected for the great race. After leaving the starting point the road is of good width, but comprises many stiff climbs and equally rapid descents. The way out of Rochefort is difficult, while the entry into Laqueuille is described as "terrible"—a nasty right angle turn with a precipice of several hundred feet on each side. From Bourg-Lastic to Herment good time can be made, while the section between Pontaumur and Pontgibaud is of a switchback character. The only real advantage claimed for the circuit is that it is in a district in which there is little traffic, so that few neutralisations will be necessary—probably only two, at Rochefort and Pontgibaud, besides three level crossings.

We append a table showing the distance between the principal places on the circuit:—

	Kilometres.
Quatres Routes to Rochefort	28·5
Rochefort to Laqueuille	9
Laqueuille to Bourg-Lastic	14·5
Bourg-Lastic to Herment	15
Herment to Pontaumur	18
Pontaumur to Pontgibaud	21
Pontgibaud to Volvic	13·5
Volvic to Quatres Routes	14·5
	134

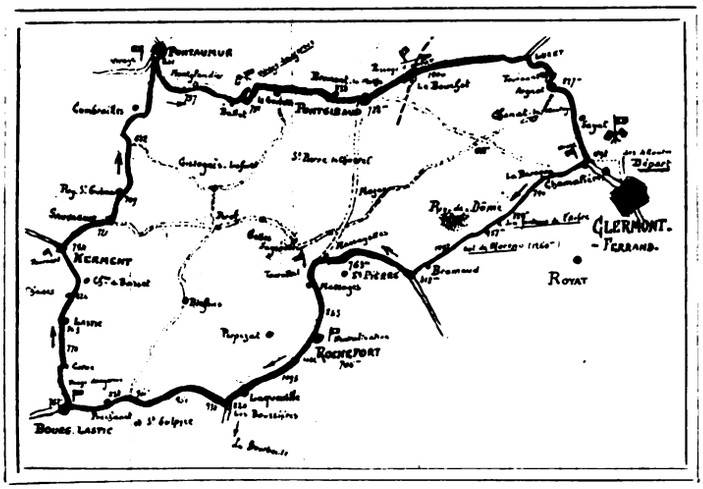
It is exceedingly probable that the 1905 race will not be a fast one in point of miles per hour, for the drivers will have to proceed with great caution, as frequent speed changing, application of the brakes, and clutch withdrawal will be necessary. It is stated that the municipal authorities of Clermont-Ferrand have offered to guarantee a sum of £8,000 towards the expenses of the race.

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The town has between 50,000 and 60,000 inhabitants, and is about 240 miles from Paris. It lies in the centre of an interesting district, and already extensive preparations are in hand for the great influx of visitors which may be expected on the occasion of the great races. Within convenient distance, too, are the well-known inland watering places of Royat, Chatelguyon, and Vichy, the latter being about 40 miles from Clermont, and it is anticipated that many will make the hotels at one or other of the latter places their head-quarters.

The French Eliminating Trials.

The regulations regarding the eliminating trials for the French team for the Gordon Bennett race, which will take place over the Circuit d'Auvergne about a month before the great event, comprise several new features. Among these may be mentioned (1) that the engines and transmission mechanism of the cars must be constructed by the firms entering the vehicles; (2) that where different firms are making the same engine or mechanism under licence, an aggregate of three cars only of the one type will be admitted; (3) the entrance fee has been increased to £400 per vehicle; (4) in future any driver who may drive a car in a foreign eliminating contest or a foreign car in the Cup race itself will be disqualified from taking part in the French



Route Map of the Auvergne Circuit.

eliminating contest. As last year, the three fastest cars and their drivers in the eliminating trial will be selected for the French team for the Cup race; it being also provided that the cars must be fitted with the same make of tyres as in the eliminating contest.

The Joint Race.

The decision to hold an open race for the A.C.F. Grand Prix in conjunction with the Gordon Bennett is practically due to a movement among the principal French manufacturers, who consider that it is unfair that France, which has the largest number of important firms, should be represented in the Gordon Bennett contest by only three cars, while such countries as Switzerland, Belgium, and Austria, which have, perhaps, only one really large firm each, should be allowed to send an equal number of vehicles. The joint race, for which prizes aggregating £8,000 will probably be offered, the "Auto" having headed the list with a sum of £4,000, is a return to the conditions which prevailed prior to the memorable contest in Ireland, the early Gordon Bennetts having always been held in conjunction with a long-distance race, such as the Paris-Vienna, Paris-Bordeaux and Paris-Berlin. We cannot say, however, that we are enamoured with the idea of a return to the old conditions, for there will be the great difference that this year's event will be over a circuit and not between widely-separated points as those above named. Should a large number of entries be sent in for the event—and it is quite possible that as many as seventy competitors will present themselves—the idea of all these cars tearing round an eighty-mile circuit, admittedly a most difficult one, is anything but pleasant to contemplate; for when it is remembered that the circuit has to be made five times by each competitor, it is easy to see that a good deal of passing will have to be done, while in many places the cars will become bunched together, seriously hampering the Gordon Bennett competitors. Although M. Brasier, of the Richard-Brasier firm, bowed to the inevitable, and voted with the majority at the A.C.F. meeting, he evidently views the outlook with alarm; for, after making a trip over the selected circuit, he is credited with the remark that "I am afraid to think that racing-cars will be despatched over such a dangerous course." The idea of a joint race is likely to meet with objection on the part of some of the clubs challenging the A.C.F. for the Gordon Bennett Cup. Already M. Hautvast, on behalf of the Pipe Company, which last year competed for Belgium, has announced that if the decision to run a joint race is persisted in no Pipe cars will this year compete for the Cup. Finally, it may be mentioned that there still remains the question whether the French Government, which is apparently willing to permit the Cup race, will give its permission for an open contest.

Some British Opinions of the Changes.

That the decision of the French Club has been received with very mixed feelings by the leading motorists in this country goes without saying. Mr. S. F. Edge, whom we saw on Tuesday, is most emphatic in protesting against the action of the A.C.F. in deciding on a joint race. While not forgetting that formerly the Gordon Bennett was run in connection with longer and probably more important events—for it was in the Paris-Vienna race that he won the much-coveted Cup in 1902—Mr. Edge looks upon the Cup race as a sporting event, which in recent years has assumed too important a character to be run in conjunction with another race organised purely in the interests of French builders. He himself is perfectly willing to compete under the present rules, where the best cars in the eliminating contest are selected for the Cup race. This procedure, which he considers fair to all, is not viewed with equal complacency by French firms, who, now that they find their supremacy in the art of automobile construction attacked by makers in other countries, who have equal chances with them in the Cup race, are seeking to upset this equality to their own advantage by instituting a race in which the French competitors will far outnumber those of other countries, so increasing France's chance of retaining the Grand Prix. Mr. Edge has no objection to the latter as a separate event, and if run on these lines would probably compete in it. He has, as a competitor in the English eliminating trials, however, sent in a strong protest to the A.C.G.B.I. against the proposed joint race. As to the Auvergne course, on which the contests are to be held, notwithstanding that this is credited with being the most difficult so far selected, Mr. Edge has no complaint to make with regard to the decision of the French Club. "However bad it is, it will be the same for all," he remarked, but added that the running of a joint race, and the consequent large number of competing cars on the circuit at one time, would be fraught with considerable danger.

Mr. Chas. Jarrott, strangely enough, views the matter in another light. In the first place, we may say that he has decided not to drive a car in the 1905 Gordon Bennett race. Speaking, however, as a competitor in former years, he cannot see that the decision of the A.C.F. to hold a joint race will inflict any injustice on foreign competitors in the Gordon Bennett event, for he points out that the French Cup team will be equally handicapped by the other cars on the road. From the French point of view the Grand Prix race is an excellent idea, and one with which Mr. Jarrott is not inclined to quarrel. He regards France as the home of automobile racing, and considers it not unnatural the A.C.F. should endeavour to make the event of the year the one controlled by themselves. He even goes further in maintaining that, inasmuch as it is due to the initiative of France-

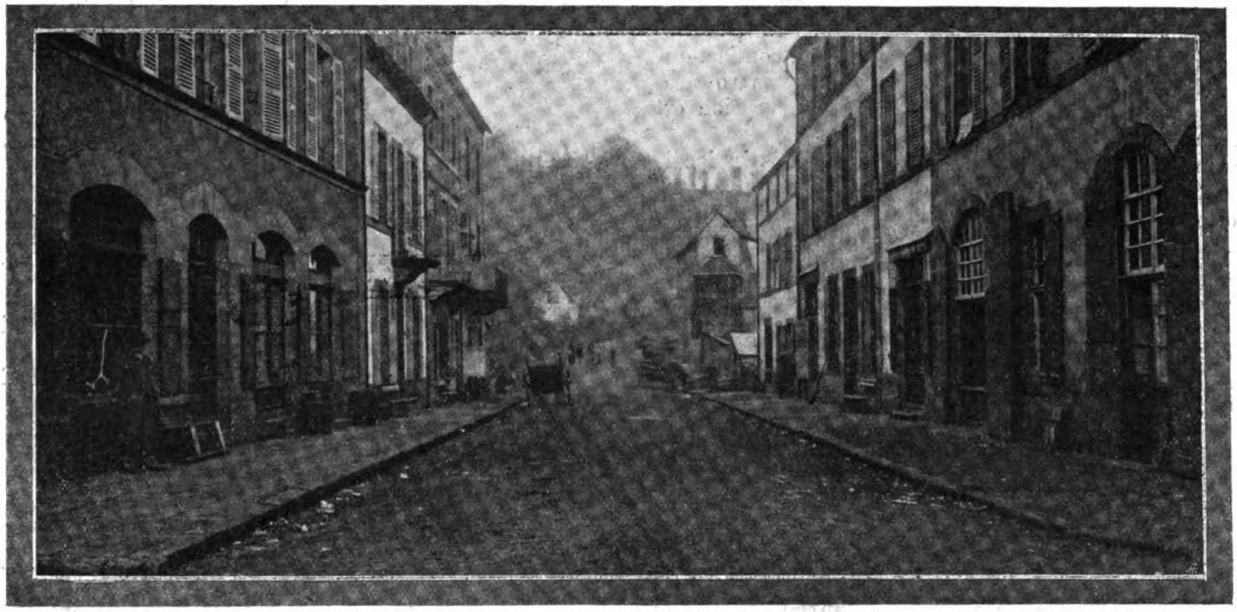
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that racing has been permitted in other countries, every encouragement should be given to the A.C.F. to encourage racing by permitting them to organise the annual great event. He looks upon the idea as tending to increase sport—and we all know that Mr. Jarrott is nothing if not a sportsman—for he believes that more competitors are likely to come forward when they are assured that in return for their entry fee they will have a chance of competing in an international event. Although the Auvergne course is admittedly a difficult one, Mr. Jarrott does not consider it will present any excessive danger to competitors by reason of there being a large number of cars on the road at one time. His ground for this opinion is based on the fact that, commencing with the Gordon Bennett in Ireland in 1903, a great change has been effected in circuit racing. Prior to that date the principal danger was found in the dust, which, particularly in the Circuit des Ardennes of 1902, hung over the course like a fog, rendering it exceedingly difficult for one competitor to see another in front of him. The use of dust-laying preparations has now removed this great drawback; to this may be added the greater reliability of the cars now built, so that altogether, even with 60 or 70 cars on the circuit at a time, Mr. Jarrott considers that the risks attendant on racing are at the present much less than at any former period in the history of the sport.

Mr. J. D. Siddeley, who is building a Gordon Bennett racer for Mr. Lionel de Rothschild, is as emphatic as Mr. Edge in his condemnation of the A.C.F.'s action, which he regards as altogether unfair, if not improper. He considers that the decision to run the Gordon Bennett in conjunction with another race can only be classed as an attempt to belittle its importance in the interests of French manufacturers, who apparently view with alarm the rapid progress which is being made by motor-car constructors in other countries, and the consequent reduction of their chances to retain the Gordon Bennett Cup. During the past few years the latter has developed into the great international sporting event of the motoring world, a position it will retain, in Mr. Siddeley's opinion, notwithstanding the inauguration of the Grand Prix de l'Automobile Club de France. Mr. Siddeley has no voice in the matter as to whether the car he is building for Mr. L. de Rothschild will take part in the Cup race under the new conditions, but considers it more than probable the A.C.G.B.I. will take some action in the matter. As to the danger due to the large number of cars which may be expected to be racing on the circuit at the same time, if the decision to run a joint race is persisted in, Mr. Siddeley expresses the opinion that the risks will be exceedingly great, more especially from the point of view of the incapacity of many of the drivers who will be entrusted with powerful racers, the number of men really qualified to handle fast cars being relatively few.

Our Own View.

Our own view is distinctly that the Gordon Bennett contest has now attained such international importance that a separate race is a *sine qua non*. In the early days, when France had to meet but one or two opponents, it was quite feasible to run the event in conjunction with another. The automobile movement is, however, a rapidly progressing one; and now that there are seven countries in a position to challenge France for the possession of the Cup, the Gordon Bennett has become a race between nations each of which has the right to be represented by three cars, and an equal right to a fair field. Whatever the Grand Prix may develop into, the chances of success therein will for many years be in favour of France, which, in the present state of the industry, is in a position to put fully twice as many cars into the contest as those of all other countries combined, and if the A.C.F. persists in running a combined Grand Prix and Gordon Bennett, we cannot see how the competitors in the latter can possibly meet on an equal footing. We have no objection to the Grand Prix whatever as a separate race, for those British or other foreign firms who enter for it will do so with a full knowledge of the fact that it will be a national event organised by the French Club. The Gordon Bennett is an international race, controlled by an international committee, and looked upon as *the* event of the motoring year, a position which we do not think it is likely to lose by any threatened abstention of France. At the present moment the eyes of the British motoring world are on the A.C.G.B.I., the action of whose committee in the matter is awaited with more than usual interest.



The Auvergne Circuit.—The Way out of Rochefort.

If the commutator on a car be on the dashboard, worked by a chain from the half-time shaft, be careful to either mark a link of the chain on a corresponding tooth of the chain wheel (*both* wheels must, of course, be marked), or have some disinguishing mark, so that the firing can easily be set if the chain comes off. On a dark night it is not a particularly easy task to set the firing of a four-cylinder engine.

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THE ACT IN SCOTLAND.

By Robert J. Smith.

THE experience of the first year of the Motor Car Act, 1903, in Scotland has been, on the whole, satisfactory. The fears which were freely expressed after it had passed the Commons that the progress of the automobile movement would be stopped and the industry killed have been proved groundless. Both have given evidence of unbroken advance, and the year 1904 has, I think, seen more progress than any that has preceded it. The outcry against identification marks rapidly died out, and they are now treated as a matter of course. I have never heard of an instance of a car being given up or of a person refraining from purchase from this consideration. I believe they have formed in their progressive rotation a telling object-lesson to the general public on the progress of automobilism in the various districts.

The apparently anomalous licensing clauses will be found to have wrought satisfactorily. There can be no doubt that aversion to endorsation is common to every driver, and that this has tended to a stricter observance of the law, and, combined with the stringent provisions of Section I., has operated towards careful and considerate driving. In Scotland prosecutions of motorists have been comparatively few, and I would venture the opinion that this is as much due to good conduct on the part of the motorists and their drivers as it is to the generally friendly attitude and the reasonable conception of their duties and powers on the part of the police.

During the first year of the Act ten applications by local authorities in Scotland for prohibition of roads and restriction of speeds to ten miles per hour have been announced by the Secretary for Scotland. At the moment of writing three or four roads, only one of which is of any importance, but is not a through road, have been closed, and on three or four limited stretches in populous areas restrictions have been imposed. The Secretary for Scotland has initiated a general principle which he proposes to apply to all county applications, viz., that a speed limit of ten miles per hour should be imposed on main roads running through populous places where the circumstances call for such limitation, and he has been careful to make it clear that the circumstances in each and every case must be taken into consideration. Whatever view automobilists may take on this question they must recognise that the general public will be hard to convince that there is any hardship in a restriction in populous places to ten miles per hour or that that limit should be exceeded, and we cannot get away from the consideration that the general public is an important factor in the matter. Bearing in mind that there are thirty-three counties in Scotland and some hundreds of burghs, all of which are "local authorities" in matters relating to speed limits, the number who have moved in the matter is relatively very small. The question has been considered by some other authorities, some of whom, in deference to local representations, have agreed to take no action in the matter, while it is believed that some have been dismissed by the Secretary for Scotland without calling for objections.

The experience of the Act has doubtless revealed a number of weaknesses which were to be expected of such hasty legislation, and which, without involving any important questions of principle or controversy, can be easily remedied in any succeeding statute.

With regard to the outlook everything points to still greater progress in 1905. Leading manufacturers are sold far ahead and are more heavily booked than at the corresponding period in any previous year. There can be no doubt that the use of the motor-car is daily becoming more general and that the more recent cars are being used for town work and are supplanting the horse carriage to a much larger extent than did the earlier vehicles. In addition to this, the commercial vehicle is beginning to come in, and the prospects in that direction are decidedly encouraging. The progress which the automobile movement has made in the past will be nothing to the advance in store for it when the day of mechanical traction for commercial purposes arrives. One feature in this connection occurs to me. The proportion of owners of cars to-day who drive their own vehicle, or who even understand their vehicle, is becoming gradually smaller and the influence of the professional consequently greater, and the greatest care will require to be exercised to insure that this increase of influence does not become disadvantageous to the movement.

By the end of 1905 the Motor Car Act will have but one further year to run, and the question of its renewal or replacement by another Act will call for immediate consideration at the hands of the Legislature. Every indication furthers the belief that no important change will take place after the expiry of the present Act, and it would not be surprising if it is included in the Expiring Laws Continuation Bill. On the other hand, it is not unlikely that a replacement Bill may be introduced, remedying some of the minor weaknesses of the present Act, but continuing the law in its principal features. The question of identification and registration is, to my mind, settled for a lengthy period. I do not think there is the remotest prospect of an early abolition of a speed limit, but by careful and judicious negotiation it might be possible to replace the twenty-mile limit by a larger one, and to introduce a greater latitude with regard to restricted rates of speed which may be imposed by the governing authorities. Bearing all this in mind, the responsibility lying upon every driver of a motor vehicle cannot be too strongly enforced. They have the making or marring of the legislative prospect, and it is incumbent that cars should be so used on the highways, not only that hostility and prejudice on the part of the public may be avoided, and that these feelings in so far as they exist may be conciliated, but that the good feeling and support of the public at large may be engendered and encouraged towards the automobile movement. I have the hope that the attitude of the public towards automobilists and that of automobilists towards the public are running on converging lines, which will ultimately and not far distantly meet.

In Scotland the matter of limits has not been a pressing one. The authorities have largely proceeded on the view that the speed limit clauses should be considered preventive and suggestive rather than penal, and that the true test of offence is contained in Section I. We have no police traps in Scotland, and we hope, by the kind assistance of our friends from the south, to maintain this position.

It is not unlikely that before the present Act expires a general election will take place. We cannot have in any other or any different Government more intelligent or more friendly automobilists than are in the present one, but I do not know that that is a great consideration. In our experience legislators outside of the movement have been as valuable to it and have taken quite as broad a view of the situation as those within. I feel convinced that a general election will help the prospects of legislation, inasmuch as it will demonstrate to members of Parliament and to parliamentary candidates the valuable services of the motor vehicle. Few bye-elections have taken place recently where the motor-car has not been an important agent to the candidate throughout the contest and on the polling day; and if the same use is made of the motor-car at a general election as has been made in these instances, every candidate returned to Parliament will hold his seat indebted, more or less, to the cars of his supporters. I hope that car owners will make certain that this indebtedness is as assured and complete as possible.

Agents are about to be appointed for the sale in Great Britain of the "Maxwell" car, in connection with which Mr. J. C. Kirkham will be glad to meet members of the trade at the Hotel Cecil, London.

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CONTINENTAL NOTES.

More Trials in France.

At a meeting of the Technical Committee of the French Automobile Club last week it was decided to organise during the present year at the A.C.F. laboratory a competition of different systems of ignition, one for transmission mechanism and one for silencers.

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Edison Accumulators in Germany.

An Edison Accumulator Company has been formed in Berlin, with a capital of £100,000, to manufacture the new Edison accumulator. Herr S. Bergmann, of the Bergmann's Elektrizitatswerke, will manage the new concern, which has rented the works of the Garvin Maschinenfabrik Gesellschaft. The production will commence early in the new year.

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Public Services in Germany.

A syndicate has been formed at Gingst to establish public services of motor-cars between that town, Samtens, and Trent. A similar scheme is also under consideration at Willstatt, which town it is proposed to connect with Offenburg on the one hand, and Kehl on the other, by a motor-omnibus service.

The Official Supervision of Garages.

It is announced that the Prefecture of Police in Paris is drawing up a series of regulations for the better control of motor garages, which it is considered should come under the classification of dangerous premises.

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A Motor-Bicycle Competition.

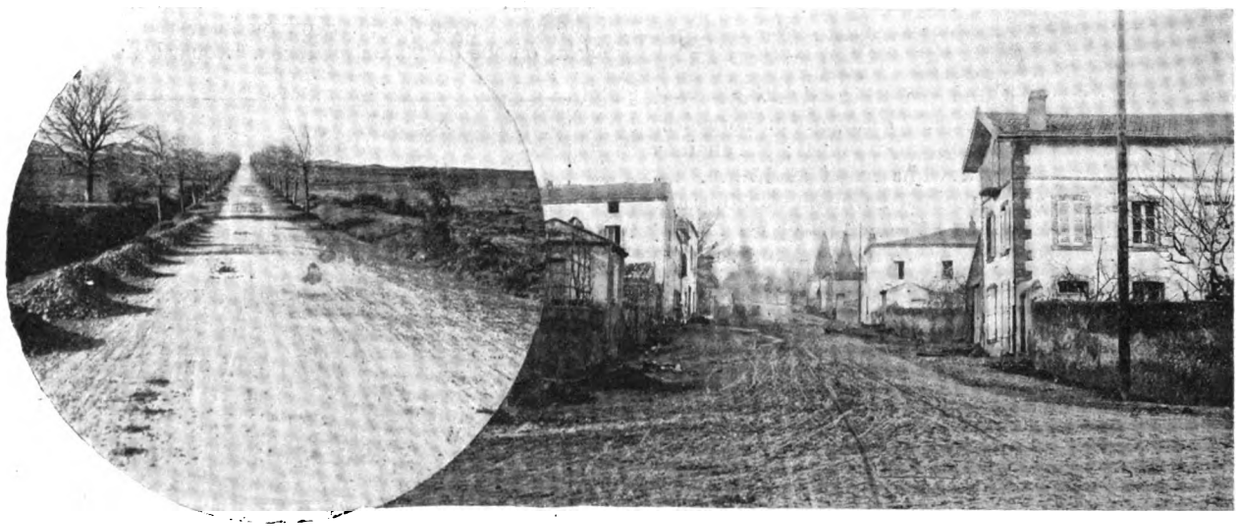
The annual motor-bicycle competition for the Brugier cup, organised by the Marseilles Moto Club, is to be held on January 15th. The course is over a circuit extending to 122 miles, and already seven entries have been received, these including three Griffon, two Magali, and two Buchet machines.



A Nasty Turn near Pontaumur.



The Village of Laqueuille.



The First Straight Stretch on the Course.

The Probable Starting Point.

MORE VIEWS OF THE AUVERGNE CIRCUIT.

A Renard Train in Tunis.

Official authorisation has been given to a scheme to establish a Renard road train service between Tunis and Bizerta. The train will consist of a tractor, a luggage van, and four 18-seated cars.

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New Low-Tension Ignition Systems.

The Bullock and Simplex systems of low-tension ignition, which were first described in the *Journal*, are apparently attracting considerable attention on the Continent, where new systems on somewhat similar lines are beginning to make their

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appearance. In the Zabalof device the internal break in the electrical circuit is obtained by a central rod which has an oscillating movement instead of a to-and-fro motion. In the Caron system, which was shown at the recent *Salon*, a magneto is used in place of accumulators to furnish the current. The internal break is obtained by a rod with to-and-fro motion, as in the Simplex method, but Caron builds his magnet round the plug, instead of at right-angles thereto.

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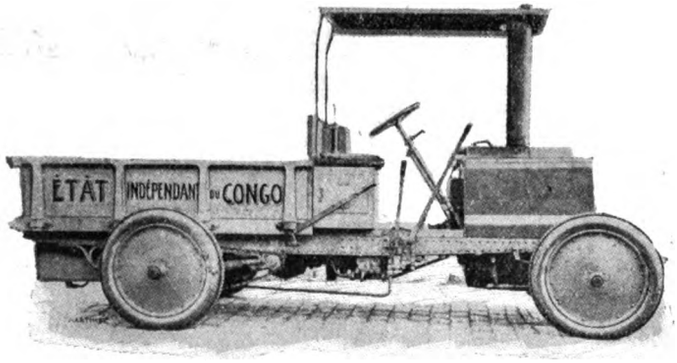
The Belgian Motor Industry.

The new works of Minerva Motors, Limited, at Berchem, near Antwerp, were inaugurated last week by M. Francotte, the Belgian Minister of Industry and Labour. The company has now three large factories, and during the present year hopes to turn out no less than 5.000 motor-cycle engines, 500 Minervette light cars, and about 400 of the new Minerva automobiles.

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Steam Wagons for the Congo.

Dr. R. Goldschmidt, the inventor of the "Direct" petrol car with no change speed gear, recently described in the *Journal*, has now turned his attention to steam wagons, and has designed two special types for service in the Congo, where, owing to the absence of good roads, the question of transport is a very difficult one. One of these wagons is fitted with disc wheels shod



with armoured pneumatic tyres, and the other with steel-tyred artillery wheels, a view of the former being given herewith. The boilers in each are adapted to use wood as fuel; the engines are of the four-cylinder type, and while rated at 15-h.p. are capable of developing for short periods as much as 30-b.h.p. The vehicles are very light, weighing without fuel or water only about a ton, and are designed to carry a load of 2 tons. It is stated that the great Belgian iron and steel concern—the Cockerill Company, of Seraing—is taking up the construction of the Goldschmidt vehicles.

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The De Dion Cup.

The Marquis De Dion has offered a cup to the French Club for an international reliability competition. The Marquis proposes that the trial shall be one not between single cars, but between teams of three of different makes, and that it shall extend over a distance of 1,000 kilometres. The winner would be the firm whose trio of cars made the circuit in the minimum aggregate time. The drivers will be permitted to make such repairs en route as can be performed by the material and tools carried on the cars, but should any car of a team not finish the contest within the maximum time allowed, the whole team will be disqualified. The A.C.F. has accepted the cup, and has referred the matter of drawing up the rules to the sporting committee.

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Motoring in Algeria.

M. Pierre de Malglaive, a prominent member of the Algerian Automobile Club, has just presented a cup to that body to be awarded annually to the motorist who reaches on his car the most southern part of Algeria. Should the cup be won by the same person three years in succession it will become his own property.

THE "LEONARD" 12-H.P. CAR.

WE illustrate herewith a new 12-h.p. car which is being put on the market by Messrs. J. J. Leonard and Co. to meet the demand for reliable vehicles at a popular price. The car has a pressed steel frame, and in general arrangement follows the usual lines adopted in cardan shaft and live

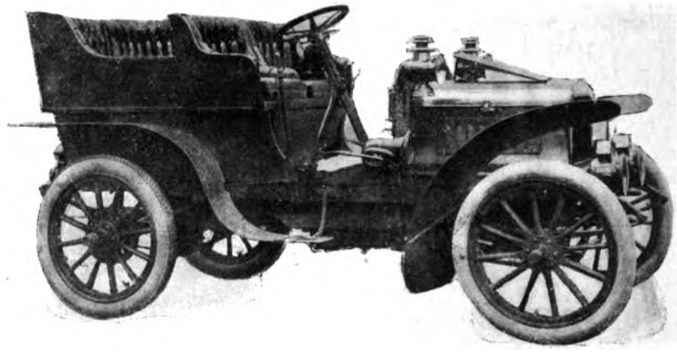


Fig. 1.—General View of Car.

axle cars. The motive power is supplied by a De Dion 12-h.p. engine fitted with the De Dion system of pump oil circulation. The ignition is by accumulators and coil, the latter being mounted on the dashboard as shown in Fig. 2. The power is transmitted through a leather-faced clutch to a gear-box of the sliding pinion type, adapted to give three speeds and a reverse, with a direct drive on the top. A well-designed cardan shaft connects the gear-box with the live axle. The road wheels are of equal size, with 810 mm. by 90 mm. tyres. The steering is of the irreversible type, while ample brake power is provided. The fittings on the dashboard are neatly arranged, as will be seen from Fig. 2, which shows the acetylene generator for the head lamps, a clock, induction coil, water circulation gauge, lubricator for the gear-box, and a force oil feed for the bevel and differential gear on the back axle. Messrs. Leonard are also introducing a

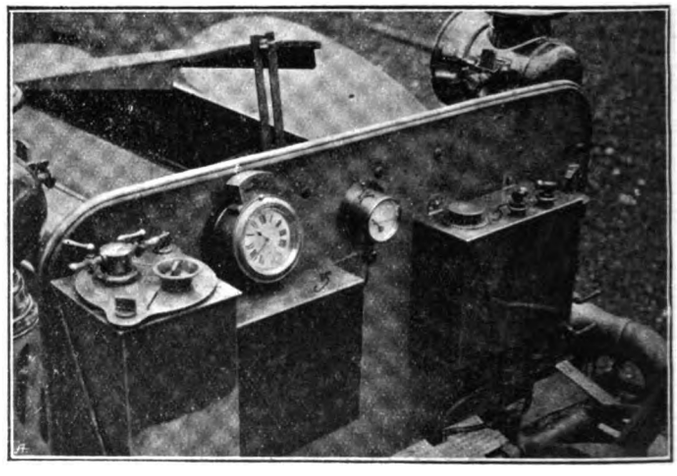


Fig. 2.—View of Dashboard.

double-cylinder two-seated car, with hood and front glass, suitable for medical men, and a 15-20-h.p. touring car, fitted with the new De Dion four-cylinder motor.

AN illustrated catalogue of the various levers and other parts used in the application of the Bowden patent wire mechanism comes from the Bowden's Patent Syndicate, Ltd. The hints that are given on the fitting of the mechanism should be of practical interest to motorists.

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THE PARIS MOTOR-CAR EXHIBITION.—IV.

THIS year the stand of Messrs. DE DION-BOUTON AND Co. received an unusual amount of attention, owing to the striking departures which the company is making from its usual practice, particularly in adopting the sliding pinion type of change-speed gear for the larger vehicles. The popular 6-h.p. car is now being fitted with a gear similar to that used on the 1904 8-h.p. car, giving three speeds forward and a reverse; while another new

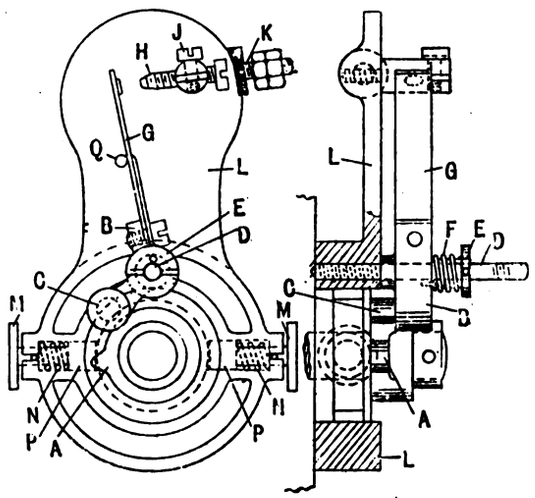


Fig. 60.—Details of new Contact Maker on 6-h.p. De Dion Car.

feature is the adoption of a positive make and break contact-maker in place of the trembler so long used by this concern. Fig. 60 (above) gives a front view and section of the new device, from which it will be seen that the cam A is made with a projection instead of a notch. As the cam rotates its projection strikes the pin C, connected with the bell crank lever B, causing

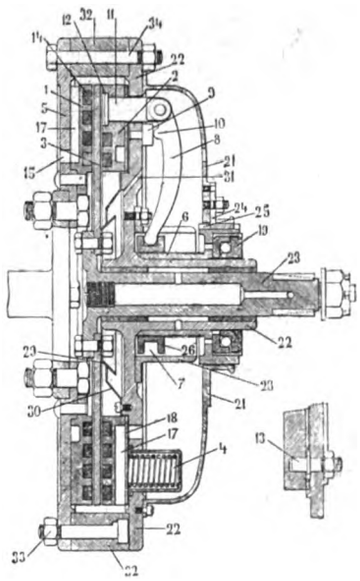


Fig. 61.—Section of New De Dion Metal Clutch.

1 & 2. Cast iron disc fixed to motor shaft.
3. Steel disc fixed to change speed gear shaft.
4. Springs.
5. Disc bolted to boss of crank shaft.
6. Adjusting bush.
7. Circular groove receiving end of levers 8.
8. Lever serving to produce separation of plates.
9. Fulcrum of lever 8.
11. Spindle connected with lever 8.
12. Piece by which disc 2 is withdrawn.
13. Gudgeon pins driving disc 2.
14. Graphite blocks fitted into discs 1 and 2.
17. Cooling ribs.
19. Ball race.
21. Aluminium gear case.
22. Centreing piece of shaft 23.
23. Change speed gear shaft.
26. Grooved nut for end of levers 8.
32. Coupling piece forming fly wheel.

the latter to move about the pin D. Attached to B by means of a screw is a spring blade G, whose upper end makes contact with the adjustable platinum-pointed screw H. The latter is insulated from the metal body L of the contact breaker, and is connected to the terminal K, which in turn has attached to it one of the wires from the accumulator, the other wire to complete the circuit being "earthed" to some metallic part in connection with the engine. When the blade G makes contact with H the primary circuit is completed as long as the cam presses up the pin C. Immediately the cam A allows the pin to return this takes place rapidly, owing to the action of the spring F, one end of which engages with B and the other with the collar E. The range of movement of the blade G is limited by the peg Q, so that the pin C only makes a rubbing contact with the cam A during the actual time that the circuit is completed. The whole apparatus is so arranged that it can be easily removed *en bloc* from the cam shaft. In addition to the 6-h.p. car the De Dion Company are making vehicles of 8-h.p. single-cylinder and 10-h.p. double cylinder with tubular frames and 12-16-h.p. twin-cylinder, and 15-20-h.p. four-cylinder on pressed steel frames. All these vehicles are provided with a new metal-to-metal clutch of novel design, and sliding gear transmission, giving three speeds forward and a reverse. The motor and ignition of the new 15-20-h.p. De Dion four-cylinder car have already been fully described in the *Journal*. The following description of the new clutch, transmission mechanism and brakes, while referring more particularly to the four-cylinder car, applies equally to the 8-h.p., 10-h.p; and 12-16-h.p. vehicles. The new clutch is clearly shown in the accompanying illustrations. Referring to Fig. 61, it will be seen that the shaft

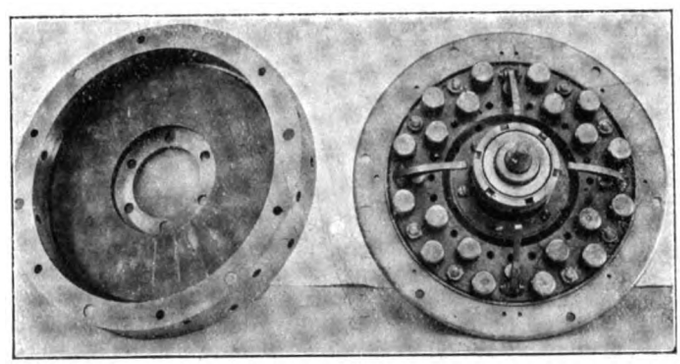


Fig. 62.—Internal Views of the De Dion Metal Clutch.

23, which extends, through cardan points, to the gear box, terminates at its forward end in a disc 3, and is surrounded by discs 1 and 2 fixed on the motor shaft. The fly-wheel takes the form of a hollow drum; to the forward face of the latter is attached the disc 1, while the rear face supports the disc 2. The latter is capable of being moved to and fro through a certain distance by means of the spiral springs 4 (of which there are altogether twenty), the levers 8, and pins 11. When the disc 2 is moved forward the disc 3 is gripped on both sides, so transmitting the engine-power; the levers 8, of which there are four, take their fulcrum on projections 9, and are operated by the grooved bush 26, which can slide on the shaft 23. Holes 15 are formed in the face and periphery of the plate 5 of the flywheel through which air is drawn as the latter rotates, so tending to keep the discs within cool. The outer face of the disc 1 is provided with a series of ribs on its outer face to increase the cooling effect, while in its inner face is inserted a large number of small pieces of graphite 14 to lubricate the discs and so prevent gripping. The disc 3 is perfectly smooth on both sides; the rear disc of the flywheel 22 carries the springs 4, and a series of eight pins which guide the disc 2. The inner face of the latter is provided with graphite insets, and the outer face with radiating grooves. The rear part of the clutch is covered by an aluminium cover 21, made in two halves, and pierced with holes to allow the exit of the air drawn in by the rotation of the flywheel. Provision is made for the ready adjustment of the clutch to take up any wear

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that may take place. The tension of the springs 4 is relatively weak; but it may be noticed that their action is doubled, since each of the faces of the disc 3 participate in the same driving effort. The doubling of the number of surfaces has therefore the effect of reducing the necessary pressure by half, and the wear is also lessened. The action of the clutch is described as being astonishing, the drive being taken up without shock, and, although between plain surfaces, without any sign of

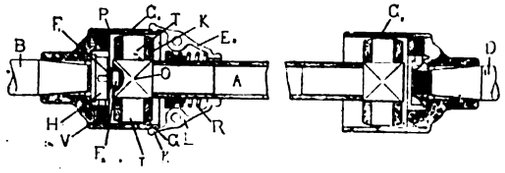


Fig 63.—The Cardan Shaft between Clutch and Gear Box on 15-20-h.p De Dion Car.

slip. Passing now to the transmission, it will be seen from Fig. 67, that although a change-speed gear of the sliding pinion type has been adopted, it is located at the rear and encloses within its case the bevel pinion transmitting the power to the rear live axle, the cardan shaft being located between the clutch and gear box instead of between the latter and the axle, as usual. Details of the joints on the shaft A are given in Fig. 63. The object of the two joints C_1 and C_2 is to remedy possible deformations of the

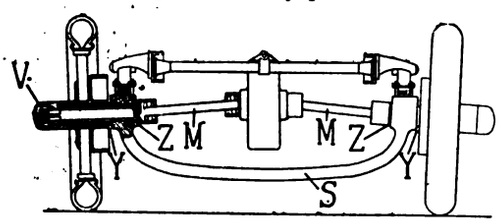


Fig. 64.—Rear Axle Construction of De Dion 15-20-h p Car.

chassis; apart from this contingency, the jolts on the road are sufficient to cause flexions which would be, with a rigid coupling, prejudicial to the running of the car. Provision is also made for the shaft A to have a little play lengthways, not only that it may allow for the variation between the motor and the gear which may result when travelling over rough roads, but also the displacement of the clutch. The change-speed gear, which is illustrated in Fig. 66, is of the sliding pinion type, adapted to give three for-

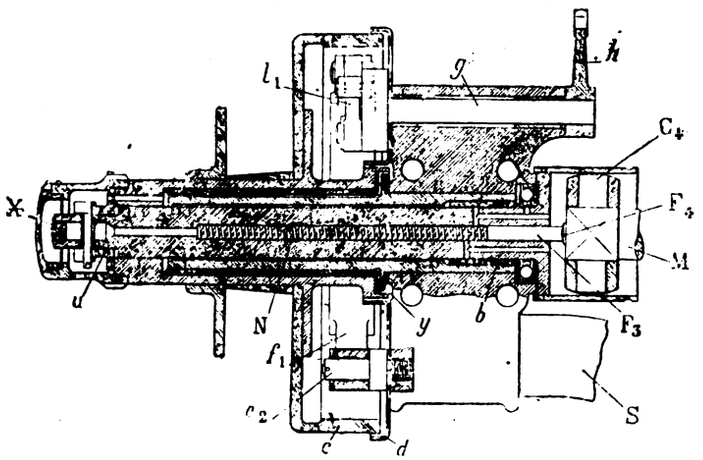


Fig. 65.—Section of Hub of Rear Wheels of De Dion 15-20 h.p. Car.

ward speeds and a reverse. The sliding sleeve 1 (Fig. 66), moves on keys cut on the shaft itself; it carries three gear wheels; the high speed one on the right, the medium speed in the centre; the gear wheel 2, on the left, serves for the low speed when the train is brought towards the left, and if the movement to the right is continued the gear wheel 2 enters into mesh with the pinion 4, which revolves jointly with the larger pinion 5, to produce the reverse. Constantly in mesh with the pinion 6, the pinion 5 revolves at about half the speed of that of the motor. The differential is of the straight pinion type with eight star pinions in place of the usual four. The same as for the motor, a geared oil pump 16 draws up constantly the oil at the bottom of the change-speed gear case, filtered by a gauze, and sends it up to the top in a distributing channel 18. The spindle 19, which actuates the oil pump, is driven by worm gear off the first shaft in the gear box; it is made hollow to allow the oil to pass through its interior and thence be distributed to the gear-box bearings and those of the differential by channels 21 and 22. The well-known type of De Dion rear axle construction is retained, the weight of the car being carried by the fixed axle S (Fig. 64), the differential axle, which has only to transmit the power from the balance gear, being in two parts, each having a double cardan joint allowing both for angular and sliding motions. A spring, placed in the interior of the shaft of the driving wheels (Fig. 65), pushes the cardan M continually towards the differential by means of the thrust pins F_3, F_4. The bearer axles end on each side in a hollow spindle, upon which each wheel rests to carry the vehicle. On the forward end of the secondary shaft of the gear-box is a wide drum 8, on which act two shoes 26, actuated by the levers, clearly shown in Fig. 69. The rear hub brakes are on similar lines, having double shoes, which act internally on drums fixed to the hub, and which a circular sheet-iron dust protector

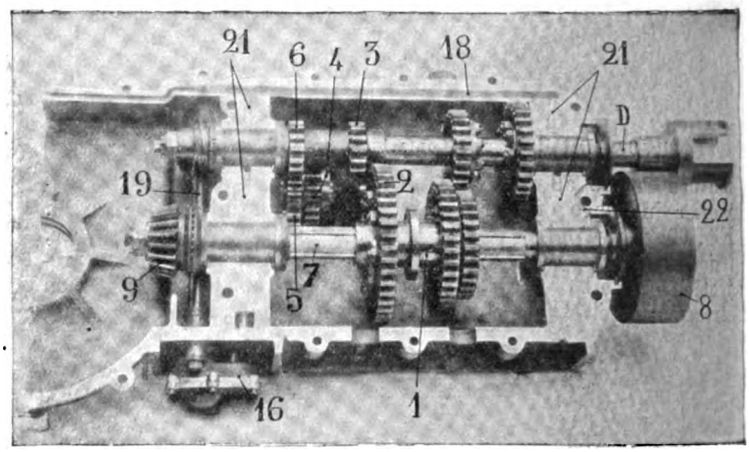


Fig. 66.—The Change Speed Gear on De Dion 15-20-h.p. Car.

shields from dust and mud. The frame of the vehicle is of pressed steel, narrowed at both front and rear, and provided with several tubular cross stays. Altogether the De Dion exhibit was full of interest, which was increased by the fact that, although delayed slightly by bad weather, Cormier returned from his tour of Europe on one of the new 15-h.p. cars, not only safely, but with an excellent report as to the behaviour of the vehicle.

An interesting display was made by M. PROSPER LAMBERT, of Nanterre, who, in addition to his 9-h.p. single-cylinder and 12-h.p. double-cylinder cars, is now making 16-h.p. and 24-h.p. vehicles, each with four-cylinder motors. In all, the cardan shaft system of transmission is adopted. Among the features of these vehicles is a governor acting on the lift of the inlet valves. The engine of the 9-h.p. car has mechanical valves. The starting handle device is in two parts, and is so geared to the crank shaft that one turn of the handle revolves the shaft about four times. The contact breaker is placed in an accessible position in front, just below the radiator. The clutch and brake pedals are of the push forward type.

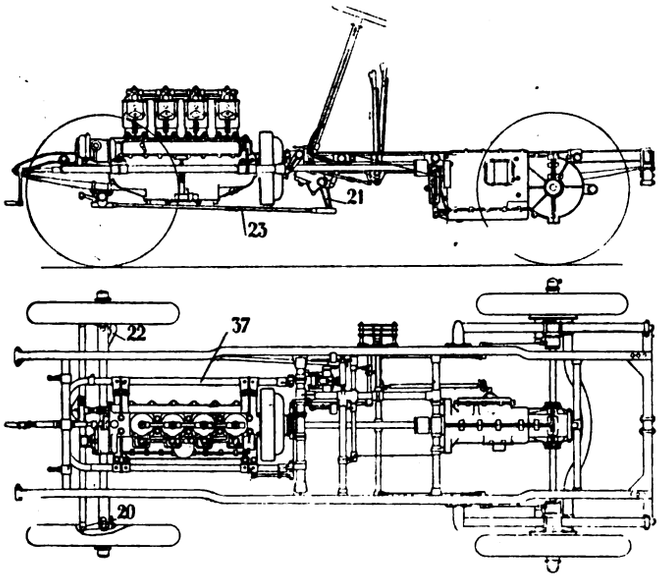
An excellent display of the Dixi cars was made by the French agents, LA SOCIETE L'ELECTRIQUE, the types on view including a 7-9-h.p. single-cylinder, 10-12-h.p. double-cylinder, and 12-16-h.p. and 24-30-h.p. four-cylinder. The attraction of the stand was a seven-seated limousine, upholstered in red leather,

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and equipped with table, revolving armchair seats, electric light, and other conveniences.

Messrs. MICHAUD AND COMPANY had on view a new carburettor known as the "Gallia." It is of the wick type, the petrol falling on to woollen knitted material, around which the air is drawn and pregnated with petrol vapour. In the recent carburettor competition organised by the A.C.F. the Gallia carburettor secured a silver medal.

MESSRS. CHENARD, WALCKER AND CO. had on view two types—12 and 18-h.p. The chief new departure is found in the engine control, the variable lift of the inlet valves having been given up in favour of an improved form of their automatic carburettor. The special combined clutch and brake is still



Figs. 67 & 68.—Elevation and Plan of De Dion 15-20-h p. Car.

retained, as is also the Chenard-Walcker transmission, in which, it may be remembered, the power is transmitted through a cardan shaft to a differential shaft below and parallel with the rear axle. On the ends of the differential shaft are pinions meshing with internally-toothed rings attached to the rear road wheels.

The PIVOT COMPANY, a new-comer to the *Salon*, had a display of its 12-16-h.p., 16-24-h.p., and 24-30-h.p. cars, all fitted with four-cylinder engines. The vehicles, which are being introduced into England by Mr. P. Cuthbertson, Garrick Street, London, W.C., while not comprising any startling deviation from standard practice, show evidence of careful construction. The pressed steel frame is mounted on equal-sized artillery wheels running on ball bearings. The motor has mechanically-operated valves, the inlet and exhaust being on opposite sides. Magneto ignition, automatic carburettor, framed radiator with vertical gilled tubes, and induced draught by means of a fan-shaped flywheel, are other features of the car. Four-speeds and a reverse are provided, the transmission being either through side chains or by a cardan shaft and live axle, as desired.

A good display of Aster engines in sizes extending to 20-24-h.p. was made by LES ATELIERS DE CONSTRUCTIONS MECANIQUES ASTER. The new models comprised a four-cylinder engine with mechanically-operated inlet valves and separately cast cylinders. The valves are interchangeable. The governor is operated from the end of one of the valve camshafts and controls a throttle on the inlet pipe. The crank shaft is provided with five bearings while the pinions driving the camshafts have helicoidal teeth.

The 5-h.p. two-seated car known as the "Minervette" was to be seen at the stand of MINERVA MOTORS, LTD. The single-cylinder vertical engine (90 mm. by 100 mm.) has a two-speed gear enclosed in an extension of the crank case. A single chain transmits power to a small countershaft, on which the clutch is mounted, and thence by another chain to the rear live axle. There are two brakes, one actuated by a pedal and the other by a hand lever. The ignition is controlled from the steering wheel; the water circulation is on the thermo-syphon principle. The Minerva Co. also exhibited a number of cars fitted with 8-h.p. single-cylinder, 10-h.p. double-cylinder, and 14-h.p. four-cylinder engines, the agency for which in England is held by Messrs. C. S. Rolls and Co. In the two and four-cylinder motors the valve chambers are on each side, the cylinders being cast separately. The engine is carried on a bed of angle section steel, fitted to a wood frame reinforced with flitch plates. The change-speed gear gives three speeds and reverse; from the differential shaft the power is conveyed by side chains to the road wheels. Internal expanding brakes are fitted, the springs are of good length, and the lubrication is automatically controlled by the engine itself. Altogether the 14-h.p. four-cylinder car is a very fine piece of work, especially having regard to its relatively low price, and should attract a considerable amount of attention.

LA SOCIETE VINOT AND DEGUINGAND are making four types of four-cylinder cars—10, 14, 20, and 30-h.p. Mechanically-operated inlet valves, on the opposite side to the exhaust, are adopted. The frames are of wood and steel or of pressed steel construction. The change-speed gear, which is of the *train baladeur* type, has been altered, and is now of the Mercedes type. The change-speed lever is on novel lines. By pressing a spring it operates at three different heights; in the highest position it gives two forward speeds, in the middle two more, whilst in the lowest it puts in the reverse gear.

LA SOCIETE DES AUTOMOBILES PILAIN, of Lyons, had on view a 20-h.p. four-cylinder car which was of interest on account of the system of transmission adopted. The change-speed gear-box, which encloses the differential, is placed well to the rear; the two halves of the differential shaft are provided with double cardan joints, and terminate in pinions which mesh with spur wheels bolted to the rear road wheels.

M. C. L. CHARLEY exhibited a 40-h.p. Mercedes car, provided with a novel system of compressed air brakes to all the four road wheels. The arrangement is made in accordance with the Cavello-Charley patents, and consists of a pump driven off the engine through a clutch and gear wheels. Air is pumped

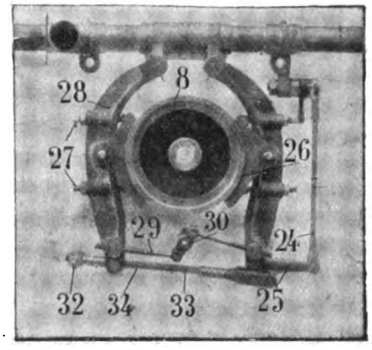


Fig. 69.—The Pedal Brake on De Dion 15-20-h.p. Car.

into a reservoir corresponding in shape and size to an exhaust box and fitted with a relief valve. The brakes themselves each consist of a pair of plungers, which force shoes against the inner sides of the brake drums. The control is from a small lever near the steering pillar, and as the device supersedes the ordinary hand-brake system the driver has only the change-speed lever beside him. By slightly moving the controlling lever the clutch is withdrawn. A more pronounced movement releases a quantity of air from the container into the plungers of the brakes, which are fitted internally with leather washers. The device can also be used to pump up the tyres and for restarting the engine. It will be interesting to watch whether the arrangement fulfils in practice the various claims made for it.

(To be concluded).

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SOME USEFUL NOTES.

WHEN running down a long, steep hill, particularly if the route is unfamiliar, it is a good plan to put the low gear in before starting down, and then stop the motor—usually by switching off the ignition current. The foot brake can now be put on sufficiently to disengage the clutch. In case the brakes fail to hold the car from attaining too high a speed, the motor may be used as an emergency brake by allowing the clutch to engage. This will prevent the car from attaining an excessive rate of speed, inasmuch as the movement of the car will rotate the motor against compression.

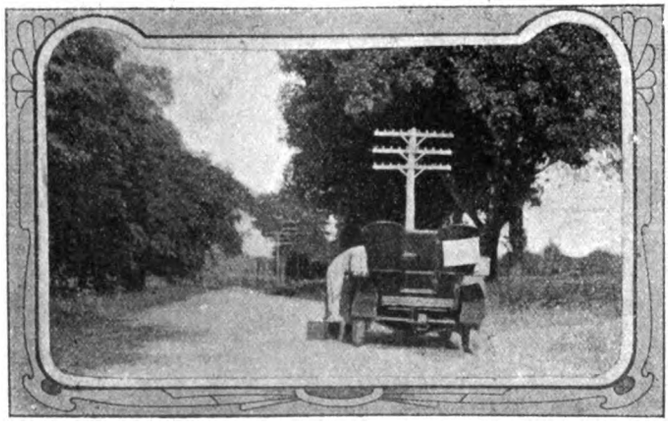
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SHOULD, by accident, petrol catch fire, the most effective way to extinguish it is to stop the access of air to the combustible, *i.e.*, smother the flame. Since petrol is lighter than water, it will float on the surface of the latter, and any attempt to extinguish it with water usually results in spreading the flame. It is therefore advisable to have a supply of sand near at hand in the garage, which can be thrown on the burning petrol. Aqua ammonia is also a good extinguisher of petrol fires, and a large bottle of it dashed upon the floor of a motor-house will often put out quite a stubborn blaze. It is scarcely advisable, however, to remain in a stable in which any quantity of ammonia has been set free.

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WHEN the inlet-valve spring is not strong enough, the valve does not close with sufficient sharpness, and some of the mixture is swept back, by the rising piston, through the inlet pipe, towards the carburettor. Great care should be exercised in seeing that the inlet valve spring is sufficiently strong in cars of the 3½-h.p. Benz type, in which the carburettor is near the contact-breaker, and has its air-inlet so situated that a draught blowing through the inlet pipe, *away from* the engine, will spray petrol vapour out of this air-inlet on to the surrounding mechanism. When this occurs the petrol may be ignited by a spark from the adjacent contact-breaker, and a serious conflagration result.

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When "Useful Notes" are Wanted.

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WHILE a sudden obstruction of the water circulation pipes of a petrol-motor is quite rare, a gradual accumulation of deposit is quite common where the water is hard, containing lime, and such deposit may become loose, as does the scale in a kettle, and, gathered in one place by the circulation, may obstruct the flow. But before this takes place there must have been a notable gradual impairment of the cooling system's efficiency, not only from the reduced cross-section area of the flow, but much more because the scale greatly interferes with heat radiation, being a poor conductor. It is well to remember, however, that a loss of cooling efficiency will be noticed by the motorist only when very hard work is required of the motor on a hot day, while ordinarily less cooling will even increase the motor power.

MOTOR CYCLING NEWS.

AMONG the new features of the 1905 model of the Rex motor-bicycle are the "beehive" silencer and the double air draught to the cylinder, both of which arrangements we are this week able to illustrate. Fig. 1 shows the cylinder with the beehive silencer removed, while Fig. 2 includes an internal view of the beehive. The double air draught is caused through the cylinder being cast with an air passage between the cylinder proper and the silencing chamber; the air passes in at one end of the cylinder and out at the other. A passage is left between the chambers of the two mechanical valves, so

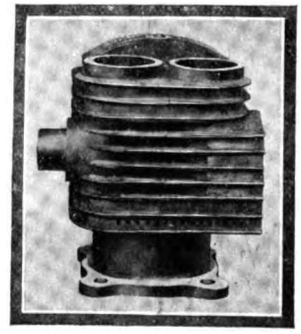


Fig. 1.

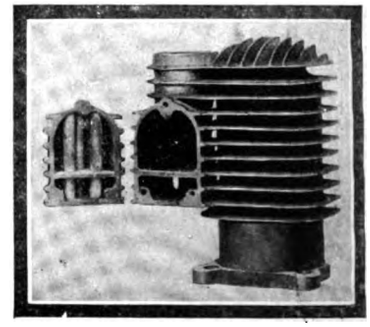


Fig. 2.

that another current of air joins that circulating round the cylinder proper. This air draught reaches to the valve seatings, so that a very high degree of cooling is obtained. With regard to the silencer itself, when the exhaust valve opens the gas expands into a large cavity formed in the top of the beehive; it then filters through a series of perforated pipes into the lower chamber, which spreads the whole length of the cylinder, and escapes through holes perforated between the cylinder flanges. By this system back pressure is claimed to be reduced to a minimum, while the engine is silenced without the use of the exhaust pipe, which, the Rex Company maintain, sets up a large proportion of the back pressure and over-heating usually experienced.

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THE Auto-Cycle Club's 1,000 miles trial for motor-bicycles will be held from April 3rd to 8th. The weight of the bicycles is not to exceed 100lb. in complete touring trim, without oil, petrol, accumulators, lamp, number-plates, horn, tool-bag or stand. and 11 stone each will be a minimum weight allowed for drivers, any weight below this having to be added. The competition will take place from some central point, journeys out and back of about forty miles each way being made each morning and each afternoon over various routes to be selected. Hill-climbing tests, brake trials, and a speed test will form part of the competition.

FROM Messrs. Bryant and May, the well-known manufacturers, comes a sample box of a special motor match they have lately introduced; the matches, which are 4¾ ins. long, should meet a want amongst motorists, who frequently experience great difficulty in lighting lamps, etc., as they will flame for 20 seconds and keep alight in the strongest wind.

MESSRS. STRADLING AND PLENTY, LIMITED, has been registered with a capital of £9,000 to acquire the business of cycle manufacturers and agents, manufacturers of cycle fittings and parts, etc., carried on by Mr. J. Stradling, at 79, Northbrook Street, Newbury, and the business of motor engineers, motor-car agents, garage proprietors, and dealers in motor-cars and accessories, carried on by Messrs. J. Stradling and E. P. Plenty in partnership. Mr. J. Stradling and Mr. E. P. Plenty are governing directors.

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HERE AND THERE.

Mr. E. A. Gilburt has removed to 80A, Salusbury Road, West Kilburn, N.W.

We understand that Messrs. Horner and Sons have obtained the sole agency for Diamond tyres.

The Benz Company have lately completed a 35-40-h.p. Benz-Parsifal landaulet for the Grand Duke of Sachsen-Weimar.

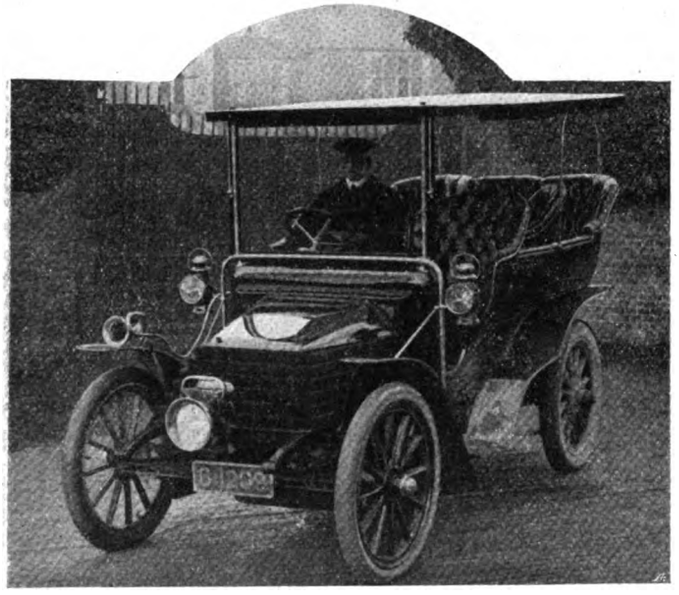
The Limbourg Automobile Club has just been formed. with head-quarters at Hasselt, Belgium, and M. Palmers des Groote as first president.

The Bishop of Liverpool, like the Bishop of Winchester, is becoming a motorist, using a car for the purpose of his diocesan visits.

The Right Hon. Earl Wilton has ordered a 1905 F.I.A.T. car, to be fitted with a specially large Rothschild body, from the British Automobile Commercial Syndicate.

Messrs. J. Liversidge and Son, Limited, inform us that they have appointed Mr. A. Casson, 44, Haymarket, S.W., their representative for the sale of the De Nevers patent grooved solid tyres, at whose offices sample tyres can be seen.

We illustrate herewith a special car recently delivered to Lord Hindlip by the Wolseley Co. It is of 24-h.p., and fitted



with a long double-tonneau body with "tulip" seats. A departure from usual Wolseley practice is the fitting of a curved dash, on which is mounted a plated rail, which greatly adds to the car's appearance; this rail is extended to serve as a support for the front portion of the canopy, where a glass weather screen is also fitted.

Messrs. Francis Mulliner (1904), Limited, has been registered, with a capital of £5,000, to acquire the business of coach and carriage builders and harness makers carried on at Liverpool by Francis Mulliner, Limited. Mr. R. Shave is managing director.

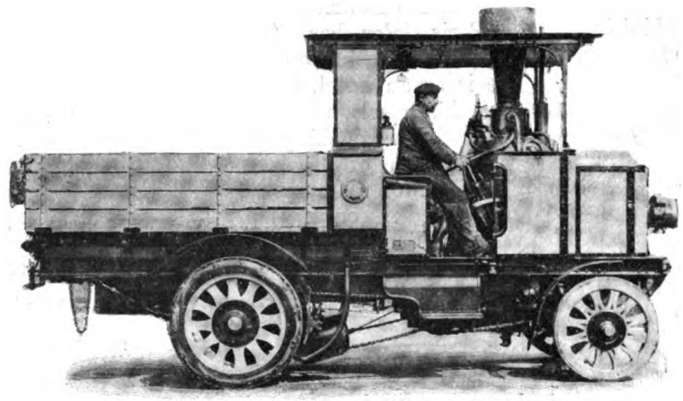
As we have frequently pointed out, medical men are largely making use of the motor-car in their work. Among the latest to adopt the automobile is Dr. Gosling, of Worcester, who has recently acquired a 6-h.p. Wolseley from Mr. James Fryer, of Kington, Herefordshire. The doctor evidently intends to use his vehicle in all weathers, it being fitted with hood and front glass.

The Beaufort Motor Company inform us that all their 1905 cars will be fitted with a tail-lamp having an optical condenser which will throw a powerful beam of light on the off side, so that the driver, by merely looking round, will be able to tell at a glance whether his tail-lamp is alight or not.

Messrs. H. Andrew and Co., of Plympton, Plymouth, send a neat calendar for 1905.

On the 7th prox. the Ladies' Automobile Club will have an illustrated lecture on "Motor Mountaineering in the Alps," by Captain H. P. Deasy.

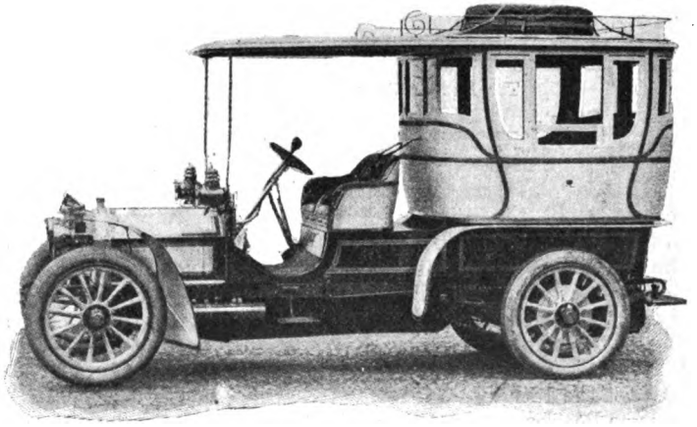
One of the oldest builders of steam wagons in France is La Société des Chandières et Voitures à Vapeur, systeme Scotte.



The accompanying illustration depicts their latest production—a wagon designed to carry a load of four tons, and to haul on trailers a further six to eight tons.

The German Club has definitely announced that two places in the German team for the 1905 Gordon Bennett race have been allotted to Mercedes cars, and that an eliminating contest will be held to select the third car.

The "De Fornier" detachable non-skid for motor tyres, which Mr. W. J. Mayer is putting on the English market, has features which should commend it to the favourable notice of motorists. It is extremely simple, and can be used on any tyre, from which it can be detached in a couple of minutes. On each side of the "De Fornier" protector is a complete circle composed of thin metal sectors, which are brought together by screw bolts. It is claimed that the device cannot creep, and that side play is impossible. The whole of the rubber of the tyre, is protected, effectually preventing punctures as well as side slips. The non-skid is of pleasing appearance, and a good quality of chrome leather is used by the maker—factors which should materially assist Mr. Mayer in placing the "De Fornier" protector on the market.



The 28-32-h.p. Mercedes recently completed for Kaiser Wilhelm.

The Woolwich, Blackheath, Eltham and District Motor Company, Limited, has been registered, with a capital of £20,000, to carry on the business of motor-car manufacturers, proprietors, etc. The first directors are Messrs. J. J. Messent, W. Busbridge, F. Hoar, E. Furlong, and G. R. Habershon. The registered office is at 10, New Road, Woolwich.

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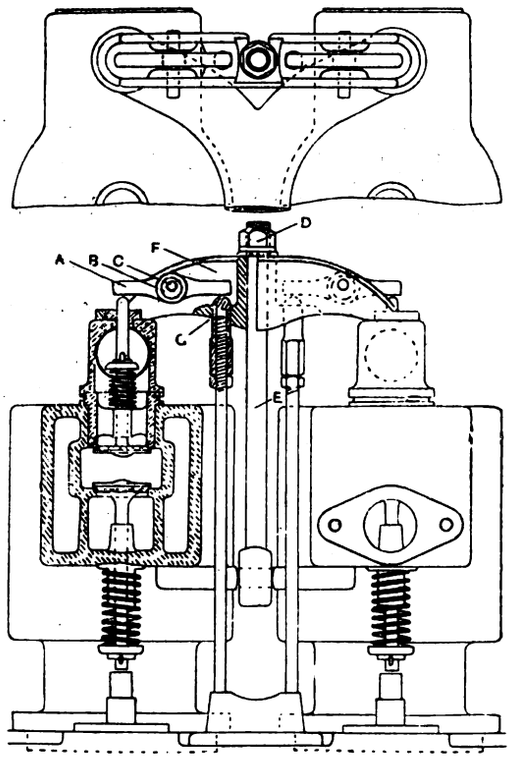
We learn that the car which is being used in Manchuria by General Kuropatkin is an 18-22-h.p. Mercedes.

Messrs. A. Ransome and Co., Limited, are giving up their Chelsea premises and opening new London offices at 63, Queen Victoria Street, E.C.

It is reported that plans are being perfected by an English syndicate at Victoria, B.C., for the erection early next spring of a garage which will be the finest of its kind in Western Canada.

We hear that the De Dietrich Pullman car which was on exhibition at the Paris *Salon* has been sold for £2,000. The purchaser of the car is starting on a long tour later in the year, and will use it as an hotel, sleeping in it, and carrying a servant to cook his meals, the vehicle being fitted with every convenience, including cooking stoves and utensils, etc.

An interesting feature of the 12-h.p. double-cylinder car made by the Phœnix Motor Company, of Southport, is the variable lift device fitted in conjunction with the mechanically-operated inlet valves. The arrangement is illustrated herewith in plan and part sectional elevation. As will be seen, the inlet valves are actuated by rocking levers (A) mounted on



The Phœnix Variable Lift Inlet Valve.

A. Tappet.
B. Eccentric mounting for A.
C. Spindle for B.
D. Nut holding down bridge-piece.
E. Swinging bolt for quick detachment.
F. Bridge piece.
G. Valve actuating rod.

eccentrics (B), the spindles of which are carried and contained in the valve bridge. By the rotation of the eccentric spindles the lift of the induction valve can be varied to any desired degree, and this varied lift is found to control the engine sufficiently without the intervention of a throttle valve, so that there is always a full passage between the carburettor and the valves.

On the 13th ult., at Fresno, California, Barney Oldfield, driving the Peerless Green Dragon, broke all world's track records for from 25 to 50 miles. The former was done in 23 min. 31 1-5 sec. and the latter in 48 min. 39 1-5 sec. The 15 mile record was also broken, his time being 14 min. 3 3-5 sec.

Mr. Havelock Lonsdale, who is responsible for the Star series of Christmas cards, utilised his motor-car during Christmas week almost hourly in conveying cards from his works, at Accrington, to the post office. But for the automobile it would have been impossible to have kept pace with the work.

Mr. E. Nordon has been appointed secretary of the Canterbury (N.Z.) Automobile Association.

The United States Consul at Quebec believes there is a good future for the motor-boat in that city.

A garage has been opened in the Market Square, Retford, by Mr. C. Clark, where accessories of every kind will be stocked.

The Rotorua Motor and Coaching Company has been formed in New Zealand to develop tours by motor-vehicles throughout the colony.

The Institute of Chauffeurs, Westminster, has, we learn, been appointed British agent for the petrol cars of La Société La Metallurgique, of Brussels.

La Societe des Automobiles Eugene Brillie have just supplied two large petrol motor omnibuses for a public service between Tarbes and Trie-sur-Baise, France.

A new garage for motor-cars is to be opened near the Eagle Hotel, Snaresbrook, by Messrs. Burns, Dick, and Co. This should be a great convenience to motorists visiting Epping Forest.

The Manchester and Milford Engineering Company, Limited, has been registered with a capital of £10,000, to carry on the business of mechanical engineers and motor-car manufacturers.

The first prize in the Paris *Salon* Tombola—a 10-h.p. Richard-Brasier car—was won by a lady, Madame Rousset, of Paris. The second prize, a Dufayel piano, was claimed by a visitor from Hungary.

From Messrs. Jarrott and Letts, Limited, comes a copy of the new descriptive catalogue of Crossley cars they have just issued. The illustrations are exceedingly clear, and include cars fitted with different types of bodies.

The Clyde Cycle and Motor Car Company, Limited, of Leicester, have sent us a copy of a booklet entitled "The Clyde Motor Car: How to Use and How to Drive It," they have just issued. The work should prove indispensable to all users of Clyde cars, as it gives in compact form complete instructions as to the adjustment and lubrication of the various parts of the mechanism, and also a number of useful hints taken from the *Journal*.

The Motor Cartage and Transport Company, Limited, has been registered, with a capital of £20,000, to acquire as going concerns and amalgamate the businesses of the Motor Transport Company and of the Motor Cartage Company, to adopt agreements with Mr. E. G. Pamplin and Mr. G. Monro, jun., and to carry on the business of general carriers, etc. The first directors are Messrs. G. Monro, jun. (chairman), W. Deighton, and E. G. Pamplin, and the registered office is at 30, Ben Jonson Road, Stepney High Street, E.

Messrs. Friswell, Limited, who are adopting as their motto "everything *and* the motor," have sent us a catalogue of their latest department, viz., clothing, which has been put under the direction of a West End clothier who has had considerable experience in motor matters. Illustrated in these pages are several good types of leather clothing as well as waterproof coats. A special feature will be made of ladies' rainproof motor coats as also leather clothing to measure. Novelties in head gear, rugs, goggles, and accessories of every description complete a catalogue which will doubtless find a place on the reference shelves of many a motorist throughout the kingdom.

The receiver and manager of the Motor Manufacturing Company, Limited, has removed his London offices and showrooms from New Bond Street to 151-3, Wardour Street, Oxford Street, W., where there are on view a large number of the well-known M.M.C. cars of all the latest patterns. Orders for cars, motors, spare parts, accessories, repairs and the storage of cars receive careful attention at the works at Coventry. It is hoped that arrangements will shortly be made to carry on the M.M.C. business in the future, but in the meantime owners and prospective purchasers of M.M.C. cars may be assured that their orders will receive prompt and careful attention either at the London showrooms or at the Coventry works.

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CORRESPONDENCE.

[*Letters to the Editor should be addressed to the new offices, 27-33, Charing Cross Road, London, W.C.*]

THE OPERATION OF THE MOTOR CAR ACT.

To the Editor of *The Motor-Car Journal.*

Sir,—So far as I can make out from conversations with the various Chief Constables and other persons in authority in Yorkshire, the first year of this Act has passed off satisfactorily. The increased speed limit has been of service in allowing the average motorist to increase his usual speed on the road, without the previous dangers of the 12-mile per hour Act.

There has been a diminution of the police trap, and where this has been used, it has generally been in a place where fast driving was not safe. Everybody has got almost used to the identification marks, and it is interesting to note how the cars are now getting a large variety of strange letters. For instance, all cars in, say, Leeds, during the first two or three months had the initial letter U, and any other letter perplexed the pedestrian onlooker, but now, owing I suppose to changes of ownership, etc., almost all letters may be noticed.

There have been many applications by various authorities for speed restrictions in areas under their control, notably Beverley, Huddersfield, Todmorden, and Leeds, and of the few enquiries held, only the Beverley authorities obtained a restriction on one short piece of tortuous highway to their old-fashioned town, and as this is a very bad place I do not think any man could drive along it at above four miles per hour.

When the Bradford Council proposed applying for a speed limit, a deputation of the Y.A.C. met them and talked the matter over, the Council then coming to the sensible decision to leave the matter over for six months to see how the Act worked. During a conversation with the Chief Constable I asked him his opinion of motorists, and he stated that everything was working well, no trouble had arisen with motorists, and he should advise the Council to abandon the idea of application for speed limit. Certainly there are furious drivers passing through towns yet, but they are getting few and far between, and eventually they will get caught.

Getting away from the point, but still of interest, it is high time that something was done to get a universal lighting Bill passed for all vehicles. Sometimes whilst driving on the dark roads, during this misty weather, one may approach quite within a few yards of the rear of an unlighted dray or large van, and it might easily cause a nasty accident.—Yours truly,

A. W. Dougill,
Hon. Sec. Yorkshire Automobile Club.

To the Editor of *The Motor-Car Journal.*

Sir,—In my opinion the outlook of the motor-car, both as an industry and a sport, is on the whole good. Perhaps, however, the outlook is better from the former point of view than from the latter, as there is no doubt that the Motor Car Act has severely handicapped the sporting side. England, unfortunately, has but few spots where, free from the restraint of the law, speed trials may be indulged in.

The sportsman, keen as he may be, is not, however, going to be the *raison d'etre* of the motor industry. The advent of the covered-car and landaulet has opened up a much more extended market for the motor-car, a market which is more solid and less liable to be the sport of fashion. There is no doubt that this market is steadily on the increase, and the number of cars of the covered variety which has been put upon the road during the past year is particularly noticeable. For this type of vehicle, the car that can be used for all purposes and in all weathers, in other words, the car that takes the place of the carriage, I think there is a particularly bright prospect in the present year.—Yours truly,

Hugh H. Gregory.

To the Editor of *The Motor-Car Journal.*

Sir,—Thanks to the broad-minded spirit in which the powers that be have administered the Act in this district, Sheffield automobilists have had nothing to complain of, the numbering has not been found any great hardship, whilst we can now drive at a reasonable pace without fear of being held up. Police traps are unknown within a twenty mile radius of the city, the local authorities acting wisely in the belief that a few beneficent cautions would have a better and more far-reaching effect than a system of espionage and traps—in fact, as a gentleman in an official position intimated to the writer shortly after the new Act came into force, "We prefer to trust to the good sense of the general body of motorists and constrain them to assist us in doing their own police work." And I believe they have been satisfied with the result.—Yours truly,

Fred. B. Cawood,
Hon. Sec., Sheffield Automobile Club.

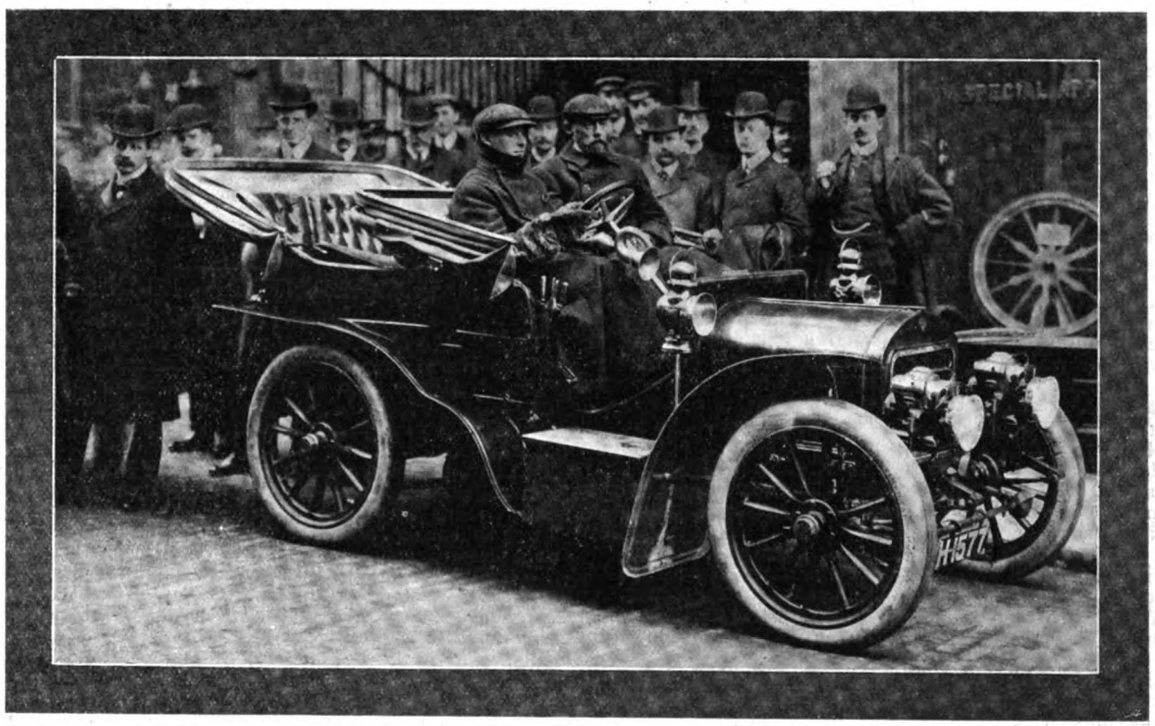


Photo by] The Siddeley 12-h.p. Car starting on its 5,900 Mile Pilgrimage (*see page* 923.) [*Argent Archer.*

THE USE OF THE ACCELERATOR—FOOT v. HAND CONTROL.

To the Editor of *The Motor-Car Journal.*

Sir,—Your correspondent Mr. J. Coop confesses himself to be a nervous driver, and to have lost his head in the quiet and seclusion of his own coach house—a poor combination for a motor driver. Let us hope there are not many about. I do not, therefore, think his criticisms on foot control will carry much weight. I am a novice, having only driven a car little more than six months, and do not know what nerves are. My first and present car is a four-cylinder 16-h.p. vehicle, and after three lessons of half an hour each in Regent's Park I took over the car and drove to my home in Ireland *via* Holyhead. If I had lost my head at any time and used the wrong pedal I would not have had the pluck to confess it. Who could make such a mistake as to use the accelerator pedal driving into a yard, much less a coach house? My experience is that after a day the use of the two pedals becomes second nature. In traffic, or when careful driving

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required, the foot naturally leaves the accelerator pedal and hovers over the brake to be ready instantly to cram down both clutch and brake pedals; in traffic the right foot goes to the accelerator pedal to dart through an opening, but at once goes back to the brake pedal, and it is only on open roads, when the driver can see a long way, and there is no traffic and no cross roads, that the foot remains near or on the accelerator pedal, and that any mistake can happen. I would make this suggestion, that in a car where the push pedal is used, the accelerator pedal should be a press down one, and *vice versa*; this would help the nervous driver and the day dreamer.—Yours truly,

TALLY HO.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—In reference to this correspondence, I have a Fiat with foot control, and, after having previously driven other makes with hand controls, I much prefer the foot method.

One point which has not, I think, been previously mentioned is that with the foot control as usually fitted, in case the driver should have a fit or faint the foot would generally relax or slip off the pedal, and thus materially reduce the pace of the car, and perhaps avoid a serious smash.

My car has also a special extra hand control, and I like to have both, as under certain conditions it is useful, but I generally drive on the foot accelerator alone.—Yours truly,

H. K. G.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—I have read with interest the article by Mr. Richardson on "The Use of the Accelerator—Foot v. Hand Control," in your issue of 10th December. I may say that we have experimented very widely on various systems of control, and, needless to say, we consider the method adopted on our Albion cars the best, as we have selected it after extended trials of various methods. As you are probably aware, our engine is entirely controlled by the Murray patent governor, which not only controls the speed of the engine by controlling the amount of mixture, but also controls our patent carburettor at all speeds and loads in such a way as to ensure the most efficient and most economical mixture under all conditions, and also controls the advancing and retarding of the ignition. The governor can be instantly set by the driver to hold the engine at any speed from 200 revolutions per minute up to 1,000 revolutions; and at whatever speed it is set for the time being, the car maintains this speed up and down hill and on the level without any intervention or attention on the part of the driver, provided, of course, that the hill is not too steep for the car to negotiate on that gear. The lever controlling the governor is arranged below the steering wheel, and it can be controlled with the fore-finger of the driver's right hand without necessitating the removal of his hand from the steering wheel. This system of control we venture to say is perfect, as the car can be slowed down to five or six miles an hour on the top speed, and it is seldom necessary to de-clutch even in busy traffic unless the driver has to make a dead stop.

We have the strongest objections to a third pedal for the accelerator, as we think the brake and clutch pedals provide ample occupation for the driver's feet, especially in an emergency. Driving in weather like the present, with heavy rugs, etc., mistakes in changing from one pedal to another are sure to be made, except, perhaps, by the most expert drivers. In our car we have eliminated the mixture and ignition advance levers, which only an expert driver could adjust with any degree of accuracy, and which in the hands of an inexperienced driver were, especially the latter, a fruitful source of trouble.—Yours truly,

F. BLACKWOOD MURRAY.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—Referring to the interesting subject "Foot or Hand Control," now being discussed in the *Journal*, the plan is not new, and I have tested it myself on a Mercedes car for many thousands of miles, and it answers well, I think. I simply have a thumb switch on the left hand arm of the steering wheel, and work it with the left hand thumb; the switch is earthed to the arm of the steering wheel, and the other wire is carried to the distributing board on the motor. When I change speed I do not have to close the throttle at all, and consequently I do not disturb the action going on in the carburettor (a most important thing, I think, especially with some of these new carburettors). I suppose silencers would not stand it, but I hardly ever have an explosion in mine, and when I do it is never very bad.

I may say I adjust all my brakes to be independent of the clutch, and with Mercedes hand control and a thumb switch I do not want anything better. From what I read, I think the new Mercedes arrangement will be simply a foot throttle (not an accelerator at all), probably on the lines of the Wolseley, which I think is very good of its kind. If you have a thumb switch, or if you like a foot throttle on Wolseley lines, I do not think you want an accelerator other than the hand control on Mercedes cars.—Yours truly,

T. 136.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—The correspondence relative to the above is peculiarly interesting to me, inasmuch as I have for some time been endeavouring to reduce the number of levers required to work my cars. I am sure it must have occurred to all users of cars at various times that they needed two or three more hands or feet in order to work their vehicles to advantage; and this should not be. In my opinion, no car should ever be turned out without some arrangement whereby the engine is controlled when the load is taken from the same. It is not right, and under some circumstances it is positively dangerous, *i.e.*, such as mentioned by Mr. Edge. Up to the present manufacturers have invariably fitted one or two systems, the hand or the foot system of accelerator, and I think that your various correspondents have fairly pointed out the advantages of both of these.

In my opinion, however, neither the hand nor the foot system alone is correct, and I claim the system of control as fitted to my "Sandringham" cars to have a tremendous advantage. I arrange it that my accelerator is placed in a most convenient position, on the top of the spokes of the steering wheel, and this is capable of causing the engine to run at any desired speed from maximum to minimum; but in order to prevent the racing of the engine when the load is removed, I have the clutch pedal so connected with the same working parts that immediately it is depressed the engine is perfectly controlled. This system works magnificently in traffic, or in emergencies such as sudden stoppages, sharp corners, etc., and under no circumstances will the engine race. Both hands and both feet are thus perfectly free for manipulating those parts primarily intended for their use.

I am, however, going still one step farther towards the simplification of the driving of the modern motor-car, and that is in the matter of ignition. Whilst I am aware that this hardly comes under the above heading (so far as the mere speed of the engine is concerned), I trust the fact that a lever is at present required to manipulate this part will justify my introducing the matter. This lever I am now doing away with entirely, and substituting therefor a system of ignition which is automatically controlled and governed by the engine itself. Not only does this reduce the number of levers about the car, but it is the means of obtaining from the engine the maximum of power whether it be driven by the expert or the novice. I am convinced that this system will be bound to become universal in the course of time for reasons which will be obvious to your more practical and expert readers.—Yours truly,

FRANK MORRISS.

MOTOR DRIVERS' ORGANISATION.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—As a constant reader of your admirable *Journal*, allow me to express my approval of your correspondent "Terminal's" letter. In my own case I served two years as a premium apprentice to motor engineering, and have had some considerable experience in repairing and driving cars since, for which I have excellent references, but have been out of employment for some months.

I have known of an instance of a young fellow of well-to-do parents, who was put under a repairer to obtain some knowledge of the motor trade. After some little time he (the repairer) was told he would no longer be required, as this young fellow would try his hand at repairs and work for nothing.

If such a union can be formed, as it may be by all decent motor mechanics combining, I should be glad to undergo any test of my mechanical abilities, as everyone of such would doubtless do, to the advantage of owners and servants. Fair play is required and no favour.—Yours truly,

ANOTHER WOULD-BE MEMBER.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—In reading "A Would-be Member's" letter, I quite agree with him that we should have a society. We ought to have more stringent regulations as to who should be permitted to drive motor-cars. A motorman on an electric tram car has, in every case that I know of, to pass an examination before he is placed in charge of an electric car. I am in charge of petrol motor-cars in a tramway power station, and what I am saying is true to the letter.—Yours truly,

J. M. B.

SEE TO THE BRAKES.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—I see in the last number of your excellent *Journal* you give a piece of timely advice under the heading "See to the Brakes," and it has occurred to me that the experience of some of my friends might be useful in regard to this matter. They use a simple fluid called Plaxine, sold by Messrs. Riches and Company, a small quantity of which being applied to the drum of the brake cures slipping instantly, or prevents it if a small quantity is occasionally applied. One friend has told me he could stop his car in the middle of a hill; another always carries it to cure a slipping clutch. My impression is that many other motorists might be glad to know of this preparation.—Yours truly,

J. THOMPSON.

CHARGING ACCUMULATORS.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—In reply to "Cells'" letter in the last issue of the *Journal*, I would state that for the past three months I have been using Boron cells for

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charging my motor accumulators, which are forty, fifty, and sixty amp-hours (four-volt); for the forty amp-hour six cells in parallel charge them admirably, and leave nothing to be desired; for fifty and sixty amp-hour batteries, eight cells are best in two sets of four. These should be left charging overnight, when the accumulators, if true, will in the morning be thoroughly charged. The relative cost of charging such an accumulator is about 4½d. A four-cylinder car takes a deal of current, and the fact that your correspondent's accumulators show 4·5 volts when taken from the cells is evidence that they have been properly charged. The reason that the voltage falls rapidly would indicate softening of the positive plates. The cells would in this case be best charged by using for each jar 8 ozs. bichrome and 8 fluid ozs. of sulphuric acid; fill up with water, and use solution whilst still hot. If the zincs waste much, use less acid in the porous pots. Both the chemicals and zinc can be obtained without difficulty at any wholesale chemist's or metal works.—Yours truly,

SATISFIED USER.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—Having three (forty ampere hours) accumulators, and at the same time considerable trouble in getting them charged, I have procured a six-cell set of Boron charging batteries; these I keep with solution standing in them and wires attached, and after a run of say 50 miles or so I connect the accumulators up a few hours to the Boron cells; this keeps the accumulators in splendid condition and costs about 1d. each charge. The zincs will last a long time if only a small quantity of acid is used in the porous pots.—Yours truly,

M. HENDERSON.

AN INTERESTING MOTOR QUERY.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—The replies of Mr. Fortune and of "Saxilby," in your issue of the 24th ult., do not, I think, afford any reasonable explanation of the phenomenon referred to by "Inquisitive One." A moment's consideration will show that any variation in the proportion of oxygen in the atmosphere would be so small as to be inappreciable in the volume of air forming, with petrol vapour, the explosive charge in the cylinder. Then it is difficult to see why equally good running could not be attained at any time of the day by proper adjustment of the mixture. In my humble opinion the motor will probably run better, other conditions being the same, in the evening, when the lower temperature of the air tends to more efficient cooling, which would give a slight increase of power.

Having myself, however, frequently noticed the same phenomena which are mentioned by "Inquisitive One," I have come to the conclusion that they are more apparent than real; in fact, that the increased speed is due to the limited field of vision afforded by the light of the lamps, in the same way that, if in the daytime the eyes are kept fixed on the ground close to the car, it will appear to be moving much faster than if one is looking well ahead. This same explanation will also cover Mr. Fortune's apparent increase of speed on getting into the country from town, the number of lights in which so extend the range of vision as to destroy the illusion to which I have referred. I should suggest that next time "Inquisitive One" thinks his motor has taken "the bit in its teeth" he should try it against his watch, and I think he will find, as I did, that he was only going his normal speed.—Yours truly,

A. 710.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—In reply to "Inquisitive One," I will endeavour to explain where the oxygen comes from, to cause the increase in power. The gain in power is only noticed after a very dry or sunny day, soon after sunset. As we know, pure air is breathed in by all human and animal life. The oxygen contained in it is used to consume any waste matter in our bodies, and is afterwards breathed out by us as carbonic acid gas. Plants, on the other hand, breathe in the carbonic acid gas, decompose it or divide it into its elements (carbon and oxygen), retain the carbon to build up their stems, leaves, etc., and set free the oxygen in the air. But plants can only decompose gases in sunshine, or on very bright days, hence the growth of plants in summer and not winter. If we walk in the country, or near vegetable life, after sunset, we shall feel the effects of this liberated oxygen, by the brisk and lively atmosphere around us. Oxygen supports combustion fiercely, and so a highly inflammable and cool mixture is carried to the cylinders. The engine is given a cool and correct mixture, which ignites readily and almost without any additional heat to the cylinders.—Yours truly,

B.U. 7.

THE LOCOMOBILE.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—In response to your Croydon correspondent's note in the *Journal* of the 24th ult., I beg to say that I have had a Locomobile fitted with a paraffin burner for over two years and have had not the slightest trouble with the boiler. The car is a splendid hill-climber, if the pressure of steam is maintained. To keep a good pressure of steam, however, experience is required.—Yours truly,

B. 254.

A PLEA FOR THE MOTOR-BICYCLE.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—May I enter a friendly protest against the reference last week to the effect that "even a motor-bicycle can be made a means of pleasure?" Why this "even"? There seems to be a growing tendency among car-owners (owing to the "kerridge folk" tradition, perhaps) to belittle the motor-cycle.

May I suggest that in all likelihood the ideal delight of fast travelling—the nearest approach to flying that we are, for long, likely to know—is to be experienced on the motor-bicycle? I keep a car as well as a bicycle; I have toured under the fairest conditions and amid the loveliest scenery, yet I have no hesitation in saying that, but for the purpose of carrying a companion, I would not now even consider a car. The trouble of the business is that so few ladies can be taught to handle a motor-bicycle; resort to the cumbrous and usually much slower four-wheeler being, therefore, requisite. The tri-car I dislike as uncomfortable.

The drawbacks to the motor-bicycle are chiefly its unpleasantness on grease and its vibration on very bad roads. On good roads its flight (especially in the case of the high-powered type) is most comfortable and exhilarating to a degree which the mere car-driver is powerless to understand. To ride a high-powered bicycle, however, requires skill and nerve, and I must admit, accordingly, that not everyone is able to face the music. A doctor, discussing this matter with me at the show, observed that he kept his car for wet weather and work, but always resorted to the motor-bicycle when he required "real pleasure." And after all, those who know what it is to skim along the level at "forty" or over and leave big cars



An Oldsmobile in front of the Kremlin at Moscow.

standing on hills, the delicious sweep of the one tracker making the car but a dull vehicle, will not need much argument. For myself I always suspect that the car-driver who despises the motor-cycle is usually unable to ride it. Or again (if one may judge from the awful specimens of mankind seen on cars, on the Ripley Road for example), perhaps the tradesman in his motor "kerridge" is too often prone to consider himself as the superior of all other folk who use the road.—Yours truly,

E. DOUGLAS FAWCETT.

MOTOR-CAR WHEELS.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—Like "Inquisitive One" in your issue of 24th December, both back wheels of my two-cylinder Gladiator collapsed. I took advice, and thereupon incurred considerable expense in having new road wheels built by Messrs. Mulliner, of well-selected oak spokes stouter in the centre than the original spokes, and new chain-driving wheels from Messrs. Brampton in metal they specially recommended. I also had a steel ring fixed round the spokes for the studs to pass through, for extra strength. This latter I believe the Gladiator people have also since adopted.—Yours truly,

A. C. DAVID.

GRAPHITIC LUBRICATION OF MOTORS.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—I sincerely hope none of your readers have introduced graphite into their motors. Some years ago, from reading an article in a Yankee journal, I was foolish enough to try the experiment. I destroyed a number

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of plugs owing to graphite getting burned into the porcelains, and the motor misfired dreadfully. It almost seemed impossible to get rid of the stuff, once introduced, and it was quite a fortnight ere the motor ran as it did before. Graphite, but only pure graphite, introduced into the gear case and other parts in moderation gives very good results and forms an excellent lubricant in conjunction with grease and oil. But in the cylinder! Well, as I have said, "I have had some."—Yours truly,

GEORGE GIBSON.

LENT PLUG WANTED.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—When returning from Gravesend to London on the night of Sunday, November 27th last, we found a two-seater car hung up, and on offering assistance the driver asked if we could lend him a sparking plug. We accordingly pulled up, and after testing the ignition lent him a new E.I.C., which immediately rectified the trouble, and after giving him my card we proceeded on our journey, since when we have heard nothing from him.

I trust you will favour me by inserting this letter, as I feel sure the card has been mislaid, and that on learning my address (11, Therapia Road, Honor Oak, S.E.) the gentleman will return my property, as, although the cost in this case is small, one does not wish to make a practice of distributing spares.—Yours truly,

F. DENNISON TAYLOR.

THE LANCHESTER CAR.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—I have read with interest the correspondence on the Lanchester car, but note that the writers say very little about the valves, air cooling, petrol consumption, etc., and would be pleased if some of them would answer the following queries:—

(1) Are the valves easy to get at to grind in? (2) About how long would it take to replace a broken exhaust or inlet valve? (3) Are the fans liable to get noisy or out of repair? (4) Will the fans keep the cylinders cool on warm or hot days? (5) Are the nuts and threads standard or only made by the Lanchester Company? (6) About what is the average mileage per gallon? (7) Is the Lanchester Company reasonable or otherwise in its charges for repairs or replacements?—Yours truly,

A. U.

MISFIRING.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—I shall be greatly obliged if you or any of your many readers will assist me in the following matter:—I am having trouble with the back cylinder of my 14-h.p. Clement-Talbot (high tension ignition.) When the engines are running slowly this cylinder fires just when it thinks it will, which is very seldom, yet it will repeatedly start up on it (not always), but when this is accomplished it then remains inactive for many revolutions. When the throttle is opened, and the ignition lever in any position, it fires regularly; but, as the car is very sluggish and won't climb on its top speed anything like what it used to do, and also gets very hot, I attribute the loss of power to this cylinder.

I have spark gaps fitted, so am sure the coil is right, and have also had the commutator tuned up.—Yours truly,

PUZZLED.

["Puzzled's" trouble seems to point very strongly to faulty coil; undoubtedly the condenser has broken down, or there is a bad contact on the primary. Trouble of this kind is sometimes caused by the burnt oil getting foul of the point of sparking plug, and although when tried out of the cylinder proves all right, short circuits inside when replaced. This appears to be the only suggestion, if coil, sparking plug, etc., are correct.]

CHANGING IGNITION.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—In reply to "Free Manse" in the *Journal* of the 24th ult., who enquires how to apply electric ignition to a Leon Bollée tandem, if he will communicate or call upon me at the Beehive Works, Ryton Street, Worksop, I will let him know how I have altered mine. Originally the machine was similar to the one you illustrated a week or two ago. I have, however, constructed a new body, put it on springs, altered the steering wheel to centre, fitted electric ignition, and made it an up-to-date car. It is belt-driven, has three speeds, and I can get up any hill I have met with so far. The little machine, which carries three persons, can average twenty miles per hour; I never have any trouble with it, and I can do sixty miles on a gallon of petrol.—Yours truly,

J. NICHOLSON.

SPARE PARTS FOR STEAM CARS.—The manufacturers of the Turner-Miesse steam cars inform us that they keep a full range of spare parts always in stock. Messrs. W. Galloway and Co., of Gateshead-on-Tyne, and Messrs. Paris Bros., of Southport, also send assurance that they hold large stocks of spare parts for American steam cars. In view of these facts, together with the similar assurance from the representatives of the White steam cars, intending users of such vehicles need have no hesitation on that account.

THE LOCAL GOVERNMENT BOARD'S REGULATIONS re HEAVY MOTOR VEHICLES.

THE Local Government Board have had under consideration the report made by the Departmental Committee which was appointed to inquire with regard to any regulations which should be made under Section 12 of the Motor Car Act, 1903. The recommendations appended to the report of the Committee aim at giving effect to the objects of the section by facilitating the development of motor traffic of a heavier character than that at present allowed by law, but subject to the observance of suitable conditions for the protection of the roads against damage, and the avoidance of inconvenience to other users of the highway.

Hitherto the weight of a motor-car, unladen, has been legally limited to three tons. This limit is now raised to five tons. At the same time a corresponding increase is made in the limit on the joint weight (unladen) of the motor-car and trailer, namely, from 4 tons to 6½ tons.

Up to the present time no limit has been placed by law on the weight permissible in the load on a motor-car, but an innovation in this respect is made by the regulations, as it has been generally accepted that an increase in the tare weight of motor vehicles ought to be accompanied by the adoption of some safeguard against an excessive total moving load. The regulations, therefore, make the use of the heavier form of motor vehicle upon the roads legally dependent upon the observance of limitations, not merely on the weight unladen, but on the total joint weight of the load and the car. For convenience of designation, all motor-cars exceeding two tons in weight (unladen) are grouped together by the regulations under the description of "heavy motor-cars," and the joint weight of any heavy motor-car together with its load is restricted in the following respects.

In the first place, the total weight of car and load is limited to twelve tons. Next, the weight borne on any axle is not to exceed eight tons. Thirdly, the weight on any axle at any time is not to be allowed to go beyond the weight accepted as for that axle at the time of the registration of the car (such accepted weight for the axle being termed the "registered axle-weight"). As to the relationship between the above-mentioned limitations of twelve tons and eight tons, it is to be borne in mind that the greater part of any load, approximating to two-thirds of the whole, may ordinarily be expected to be carried on the axle to which the driving power is directly applied.

The question of the character and dimensions of tyres suitable for heavy motor-cars was fully considered by the Departmental Committee, it being felt that the admissibility of a new form of heavy traffic on highways greatly depended upon the arrangements which could be made for minimising wear and tear of the roads. Special and detailed provision is made by Article VI. of the regulations for the purpose of securing a width of tyre duly proportionate to the moving load and the size of the wheels, in cases where the wheels are fitted with ordinary tyres, *i.e.*, tyres which are not pneumatic or are not made of a soft or elastic material. No ordinary tyre is, however, to be less than 5 in. in width. The scale of sizes is laid down in the Article, and tables, fully showing the operation of the scale as regards different sizes of wheels and different axle-weights are contained in an exemplification which the Board have caused to be prepared. As instances of the scale, it may be mentioned that, in the case of a wheel of three feet in diameter attached to an axle with an axle-weight of six tons, the tyre would have to be 8 inches in width, whilst for a similar weight on a wheel five feet in diameter the width of tyre would be 6½ inches.

Where pneumatic tyres or tyres made of a soft or elastic material are used, the width is not prescribed by the regulations, as the practical necessities in such cases will doubtless be enough to secure the selection of tyres of suitable strength and durability and hence of adequate size.

The regulations contain other minor provisions and requirements as to the construction and use of heavy motor-cars. In the case of any wheel with an ordinary tyre, the diameter is not to be less than two feet; all heavy motor-cars are to have suitable and sufficient springs between the axles and the frame; in regard to ordinary tyres, although a smooth surface is usually required, the method of tyring wheels by strips of metal with intervals between them is, subject to definite conditions, not excluded; and cars with a weight unladen amounting to three tons or more are allowed a width of 7 feet 6 inches.

Under the special powers of Section 12 of the Motor Car Act, 1903, the rate of speed allowed to motor-cars generally by the Act is considerably reduced by the regulations in the case of all heavy motor-cars. A heavy motor-car is restricted to a speed of eight miles an hour, or to five miles an hour if the car exceeds in weight three tons unladen or has any axle with an axle-weight exceeding six tons or draws a trailer; but to this rule there are exceptions allowing somewhat higher speeds to cars having pneumatic tyres or other tyres of a soft or elastic material.

With respect to vehicles ("trailers") drawn by heavy motor-cars certain provisions are included, which in several respects are based on those relating to the cars themselves; but there are some special requirements as to trailers. The axle-weight on any axle of a trailer is limited to four tons. If the trailer exceeds a ton in weight unladen, the provision as to the proportionate width of tyres applies; but a minimum width of 3 in. is allowed. A trailer is not allowed to be drawn by any motor-car used as a stage carriage, or for the conveyance of passengers for gain or hire. A trailer does not require registration.

For the purpose of securing that heavy motor-cars shall duly comply with the new requirements as to construction and fittings, some

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additional provisions have been made with regard to the process of registration. The owner when applying for the registration of a heavy motor-car is to declare (*a*) the weight unladen, (*b*) the axle weight of each axle, and (*c*) the diameter of each wheel. Before registration, the weight unladen and (if the registering authority so direct) the axle-weight of each axle are to be ascertained by or in the presence of an officer of the authority. He is to certify the results, and, if necessary, correct the owner's statement. He is also to satisfy himself whether the tyres (if not pneumatic or not made of soft or elastic material) are of the prescribed dimensions, i.e., of the width required having regard to the size of the wheels and the axle-weight. For the above purpose the car is required to be driven or brought to the place appointed by the registering authority. Detailed entries of the facts relating to the particular car are to be made in the Register of Motor Cars. A new and separate part of the Register in which the entries relating to a heavy motor-car are to be made is prescribed.

It will devolve on the registering authority, under Article III. of the Motor Car (Registration and Licensing) Order, 1903, to furnish the owner of a heavy motor-car with a copy of the entries in the Register relating to the car; and upon receiving a copy of these entries the owner is to cause the unladen weight, the axle-weight of each axle, and the highest permissible rate of speed under the regulations for the particular car to be painted or otherwise plainly marked on the sides of the car in the manner specified in the regulations, the marking of the weights being placed on the right side, and the marking of the speed on the left. It is suggested that the weights and speeds might be thus indicated:—

The unladen weight	U.W. tons.
Registered axle-weight of each axle	A.W tons cwt.
Maximum speed permissible (in miles per hour)	Speed m. p.h.

With regard to existing cars coming within the definition of "heavy motor-car," it has been found necessary to include certain additional regulations. The regulations, generally, come into force on the first day of March next. The clause, however, in Article XIII. provides a period of grace of six months from that date for heavy motor-cars registered before that date; the object of the clause being to allow time for cars to be brought up before the registering authority, and for any structural alterations to be made which may be necessary so as to alter the cars as to secure that they shall comply with the regulations. The period allowed will avoid an inconveniently sudden disuse as motor-cars of any vehicles which cannot properly be altered.

A further provision, however, is made by Article IV. (5) in order to meet the case of existing cars. Every heavy motor car registered before the date of operation of the regulations must, within six months, be brought before an officer of the registering authority with whom it has been already registered, or must be registered anew, its existing registration being cancelled; and in either case the same procedure must be followed as in the case of a first registration of a heavy motor-car under the regulations. The provisions as to weight unladen, axle-weight and tyres will apply as fully as in the case of a new car. But if a car which was registered before the 1st September, 1904, and which has, when unladen, a weight exceeding five tons but not exceeding seven tons, is brought before an officer of the registering authority, and the prescribed procedure followed, compliance with this regulation is to be sufficient authority for the use of the particular car upon the highway.

In every case in which a heavy motor-car is brought up for inspection and not registered anew a certificate of the facts is to be given by the registration authority to the owner, to serve as evidence of the right to use the car. After six months, the previously existing registration of any heavy motor-car in respect of which no such certificate has been given will cease to have any effect.

Article XII. of the Order contains provisions enabling the officer of any local authority having control of the highway, or of any registering authority, to test the weight of the actual load for the time being on any heavy motor-car. The power, however, can only be used if the car is upon a highway within half-a-mile by road from a public weighing machine or other weighing machine which is conveniently accessible.

With respect to bridges, Article XIV. provides for notices being placed on any bridge forming part of a highway, and in each approach to the bridge, with a view of prohibiting the passage over the bridge of any heavy motor-car with a registered axle-weight exceeding three tons on any axle, or with a higher axle-weight to be specified in the notices. Where such notices are placed, cars of the class referred to are not to be driven upon the bridge except with the consent of the person liable to repair the bridge. In the event of disputes arising as to the insufficiency of any bridge to carry the traffic specified in the notices, the Article provides for the settlement of the matter by resort to arbitration.

The same Article prohibits heavy motor-cars, where the axle weight of any axle exceeds six tons, from being driven on a bridge forming part of a highway, if another heavy motor-car, or an ordinary road locomotive (*e.g.*, a traction engine), is on the bridge at the time.

Subject to the new regulations, the existing regulations contained in the Motor-Car (Registration and Licensing) Order, 1903, and the Motor Cars (Use and Construction) Order, 1904, will continue to apply as regards all matters not expressly mentioned in the new regulations. The new regulations are, like the previous regulations, made under Section 6 of the Locomotives on Highways Act, 1896, and consequently any breach of them will be punishable by a fine not exceeding £10.

In addition to the foregoing statement of the effect of the new regulations, the Board think it well to add the following observations.

As regards the meaning to be attached to the expression "weight" when applied to a heavy motor-car or trailer unladen, the question has been raised whether a new definition of "weight" should be substituted for that hitherto employed, so as to determine more exactly what separate or detachable parts or fittings may properly be excluded from, or included within, the scope of the above expression. The present definition of "weight," however, follows in its terms the language of Sub-section (2) of Section (1) of the Act of 1896; and the Board have not thought it desirable to depart from that language. All that the sub-section requires is that in calculating the weight of a vehicle unladen, the weight of any water fuel or accumulators used for the purpose of propulsion shall be excluded. The expression "weight" when applied to a motor-car or trailer unladen, therefore, does not in itself determine what can be regarded as part of the vehicle, and what can be regarded as part of the load; and it appears to the Board that whilst any essential part of the vehicle or its mechanism is clearly included in calculating the unladen weight, the circumstances of construction may in certain cases permit of a detachable framework or body being treated as part of the load rather than of the car itself.

The requirement as to the ascertainment of weights, prior to registration, by or in the presence of an officer of the registering authority, is intended to supply an opportunity for testing the accuracy of the facts declared by the owner. The precise steps, however, to be taken by the officer for this purpose are not set forth in the regulations; and, as regards the ascertainment of the axle weights, the officer is not bound to act under the regulations except upon the direction of the registering authority. The necessity for greater or less severity in the tests applied will, of course, in practice depend on whether some limit of weight is approached which has to be regarded for a special purpose, such as load, tyres, or speed. Especial care should be taken in any case where the exact weight would affect a structural detail or a permanent marking on the car. In relation to the acceptance of the declared axle weights, the principal point requiring attention will be that the total of the axle weights fairly represents the joint weight of the car and of the maximum load which it may be expected to carry.

In connection with the provisions of Article XII., it has been suggested that if the officer of a council acts under it and finds that the axle weight for the time being is within the proper limit, the Council should be required to make good and pay for any loss of time occasioned by the action of their officer; but the Board are advised that it is not legally competent to them to include a provision of this nature in the present regulations. This circumstance, amongst others, has led the Board to restrict the operation of the Article to cases where the heavy motor-car is within half-a-mile from an available weighing machine.

It is desirable that the Council should proceed to have the needful forms prepared for the new part of the Motor-Car Register which is to be appropriated for heavy motor-cars. It would be convenient if, before the regulations come into force, the Council sent a notice to the owner of every motor-car already registered with them the weight of which as entered in the Register exceeds two tons. The notice should state that the new regulations apply to all motor-cars exceeding two tons in weight unladen, and that as already mentioned such cars must within six months either be registered anew or must be brought up for inspection and for variation of the registration in compliance with the procedure prescribed by Article IV. of the regulations.

It should be pointed out that if the owner of a heavy car prefers to register anew with another registering authority, notice of cancellation of the existing registration should be sent by him to the Council under Article VI. of the Registation and Licensing Order, 1903. On the expiration of six months after the date of commencement of the Order the registration of any heavy motor-car which was registered before that date, and with respect to which the procedure prescribed by the regulations has not been followed, will cease to have effect, and the entries in respect of that car can be cancelled in the Register.

COLD WEATHER PRECAUTIONS.

By Henry Southeb.

In dealing with the results of my experiments with anti-freezing mixtures and recommendation of alcohol-glycerine, one important fact was omitted, in that I did not state that wood alcohol affected the rubber connections of the cooling system to a very slight degree. One entire season with a 33 per cent. solution affected the rubber so little that after close examination with a knife and by tearing the inner lining of the hose I was not sure that there had been any change. Certainly there was nothing that had affected the hose in any great degree. Glycerine does soften the rubber, but any ordinary hose will stand a year in the presence of it, possibly longer. The glycerine, alcohol and water mixture affects it to a very slight degree in the proportions given in my diagrams published in a recent issue.

The right way to handle the mixture is to find out the equation for your own car, using all the alcohol you can possibly stand and not boil the mixtures on the mild days to be met with in winter in this climate. Some machines will stand all alcohol—that is mixed with water—others will not, and glycerine must be used to keep up the boiling point. Any

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number of chemical solutions are advertised in the market. It is quite possible that all of them will prevent freezing; I am not able to say to the contrary. One thing must be remembered, however, and that is every salt dissolved in water forms an electrolyte through which electric currents pass with the greatest readiness. Unless the entire system of water-cooling surface is of exactly the same metal, one or the other of the different metals is sure to dissolve. A cooling system may last a year or two, but, sooner or later, the fatal results of electrolysis will be felt and some part of the system will disintegrate. These remarks apply to every chemical soluble in water that can possibly be used to advantage as far as lowering the freezing point is concerned. It is also a not unusual experience to discover that some of the anti-freezing chemicals have left a plaster-like deposit in the bottom of the tanks that finds its way into the pipes or tubes and actually cakes therein.

DRIVER SENT TO PRISON.

William Thomas, who was in the service of Mr. Arthur Kohn, of 79, Queen's Gate, S.W., was summoned, before Mr. Horace Smith, at the Westminster Police Court, on Friday of last week, by Inspector Spencer, L division, for driving a motor-car in a manner dangerous to the public at Westminster Bridge Road. At two o'clock on the morning of the 10th ult., a constable on duty at Lower Marsh, Lambeth, saw a motor-car being driven at a furious rate towards Westminster Bridge. The officer, from the speed, could not take the number or in any way identify it, but at the junction of Lambeth and Westminster Bridge Roads it crashed into some trestles and poles surrounding a large excavation. There were ten warning red lamps around, but these were scattered with the broken woodwork, and the car, jumping a hole 9 ft. long, 4 ft. deep, 4 ft. 6 in. wide, continued its wild career minus the greater part of one of the back wheels. Then the driver managed to get away, at apparently the same rate of speed. A letter from the owner of the vehicle to the police led Inspector Spencer to trace the defendant, and ascertain that he had had the car out, with a party of four, without the knowledge of his employer. The defendant said it was a wet night, and he had on some new skidding tyres from Paris, he having just finished a Continental tour. He could not see very well, because the rain was on the glass panel in front, and there was the glare of an electric car. He saw but one red lamp, and was obliged to go on at the full pace—to have pulled up then would have had still more serious consequences. Inspector Spencer said last June the defendant was convicted of reckless driving at Coventry. Mr. Horace Smith did not regard this as a case for a fine. He ordered the defendant to be imprisoned for two months.

CASE DISMISSED.

Mr. P. P. Prebles, of Russley Park, was summoned at Leicester, on Monday, for driving his motor-car to the danger of the public in that town. Mr. Staplee Firth conducted the defence, and the magistrates dismissed the case.

A SUCCESSFUL APPEAL.

At Folkestone Quarter Sessions on Monday the appeal of Mr. Louis Sinclair, M.P., against his recent conviction for driving a motor-car at a rate exceeding the speed limit was concluded.

The Recorder said that he approached the evidence anxiously and carefully. Having dealt with the evidence for the Crown and the expert evidence for the appellant, he said that the speed evidence of the constable—which was, of course, the principal evidence—was unreliable. Mr. Sinclair, when before the petty justices, did not tender legal evidence, and possibly did not appreciate the gravity of the charge. On the evidence given them, the justices were right in their decision, but on the evidence of the appeal case he could not find Mr. Sinclair guilty of any offence under the Act. The conviction was therefore quashed. No order was made as to costs.

IMPORTS OF AUTOMOBILES.

Below we publish our monthly official list of the imports of motor-cars, motor-cycles, and the parts thereof, into the United Kingdom during the month of November, 1904:—

UNITED STATES.

Shipped from	To	Description.	No.	Value.
Boston	London	Motor-cars	2	£140
,,	Manchester	,, ,,	4	512
New York	Glasgow	,, ,,	2	450
,,	,,	,, car parts	—	7
,,	Liverpool	,, car	1	200
,,	London	,, ,,	1	300
,,	,,	,, car parts	—	740
,,	Southampton	,, ,, ,,	—	19

Total value of imports from the United States, Nov., 1904 £2,368
Total value of imports from the United States, Jan.-Nov., 1904 £121,610

BELGIUM.

Shipped from	To	Description.	No.	Value. £
Antwerp	Harwich	Motor-cars	3	505
,,	,,	,, cycles	30	600
,,	,,	,, car parts	—	498
,,	,,	,, cycle ,,	—	392
Brussels	London	,, car	1	450
,,	,,	,, cycles	5	125
Ghent	Dublin	,, car	1	550
Ostend	Dover	,, ,,	5	243
,,	,,	,, cycles	5	300
,,	,,	,, car parts	—	78
,,	London	,, cars	10	5,660
,,	,,	,, cycles	23	690
,,	,,	,, car parts	—	1,365
,,	,,	,, cycle ,,	—	1,055

Total value of imports from Belgium in November, 1904 £12,511
Total value of imports from Belgium, Jan.-November, 1904 £218,412

FRANCE.

				£
Boulogne	Folkestone	Motor-cars	35	12,690
,,	,,	,, cycle	1	40
,,	,,	,, car parts	—	10,478
,,	Goole	,, cars	3	1,250
,,	,,	,, car parts	—	256
,,	London	,, cars	79	35,042
,,	,,	,, cycle	1	52
,,	,,	,, car parts	—	3,374
Caen	Newhaven	,, ,, ,,	—	2,650
Calais	Dover	,, cars	2	720
,,	,,	,, car parts	—	328
Dieppe	Grimsby	,, car	1	280
,,	Newhaven	,, ,,	41	20,608
,,	,,	,, cycles	13	432
,,	,,	,, car parts	—	7,787
Dunkirk	Leith	,, car	1	450
Havre	Liverpool	,, car parts	—	650
,,	Southampton	,, cars	3	1,700
,,	,,	,, car parts	—	100
Marseilles	London	,, cars	2	1,000
Rouen	,,	,, ,,	1	88
Treport	Leith	,, car parts	—	128
,,	London	,, cars	19	5,285
,,	,,	,, car parts	—	110
,,	Manchester	,, car	1	600
,,	Runcorn	,, ,,	1	380

Total value of imports from France, Nov., 1904. £106,478
Total value of imports from France, Jan.-November, 1904 £1,874,999

GERMANY.

				£
Bremen	London	Motor-cars	11	2,558
Hamburg	,,	,, ,,	7	2,950
,,	,,	,, ,, parts	—	15

Total value of imports from Germany, November, 1904 £6,523
Total value of imports from Germany, Jan.-November, 1904 £61,121

HOLLAND.

				£
Amsterdam	Goole	Motor-car parts	—	10
,,	London	,, car	1	300
Flushing	Queenboro'	,, cycle	1	31
Rotterdam	Harwich	,, car parts	—	65
,,	Liverpool	,, cycles	1	40
,,	London	,, car	1	550

Total value of imports from Holland, November, 1904 £996
Total value of imports from Holland, Jan.-November, 1904 £37,165

TO CORRESPONDENTS.

All communications intended for insertion in this Journal or relating to Editorial matters should be addressed to The Editorial Department, Motor-Car Journal, 27-33, *Charing Cross Road, London, W.C., and must be written on one side of the paper only. Letters must in all cases be accompanied by the name and address of the writer, as no notice will be taken of anonymous communications.*

The Editors cannot undertake to return MSS. or drawings, although every effort will be made to do so in the case of rejected communications. Where such are regarded as of value, correspondents are requested to retain copies.

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THE

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COMMENTS.



AT its meeting in London on Monday the Committee of the Automobile Club passed the following resolutions of protest against the proposal of the Automobile Club de France to run the race for its Grand Prix over the same course and at the same time as the Gordon Bennett event. It resolved, on the motion of Mr. S. F. Edge, "That the principle of another race being run at the same time and over the same course as the Gordon Bennett Race will decrease the interest in the Gordon Bennett Race, and is bad in principle from a competing Club's point of view." It further resolved—"(1) That this Club immediately send to the Automobile Club of France a strong protest against any other race being held on the same road and on the same day as the race for the Gordon Bennett Cup. (2) That a copy of the protest be sent to Mr. Gordon Bennett, and also to all Clubs eligible to compete, together with an invitation to them to send a like protest to the Automobile Club of France."

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The British Team.

SINCE our last issue the official list of entrants for the honour of representing Great Britain in the Gordon Bennett race has been issued. It is exactly as published in these columns last week, with the exception that the Weir car—to be constructed by the Scotch firm who built the British Darracqs last year—will be driven by Mr. A. L. Guinness. The two Stars will be driven by Messrs. J. Lisle and F. R. Goodwin, the latter thus making his first appearance in an event of such importance as the Eliminating Test.

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Seaside Race Meetings.

MOTORISTS are apparently regarded by the Corporations of seaside towns as fair game for the summer season, and already meets are being suggested for Hastings, Clacton, Blackpool, Southport, and Brighton, to say nothing of the attractions at Douglas towards the end of May. Of course the municipal authorities of these places are solicitous as to the prosperity of the boarding-houses and the hotel-keepers who are on the rate book, and welcome any scheme likely to attract wealthy visitors, as well as to popularise and advertise their towns. But the motorists should be allowed a word or two before any definite schemes are suggested. Firstly, we would urge that the central authority should withhold support from any of these suggestions until all the likely applications are before it. Corporations wishing to hold such gatherings should submit their claims to consideration by a certain date, after which no new applications should be considered, so far as the present season is concerned. Then the merits of each place might be studied and approval given to events arranged at convenient dates from each other, to avoid the clashing of programmes and the inconvenience of those who may be persuaded to enter. As far as possible each meeting might be given a distinctive character, so that the enthusiasts who ride for the delight of the public might not be provided with a round of sameness such as is often presented to the squirrel when in captivity.

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Hotel Charges during Race Meetings.

PROVISION having thus been made to prevent overlapping, local promoters should impress upon hotel-keepers the fact that the goose that lays the golden egg has only one life; and that extortionate charges on the two or three days of an automobile race meeting may endanger the reputation of the town with a class of people which hotel proprietors are usually glad to welcome. The motorists should be regarded more in the light of guests, and not pounced upon as victims. Garage accommodation might well be provided by the organisers for the convenience of competitors, so that they should not be left to the mercy of landlords with extravagant notions with regard to the value of services often inadequately rendered. We would even go so far as to say that the tariffs at the leading hotels during the race week should be submitted when inviting motorists to entertain the town and its visitors. They would thus be able to estimate their expenses; and landlords would be made to recognise that a spirit of justice should prevail—even to motorists when on holiday bent.

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Timing Races.

ANOTHER practical matter in connection with these race meetings is concerned with the time-keeping arrangements. These have been a frequent source of discussion among motorists, and at no contest hitherto held in this country have they been entirely satisfactory. The electrical timing device has been both disappointing and expensive, and recourse had had to be made to the stop-watch. In such circumstances no one should be engaged unless he has a chronograph which has recently passed through Kew, and when such appointments are made the equipment of the official in this respect should count quite as much as the person himself.

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The Value of Prizes.

A FURTHER point we would emphasise has regard to the awards given. The man who has a motor stud valued at many hundreds of pounds does not race for the sake of the diploma or prize; but he does like to feel, should he win a place in a contest, that when he mentions the fact to friends and produces the evidence they will not laugh at the character of the prize. At one of the seaside race meetings the medals were almost as valuable as the tokens that are presented to members of school football teams who show prowess in the game. The event we have in view was successful from the pecuniary and the popular points of view, so that there was no plea of poverty to be raised. Events where gentlemen enter as much to advance the cause as to enjoy themselves should not be made a source of profit to the towns that are supposed to entertain them as guests; hence the plea that before the English

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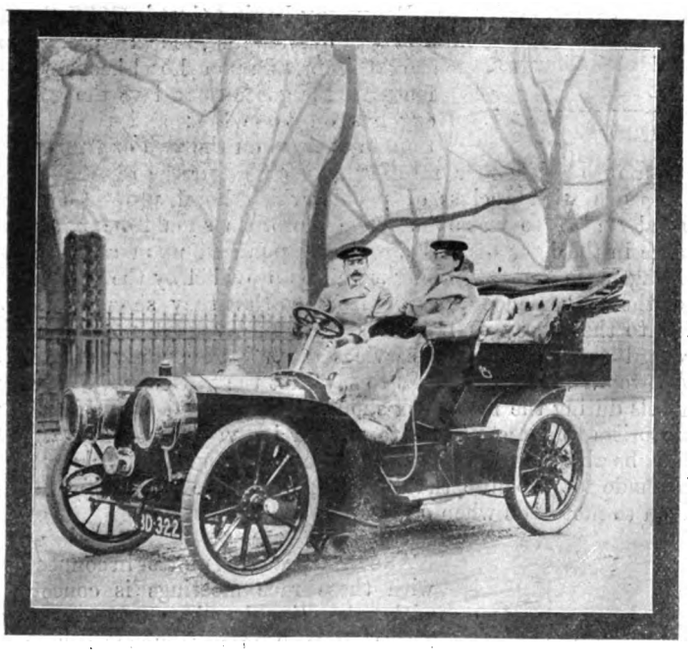
racing season of 1905 is planned such matters as those we have raised should be thoroughly discussed, and everything done to secure fair play to every motorist who enters and respectable awards to all who win.

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Medicos and Motors.

MEDICAL men are becoming increasingly partial to the motor-car. They recognise the saving of time that can be effected by its adoption, and on all hands we hear reports of doctors disposing of their horses and visiting patients by means of the automobile. During last month—the quietest month of the year in many respects—the Mobile Motor and Engineering Company, Limited, of Birmingham, supplied a car to Dr. Underhill, of West Bromwich, and another to Dr. Dewdney, of Kingskerswell. Both gentlemen have sold their horses and are depending entirely on the motor-car to do their work.

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Mr. and Mrs. Claude Borrett on their 22-23-h.p. Crossley Car.

Mr. Borrett, who is an enthusiastic motorist, has already run his car over 2,000 miles in England, and has just left for Cannes with it. It will be noticed that, although the *chassis* is only of the standard length, it is fitted with a neat side entrance body.

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Heavy Motor Traffic.

A QUESTION referring to the Local Government Board's order relating to heavy motor traffic, which comes into force on March 1st next, was asked at the meeting of the Paddington Borough Council by General Laurie of the chairman of the Works Committee. The order proposes that heavy motors with a weight of eight tons on each axle shall be permitted to travel at a rate of eight miles per hour in the borough. General Laurie expressed a fear that the Council's roads might be found unsuited to this new traffic. Alderman Whur said the town clerk had only just received a copy of the Local Government Board order, and the borough surveyor had had no opportunity to consider it. He proposed to do so at the earliest possible moment, and to bring up a report. The use of heavy vehicles would of necessity increase the wear of the roads, and some of the roads in the borough were not suitable for heavy traffic. General Laurie said action must be taken before March 1. Alderman Whur promised that all necessary steps to protect the interests of the borough should be taken.

A Lesson for the Police

AT the Clerkenwell Sessions one of the magistrates at the West London Police Court has received a lesson which, it is to be hoped, will not be lost upon him. As recorded on another page, the appeal of a motorist from a decision of Mr. Kennedy has not only been allowed, but costs have been given against the police—a fact even more notable than winning the appeal. The police had a quartette of witnesses, but, despite such an array of evidence, the defence was able to convince the superior Court as to the unfairness of the conviction, and so clearly was this the case that the police were ordered to pay the costs of the appeal. This order should also have included the costs of the defence in August last.

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Reference Books.

WHITAKER'S ALMANAC for 1905 is before us with its 800 pages of information on nearly every subject that the man of affairs is likely to be interested in. Special attention is given to the movement of British trade in 1904, and a new feature is that dealing with holiday and health resorts from the hygienic point of view—a section in which motorists will have much interest. Reliability is, as usual, the characteristic of Whitaker's Almanack, but the list of places of interest in London might be extended to include the Tate Gallery.—The catalogue of the principal English books in circulation at Mudie's Library is a comprehensive guide to literature, the plan of "subject classification" enabling the leading volumes on any particular topic to be found with ease and rapidity. Only one criticism need be offered, viz., the separation of books on motoring from the volumes on cycling, the recent development of automobilism warranting such a division.—As an annual work of reference the "Daily Mail" Year Book has rapidly come to the front, and the value of the 1905 volume is enhanced by a series of special articles.

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A Motor Launch Service.

THE first motor launch public service will be inaugurated during the coming summer by Mr. L. W. Iliff, of Birkenhead. He intends to run a motor launch between Beaumaris and Carnarvon, and is undertaking the venture with a spirit and enterprise that we hope will be successful. The present intention is to run six trips a day between the places named, calling at intermediate towns. That the local authorities view the suggestion with some approval is evident from the fact that the Carnarvon Harbour Trust have decided to charge only a nominal sum for the landing and embarking of passengers at their place during the season. This is quite a new development of the automobile industry, and one that should ultimately do something to re-awaken the prosperity of many seaside towns, just as the motor-car movement is doing much to revive fading hopes in some of the smaller towns on the main roads.

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Motor Boats on the Wye.

IN addition to the motor launch service in Wales, there is a project afoot for providing a new boat service on the Wye—that delightful river of which those who took part in the trials at Hereford had glimpses, and which has been glorified by Miss Braddon as "the Rhine of England." Mr. C. Curtis suggests that the river should be cleared of the rocks and great stones throughout its sinuous course of ten miles between Hereford and Fownhope. Then a service of motor-boats should be established, which would undoubtedly prove attractive not only to the residents of the district, but also in drawing visitors to the delightful scenery about the banks of the Wye.

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A Club for Ceylon.

THANKS to the initiation and energy of Mr. Harold North, the well-known planter of Kadugannawa, Ceylon has, as we mentioned in our issue of the 31st ult., a club to safeguard and support the interests of motorists in the Island. At the inaugural meeting Mr. North, the originator of the movement, detailed the various objects of the club. He announced that H.E. the Governor, Sir Henry Blake, G.C.M.G., had consented to be the first patron of the club. Officers and a committee were then elected. General Money, the commander-in-chief of the forces in Ceylon, was elected president, and Mr. L. Creasy, of the Public Works department, vice-president. Mr. North was unanimously elected to fulfil the duties of hon. secretary. The main objects of the club are, firstly, to render the roads safer for motorists, by urging the Government to enforce the law forbidding the trespassing of native-owned cattle on the public highway. At present herds of cattle are allowed to graze uninterruptedly on the edges of the road. The second danger on the road is that of pariah dogs. In every roadside village, and near every roadside habitation, swarms of unfed, hideous, and diseased abominations come flying savagely out at every passing vehicle, and constitute a most serious danger. The animals are for the most part unowned, and it is impossible to find and prosecute the owner, but as motor-cyclists now nearly always carry a small revolver, the numbers of these roadside pests will doubtless diminish considerably in the future.

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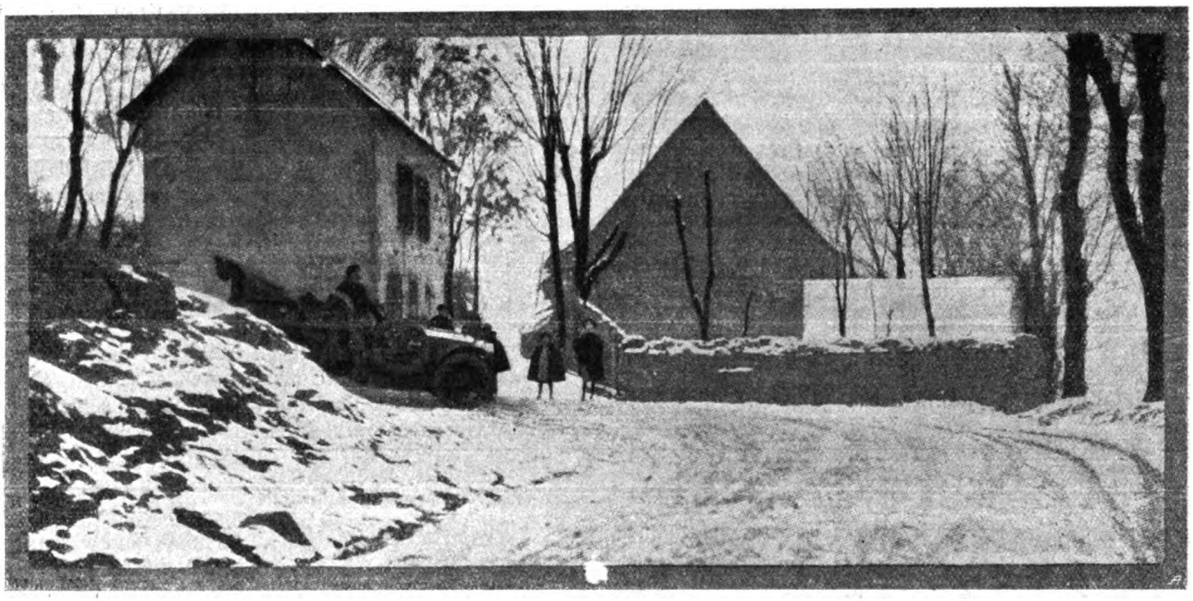
Petrol Facilities.

THE Government has already been approached on the matter of allowing greater facilities for conveying petrol by rail, and has consented, by amending the petrol ordinance, to meet the wishes of the club in a reasonable manner. The club has also considered the best manner of combatting the extremely high rates of petrol and motor accessories. Messrs. Walker, Sons and Company, of Colombo, have agreed to supply members of the club with accessories at 10 per cent. over English retail prices. The greater number of the members are motor-cyclists, but there are at present about thirty cars of all sorts in the island, ranging from a big steam car recently imported in connection with Messrs. Thomas Cook and Son, to the small Oldsmobile runabout. A fair number of Humberettes are running, and also a 6-h.p. Wolseley, only one of which has up to the present been imported. The owner, Lieut. Skelton, R.A.M.C., speaks most highly of its performances over the long and trying gradients of Ceylon roads.

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Advice to Makers.

MANUFACTURERS and agents should understand clearly that the motor trade in the East is a very important and steadily-growing industry, and they will do well to make strenuous efforts to secure the lion's share from foreign competitors. This they should be able to do, the quality of British made motor-bicycles already imported giving great satisfaction in a country where there are very few facilities outside Colombo for repairs. Against this, however, must be placed the fact that the foreigner realises far better than his English rival that his customers require their orders executed promptly and according to specification. Motorists in Ceylon do not make alterations from standard specification from a spirit of mischief, but because they know the peculiar conditions under which they want their machines to run. Manufacturers should take pains to send out both cars and motor-bicycles amply tyred and with the best possible makes; the climate there is very trying to tyres. For cars particular attention should be paid to the water cooling arrangements, and the radiating surface should be larger, for obvious reasons, than would be necessary for cars intended to be run in a temperate climate. The temperature of Ceylon is high, and the gradients, though seldom stiffer than 1 in 10, are frequently four or five miles long. The main roads are beautifully traced, and the surface, except at the beginning of the road-mending operations, is excellent. Like all roads in mountainous countries, they abound in sharp curves and unexpected corners, careful driving is therefore imperative. The Automobile Club of Ceylon has made a most auspicious start, and it is to be hoped that British manufacturers will take full advantage of the splendid field that is spread out before them. Ceylon is not a country of rich men, and neither roads nor purses out there are suitable for high power or expensive vehicles.



The Gordon Bennett Course under Snow.—A Bad Turn near Rochefort.

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The 5,000 Miles Trial.

THE 12-h.p. two-cylinder Siddeley car continues its long trial, the variations of weather encountered since the start providing a good test of its capabilities and merits. The distance covered last week was 1,000 miles. On Monday 185 miles were covered on the Coventry road, and on the following

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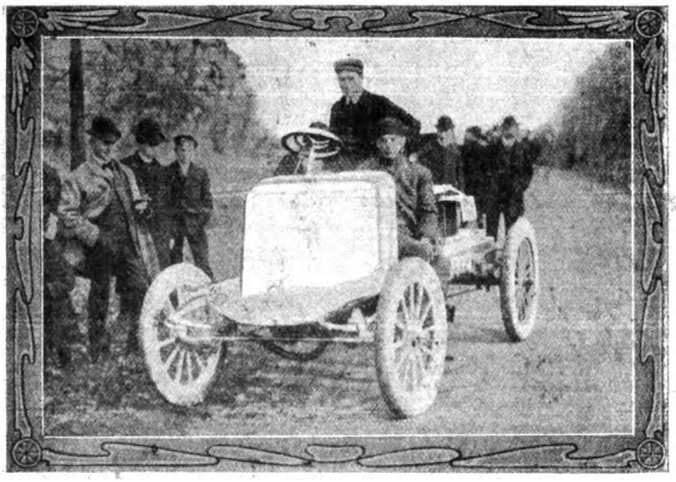
day 149 miles were traversed on the Bath road, no involuntary stops and no incidents occurring on either occasion. In fact, the steady running of the vehicle—neither climatic conditions nor varying roads interfering with its progress—must make the journey somewhat monotonous to the Observer of the A.C.G.B.I., who has had practically nothing to record.

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Licences and Registration.

CONFUSION as to licensing drivers and registering cars seems to exist in some quarters, and an alarmist note has been struck in a contemporary by suggesting the liability to be required to buy "new plates" unless driving licences are promptly renewed. Such a mistake is quite incomprehensible. A licence to drive has to be renewed annually, and is a personal matter entirely. The registration of a car is, as Rudyard Kipling would say, "another story." It is an official recognition of a vehicle and the assignment of a number, which remains in the possession of the owner so long as he retains the car. His licence may expire, but the number of the car remains. A reference to any handbook would have obviated an error which scared at least one motorist into writing to the Press

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A White Steam Car in Racing Trim.

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Centre Tramway Poles.

IT has recently come to the knowledge of the Roads Improvement Association that the Board of Trade have provisionally sanctioned the erection of central poles in connection with the light railway which is being constructed through East Finchley and North End, Finchley. The light railway in question commences near the London County boundary in Archway Road, and runs thence in a north-westerly direction for nearly five miles along the Great North Road. These five miles form part of one of the most important thoroughfares out of London, and the Council of the Association is making representations upon the matter to the Board of Trade. The evidence before the Royal Commission on London Traffic has been overwhelmingly against the erection of central standards on main trunk thoroughfares, and this particular thoroughfare is, without exaggeration, the most important thoroughfare out of London. Practically all the through traffic to that part of the country lying between the London, St. Albans and Birmingham road, and the London, Baldock and Cambridge road, viz., the greater portion of Great Britain, leaves London by this particular road in preference to all others. The experience gained at Ealing and elsewhere shows that the erection of central standards reduces the traffic capacity of a road by about one-third, and greatly multiplies the dangers of accident. The possibilities that a side-slip may result in a disastrous accident are greatly increased by the existence of obstructions in the centre of the highway, and, as is well known, greasy tramlines are a principal cause of side-slip in the case of rubber-tyred vehicles. We understand that the Board of Trade has submitted these representations of the Roads Improvement Association to the local authorities interested for their observations.

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Motor 'Buses.

THIS is the year of the motor-'bus, so far as London and its suburbs are concerned, and, in addition to the important developments made in connection with the traffic to and from the main streets of the metropolis, the suburbs are being awakened by the advent of the omnibus without horses. In the Woolwich district a company has been formed to run a service of motor-omnibuses between that place and the suburbs beyond. Already the motor vehicle is plying for hire in the main thoroughfares of London, and crowds are gathering at the termini for the chance of a ride. The formation of the London Motor-'Bus Company is a sign of the times.

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Proposed Highway Legislation.

THE Council of the Roads Improvement Association have under consideration the draft of a Bill which it is proposed to introduce into Parliament at the beginning of next Session. The Bill will give effect to the more important recommendations of the Departmental Committee. In particular, it is designed to create a central department for the purpose of assisting the local highway authorities: to largely increase the highway powers of the county authorities; to provide for the construction of new main roads through and out of the large urban districts; and to protect the interests of the ratepayers by providing that suburban districts shall be laid out according to some definite plan, under which new trunk roads of adequate width shall be built and the existing ones widened before building operations commence, and so render unnecessary costly street widening and improvement schemes. Such reasonable proposals should have practically universal support.

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Differential Treatment.

FOR not exhibiting a red tail light on his car, a Rugby motorist has been heavily fined, and a reader, whose letter appears in our correspondence columns, draws attention to the case as another piece of evidence showing the preferential treatment accorded to motor-drivers and horse-drivers. For this offence the motorist was fined £5; had he been driving an ordinary vehicle a nominal sum would doubtless have been imposed. Surely the necessity for equality of fines is becoming increasingly apparent—even to the most convinced anti-motorist.

MESSRS. LINTINE AND CO. have been appointed sole concessionnaires for the "Le Radium" motor lamps.

THE *Motor-Car Journal* is now fully installed in its new offices, 27-33, Charing Cross Road, London, W.C.

THE Birmingham Corporation have placed an order for a Clement-Talbot car with Messrs. Piercy and Co., of Birmingham.

MESSRS. CARLESS, CAPEL, AND LEONARD inform us that they have reduced the price of their standard petrol 1d. per gallon.

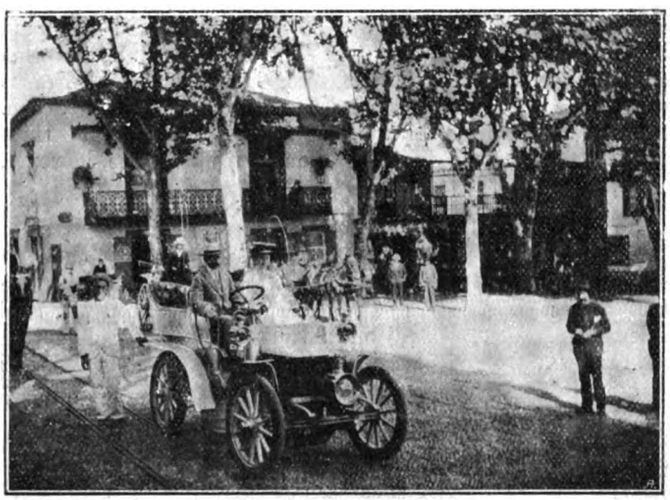
A CORRESPONDENT writes us that, in returning to town from a hundred-mile journey, on a muddy day last week, a hansom cab jockeyed the car. On the occasion of one of the numerous stoppages in Piccadilly, the two vehicles were enabled to draw up side by side, when the owner of the car remonstrated with the cabman. Looking down at the muddy passengers, the Jehu ironically remarked, "Now, governor, don't be dirty; don't be dirty!"

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THE FIRST MOTOR-CAR IN MADEIRA.

By Harvey Foster.

AFTER deciding to spend the winter at Madeira my thoughts turned towards the cars I was leaving behind, and, speaking to a friend, he suggested taking one with me; but, knowing the bad roads and terrific hills, I hesitated, and after thinking the matter over once more decided to put my faith in a 10-h.p. Wolseley. I ordered a car and arranged for its shipment, also made inquiries regarding petrol, which I found could not be obtained on the island, and was told by the Consul



Motoring in Funchal.

there would be some considerable difficulty in passing same through the Customs. At last I succeeded in getting a Lisbon firm to make me a special consignment in a small sailing ship.

Then the difficulty arose as to how to land the car, as the Union Castle Line's ships all stop half a mile out in the bay. My first idea was to drop the car into the sea and tow it to the shore, but after consideration I found this would be impossible, and then arranged for one of Cory's large lighters to take it. Our next difficulty, after getting the lighter pulled up on the beach, was to get the car off. This we eventually did after tremendous labour by erecting a scaffold, which I thought would break every minute.

It was well on to 9 p.m., and, of course, the Customs were closed. I was told there would be a special officer on duty to watch the car all night, for which I had to pay later. Next morning I went down to the Customs about 10, and was met by the kind and courteous Mr. Alfred Reid, who said he would see to all the necessary Customs formalities. After about three hours' delay I was towed in State by two bullocks to the Carmo Hotel yard, where I lubricated and filled up with petrol.

I had taken the precaution to take out a charged accumulator with me, as I was doubtful about having them charged there, but need not have been, as Mr. Beazley, managing director of the Electric Light Works, was kindness itself, and charged my accumulator splendidly. By this time half the population of Madeira were waiting to see the "Land Ship," as they called it. I drove through the town, and up and down the Pontinie two or three times. The engine ran splendidly, and we thought the car fit to tackle one of the worst hills in Madeira, which it did in good style, we arriving at Reid's New Hotel greatly pleased with the car.

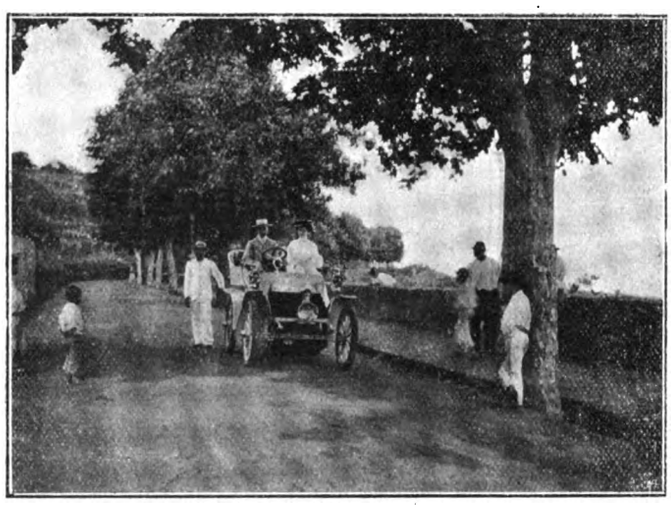
The next three days I used the car continually, but on the fourth I received a notice from the Governor of the island to say the car was not to be used again until I had proved to his satisfaction that the vehicle was quite safe to be at large, and that I was a competent person to drive same. I immediately went to my friend Mr. Reid, who said he had no doubt he could help me out of the difficulty. After two days' delay, two men who had never seen a motor-car before came to examine it and make sure it was not an infernal machine. The examination lasted an hour. Then I took them a run to prove I was competent to drive, and on their return they assured me through the interpreter that I should have the necessary permission to drive anywhere on the island. In about a month's time I received a formidable bundle of papers which they had specially printed, as mine was the first car on the island, and my number was "1." Amongst the papers was a special permission from His Majesty the King of Portugal, also a passport for my wife and family. What the passport had to do with the car I never could find out.

The roads in Madeira are the worst I have ever driven on: in fact, they are beyond description. They are all paved with what I call inverted petrified kidneys, as will be seen by the photograph; the steepest hills have the same paving, only in the form of steps. They are, of course, made in this style to suit the curious mode of locomotion on the island, namely, sleighs (carros) drawn by bullocks. There is one exception, namely, the New Road to Camera de Lobos. This is a small fishing village about five miles from Madeira, where you can get a good spin and a small stretch of top speed. I think I am right when I say there are only about half a dozen wheeled vehicles on the island. The natives (I mean the adults) did not pay the slighest attention to the motor. I am told it is a curious trait in their character that nothing surprises them. The children are worse than any I have ever come across. They several times absolutely walked right into the car, and it is the greatest wonder I never had a bad accident. The only one I had was running over a pet dog belonging to the matron of the Seamen's Hospital. The following morning an amusing little rhyme appeared in the paper as follows:—

"Here lies poor J., whose soul is departed;
"He went for a walk and got motor carted."

I may say all my doings were chronicled in the papers.

I saw several well-known motorists whilst in Madeira Messrs. S. F. Edge, Andrew Fletcher and A. Beuer. The two latter I had the pleasure of giving several rides to, and they were both surprised the way the Wolseley took the hills. I



The New Road to Camera de Lobos.

ascended what the inhabitants assure me is the steepest hill in Madeira, namely, the hill from the Pontinie to Cassino. I must say the car never failed me during the whole of the six months, except once when I ran out of petrol. The non-skid tyres stood marvellously, never having one puncture over the most awful roads I should think a motor has ever travelled on; in fact, taking everything into consideration, I think the motor-car has once more proved its superiority over every other means of locomotion, and since returning I hear from friends at Madeira that there are several cars on order for the island, but I cannot recommend the roads or the hills to motorists in general.

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THE "AMAC" WATER-CIRCULATING PUMP.

THE new water-circulating pump for petrol cars known as the "Amac" has recently been introduced by the Aston Motor Accessories Company, Limited. Probably, excepting ignition apparatus, none of the auxiliary mechanisms necessary to the modern car give more trouble and annoyance than the pump. It is apparently a small detail, yet, should it become deranged, the engine stops, and the owner is fortunate if nothing more serious than a temporary "panne" results. The pump, which is made in accordance with Mr. F. C. Haste's patent,

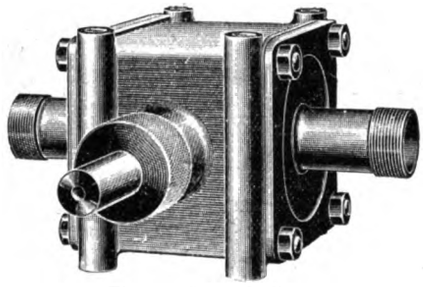


Fig. 1.—General View.

is claimed to possess all the advantages of the rotary and centrifugal types, with the defects of neither. It can be run at a great range of speeds and gives a steady discharge at relatively low speeds. It can be driven in any convenient way, either "rotary" by chain or belt, or "reciprocating" coupled to some convenient part of the motor. The mechanism is entirely enclosed in a grit-proof case specially designed to enable constructors to fit the pump in the most convenient place on any motor or frame. The bearings are large and are made on the interchangeable system. The valve is made of "Dermatine," a special material of great wearing capacity,

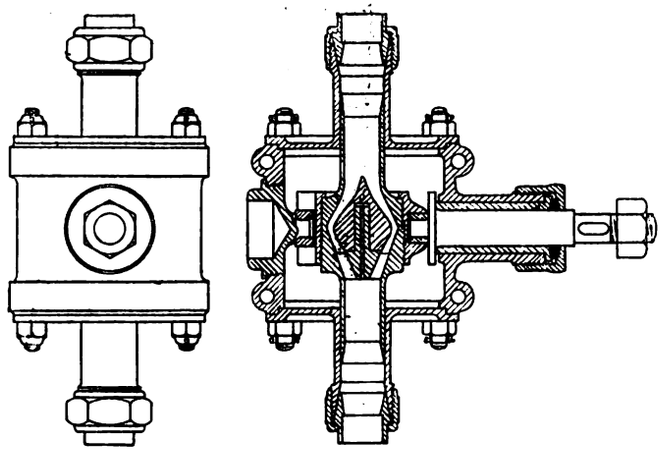


Fig. 2.—End and Sectional Views.

unaffected by either oil or heat. One of the great advantages of the centrifugal type of pump lies in the fact that it is not liable to clog, nor to internal damage owing to the presence of grit in the circulating water, an advantage equally shared by the "Amac" pump. Should a temporary block occur the pump immediately becomes positive, and removes the obstruction. At ordinary speeds and under normal conditions, the discharge of this pump presents all the desirable characteristics of a centrifugal pump. The apparatus is very compact, the case measuring only 3 3-16 inch by 3 3-8 inch by 3¾ inch.

THE ALUMINIUM CASTINGS COMPANY, of Greenock, report considerable activity in their department for motor-car castings.

CONTINENTAL NOTES.

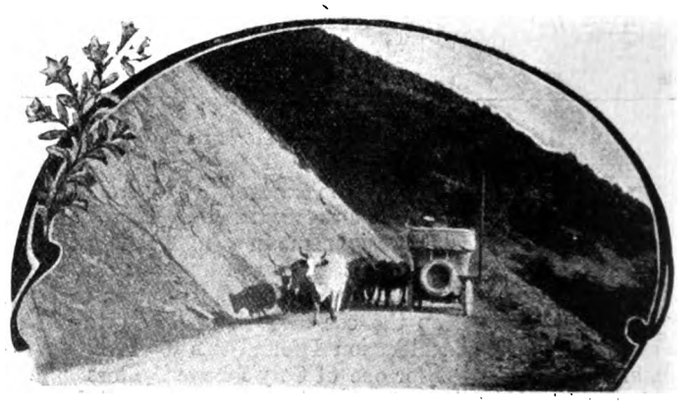
The Gordon Bennett and A.C.F. Grand Prix Race.

The decision of the French Automobile Club to organise a race for its Grand Prix in conjunction with the 1905 Gordon Bennett race is still the chief subject of conversation in motoring circles, and is affording subject matter for column after column of "copy" in the French automobile Press. Notwithstanding this, no very definite change in the position has taken place during the week. The challenge of the Belgian Club for the Gordon Bennett Cup has not been accepted by the A.C.F., as it was made with the provision that the two races should be held on different days. As regards Italy, the Fiat Co. has announced that it will take part in both the Gordon Bennett and the Grand Prix. There is some talk of making the latter an invitation race, limited to forty-two competitors. It is said that France would be allotted fifteen places, England and Germany six each, and America, Belgium, Switzerland, Italy, and Austria three each. No definite announcement on the matter has, however, yet been made by the A.C.F.

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Some French Views.

M. Paul Meyan, of "La France Automobile," endorses the action of the A.C.F., and considers that there will be no more risk of accident than there was in Ireland or Germany. M. Paul Sencier, of "L'Automobile," on the other hand, considers that the A.C.F. will probably discover that the old adage of "there's



A Continental Touring Experience.

many a slip between the cup and the lip" is a true one, and that it is improbable foreign countries will agree to an alteration in the rules of the Gordon Bennett race merely to meet the wishes of France.

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The French Eliminating Trials.

Doubts are being expressed as to whether the Government will give its permission for the races to be held on the Circuit d'Auvergne; and as, owing to its hilly nature and sharp turns, the competing cars will have to be of special design, more than one firm is delaying work on its racers until definite information on the point is available. The steam racers which the Serpollet Co. are building for the eliminating contest will, it is announced, have a relatively short wheel base in order to enable them to take the sharp turns on the Circuit with safety. The generator will be located in the front end of the *chassis*, and the engine under the driver's seat, It is stated that Messrs. Turcat-Mery and Co. will not take part in the eliminating trial, it having being arranged for the De Dietrich Co. to enter three cars on the Turcat-Mery licence. The probable drivers of these will be Gabriel, Rougier, and Duray. Messrs. Alexander Burton, Salleron and Leger are named as the drivers of the three Mors cars.

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The German Team.

THE German eliminating contest is to be held on a 50 kilometre circuit in Schleswig-Holstein, the start taking place

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at Lubscher Brunnen, near Itzehoe, between Hamburg and Kiel. Herr Opel has written to the German Club, protesting against its action in allotting two places in the German team for the Cup race to the makers of the Mercedes cars, and only allowing one place to be competed for.

Motor-Boat Racing at Monaco.

A record entry has been received for the motor-boat races which will be held at Monaco from the 9th to the 16th April next. In all 103 vessels have been entered; these comprise thirty-nine racers, fifty-one cruisers, three yachts, six canoes, and four fishing vessels. A very large number of special boats are being built for the meeting, and, as compared with last year, a great increase in engine power is taking place, several being arranged for motors of 200-h.p.

The Cannes Automobile Fete.

The Cannes Automobile Club is organising an automobile fete to extend from the 11th to the 25th February next. The programme will include a touring competition on the Esterel Hill; a consumption trial, a paper chase, and a flower fete.

Public Services in Germany.

Quite a number of projects for the establishment of public motor-car services in Germany are at present under consideration. Among them may be mentioned one between Einbeck and Vorwohle, one between Schwenningen and Donauschingen, and one between Nordhorn and Freren. A service has also just been started between Wolfenbuttel and Semmenstedt.

A German Motor Volunteer Corps.

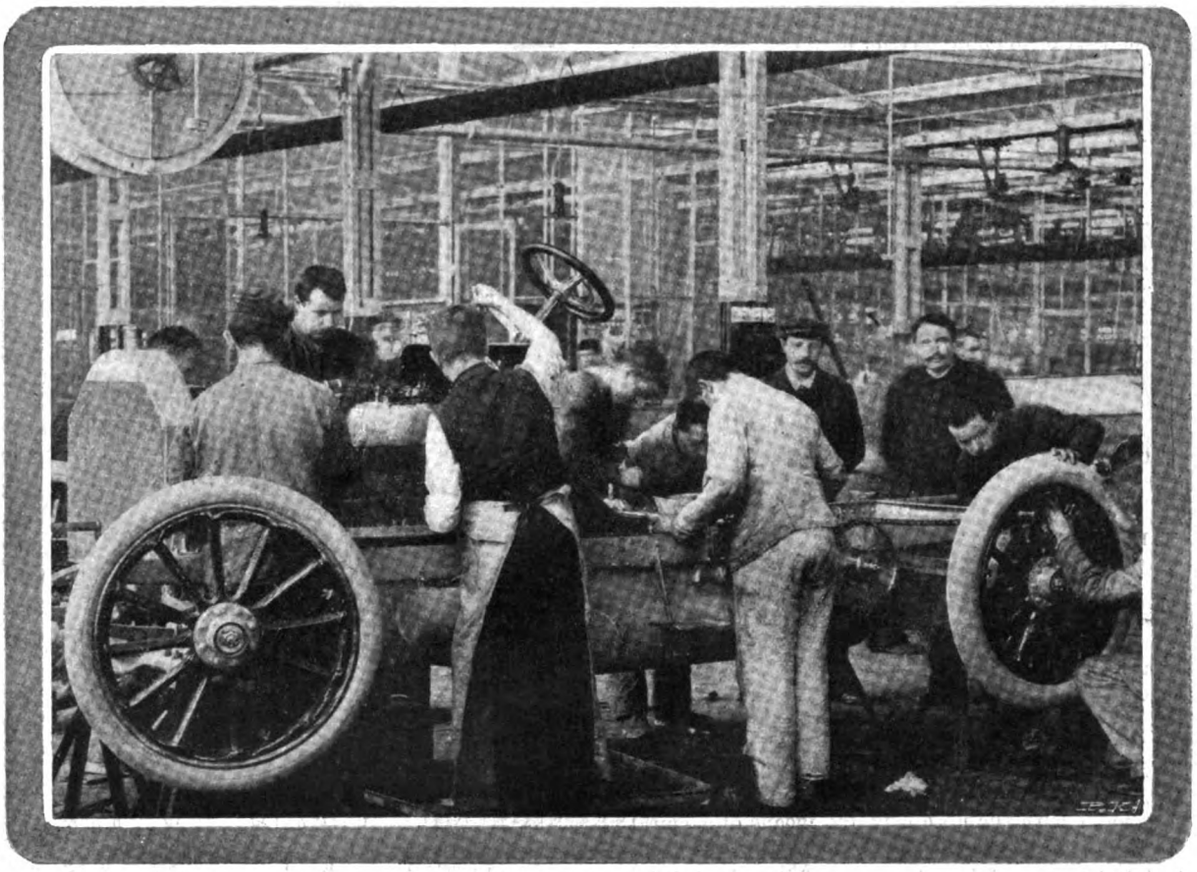
The formation of a German volunteer automobile corps on the lines of that in England is now assured, and the important question of the uniform for the members has been settled. Baron von Brandensteim, of the German Automobile Club, was commanded to appear at the royal palace last week wearing the new uniform for the Kaiser's inspection. His Majesty suggested several improvements, and, on understanding these would be introduced, expressed his approval of the effect produced. Members of the corps will be armed with a navy revolver and a big deer knife.

Motor Mail Vans in Russia.

Following the example set by the postal authorities in St. Petersburg, motor mail vans are now being adopted in Odessa. One van has already been put in service, and two others are to be started at an early date.

The Northern Games in Stockholm.

Four years have gone by since the great sporting feasts under the above title took place in Stockholm, and still the memory lives with those who came from far and near to partake in the proceedings of those memorable eight February days during which the competitions were held. The games were popular because of the many different events which constituted the programme and for the excellent achievements which the several matches and competitions occasioned. For the 1905 meeting, which will be held from February 4th to 12th, an excellent programme has been drawn up, this including skating, skate sailing, ice yacht sailing, hockey, curling, ski running, etc., while an innovation consists of a series of motor-car races on short straight courses on the ice at Stora Vartan.



Building a Mercedes Car.

[*Allgemeine Auton.-Zeitung.*

BRIGHTON is evidently preparing for a busy season, for not only is a large motor garage being erected at the back of the Grand Hotel by the Brighton and Sussex Motor Company, but rumour has it that the proprietor of the Royal York Hotel, in conjunction with a Long Acre firm, also proposes erecting another large garage.

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MOTOR CYCLING NEWS.

THE Auto-cycle Club de France has decided to organise another motor-cycle reliability contest in 1905, on the lines of that held last year between Paris and Bordeaux. The date of the contest and the course over which it will be held have not yet been decided.

THE "Provence Sportive" of Marseilles has offered a challenge cup for an international motor-bicycle touring competition. The rules for the trial have not yet been issued, but the event will probably be held in May next, and be over a distance of 300 kilometres.

THE two-seated motor-tandem introduced by the Rover Cycle Company, Limited, has already been briefly alluded to in these columns. The machine, however, comprises a number of special features, of which a more lengthy description may be of interest. The motive power is supplied by a 4-h.p. engine water-cooled on the thermo-syphon system, no pump being used, a combined water-tank and radiator being mounted in front of the steering column. The usual form of high-tension ignition by coil and accumulators is provided, while the mixture is furnished by a "Rover" carburettor. From the engine the

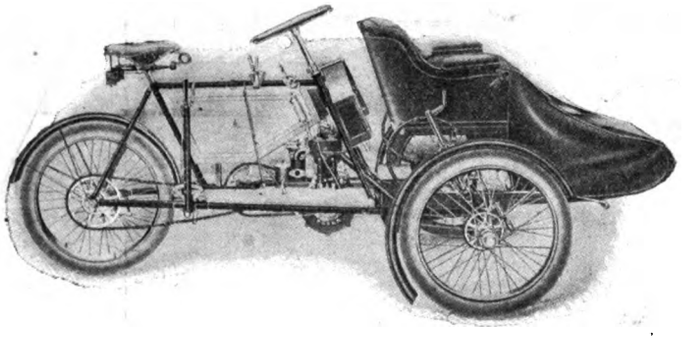


Fig 1.—The Rover 4-h.p.-Tri-Car.

power is conveyed through a friction clutch and chain to a small gear-box, giving two speeds, and thence by a second chain to the rear road wheel. A sectional view of the clutch, which is mounted on the engine shaft, is given in Fig. 2. An outer member 4 is carried on a ball-bearing on one end of the crank shaft 2; to this is fixed a chain pinion-wheel 7 for transmitting the power to the gear-box. The outer member contains a fibre friction ring 5. A conical disc 12 is arranged to slide on a squared portion of the crank shaft and is normally forced into engagement with the fibre ring by means of a spiral spring 13, thus coupling the chain wheel to the crank shaft. On the outer side of the crank shaft bearing 3 is a square thread fitting a corresponding thread in the boss of a lever 15; a ball-thrust-bearing is arranged between the boss of this lever and the inner face of the conical disc. When it is desired to disconnect the engine from the machine, or *vice versa*, the lever is partially revolved on the square thread by means of a hand or a foot lever, thus forcing the cone, against the pressure of the spring, out of engagement with the fibre of the ring. By this arrangement an efficient clutch devoid of all end thrust and friction when driving, and which runs freely on ball bearings when out of action, is obtained. Detail drawings of the Rover two-speed gear are given in Figs. 3 and 4. The gear is contained in an oil-tight case 1, arranged between the engine and the rear road wheel; it consists of a shaft 2, to one end of which is keyed a chain sprocket 3, which is connected by a roller chain to the engine clutch. In the centre of the shaft is a squared portion on which is mounted a sliding double claw clutch 4. At one end of the squared part of the shaft is a small spur gear 5, and at the other end the larger spur gear 6, both of which are capable of revolving independently of the shaft, but, by means of the claw clutch, either can be locked to the shaft when desired. At the rear of the shaft and parallel with it is another shaft 7, with the spur gears 8 and 9 cut on the ends, and in mesh with the spur gears previously mentioned. The spur gear 6 has an extended boss projecting through the case on the side opposite to the chain sprocket 3, and on this boss is secured the chain pinion 10, which

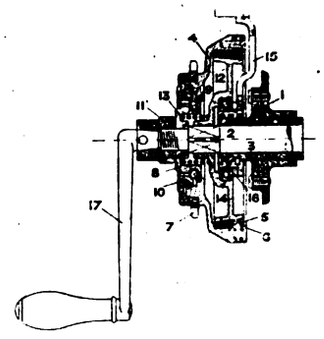
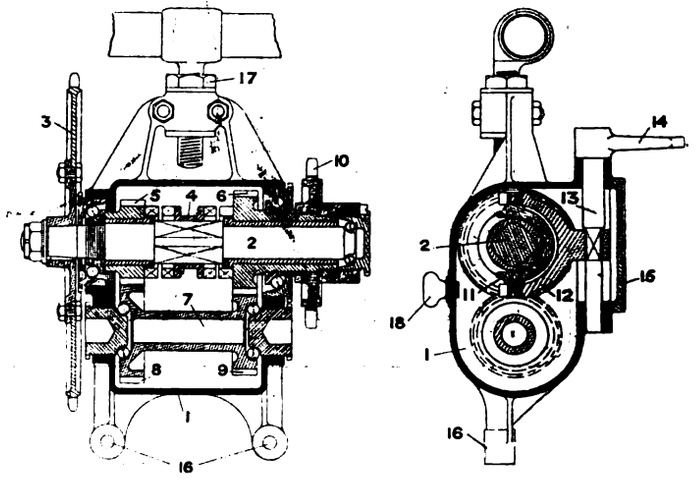


Fig. 2.—Section of Rover Free Engine Clutch.

1. Side of crank case.
2. Crankshaft.
3. Bearing with square thread.
4. Body of clutch.
5. Fibre ring.
6. Retaining plate for fibre ring.
7. Chain pinion.
8. Ball race.
9. Fixed cone for ball be ring.
10. Adjusting cone for ball bearing.
11. Nut holding clutch on crankshaft.
12. Sliding cone.
13. Clutch spring.
14. Cup for ball thrust bearing.
15. Releasing lever for clutch.
16. Adjusting cone for thrust bearing.
17. Starting handle.

transmits power to the road wheel. The two shafts are carried on ball bearings, and the sliding clutch 4 is operated by a slipper 11 and forked lever 12, carried on the rocking shaft 13, which can be moved by a lever 14 fixed on its outer end; this lever being coupled by a rod to a hand lever on the top tube of the machine. When the clutch 4 is in engagement with the low gear 5, the motion of the square shaft 2 is transmitted to the chain pinion 10 through the reducing gear on the back shaft 7,



Figs. 3 and 4.—Sections of Rover Two-Speed Gear.

1. Casing for two-speed gear.
2. Main shaft.
3. Chain sprocket.
4. Double claw clutch.
5. Low speed pinion.
6. High speed pinion.
7. Back shaft.
8. Large gear wheel on back shaft.
9. Small gear wheel on back shaft.
10. Chain pinion.
11. Slipper for moving clutch
12. Forked lever for clutch.
13. Rocking shaft for forked lever.
14. Lever for rocking shaft.
15. Cover for inspection hole in case.
16. Lugs for attaching case to frame of machine.
17. Nut for adjusting chains.
18. Oil plug for case.

whilst, if the clutch is in engagement with the high gear 6, it locks the chain pinion to the square shaft and gives a direct drive for the high gear. The machine is steered by means of an inclined hand wheel as on a car, while both hand and foot controlled brakes are provided. Two comfortable rubber-covered footboards, brought well back to facilitate mounting, are provided for the rear rider. The extreme length of the machine is 8 ft. 9 in., and the width 3 ft. 9½ in.

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THE PARIS MOTOR-CAR EXHIBITION.—v.

IN concluding our report of the Paris *Salon*, it may be of interest to give a few extracts from some useful statistics compiled by M. Lucien Perissé for "L'Auto." We therefore append a table showing the percentage of petrol cars on view ranged in order of horse-power.

6-h.p. ..	3 per cent.	20-h.p. ..	11·2 per cent.
7-8-h.p. ..	8·5 per cent.	24-25-h.p. ..	15 per cent.
9-10-h.p. ..	9·9 per cent.	28-30-h.p. ..	4 per cent.
11-12-h.p. ..	12·2 per cent.	35-h.p. ..	2 per cent.
14-16 h.p. ..	22 per cent.	40-50-h.p. ..	4·7 per cent.
17-18-h.p. ..	7·5 per cent.		

From the above it will be observed that French manufacturers are paying relatively little attention to the demand for cars for the man of moderate means, the most popular type being that with engines of 14 to 16-h.p. Cars of from 24 to 25-h.p. are next in popularity, followed by those of 11 to 12-h.p. M. Perissé emphasises the reduced attention motor-car builders in France are devoting to the popular priced vehicle by showing that whilst at the 1903 *Salon* cars of from 6 to 8-h.p. represented 17 per cent. of the total, at the show just closed the percentage was only 11½.

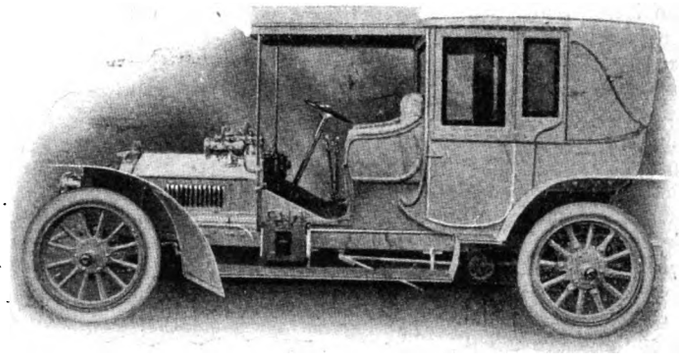


Fig. 70.—A Benz 35-40-h.p. Landaulet.

The ADER COMPANY had a very interesting display of cars, the larger models of which are fitted with vertical engines having four separate cylinders. The inlet valves are mechanically actuated off their own cam shaft. An automatic air-regulating carburettor is provided. The transmission is by cardan shaft and live axle, the latter being entirely enclosed and transmitting the power to the road wheels at the ends. Pressed steel frames, magneto and accumulator ignition, clutch pedal acting on the throttle are other features of the 1905 Ader cars.

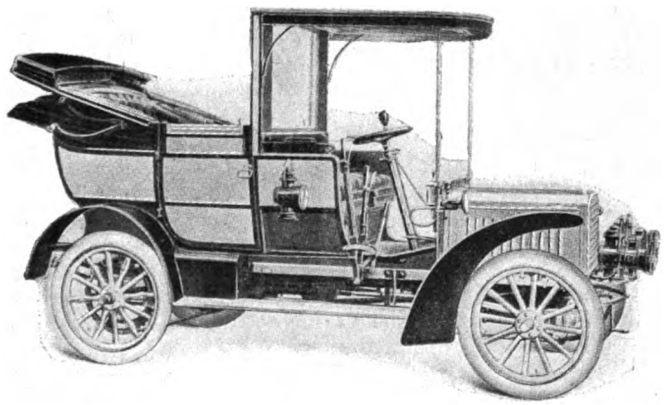


Fig. 71.—The Ader 12-16-h.p. Four-Cylinder Landaulet.

In the exhibit of the SOCIETE CLEMENT interest was chiefly centred in the 16-20-h.p. car, which comprises many new and distinct features. The *chassis* is narrowed in front, allowing a large "lock" for the steering wheels. The motor has the four cylinders cast separately, enabling the crank shaft to have five different bearings. The cylinders are 95 mm. bore by 130 mm. stroke, the normal speed being 1,000 revolutions per minute. The valves are mechanically operated, and distributed on opposite sides of the motor, the valve chambers being completely encircled by water. The ignition is by high-tension magneto driven off the right-hand cam shaft by spur gear enclosed in a small aluminium case. The change-speed gear is similar to last year's except that the Mercedes type of ball bearing is used in place of the ordinary brasses. Transmission is by means of cardan shaft, the live axle being so constructed that three different ratios of crown and bevel wheels can be fitted, enabling the owner to have one ratio of gear for hilly work and one for very fast work over level ground. The differential pinions are of the straight tooth type, instead of the bevel pinions formerly used. The control levers are mounted on the top of the steering wheel, the wire cables connected with the throttle and ignition being carried through the centre of the steering column. In addition to the above-mentioned, 10-12-h.p. and 12-14-h.p. cars were also shown. The former has a two-cylinder engine, 88 mm. bore by 140 mm. stroke, the general details being similar to the 1904 model. The 24-30-h.p. car has a four-cylinder engine, the cylinders (105 mm. by 140 mm.) being cast separately, as in the

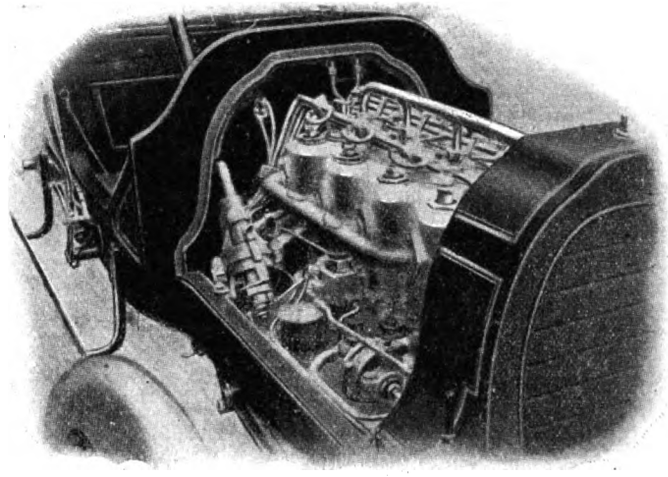


Fig. 72.—The Ader New Vertical Four-Cylinder Engine.

16-20-h.p. model. The transmission is, however, by means of side chains, instead of cardan shaft as in the other three models. The differential casing is quite independent of the gear-box, a strong shaft transmitting the power from the latter to the countershaft, enabling the gear-box to be placed under the front foot-boards, where it is easily accessible, while the differential box is under the floor-boards of the tonneau. The *chassis* of the two larger models are sufficiently long to receive side entrance bodies, of which some excellent specimens were on view.

M. BERLIET, of Lyons, is making for the 1905 season four standard types of four-cylinder cars—14-h.p., 22-h.p., 40-h.p., and 60-h.p. In each a pressed-steel frame is employed, narrowed at the forward end to give the front wheels as full a "lock" as possible. The cylinders are cast in pairs; the inlet valves are mechanically actuated, and are interchangeable with the exhaust valves, the two cam shafts with the cams being enclosed in the crank case. The centrifugal governor is adapted to act on the inlet. The water circulation is maintained by pump and a combined tubular radiator and tank. One of the special features of the Berliet cars is the clutch. The flywheel of the engine is provided with vanes, which serve to induce a strong current of air through the water cooler; the centre of the flywheel is made in the form of a hollow boss, inside which is a metallic segment connected with the gear-shaft, which may be expanded or contracted as desired by the clutch pedal. The clutch, which works in oil,

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is claimed to work progressively, and without any jerky action. Four speeds forward and a reverse are provided, the transmission of the power from the gear-box to the rear road wheels being by side chains. All the speeds are controlled by one lever, and on the fourth the power is transmitted directly from the engine to the differential shaft. The latter is provided with two band-brakes. The road wheels and the shafts in the gear-box run on ball-bearings. Some excellent specimens of complete cars were shown on the stand, a side entrance coupé-Limousine being particularly noteworthy. We may add that the Berliet cars, which are very much on Mercedes lines, are being introduced into this country by Messrs. Watson and Company, of Liverpool.

A new automatic carburettor which is just now attracting considerable attention in France is that which has been introduced by La Société Force Motrice Economique, of Neuilly sur-Marne. The carburettor consists of a large upright cylindrical chamber, A, provided at its lower end with a float chamber, D, of very restricted dimensions. The interior tube, B, is surmounted by an air inlet chamber, C, which is closed when the device is not in operation by means of a valve, c c, which is normally held to its seat by a fairly stiff spring. Within the float chamber, D, is arranged an annular metal float of substantially the same specific gravity as the liquid, which is guided at its centre by a standpipe depending from the cone F. The

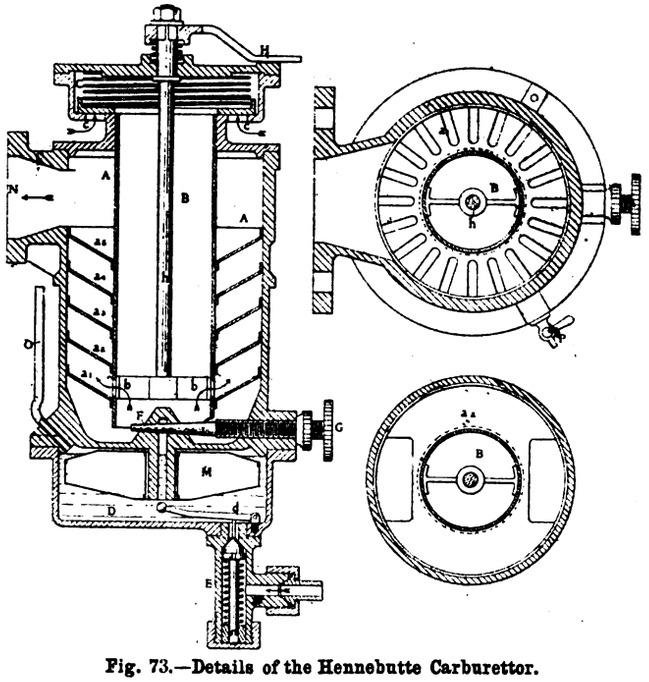


Fig. 73.—Details of the Hennebutte Carburettor.

latter is pierced by a horizontal, slightly flaring passage, cutting at right angles the standpipe depending into the float chamber. A needle valve, G, called the petrol adjusting valve, is arranged in the horizontal passage and is adjusted according to the feed of liquid desired. The petrol arrives from the tank, located at some distance above the carburettor, through the tube, E. Its entrance into the float chamber is controlled by an inverted, spring-pressed, conical valve. Every time that the level of the liquid in the float chamber is lowered, owing to the suction of the motor, the annular float, M, becomes immersed to a lower depth, and bears on the small lever, d, which in turn forces the petrol valve from its seat. There is some difference in the action of the annular float, M, as compared with the usual carburettor float, as the float M is hardly ever fully supported by the weight of the liquid it displaces, and begins to act only when its unsupported weight overcomes the pressure of the spring surrounding the petrol valve. It is claimed that owing to this arrangement the height of the fuel level in the float chamber is less affected by the vibration of the vehicle than in other carburettors. The petrol drawn through the horizontal passage cutting the standpipe flows through the orifices of this passage to ooze in a thin sheet against the wall of the cone, F, where it is vaporised instantly under the influence of the slightest vacuum. At each suction stroke of the motor, the valve, c, is raised from its seat, and air is drawn into the chamber, C, and descends vertically to the bottom of the interior tube, B, rising again through the tube, A, to the outlet orifice, N, after having passed through a zone of petrol vapour, and having become saturated with it, and having also undergone a "brewing" process, which intimately mixes the combustible and the air. The means by which this "brewing" process is effected are as follows:—Outside the tube, B, are superposed five inclined discs (truncated cones), a_1, a_2, a_3, a_4, a_5, which divide the annular space between the inner and outer tubes into six chambers, communicating freely with each other. Three of these discs are provided with radial slots, while the discs a_2 and a_4 are provided simply with two large openings each. The result is that when the air, saturated more or less evenly with hydrocarbon vapour, passes through the slotted discs, it is cut up into thin streams, which are forced to combine again in two large streams in order to pass the two discs with only two openings each, a_2 and a_4. The whole mass of the mixture is thus divided and again united three times in succession, which insures a perfectly homogeneous product. A supplementary air valve, bb, controlled by a handle H, secured to it through the rod, h, allows of admitting additional air between the two lower discs, and thus varying the richness of the mixture at will. The tube, O, is a vent pipe for the float chamber. Aside from the question of homogeneousness, the constancy of proportions of the mixture generated in the carburettor, independent of differences in the speed of the motor, is due to three distinct causes, as follow:—(1) The air inlet valve, by regulating the suction, prevents jerks; (2) the petrol when it rises in the stand pipe is forced to abruptly change its direction in order to pass through the two branches of the horizontal passage; (3) if it is drawn with great force, a shock is produced within the cone, F, which reduces the speed at which the fuel is discharged from the horizontal passage, according to the intensity of the shock. Under these conditions, variations in the speed of the motor do not appreciably affect the feed of the spirit. Finally, it appears that by reason of the interior arrangement, the air where it penetrates to the base of the carburettor by the tube, B, also plays the part of a regulator, in so far as a vertical current of air strikes the discharge orifices of the cone, F, with more or less force, and consequently obstructs more or less the emission of the petrol in proportion to its speed.

At the stand of La Societe des Moteurs and Automobiles Herald, of Levallois-Perret, we met M. Dubois, whose agility with a small Decauville car in the first 1,000-Miles Trials will long be remembered. The *piece de resistance* at the Herald stand was a 24-h.p. *chassis*, the frame of which is of stamped steel. The motor comprises four cylinders cast in two pairs. The inlet valves are actuated mechanically off their own cam shaft. The carburettor is provided with a device by means of which the supply of air is automatically regulated. The vehicle is chain driven and has four speeds forward and a reverse, the change speed gear running on ball bearings. The Herald Co. also showed a 10-h.p. two-cylinder, 14-h.p. and 18-h.p. four-cylinder cars, the latter being fitted with an engine having separate cylinders, and of course, mechanically-operated inlet valves.

The Germain Co., represented in England by Mr. Theo. Masui, inform us that as a result of the satisfaction with separate steel cylinders for the engine, these are being retained. The cylinder heads are of cast-iron, while the water jackets are of brass. Three models are being made—16-h.p., 24-h.p., 35-h.p.—each with four-cylinder engine. Improvements have been effected in the water-cooling arrangements. At the slow speed at which the Germain engine is occasionally run it was found that sometimes the current of air induced by the flywheel fan was not sufficient. The flywheel is therefore no longer made to act as an air inducer, a special belt-driven fan being now utilised.

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The position of the pump has also been altered, it being now at the rear of the engine under the bonnet, and driven by friction off the flywheel. The carburettor is equipped with a jacket through which hot water can be circulated, means being provided for controlling the circulation. While still using the combined wood and steel frame, arrangements have now been made to supply *chassis* with one-piece pressed steel frames where desired. The inlet valves are provided with a device controlled by a pedal, by means of which the lift of the same can be varied, and consequently the speed of the motor regulated. Both battery and Eisemann high-tension magneto are fitted, one advance and retard lever controlling both systems. The change-speed gear is placed well back, this and the differential being enclosed in the same box. We noticed that the radius rods are now formed of heavily flanged plate bolted to a disc.

La Societe des Automobile Aries, represented in this country by the Anglian Motor Co., had on view four types of cars—12-h.p. double-cylinder, and 15-h.p., 22-h.p., and 30-h.p. four-cylinder; the engines have separate cylinders, while a feature of the vehicles is the special type of double rear axle adopted. The road wheels are carried on a fixed axle mounted below the live axle, the latter transmitting its power through its ends to a jaw clutch formed in the hubs of the road wheels. The Aries Company also displayed a handsome coupé limousine built for M. Tampier, the well-known A.C.F. timekeeper, the interior of the vehicle being so arranged that it can be used as a sleeping compartment.

An exceedingly novel car was to be seen at the stand of M. Rene Legros, of Fécamp, this being fitted with a three-cylinder engine working on the two-cycle system, in which an explosion takes place in each cylinder at each revolution of the crank shaft. In this class of engine the crank chamber is usually employed as a receptacle for the incoming charge. M. Legros, however, uses a very long hollow piston surrounding a smaller fixed piston. There is a separate carburettor to each cylinder. In place of a central connecting-rod two are furnished, one on either side, thereby allowing for the fixed piston.

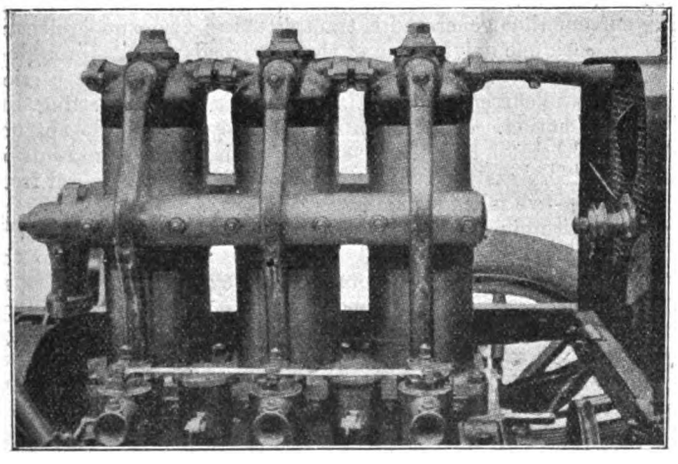


Fig. 74.—The Legros Three-Cylinder Two-Cycle Engine.

A charge of explosive mixture is drawn in within its cavity, and upon the descent of the piston during the firing stroke this charge is delivered through hollow guides and a non-return valve to the induction pipe, and into the cylinder through the usual automatic valve. On the compression stroke the hollow piston is again charging itself with mixture from the carburettor, and upon the explosion stroke a fresh charge enters at the top of the cylinder, chasing out the burnt products at two ports in the lower end of the cylinder walls, uncovered by the travel of the piston towards the end of its stroke. A universal joint of novel design is also found on the Legros car. The device is employed on the cardan shaft as an auxiliary type. The shaft is made triangular in place of circular at that portion where the joint occurs. The wider cone that meets it is likewise triangular a stout washer of specially prepared rubber about two inches thick by three in width, and of similar shape, being inserted tightly between the opposing faces of metal. The result is that when the twisting strain is brought to bear, to communicate the power to the road wheels, the resilience of the rubber softens the initial shock.

Practically the first stand one ran against on entering the *Salon* was that of the Clement-Bayard firm, where a large range of the cars known in this country was the Talbot were to be seen. A noticeable feature of the new models is the abolition of the

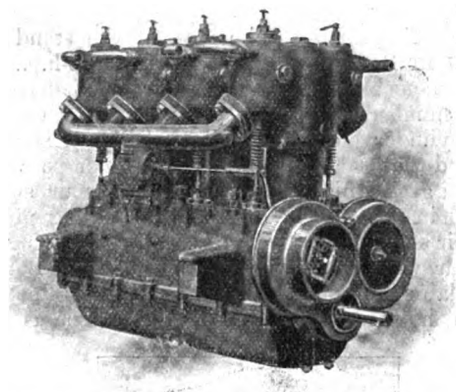


Fig. 75.—The New Aster 20-22-h.p. Four-Cylinder Engine.

automatic governor, the speed of the engine being controlled by a pedal-operated throttle and a device working in conjunction with the clutch pedal, whereby when the clutch is withdrawn the speed of the motor is also cut down. We first inspected the new 10-12-h.p. car; this has a pressed steel frame and a double-cylinder engine, 106 mm. bore by 120 mm. stroke. The valves are all mechanically-actuated and interchangeable. The water circulation is maintained by a pump gear driven off the half-speed shaft, and a honeycomb radiator with fan. For the ignition a new type of high-tension magneto working with ordinary sparking plugs is being employed. The ignition is controlled by a small lever on the inclined steering wheel. The power is transmitted through a leather-faced cone clutch to a gear-box, giving three speeds and a reverse, with direct drive on the top speed. A cardan shaft and bevel gear connect the gear-box with the rear live axle. The brakes are of the internal expanding type, and entirely protected from dust and mud. A comfortable form of body for four passengers is provided, the rear tonneau being detachable. The 12-16-h.p. car has a four-cylinder engine, the cylinders being separate and each 85 mm. bore by 120 mm. stroke. The general arrangement is similar to the 10-12-h.p. vehicle, but four speeds are provided, and the *chassis* is of such a length as to allow of a very roomy side-entrance body to be fitted. Two new models with side chain transmission were to be seen in 24-30-h.p. and 35-50-h.p. cars, the engine of the latter having four cylinders, 120 mm. bore by 140 mm. stroke. Four speeds and a reverse are provided by a gear of the sliding pinion type. For the man of moderate means an 8-9-h.p. car, with detachable tonneau body, has been introduced. This has a pressed steel frame, and a double-cylinder engine 85 mm. bore by 100 mm. stroke. The ignition is by high-tension magneto as on the larger cars, and the water-cooling and controlling arrangements are on similar lines. This is a very attractive model, and should become a popular type in the 1905 season.

A new combination petrol-electric car was to be seen at the stand of the Etablissements Sage, but owing to its position in a side gallery did not attract the attention it deserved. In general arrangement the vehicle follows the usual lines of cardan-shaft driven vehicles, the motive power being furnished by an 18-22-h.p. four-cylinder engine. Two dynamos arranged to act as motors when necessary are provided in place of the usual

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change-speed gear box, the connections being such that the car is electrically driven at slow speeds only. On the top speed the power is transmitted directly from the petrol engine to the rear road wheels with an efficiency, it is claimed, of 88 per cent. The car, which has been built to the designs of M. Gasnier, was recently submitted to a 7,000 kilometre trial in France, which was accomplished without trouble of any kind.

A name well known in the early days of the industry was revived by the exhibit of Messrs. F. ROSSEL AND COMPANY, of Sochaux (Doubs), who displayed two types of four-cylinder cars, respectively 22 26-h.p. and 28-35-h.p. Of the latter a handsome side-entrance limousine, built for Mr. F. B. Jameson, of Dublin, was shown.

An interesting car was to be seen at the stand of Messrs. CORNILLEAU ET SAINTE-BEUVE. It is of 16-h.p., and, while following the general design of cardan shaft driven vehicles, comprises a number of special features. One of these is found in the four-cylinder engine, the inlet valve cam shaft of which is so arranged that the lift of the valves can be varied. The change speed gear, which is adapted to give four speeds and a reverse, is claimed to be "fool-proof," the sliding pinions being loose on their shaft when the clutch is out, no driving being done until the gear wheels are half-way into mesh. Both magneto and accumulator ignition are advanced by the same lever on a quadrant on the steering wheel. The live axle is enclosed in

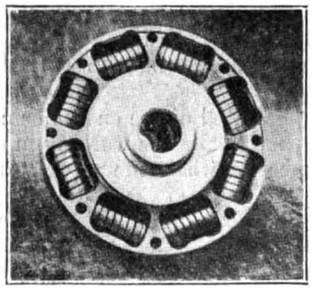


Fig. 76.—The Cornilleau-Ste. Beuve Spring Differential Gear.

the tubular casing carrying the weight of the car, the power being transmitted to the road wheels at the outer ends. The differential gear is made to give a spring drive, a set of eight spiral springs being arranged inside the drum between the actual differential and the bevel driving pinions. These springs are tested to support 1,760 lbs. before being compressed, and as the effort of the engine on the differential is stated not to exceed 132 lbs., it follows that there is always a margin of resilience even when starting under the heaviest load. In fact, the engine makes half a turn before the springs are compressed sufficiently to give a positive drive.

MESSRS. COTTEREAU AND CO., of Dijon, represented in England by Messrs. McNeil, Hutchison and Co., had an extensive display of cars fitted with one, two, three and four cylinder engines, each of which comprise a number of new features. The 7-8-h.p. single-cylinder car has a tubular frame. Three speeds and reverse are provided, transmission being by a single chain to the rear live axle. The motor has mechanical valves, and is governed on the inlet. An 8-h.p. double-cylinder car was also shown, this having side chain transmission. Much interest was shown in the *chassis* of the 15-18-h.p. three-cylinder car, which has a gear-box running on ball bearings, pressed steel frame, and rear internal metal brakes. The 20-24-h.p. car was also well worthy of close examination; it possesses all the features of modern vehicles, and not only in design, but in workmanship, is entitled to rank among the high-grade productions of France.

LES AUTOMOBILES "LA MAGNETIC," of Levallois-Perret, exhibited an 18-20-h.p. car, which was interesting on account of the novel change-speed gear system adopted. In this the various pairs of pinions are always in mesh. Connected with each of the spur wheels on the primary shaft in the gear-box is a magnetic clutch, so that by sending a current of electricity through the corresponding clutch the power may be transmitted through any one pair of the change-gear pinions. The ordinary clutch is dispensed with, as is also the usual change-speed lever.

When we visited the stand of MESSRS. MARTINI AND CO., of Frauenfeld, Switzerland, the new models had not put in an appearance. They turned up later, however, and we find that for the 1905 season the Martini cars are to be made in three sizes—16-20-h.p., 18-22-h.p., and 30-40-h.p. All are fitted with four-cylinder engines, the 18-20-h.p. having cylinders 100 mm. stroke by 130 mm. bore, the dimensions of the 30–40-h.p. motor being 125 mm. and 140 mm. The water circulation is maintained by a gear-driven pump and a honeycomb radiator with fan. The carburettor has been improved, the jet being mounted on a conically-seated plug, held in position by a spring underneath the mixing chamber in such a way that it can be quickly removed for cleaning purposes. A useful fitting in the form of a lever, easily operated from the driver's seat, is also provided to entirely shut off the petrol supply to the jet, when coasting down long hills, enabling a considerable economy of petrol to be effected. The change-speed gear, the bevel drive to the countershaft, and the differential on the latter, are all enclosed within one case. A long shaft fitted with a universal joint transmits the power of the engine through the clutch to the gear-box. Four speeds and a reverse are provided, the two shafts in the gear-box being now in the same horizontal plane. The countershaft runs on four sets of ball bearings, the outer pair being close to the chain wheels, in order to obviate any danger of the shaft springing owing to the pull of the chains. A pawl and ratchet arrangement on the rear chain wheels serves the purpose of a sprag; it is controlled by means of a small lever near the driver's seat. The countershaft brake is pedal-operated and water-cooled; the hub brakes are of the metal-to-metal expanding type.

The KRIEGER COMPANY, which has for some time past been at work on a combination petrol-electric car, exhibited a *chassis* of this type which attracted much attention. Outwardly it closely resembles a petrol car; a 20-25-h.p. Richard-Brasier four-cylinder petrol motor, with magneto ignition, supplying the motive power, is connected up through a spring joint to a dynamo, the armature of which forms the flywheel of the engine. The current thus generated is transmitted to two small electric motors, each one driving one of the rear road wheels through a pinion and internally-toothed ring. A small battery is carried to supply the current for exciting the dynamo and setting the engine in motion. No differential is employed, while the absence of the usual clutch and change-speed gear is claimed to result in a exceedingly easy and quiet-running vehicle, at any speed from six to forty-five miles per hour.

The exhibit of MESSRS. LOUET AND BADIN, of Paris, is always an interesting one, and this year was no exception to the rule. Claiming to be pioneers in three-cylinder engines, they have now introduced a six-cylinder motor said to develop 70-h.p. Perhaps the most noteworthy feature of the cars is the change-speed gear, in which, instead of the pinions sliding sideways into mesh with those on the parallel shaft, they are brought into engagement directly upon the face of the teeth. The *chassis* of this vehicle has a length of no less than 16 ft. The transmission is of the cardan shaft and live axle type, the connection between the two being through a worm gear very much on the lines of that adopted in the Dennis cars.

Of anti-skid devices the number on view was legion, and we have only space to mention a few of them. The PARSONS COMPANY showed their well-known chain device. LES USINES DURANDAL, of Lécluse (Nord), displayed the Durandal non-skid covers and garters. M. LEMPEREUR, represented in England by Messrs. Mann and Overtons, kept his band well to the front. Messrs. BILLET, COUVERCHEL AND CO. were present with the "Billet" anti-skid cover, which is handled in this country by the Civil Service Motor and Cycle Agency, Ltd. M. FORNIER displayed the "De Fornier" detachable band, which is being put on the English market by Mr. Wm. J. Mayer. The OTTO-BENNETT COMPANY also endeavoured to make their band as familiar to French motorists as it is to those in this country.

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HERE AND THERE.

A SCHOOL for motor-car drivers and mechanicians is about to be started in Tunis.

AN Austrian society for the abatement of the dust nuisance has just been organised in Vienna.



An Argyll 20-h.p. Saloon among the Welsh Hills.

THE BRISTOL WAGON AND CARRIAGE WORKS COMPANY, LIMITED, have a garage at Victoria-street, Bristol, where they also act as local agents for the Clement-Talbot, the Darracq, the De Dion, and the Wolseley cars.

THE LACRE MOTOR CAR COMPANY, LIMITED, have been appointed sole concessionnaires for England and Wales for the Albion Motor Car Company, Limited.

THE BRITISH AUTOMOBILE COMMERCIAL SYNDICATE, LIMITED, inform us that they have been appointed wholesale factors and distributors of the well-known Spyker cars in England, Scotland, and Ireland.

THE BALCOMBE MOTOR COMPANY, 12, Balcombe Street, Marylebone, N.W., have been appointed by the Eclipse Machine Company, Limited, of Oldham, as their sole agents for the London district for the "Rothwell" cars.

MESSRS. H. M. HOBSON, LIMITED, ask us to remind readers that the genuine "Pognon" plug has the name printed on the top porcelain with the word "exporta" underneath, and in addition to this each plug bears the manufacturer's number.

MESSRS. J. HENDERSON AND CO., the Glasgow coach-builders, more than trebled their output in motor-car bodies last year. Another Glasgow firm, Messrs. J. Buchanan and Co., have also experienced great activity in the same line.

THE WHITLOCK AUTOMOBILE COMPANY, LIMITED, has been registered with a capital of £10,000, to carry on the business of motor-car manufacturers, etc. The first directors are Messrs. T. P. Bryant, W. R. Arnold, S. D. Begbie, and H. M. Simmons.

THE French Customs officials at Halluin, in the Nord Department, are reported to have captured a motor-car containing about 4 cwt. of smuggled tobacco. The movements of the car had for several days attracted the attention of the Customs officials, trips being made across the Belgian frontier and back.

FROM the Eclipse Machine Company, Limited, Oldham, comes a catalogue of the "Rothwell" motor-cars, which are being made with engines of 6 and 12-h.p. The company are also building a neat 12-h.p. delivery van, fitted with solid rubber tyres and designed to carry a load of from 8 to 10 cwts. at speeds up to twenty miles per hour.

IT is announced that an automobile tournament will be held in Havana, Cuba, beginning on the 4th prox.

MR. W. FLINT is opening a garage and motor repair shop at North Hanover Street, Edinburgh.

A PUBLIC service of Serpollet steam cars is about to be started between Nice, La Turbie and Mentone.

MR. HERBERT SMITH, 9, Strand, W.C., will be pleased to arrange trial runs on the Rexette for residents in the London district interested in the vehicle.

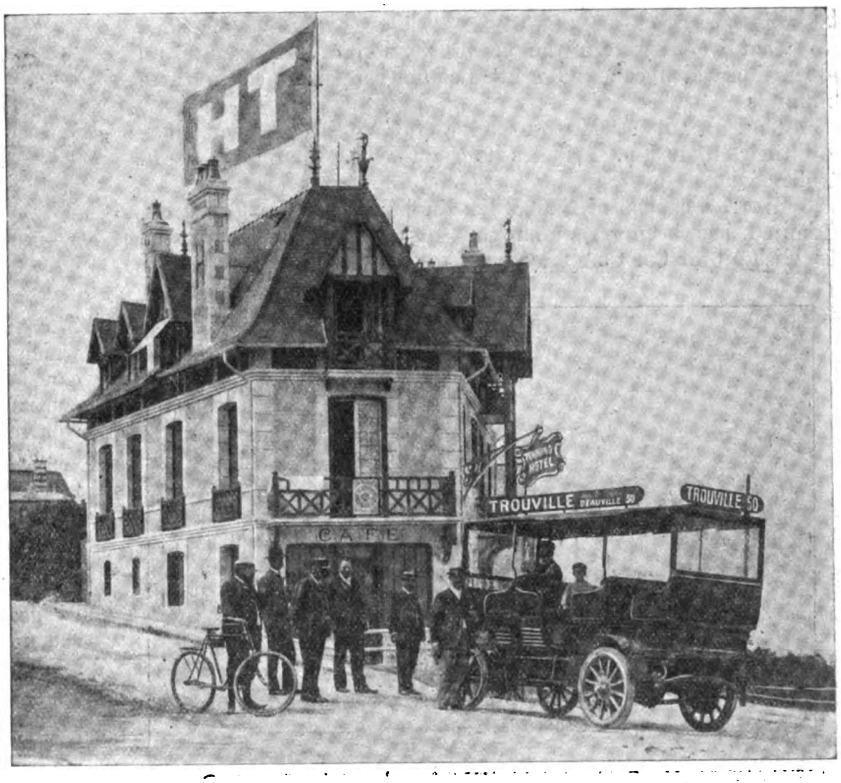
CAPTAIN MASUI has done something to further the development of motor-'bus traffic in London, the Germain 'bus which he supplied to one of the omnibus companies having been very successful on its trial runs.

THE Essex County Council have had to make a special allowance to their chief surveyor to meet expenses incurred in connection with extra work caused by the operation of the Motor Car Act.

A MEETING of the Automobile and Cycle Engineers' Institute is to be held at the Acorn Hotel, Temple Street, Birmingham, on the 19th inst., when a discussion will take place on the subjects of four-cylinder motor-bicycles, new electric plating machine, carburettors and silencers.

WE understand that Mr. C. H. Schofield, who has been for the past two years closely allied with Mr. D. M. Weigel in the building up of the reputation of the Talbot car, has resigned his position with Clement-Talbot, Limited, and is seeking fresh fields for his energies.

"THE Sussex County Handbook" is the latest addition to the list of useful county works of reference. It comes from the office of the "West Sussex Gazette," and evidently much care has been taken in its compilation.



A De Dion Public-Service Vehicle at Trouville.

THE owner of a 16-h.p. car has covered on an average 500 miles per week through all sorts of weather and over all kinds of roads with a pair of Palmer cord ribbed tyres on the driving wheels. They gave every satisfaction, covering 11,000 miles, only puncturing three times. They will stand good for a few thousand miles yet before being retreaded.

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THE other week, in our report of the Paris *Salon*, we briefly referred to the novel detachable *chassis* exhibited by La Societe Luc Court and Co., of Lyons. We are now able to give two illustrations of the system, which shows that not only does the ability to detach the *chassis* into two parts facilitate repairs but it enables a motorist to utilise his engine and transmission

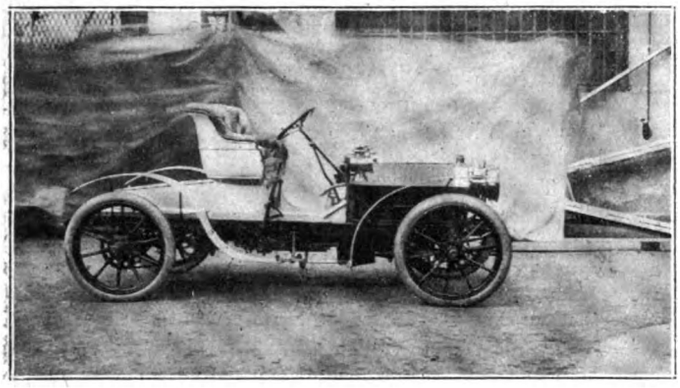


Fig. 1.—The Luc-Court Vehicle as a Two-Seater.

mechanism with two or more different types of carriage bodies with varying wheel-bases and sprockets. The front wheels, steering gear, motor and gear-box are all mounted on a separate frame, the car body, rear wheels and axle and the differential shaft being supported on another frame. In Fig. 1 the vehicle is shown as a two-seater with a wheel base of 7 ft. 8 in. and sprockets giving a top speed of 44 miles per hour. In Fig. 2 the rear part of the car has been detached, the spare one—a coupe limousine for winter use, with a wheel base of 9 ft. and sprockets to give 34 miles per hour—brought into position ready to be attached to what we may term the power portion of the *chassis*, an operation which can, the makers claim, be performed in three minutes.

THE BEAUFORT MOTOR COMPANY have just delivered one of their 15-19-h.p. Princess four-cylinder phaetons to Lord Tollemache.

WITH a capital of £5,000, the English Motor Car Company, Limited, has been registered to acquire the business of the English Motor Car Company, carried on at Hanover Court, W.

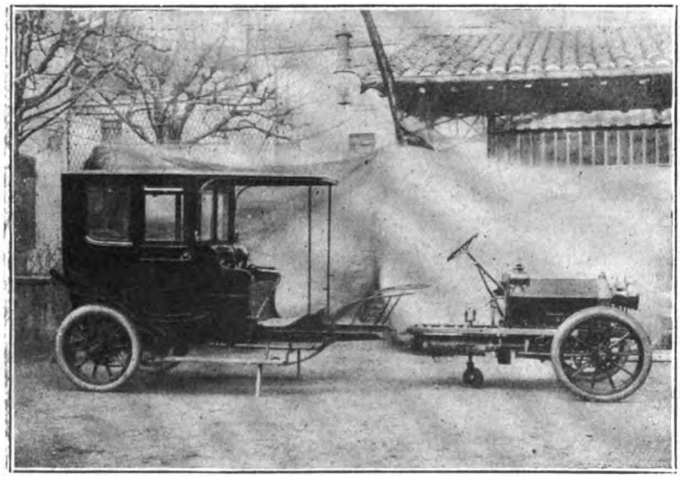


Fig. 2.—The Luc-Court Vehicle in Course of Transformation to a Coupe-Limousine.

MESSRS. FULLER, MACLEOD AND CO., LIMITED, have removed their offices to Norfolk House, Laurence Pountney Hill, E.C., and their stores to 115, Cannon Street, E.C. The firm will henceforth devote special attention to Hellesen's dry cells and electric ignition apparatus for motor-cars.

MR. D. DOYLE has removed to Nelson House, 9, Charing Cross Road. London, W.C.

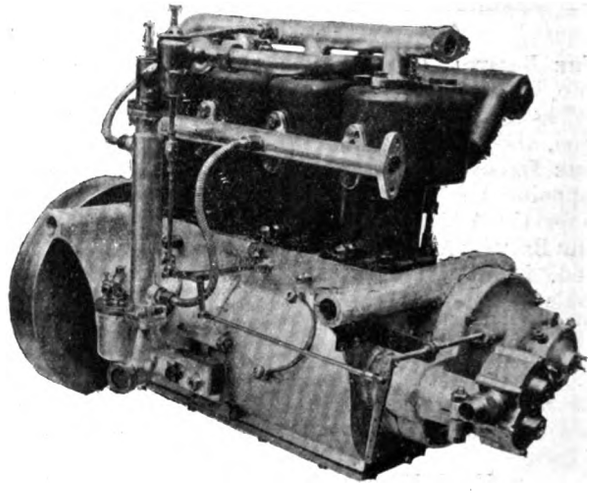
VISCOUNT HAMPDEN has lately acquired a 16–20-h.p. J.P. car from the Britannia Motor Garage, Limited.

ON Saturday the King and Queen had a motor-car trip from Chatsworth to Buxton, and on Sunday Her Majesty the Queen enjoyed a run by automobile through some of the scenery of the Peak.

OWING to increased business in motor tanks, radiators, etc., Messrs. C. Harlow and Co. have removed to larger premises in Hillsboro' Road, Hillsboro', Sheffield, where additional plant has been laid down.

THE American Postal Progress League has suggested the installation by the U.S. Postal Department of automobile travelling post offices, in which the mail could be assorted while the car is travelling, and collections and deliveries made with greater celerity.

WE illustrate herewith the 18-20-h.p. motor lately introduced by the Forman Motor Company, Limited, Coventry; it has been designed with a view to supplying the demand for an up-to-date model of four-cylinder engine, fitted with mechanically operated valves, perfectly balanced, elastic, and moderate in price. It consists of four separate cylinders, 94 mm. bore by 110 mm. stroke, mounted upon a special base-chamber. It is fitted with a solid four-throw crank, with ample bearing surfaces.



The whole of the cam gearing is enclosed in oil-tight cases, which are readily opened out for inspection, and the camshaft can be removed complete with the least possible work. The centrifugal governor, which acts upon the incoming charge, is so arranged that it can be set to act at any desired speed, while the engine is so elastic that the makers claim that it is capable of running at any speed from 100 to 2,500 revolutions per minute; this is obtained by a special automatic carburettor. Further, a "snifting" valve is provided, so that when the engine is cutting out the cylinders are drawing in cold air. The engine is also fitted with a water-circulating pump, driven direct by gear wheels from the crankshaft; it is held by a socket in the crank case, and is easily accessible, the unfastening of a set-pin being all that is required to detach it.

THE MAIDENHEAD MOTOR MANUFACTURING COMPANY have opened a garage at 122, High Street, Maidenhead, where they have every facility for the execution of repairs, the storage of petrol, oils, etc. Being open day and night, this new garage should be a great convenience to motorists in the Thames Valley.

FROM the De Dion-Bouton Company, of Puteaux, France, comes a copy of the pamphlet they have just issued descriptive of M. Cormier's recent 8,000-kilometre tour on a De Dion 15-h.p. four-cylinder car. Reproductions of a number of snapshots taken in the various countries passed through add greatly to the interest of the work.

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CORRESPONDENCE

[*Letters to the Editor should be addressed to the offices, 27-33, Charing Cross Road, London, W.C.*]

THE USE OF THE ACCELERATOR.—HAND *v.* FOOT CONTROL.

To the Editor of *The Motor-Car Journal.*

Sir,—I have been very interested indeed in the controversy regarding Mr. Percy Richardson's article on the above subject, especially as some time ago this gentleman showed me the "Brotherhood" car confidentially, and this was one of the points that particularly struck me at the time as being a distinct improvement on the usual type of control as fitted to modern motor-cars. I have now been an enthusiastic motorist for over five years, during which time I have owned and driven Benz, Mors, Daimler, Renault and Panhard cars, whilst I have studied all other makes very closely at every opportunity. In the ordinary car, when one wants to pull up quickly, it seems necessary that some arrangement should be made to leave the hands free to manipulate the steering, horn, and side brakes without also having to throttle the engine. On one of my cars the levers for these were not arranged at all well; but in the Panhard which I am now driving the control is very much more to hand, as I can keep a good hold of the steering wheel whilst throttling and altering the spark, which I find is a very great improvement, and I think an arrangement as explained by Mr. Richardson will be a great help in driving, particularly in London.

In the Panhard car, the foot accelerator may be used in a somewhat similar manner; but as this is liable to be moved owing to the vibration of the car over rough roads, and is actuated by the same foot as the brake, it is, I should say, not so convenient or practical as the one fitted in the manner suggested. I have now had experience of the usual types of foot accelerators which are so arranged as to prevent a fine variation in engine speed, and even this variation is seriously affected when travelling over a rough road, owing to the varying pressure of the foot on the pedal. One of the chief advantages, I think, in the "Brotherhood" control is that the foot lever is arranged to get over these well-known difficulties, as it enables the finest possible variation of engine speed, without in any way being affected by foot pressure. In many cars, owners have fitted a second horn to be used by the passenger beside them, and I venture to think that at times the driver's hands are too full.

Judging by my own experience, I can quite appreciate Mr. Richardson's statement that he finds the "Brotherhood" method of control enables a driver to take a far greater advantage of the elasticity of the engine, and as I understand the ideal motor-car is one that can be driven at any degree of speed from zero to maximum, either by means of the flexibility of the engine or the gear, I must say that I think the control mentioned by that gentleman in his article is a decided step in the right direction for the attainment of this end. As regards Mr. Maudsley Brooke's ideal control, I cannot think that motorists who have had any experience with modern four-cylinder cars fitted with an effective automatic carburettor can agree with this. My own experience has shown me that a governor is rather a detriment if one wishes to take full advantage of the elasticity of the engine, and I am now contemplating taking off the governor of my car, and replacing this with a throttle I am having made, which will, I think, enable me to get much smoother running results with a greater range of speed.—Yours truly,

W. J. Peall.

To the Editor of *The Motor-Car Journal.*

Sir,—Your correspondent "Tally Ho" is very much to the point in his remarks about mistaking the pedals. A driver who could mistake his pedals after learning to drive is surely a danger to us all. At the same time, I think everything possible should be done to render the mistake difficult, and the best method of doing this is to have push pedals for clutch and brake and a press pedal for the accelerator. There appears to be a general inclination amongst your correspondents towards fitting both foot and hand control, and this undoubtedly is the correct and most convenient form under existing conditions of car construction.

As embodying in a simple and practical form all the best points mentioned in this correspondence, may I mention the car which I have driven all last year. I refer to the Darracq. In the 1905 type there is a centrifugal governor, the action of which can be modified to any extent by a press-down pedal to the right of the brake pedal. Both clutch and brake being push-pedals, it is very difficult to confuse them with the press-down accelerator pedal. The movements of pressing to sprint and pushing to retard are both automatic and positive, and the difference between them removes all inclination to press accelerator and push clutch at the same time. The hand control on the wheel acts in conjunction with the pedal to this extent, that to whatever speed the hand lever is set, the engine speed will not fall below that speed, as the effect of the hand lever on the throttle gives a positive minimum, and after a sprint with the pedal the speed will again fall to that minimum when the pedal is released; the minimum, of course, being determined by the position of the hand lever.

For open country work the hand lever is perfection, while in traffic it may be set to give a minimum speed of about five miles per hour, and all variations given by the foot control, which can be operated as sweetly as the throttle of a steam car almost. The advantages are felt particularly in changing speed. In going from second to top the hand lever can be set to the position which gives, say, fifteen miles per hour on the top, the engine raced with the pedal to get the car going well, and when the clutch is pulled out the foot pedal is simultaneously released, and on slipping the top speed in the engine will be going at the correct pace.

I think it would be difficult to imagine a simpler or more convenient control than I have found this to be. It is certainly far and away ahead of anything I have driven yet. The possibility of mistaking the pedals has been a serious drawback in some of the cars I have seen where the usual arrangement of placing them has been altered to suit the passing fancy of the builder, but it is merely a bogey in a properly designed car, and should not be reckoned at all in discussing the question of hand *v.* foot control.—Yours truly,

Donald Straker.

To the Editor of *The Motor-Car Journal.*

Sir,—This discussion is most interesting. There is no system but what has its drawbacks. One has to choose that one that has least. I prefer to have both foot and hand control. At present my favourite car is a 10-h.p. Motobloc, originally fitted with foot accelerator only. I have adjusted the governor to cut down the speed of the engine to the slowest it will run at when free. I have since added a hand control on steering pillar, which enables me to run the car at any rate of speed, leaving the foot control to accelerate independently. When coming into traffic, or bad roads, the hand control is thrown out of action altogether, and the speed regulated by the foot control alone, and so when coming to a state of rest in traffic or anywhere the engine immediately drops to its governed speed, and does not race. I cannot understand anyone making a mistake between brake and accelerator pedals, and anyone that could lose his nerve as Mr. Priest suggests should never drive. A driver should not require to use his eyes to look for the position of his levers. He should be able to manipulate each, including the change-speed lever, without looking at it. What about night-driving if one cannot do this? It is perfectly easy to control the accelerator or anything from the clutch pedal, but it, of course, necessitates further complications and their not infrequent adjustment. I prefer my clutch pedal to be free, and have disconnected it, even from my side brakes, as I find it an advantage at times on greasy roads to have my side brakes slightly on; moreover, for starting on a hill it is safer to have side brakes and clutch to act independently.—Yours truly,

Leonard Baynes.

To the Editor of *The Motor-Car Journal.*

Sir,—With regard to the correspondence taking place in your *Journal re* the Foot *v.* Hand Control, I think for all-round purposes that the combination of both the foot accelerator and the hand control lever on the steering wheel is the most satisfactory, but where there is only one system fitted I think it is far better to fit the foot accelerator than to depend only on the hand control lever, as one would be always taking their hand off the steering wheel to work the throttle; and it is not safe to depend only on your left hand to steer a car at times. On the 7-h.p. Little Star, which is considered to be one of the easiest cars to handle, the foot accelerator only is fitted, with very good results, but on all the larger Star cars a combination of the foot and the hand is fitted, and this I consider by far the best system.—Yours truly,

J. Lisle.

To the Editor of *The Motor-Car Journal.*

Sir,—I notice that the opinions of your several correspondents as to foot or hand control are far from unanimous. It has been the fashion, up to now, for the majority of the leading makes to fit a foot accelerator, but, from practical experience with both, give me the hand control. It is a very common occurrence for even expert drivers to use the accelerator pedal instead of the brake for the moment, and I have been repeatedly told of such occurrences, and the consequent narrow shaves.

Your correspondent, "Tally Ho," has apparently never driven a car with hand control, otherwise his remarks would not be so satirical. For fineness of control, no foot arrangement can equal the hand control, and to be continually dodging the right foot from accelerator pedal to brake pedal, when in traffic, is to my mind far from being the ideal.—Yours truly,

S. C. N.

THE LANCHESTER CAR.

To the Editor of *The Motor-Car Journal.*

Sir,—Perhaps my experience may be of some assistance to your correspondent, "A. U." I have driven a Lanchester constantly for some time, first as an air-cooled car and now as a water-cooled one. I do all my own adjustments and machinery work, keeping a boy to clean the carriage work, look after the tyres and fill up with oil and petrol. The car must be out every day and in all weathers, and sometimes my work (that of a surgeon) takes me long distances into the country. I have now completed nearly 10,000 miles, with only one roadside stop for repairs or adjustments,

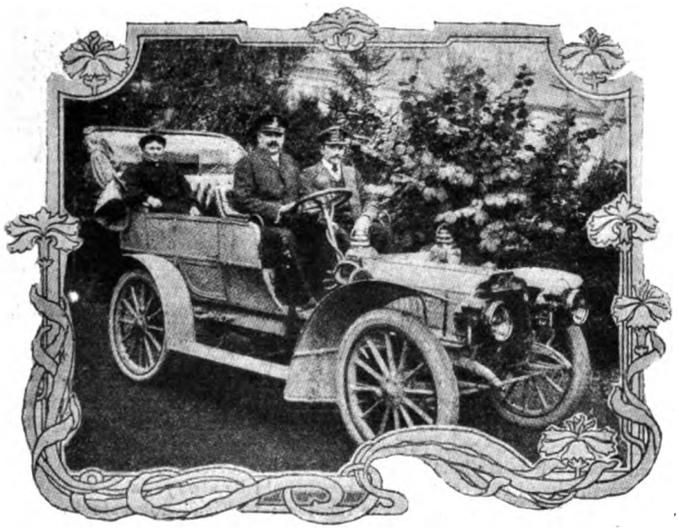
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barring tyres. I make a point of going over the engine myself and making any necessary adjustment before attempting a long run.

As for your correspondent's first inquiry, when I was fitting a throttle of my own design I took the opportunity of examining the valves. That was some five months or more ago. They were in perfect condition, and I have not seen them since. It took me about three-quarters of an hour to get at them, mainly because I had never done it before and partly because long service had rusted the bolts and nuts. Three friends of mine who have been driving Lanchesters for periods of one to two years have not yet examined their valves. I don't think they are the source of much inconvenience, and they ought not to be difficult to replace.

As to the fans, I never had any trouble with these, but an air-cooled car needs very careful driving in summer. The water-cooled vehicle is infinitely superior. I have made many long runs, such as Bath to Birmingham without stopping, and Bath to Exeter twice with only one stop at Taunton, in the middle of summer without any overheating troubles, but it takes a lot of discretion and care. Even with an air-cooled car, I could always average twenty miles per hour on a reasonable road in hot weather, but, all the same, I would rather have my water-cooled engine. The fans, with great care, will keep the cylinders cool on hot days. The nuts and threads are not standard, but the company give a good supply of spares, so I have had no trouble so far. I can average anything from eighteen to twenty-five miles per gallon of Pratt's A, according to the load, road, etc.

My experience of the Lanchester Company has been that their charges are not unreasonable and that if any part is ordered by telegram or letter, that part leaves by the next train after receipt of the message.



Herr R. Thiem, Vice-President of the Alsace Lorraine Automobile Club, on his 16-20-h.p. Richard-Brasier Car.

The company, moreover, seem to retain a genuine interest in their cars after they are sold, and if one is in doubt about how to make any adjustment or replacement they furnish full particulars by return, illustrated by diagrams where necessary.

My opinion of the Lanchester car is that it is one of the most consistently reliable, if not the most reliable, of all cars on the market; for a medical man it is stylish, quiet, easy to manage, and unsurpassed by any other make. I have driven several makes before trying a Lanchester. I was biassed against them at first, partly because the price was more than I could easily afford. However, I have never regretted my choice. It is perhaps unnecessary to add that I have no interest whatever in the company.—Yours truly,

F.R.C.S.

To the Editor of *The Motor-Car Journal*.

Sir,—In answer to "A. U." in the last issue of the *Journal*, I am pleased to be able to answer his questions, having driven Lanchesters for the last two years, and covered some 15,000 miles. 1 and 2. Valves, both exhaust and inlet, are perfectly accessible. They never want grinding in, could be replaced in half-an-hour, but they never cause trouble; in 10,000 miles I have only renewed one inlet valve, and that was not absolutely necessary. 3. Fans, if carefully cleaned periodically, are not noisy or liable to go wrong. 4. Yes, if engine is used rationally, and the mixture carefully adjusted. But why trouble about the air-cooled car? The new water-cooled is far ahead of the early air-cooled in every way. Pump or water-circulation gives no trouble whatever, and the engine is practically "fool proof." 5. I think I am correct in saying that at any rate the smaller nuts are not standard, as the pitch of the Whitworth thread becomes proportionably coarser as the size of the nut decreases, hence the smaller nuts have not a thread suitable to withstand the vibration and strain in a motor-car engine. The Lanchester accordingly have their own thread, but to me it has never caused the slightest inconvenience. 6. Average mileage per gallon is from twenty-two to twenty-seven. I did last month (December), with fearful roads, rain and snow and fog, 640 miles in four days, using twenty-eight gallons of petrol, which works out at as near as possible twenty-three miles per gallon. I have frequently done, in summer, 107 miles on four gallons, say twenty-six miles per gallon. 7. The company are most fair and most prompt in all repairs. An estimate is always given, and not carried out except with full consent of owner, I am in no way connected with the firm.—Yours truly,

Arthur N. Pazolt.

To the Editor of *The Motor-Car Journal*.

Sir,—As one who has had a great deal of experience with the Lanchester car, I venture to reply to the letter of "A. U." in the last issue of the *Journal*. The valves are not easy to get at, particularly for an amateur, as it necessitates taking down a considerable part of the engine. One accustomed to the Lanchester system might detach, grind in, and replace both sets of valves in three hours. The fans occasionally get very noisy, they are not always effective, but generally so. The nuts and threads are the Lanchester Company's standard. The mileage per gallon is anything from seventeen to twenty-four miles.—Yours truly,

Semper Paratus.

To the Editor of *The Motor-Car Journal*.

Sir,—In reply to "A. U.," in the *Journal* of January 7th, I have had three years' experience of the above cars, and my answers to the points he raises are as follows:—

1. Are the valves easy to get at to grind in?

There is only one valve in each cylinder giving admission and exhaust to the explosion space, and out of which the pressure and direct heat of the same comes. Moreover, it is kept cool by the incoming charge. The result is that the valves need scarcely any attention. This main valve can be taken out in less than ten minutes. In 10,000 miles I have only had one valve which required attention.

2. About how long would it take to replace a broken exhaust or inlet valve?

About twenty minutes, but as this so seldom happens it is not a serious matter.

3. Are the fans liable to get noisy or out of repair?

Yes, if they are neglected, but if they are looked after, say once a month, properly oiled, and the tension adjusted, no. The noise is produced mostly by mud being splashed up underneath the car and getting between the flywheel and the fan pulleys. This is now obviated by a screw.

4. Will the fans keep the cylinders cool on a warm or hot day?

The difference between a summer's day and a winter's day may be fairly represented by 40 deg. F. As the cylinders probably reach a working temperature of 400 deg. F., the addition of 40 deg. F. does not make much difference. On a hot day with a following wind, and a long hill, the cylinders do get rather hotter than is pleasant from the smoke point of view, but a very few minutes' rest will put that right.

5. Are the nuts and threads standard or only made by the Lanchester Company?

If "A. U." means by standard, "Whitworth," they are not, with the exception of a few, for the very good reason that Whitworth threads are of no use in machinery which is subjected to vibration, and it is necessary to use a fine thread. Unfortunately, with the exception of a "cycle thread" standard, there is no standard in England which is suitable for motor-car work. I understand that there is a Standards Committee sitting now, which will bring one out. Until this is adopted, no nut on A's car will fit any bolt on B's car, or C's, for that matter.

6.—About what is the average mileage per gallon?

Taking the whole year's running, which includes every short run, such as station work, shopping, etc., and other petrol consuming runs, as well as touring, the mileage averages about 20 per gallon.

I have made careful tests of both my 10-h.p. and 16-h.p. air cooled cars on the London Road *via* Coventry both at an average speed of 20 M.P.H., non stop, roads in fair condition. The cars were carefully emptied both as to tank and carburettor, and four gallons of petrol put in, and then run till they stopped. The result is:—

10-h.p. 4 galls. Pratt's A, gross weight 23·75 cwt. 102·5 miles = 25.6 M.P.G.
16-h.p. „ „ Carburine „ „ 27.0 „ 138·5 „ = 34.5 „

The difference may be accounted for in the fact that the 16-h.p. car is more efficient in its transmission, and possibly the petrol.

(7.) Is the Lanchester Company reasonable or otherwise in its charges for repairs and replacements?

Their charges seem to me to be high, but not higher than other makers and agents, from what I hear from my friends driving other makes of car. My present car does not cost nearly as much in repairs as the early 10-h.p., owing to improvements in design and material.—Yours truly,

Charles W. Dixon.

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SPARKING TROUBLES.

To the Editor of *The Motor-Car Journal.*

Sir,—I have a 12-h.p. car with two-cylinder high speed engine, trembler coil, and wipe spark. I have had a good deal of trouble with the firing; sometimes the motor would run remarkably well, and then all of a sudden would commence to miss fire, or one cylinder would almost chip out, and more especially if I advanced the spark. Everything seemed to be in perfect order. I may say I have always kept the wipe contact well oiled. I have now come to the conclusion that it is the wipe spark which is at fault, and that it is not so reliable as some of the other systems, and have decided to have a new contact breaker fitted. Before doing so I would like to hear the experience of your readers with wipe spark and others, and what is really considered to be the most reliable contact breaker for a two-cylinder car.—Yours truly,

Country Motorist.

THE FRENCH CLUB'S PROPOSED JOINT RACE.

To the Editor of *The Motor-Car Journal.*

Sir,—With reference to the decision of the French Automobile Club, I am personally very much opposed to the abolishing of the race for the Gordon Bennett Cup, or of its being run on the same day as another race. The Gordon Bennett has become universally recognised as a big sporting event, in which each country enters its three best cars to represent it. In my opinion the Automobile Club of France, representing as it does a nation which, very rightly, claims to be at the head of the motor industry, should be the last to propose to abolish the race for the cup, as they, having the choice of cars from among so large a number of manufacturers, should be quite willing to enter their three best cars against the three best cars of other nations, who have to choose from a much smaller number.

The proposal to abolish the race does not appear to me to be sportsmanlike, but from a business point of view I can quite understand that the French Club might wish to organise a race in which the chances of its country would be increased by having a larger number of cars to race against a lesser number of any other nation. If they desire to have a business competition of this sort, by all means let them have the Grand Prix; but I should look upon the abolishing of the Gordon Bennett as a calamity to the motor movement, inasmuch as it would put an end to what is undoubtedly regarded as one of the finest sporting events of the year, and is looked upon as being on the same plane as the yacht race for the America Cup, etc.

As regards the proposal that this year the race for the Gordon Bennett Cup and the race for the Grand Prix should take place on the same road and on the same day, if the entries are very numerous there will be the risk of the Gordon Bennett cars (which will presumably start first) overtaking and being hampered by the cars which are started last. Such an occurrence would certainly cause great dissatisfaction to the competitors in the cup race and the countries which they represent. Furthermore, if the entries are very numerous the intervals between the cars must be brief, and the risk of calamity must be considerably increased. The limit of cars in the Gordon Bennett race to between twenty and thirty is, in my opinion, very desirable, as tending to avoid accident and to secure permission for future races, whereas a race in which there are a large number of cars may result in many accidents, and consequently the prohibition of motor races.—Yours truly,

Chas. S. Rolls.

MAGISTRATES v. MOTORISTS.

To the Editor of *The Motor-Car Journal.*

Sir,—I enclose a cutting from the "Banbury Advertiser" of the 5th inst., recounting the conviction of a motorist at the recent Petty Sessions at Kineton, Warwickshire. It is, I think, a striking example of the severity with which certain magistrates, more especially in the rural and, I may add, hunting localities, are inclined to treat motor drivers. A similar offence on the part of the driver of a horse-drawn vehicle would probably have been met with a fine of half a crown at the most. If local benches are to be indefinitely allowed to inflict five pound fines whenever a motor driver is brought before them, no matter how slight or excusable his offence, the man of moderate means who can afford to buy and keep up a cheap car, but who is obliged to calculate the expenses of doing so carefully, will be afraid to own one at all. "So much the better," no doubt, in the opinion of the fine inflictors, but this is not the end which the Motor Car Act was framed to attain; neither is it the justice which used to be expected from English peers and gentlemen.—Yours truly,

A Cautious Motorist.

THE GRAPHITIC LUBRICATION OF PETROL MOTORS.

To the Editor of *The Motor-Car Journal.*

Sir,—Would W. D. Bowman kindly state how much graphite would be required for a four-cylinder motor if mixed with the oil in the crank chamber. Also, would it not be better to blow some into the cylinders direct through the compression taps at the top, and, lastly, where can I obtain graphite, and at what cost?—Yours truly,

Wilfred B. Wateyn.

AN INTERESTING MOTOR QUERY.

To The Editor of *The Motor-Car Journal.*

Sir,—Re letters of A. 710 in your issue of 7th inst., and "Marine" of 31st December, 1904, I would remind your correspondents that however susceptible I myself might be to optical illusions, my watch can be accused of no such failing; and that my increase of power towards nightfall is not apparent, as they would suggest, but is very real.

On the run home in the evening I gain just on four minutes in the seven miles run, of which one and a quarter miles is fair up grade. No doubt, as A. 710 suggests, the lower temperature tending to more efficient cooling may give a very slight increase of power, but nothing like sufficient to account for a gain of four minutes in twenty-two, and that under adverse road conditions.

I, and no doubt many others of your readers, would be glad to read a short article by one of your expert contributors on the query raised by "Inquisitive One."—Yours truly,

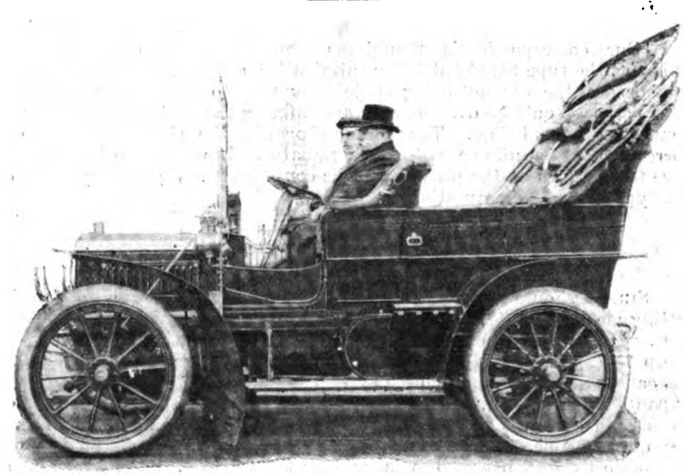
W. Frederick Fortune.

A TRICK ON MOTORISTS.

To the Editor of *The Motor-Car Journal.*

Sir,—Just a line to warn your readers against a trick I saw played the other night. A car was travelling slowly through the traffic, and after it had passed me a few hundred yards I saw some boys run up behind it and blow out the lamp. I unfortunately could not stop to warn the driver, and I hope he met a lenient policeman; but it would be a serious matter if this trick were not put a stop to.—Yours truly,

J. M. MacLulich.



Mr. A. Ohlsson, Founder and Proprietor of the Ohlsson Breweries, Cape Town, on his 24-h.p. Napier Car.

Mr. Ohlsson, who has vast estates some 230 miles from Cape Town, has found that the train service to his estate is far too slow, and that he will be able by means of his car to cover the distance in less than half the time it would take him if he used the train. As there are several rivers on the road, and in parts it is strewn with large boulders and heavy sand, the car has been fitted with very large wheels, and a guard put over the engine, to enable it to successfully negotiate these obstacles.

PROPOSED STEAM CAR CLUB.

To the Editor of *The Motor-Car Journal.*

Sir,—I should very much like to call the attention of those of your readers who may be interested to the Steam Car Club, which it has been proposed to form. From the letters which I have received on the subject it is clear that there is real need for such a club. The exchange of ideas on so many points in common could not fail to have a beneficial effect, and would be to the advantage of all interested in these cars. There are many benefits that would result from the formation of such a club. It is, of course, perfectly obvious that its scope of usefulness will be greatly enlarged, and suggestions are invited in this connection. I shall be very pleased to hear from anyone interested in the above.—Yours truly,

T. Murphy.

ACCUMULATORS.

To the Editor of *The Motor-Car Journal.*

Sir,—Would some kind reader please instruct me how to change from using four dry batteries equal to six volts on a 12-h.p. 1903 Darracq with non-trembling coil and make and break? Can I change to accumulators with the present make and break and non-trembling coil, and what power of accumulators must I use, and would accumulators be as successful as the dry batteries, which have always done very well indeed?—Yours truly,

B. 205.

[It is a very simple matter to change the four dry batteries on a Darracq car to a set of accumulators, all that is necessary being to disconnect the dry

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cells, and put the accumulators in their place, taking care to join the wire which was on the carbon terminal, to the positive terminal of the accumulator. With reference to whether four volts or six volts are necessary, the following experience may be useful. The engine will work well with a four volt accumulator, but if six volts is used a great advantage is gained, as a better spark is obtained all through, and the ignition is so good that there is a much greater range in advancing and retarding, and more power appears to be attainable. Moreover the coils on the Darracq cars are of such excellent quality that they will stand even eight volts without the slightest fear of breakdown. The only disadvantage in the use of six volts is that there will be more wear on the platinum contacts of the make and break contact breaker, so that these should be attended to and filed up at regular intervals. From practical experience gained by using a six volt accumulator on a Darracq car during the past summer, we should recommend the use of this in preference to four volts. There is plenty of room in the battery box to take a six-volt accumulator and a four volt spare one.]

MOTOR CIRCULATION TROUBLES.

To the Editor of *The Motor-Car Journal*.

Sir,—I shall be glad if you or any reader of the *Journal* will give me some information regarding the following query. My car has a 6-h.p. Phœnix Daimler motor. The large water tank at the back of the car has been taken away, and a radiator and tank, containing four gallons of water, fixed in front. A pump has been fixed, driven off the flywheel. I am troubled with the water boiling. I shall be pleased to know what can be done to remedy this. Could I increase the power by fixing plates on the ends of the pistons so as to obtain a higher compression?—Yours truly,

D. C. Glasgow.

[Our correspondent's trouble is doubtless due to an inefficient radiator, the type fitted not being suitable for a 6-h.p. Phœnix-Daimler, the speed of the car not being sufficiently fast to keep the water cool. This perhaps could be overcome by again fixing the tank at the back, and connecting up as before. The method shown in the sketch sent by our correspondent is quite correct for the radiator. It would be of no advantage to fit plates on the pistons, as the compression is generally high on the type of engine in question.]

A COUPLE OF QUERIES.

To the Editor of *The Motor-Car Journal*.

Sir,—I should be glad if any readers of the *Journal* would oblige by letting me know:—(1) The best two-seater car single-cylinder now obtainable. How will the new 8-h.p. De Dion compare with the new three-speed 6-h.p.? (2) Is the fitting of Panhard type sliding gear in these 8-h.p. instead of the expanding clutch system an advance? I have found the expanding clutch to give immense satisfaction in the 6-h.p. The wear on the sliding system is presumably great, whereas the existing De Dion gears seem unwearable. I have found a single-cylinder De Dion better in point of comfort than most two-cylinder cars I have tried, but I note that at the price asked for single-cylinder De Dions firms are now offering two and even four cylinder vehicles.—Yours truly,

E. D. Fawcett.

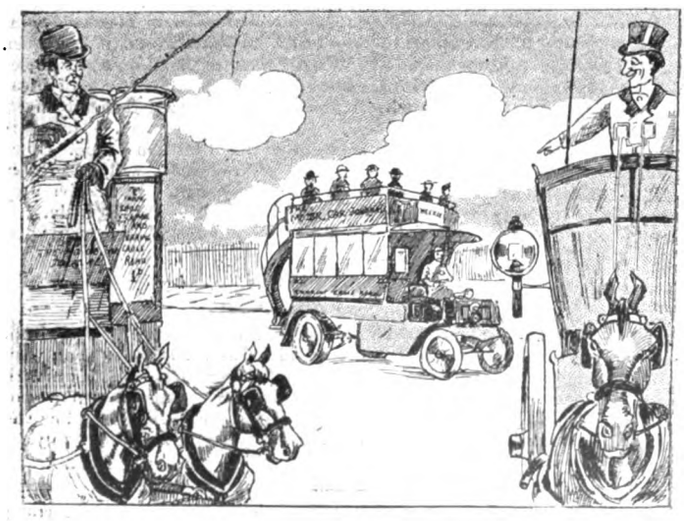
CRACKED CYLINDERS.

To the Editor of *The Motor-Car Journal*.

Sir,—I bought a new 4-cylinder car last season, and the other day noticed that both cylinders were cracked and the water leaking very badly through the water jackets. The question is, ought they to have gone like this, and would frost be the cause? and what is my best remedy? The water in the tank was not frozen and nothing else happened, so I am curious to know what you or any of your correspondents think. The car has not been run for some time; the motor-house was not heated.—Yours truly,

Beginner.

[The cause of "Beginner's" cracked cylinders is without doubt due to the frost, unless by chance the water circulation is faulty, allowing the engine to overheat, and then suddenly passing cold water into the jackets. If the car were allowed to stand with the water in during the sharp frosts of a few weeks ago, we could most certainly say this was the cause. This could easily have been prevented by letting out the water. If it is only the jackets that are cracked, it may be possible to put a thin metal patch over; or, if not too bad, they may be rusted with sal ammoniac or painted with gold size and lamp black. In the event of failure in this, the only remedy is new cylinders.]



The Coming of the Motor-Omnibus.

SIGN POSTS.

To the Editor of *The Motor-Car Journal*.

Sir,—During last summer I had the misfortune to be fined £5 and costs for driving to the common danger through a small village the other side of Andover. I was on my 3½-h.p. De Dion car at the time, with one passenger, and the speed was timed at eighteen miles per hour; there was no traffic on the road, and I did not see any warning posts, although it was afterwards pointed out to me that warning posts were placed at the entrances to the village.

The posts in question carried no written notice to reduce speed, but simply a sign in the shape of a triangle. I did not know at the time the interpretation for this, and question very much the legality of same as warning posts; I believe that it is distinctly stated that motor vehicles shall not travel at a rate exceeding twelve miles per hour when passing through villages, but that notice boards must be erected denoting the approach to such a village. I fully realise the advantages of these signs, but can they legally be deemed to give any notice unless their interpretation is attached?

I would also like to draw your attention to the general position of the posts in relation to the village they serve. Those I have noticed have been placed practically in the village itself, so that a high powered car travelling fast could not reduce speed (except by undue strain) to the requirements of the Act. I would suggest that these posts be either placed further afield, or else an additional post similar to the advance signals used on our railways, be fixed in advance of the boundary signals.—Yours truly,

Sydney C. Newton.

MOTOR INSTRUCTION.

To the Editor of *The Motor-Car Journal*.

Sir,—Now that the season is, generally speaking, over, the motorist sits down to muse over his peregrinations during the past months, and having probably more leisure, he wonders if he cannot pursue his hobby in another direction than driving his car or launch.

The idea strikes the writer that it might be very much to his advantage if one could acquire the details in connection with the motor engine and electrical appliances, and he suggests private tuition, or that classes be formed, when pupils could have practical knowledge brought home to them, so that in the event of a breakdown in their journeyings they could more readily understand the machinations beneath the engine casings.

If such a monitor could be found, no doubt many enthusiasts would gladly take advantage of such tuition, and perhaps the publication of this might find some suitable instructor who would lay himself out for such an object. It is to be hoped the idea may be followed up, with so many amateurs who would be pleased to have the opportunity of acquiring such practical knowledge.—Yours truly,

Motoneer.

Electrically Driven Invalid Chairs.—"A. E. J." writes:—"Will any reader of the *Journal* kindly inform me through your correspondence column what firm make a speciality of electrically-driven invalids' chairs, controlled entirely by hand, and having a maximum speed of four miles per hour?"

Non-Slip Covers.—Replying to "Rice," who enquires for the Haurelt non-skid cover, we believe he refers to the Herault, which is made by M. E. Herault, 120, Boulevard Magenta, Paris.

Aeros Spring Buffer.—Replying to C. H. Phillips, full particulars of the Aeros spring buffers can be obtained from Mr. Leonard Harris, 169, New Bond Street, London, W.

Paraffin Carburettor.—In replying to "Heavy Oil" the Cremorne carburettor is made by the Cremorne Motor Manufacturing Company, 27, Lots Road, Chelsea, S.W.

Motor Spirit.—Replying to Mr. J. G. West, full particulars of the Shell motor spirit can be obtained from the General Petroleum Company, Limited, 19-21, Billiter Street, E.C.

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HEATING AND VENTILATION OF GARAGES.

By N. B. Pope.

The problem of properly heating and ventilating garages is one which demands the serious consideration of every motorist, whether he keeps his car in a public garage or at home in a place of his own. A certain amount of heat must be supplied during cold weather to keep the working parts of the car in good order, and to render less barbarous the necessary labour of washing and oiling. That ventilation is needed wherever petrol is in use is axiomatic. Moreover, as the conditions are at variance with the factors which obtain in the more usual work of a ventilating engineer, the subject in its full breadth is mostly of considerable technical study. Herein, however, we will merely attempt to enunciate certain principles, and to suggest a simple method or two by which the desired results may be obtained.

The conditions involved in the case of a large garage, comprising shops, offices, and several floors, are too numerous and complicated to be taken up in detail, but in the small garage and private motor-house they are less complex and are, perhaps, of more vital interest to the average motorist. Considering first the matter of heating, the problem is to keep the storage place at a reasonably uniform temperature throughout all weather changes, and this without danger of igniting the vapours which are so much to be dreaded, or of causing spontaneous combustion among the various kinds of timber often found lying about.

The temperature which is to be maintained, with which the choice of method to a large extent varies, depends chiefly on the fancy of the owner. The only absolute requirement is that the temperature shall never get low enough to freeze the water in the tanks and pipes. This is essential, not simply because of the dangers attendant upon freezing the cooling water of petrol cars or the boilers of steamers, but also on account of the unpleasantness of working about cold machinery, and the difficulty of filling grease cups and lubricators when the oil is congealed. Besides, if kept in a cold stable, the bearings of a car become so stiff as to use up considerable extra power when run again, while if they are kept reasonably warm when the car is standing they will not stiffen up while on the road, except in extreme weather. Moreover, certain types of carburettors give trouble when cold.

Its inflammable character and the fact that petrol vapour is heavier than air make it imperative that the heater be one which contains no open fire—at least within the walls of the building. As it is necessary that petrol be handled in the garage, the precautionary measures must consist essentially of placing the fire where the vapour cannot come in contact with it. This may be done by locating the source of heat in another building or in a compartment of the same building, which is partitioned off by fireproof walls, and having its entrance from the outside only. Basement boiler and furnace rooms, as used in other buildings, are out of the question. And in this connection it may be noted that the use of basement floors in a garage is always unsafe, unless special ventilation is provided for removing the heavy gases which accumulate there. The not uncommon practice of locating shops and battery charging rooms in ill-lighted, unventilated sub-floors is extremely dangerous, both on account of the fire risk and because of the unhealthy conditions which are to be found there.

The heating of any building may be accomplished by either direct or indirect radiation. It may have its own heating system or it may be one of a system of several deriving their heat from a central plant, just as the several floors may be heated by a single furnace. As to the method of distributing the heat to the air in various rooms, this may be done by placing the radiating surface directly in the room and heating it by circulating through it some conductor, like hot water or steam, or the radiating surface may be outside the room and the air heated by being passed over it and then to the room by pressure or induction. The latter method introduces a combined heating and ventilating system. Evidently this method is particularly applicable to motor houses, as it eradicates not only all fire but all heated surfaces which might cause the charring of dry wood or waste, and the ignition of the petrol vapours in an indirect way. But this method, involving as it does the installation of fans and heating stacks, is too expensive for use except in elaborate establishments. It is a comparatively simple matter, in many cases, to use steam or hot water heat, piping the supply from a neighbouring building. This is applicable to many of the small private garages.

Where it is necessary to heat the building independently there are several satisfactory methods which may be employed. One consists of a small heater, using oil or perferably gas, placed in a metal sheathed compartment on the outside of the building, to which access is obtained from the outside. Within, on the adjacent wall, is placed a combined radiator and expansion tank of simple construction. On the same principle any small heater, as is used for greenhouses, for instance, may be employed, the coils being laid upon the more exposed walls and under the windows.

A simplification of this is to build the compartment sufficiently large to enclose a stove, and to place a sheet iron bell over the latter leading to a register in the wall. The inside of this "lean-to" erection must be lined with sheet metal, and a considerable air space allowed between the lining and the sheathing to prevent undue leakage of heat. The efficiency of such a method would depend largely on the construction of the building and the amount of leakage of heated air through the roof and walls, which could easily be reduced to a practical minimum, and the system thereby made very effective.

Turning to the subject of ventilation, it will be seen that the capacity of the ventilators must be sufficient to remove any excess of vapour which may be caused by unlooked-for conditions in the car, or due to evaporation while filling or using the petrol for cleaning purposes. Heated air rises. This fact must be the basis of all considerations of the ventilating problem, and in many systems it is used to induce a circulation of air from all parts of the room to one at the top. But, as already stated, petrol vapour is heavier than air, and must always tend to stay near the floor, except when stirred by a draught. Therefore the air outlet in a garage must be at the bottom of the room instead of at the top.

Many motor houses, especially the small ones, are so flimsily built and have so much free ventilation unavoidably that no special provision is considered necessary. But as a safeguard against emergencies, particularly at night, when a flooding carburettor or a leaky pipe joint may be the means of distributing petrol over the floor, absolutely certain ventilation must be secured. The complete indirect method of heating and ventilating may be applied to large or expensive garages with the best of success; but for the small structure a very simple method, which should be effective in clearing the danger zone within a few inches of the floor, is as follows:—An ordinary stovepipe is run up one of the walls of the building and projecting through the roof, is topped with a ventilator cap. At the bottom it is left open a few inches above the level of the floor. Part way up the wall it is heated by close contact with the radiator; or it may be jacketed and heated by the burning gases from the stove, but this is not to be recommended on account of the danger from sparks in the smoke passage. The air within it, thus heated considerably above the mean temperature of the room, will rise, and form an appreciable draught, thus drawing from the floor by displacement. It will be seen that the effectiveness of this depends on the amount of heat which can be concentrated about the pipe at one point. The other radiating surface must be so disposed as to aid a circulation of air about the room, and produce a swirling current towards the outlet.

Were the outlet to be made simply a register in the outer wall of the



Automobile Racing in Florida. A Group of Cars on the Beach at Daytona.

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building, instead of serving as a ventilator, it would act as a cold air inlet, the heated air within drawing in more and more by displacement, and as a result there would be no real ventilation. If the natural tendency of the air be used, and the outlet be at the top of the room, as in many of the older systems in present use, a current of heated air will be set up in an upwardly curving line from the radiator to the outlet; the heat will largely go to waste, and eddies of stagnant air will accumulate along the floor. This is what must be particularly avoided in motor-houses, as it is the floor line which must be cleared first. By reversing the natural tendency, wholly or in part, and placing the source of heat upon the walls, or at the top of the room, and drawing away the spent air and gas from the bottom, uniform heat distribution is secured and the necessary drainage effected. —The Horseless Age.

NOISE AND LICENCE.

Edwin Newey, Solihull, has been summoned under the Motor Car Act for not using means to prevent his motor-car making an unnecessary noise.—Police-constable Taylor said that on the afternoon of the 24th ult. he saw the vehicle standing outside a shop in Warwick-road, Acocks Green. He watched it for eight minutes, during which the machinery was vibrating. Defendant denied that he was in the shop more than two minutes, and he also said he was ignorant of the fact that he should have stopped his engine.

A further summons was then proceeded with for failing to produce a motor-car licence. Defendant now handed in a licence, but it was found that it only referred to a motor-cycle. Police-constable Taylor said that when asked for his licence, defendant told him he had left it at home Defendant stated that he had the licence produced at the back of the car at the time, but he did not find it until afterwards.

A fine of 10s. and costs was imposed on the first summons, and of 40s. and costs on the second.

AUTOMOBILE RACING IN FLORIDA.

Preparations for a series of automobile races on the Ormond-Daytona Beach, Florida, from the 23rd to the 28th inst. are well in hand. The programme will comprise about thirty events open to the world. From a local correspondent we learn that the condition of the Ormond-Daytona Beach this winter is magnificent; according to old residents it was never better. Its sand is composed largely of the shells of the coquina clam, peculiar to this part of Florida. This shell is about half an inch long and very thin. For ages nature has been rolling them up, washing them back into the surf and pulverising them. Examined under the microscope each particle is round, unfit for mortar, builders say, because its smoothness prevents it from holding together; yet, strange to contemplate, the very moment a wave leaves the wet, apparently soft beach, these round particles settle down into almost a cement as hard as asphalt, beyond the comprehension of those who have not seen it. Regardless of weather conditions there is no mud, no dust, tyres are never heated owing to the moisture, and an exploded tyre is unknown. Here, too, the great dangers of road and track racing are entirely eliminated. Road repairs are unnecessary, as twice each twenty-four hours it is entirely rebuilt by the tides.

Being almost level and with an average rise and fall of only two feet nine inches at extreme low tide, the beach is from three hundred to five hundred feet wide and can be used from two hours after until two hours before high tide, thus giving an average of seven to eight hours a day for motoring.

Mr. J. F. Hathaway, the veteran motorist who suggested and organised the Florida East Coast Automobile Association, under whose auspices the Ormond-Daytona Beach tournaments have developed a wide-world reputation, brought one of the first motor-cars ever seen in Florida, and had many queer experiences with the natives, who at that time were very much opposed to these "new-fangled machines."

Great changes have taken place in Daytona during the past five years and there are now claimed to be more automobiles in the town than in any other of its population in the world. During the past summer the Florida East Coast Automobile Association, which has a membership of 200, has erected a most attractive and commodious club-house on the beach directly opposite the half-way post of the twenty-mile course. At Ormond a large garage, with all modern conveniences, has been erected, besides a mechanicians' club-house with a comfortable club-room and thirty sleeping rooms.

AN APPEAL ALLOWED.

Before Mr. Loveland-Loveland, K.C., at the Clerkenwell Sessions, Mr. C. S. Gabriel, of Park Street, St. James', W., appealed against a decision of Mr. Kennedy given at the West London Police Court on the 2nd August last, convicting him for that he did, on the 16th day of June, 1904, on a public highway called Kensington Road, unlawfully drive a motor-car at a speed which was dangerous to the public. Mr. J. P. Grain (instructed by Messrs. Wontner and Sons) appeared for the police, and Mr. Horace Avory, K.C., and Mr. A. Moresby White (instructed by Mr. Staplee Firth) appeared for Mr. C. S. Gabriel, the appellant.

After hearing the evidence of four policemen on behalf of the police and the evidence of Mr. Gabriel and two of his witnesses the Court stopped the case and allowed the appeal. Upon the application of Mr. Horace Avory, K.C., the Court also ordered the police to pay Mr. Gabriel's costs of the appeal.

CASE DISMISSED.

Last week, at the Lambeth Police Court, summonses were heard against Mr. J. E. Staples for unlawfully driving an unregistered motor-car on a public highway, bearing a general identification mark, the said car not being used for trial after completion, or on trial by an intending purchaser, and Mr. Ernest Gould was summoned for that he did, on the same day and place, aid and abet in the commission of the said offence. Mr. E. C. Hemmerde, instructed by Messrs. Kenneth Brown and Co., appeared for the defence. The circumstances were that on the day in question a motor-car, which was a second-hand one, and used solely by S. F. Edge, Limited, for trial purposes, was sent to Croydon with a spare wheel and a towing rope for the purpose of assisting another car belonging to a private gentleman which had met with an accident. Use was made of a car which had just been overhauled and repaired for the purpose of trial and to which was affixed the general identification mark allotted to S. F. Edge, Limited. Whilst proceeding to Croydon the driver was stopped by a policeman who contended the car was not being used for trial purposes. Subsequently the police interviewed Mr. Gould and he admitted that the car had been sent out under his direct written instructions for the purpose above stated, and on this ground the police issued the summons for aiding and abetting in the commission of the said offence, they contending that as Mr. Gould gave instructions for the driver to drive the car he was responsible. The defence was that the circumstances as above related constituted no offence under the Motor Car Act, and that the mere fact of a car having in it at the time a spare wheel and a rope did not necessarily mean that that car was not in point of fact used for a trial after completion, and that for that reason the driver had committed no offence, and Mr. Gould had not in point of law aided and abetted. Mr. Hopkins, the magistrate, upheld this view and dismissed both summonses.

CASES AGAINST MOTORISTS.

Place.	Summoned for	Fine.
Alton.....	Driving negligently	£3.
Grantham.....	Reckless driving	£2, etc.
Tunbridge Wells	No rear light	Costs only.
S.W. London	Furiously riding a motor-cycle	Dismissed.
Clerkenwell Sessions	Appeal against conviction for dangerous driving.	Convict'n upheld
,, ,,	Appeal against conviction for exceeding legal limit.	Appeal allowed.
Bolton Quarter Sessns.	,, ,, ,,	Appeal allowed.

The annual diary known as the "Agenda Buvard," published by Madame Lockert, of *Le Chauffeur*, has now become an institution. The 1905 issue, a copy of which has been sent us, contains as usual a number of interesting caricatures of prominent French motorists and motor-car builders, for which alone the diary is well worth the small figure charged.

TO CORRESPONDENTS.

All communications intended for insertion in this Journal or relating to Editorial matters should be addressed to The Editorial Department, Motor-Car Journal, 27-33, *Charing Cross Road, London, W.C., and must be written on one side of the paper only. Letters must in all cases be accompanied by the name and address of the writer, as no notice will be taken of anonymous communications.*

The Editors cannot undertake to return MSS. or drawings, although every effort will be made to do so in the case of rejected communications. Where such are regarded as of value, correspondents are requested to retain copies.

To insure insertion communications and contributions must be in the Editors' hands by Tuesday forenoon of the week in which the same are intended to appear. Disappointment may be caused by non-compliance with this rule, and to avoid this earlier receipt, if possible, is necessary.

The Editors do not hold themselves responsible for the opinions expressed by their correspondents, or for statements and facts which do not appear in the editorial columns.

The Editors and Publishers beg also to state that they will accept no responsibility for unsolicited contributions, even if used, unless payment for same is directly specified in forwarding, and the terms arranged before publication.

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THE

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[Readers, Subscribers, Correspondents, Advertisers, and all others who write to THE MOTOR-CAR JOURNAL are reminded that the new Offices are at 27-33, Charing Cross Road, London, W.C. All communications should be sent to this address.]

COMMENTS.

The Working of the Act.

THE paper which Mr. Moresby White read at the meeting of the A.C.G.B.I. last week was both suggestive and useful. On another page we publish its leading points, and would emphasise the hint given by the author as to motorists, when stopped by the policeman, obtaining all the evidence possible to assist them in rebutting the charges at the police-court. Very often, in the crowd that inevitably gathers around a policeman and a motor-car, may be found some sympathetic and discerning person, whose definite statements of facts should be worth more than the opinion of the policeman. As a rule, magistrates are inclined favourably towards what the constable "thought" and what he gives as his "opinion." But, from a legal point of view, such is not permissible; and motorists may well take a hint from the paper, and challenge any such "views" likely to prejudice their cases.

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The Limit in the Royal Park.

DISCUSSION on the paper was opened by Mr. Staplee Firth, whose encounters with magistrates have frequently assisted local journals to find columns of excellent "copy." Mr. Firth rightly criticised the enactment which requires the endorsement of licences for offences of a very minor character—offences which, from a common-sense point of view, would not be indictable, but which under the Act are magnified into great delinquencies. For instance, because the rear light goes out and a constable happens to be looking, a man may have his licence endorsed as well as the worry of a police-court appearance. Surely, if punishment is to be meted out to such an one, a mere fine would suffice without other indignity. On the question of the speed regulations in Royal parks Mr. Firth was very emphatic, and the facts he gave tended to show that these have not yet received full and legal sanction—a view that should be tested without delay.

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Amendments for the Future.

MR. MORTIMER'S contribution to the debate was brief but helpful, and we agree with him upon the necessity of continuing the automobile education of magistrates in view of the operation of the law in the future. As he remarked, advocates have not only to win cases, but they should also consider the effect that they exercise upon the minds of the justices. Every effort should be made to get magistrates to realise that motorists are not so bad, after all; and besides that, the time is coming when the question of possible amendments to the Act will have to be considered. Then the influence of magistrates—favourable or otherwise—will be a factor in the settlement. Mr. Shrapnell Smith was able, in the course of the discussion, to tell of an automobile club with ninety members, thirty of whom are county J.P.'s. When such facts can be shown motorists should find encouragement in a spirit of toleration towards the Bench, even though a similar good feeling has not been exhibited in the past.

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Traders' Marks.

ONE point which escaped full consideration was that which referred to traders' marks. This section of the Act is most unsatisfactory, and seems better designed to harass dealers than to assist them in the development of their business. The original idea was to issue a general identification mark which could be used on all the vehicles employed by a trader in a business way. As the Act was primarily designed to secure the identification of offenders on the road, we should have thought that all that was necessary was a mark sufficiently clear to trace the ownership of any car. But the way in which that particular provision of the Legislature has been interpreted is to lay the trader open to all sorts of charges of fraud and roguery never contemplated when the Act was being passed through the Houses of Parliament. At present the trader who does not want to run risks has to register each car; that is practically the only safe way of escape. When the time comes that clause will have to be thoroughly revised, and the regulation clearly established that the payment of one fee should cover any number of vehicles that the dealer may take from his showroom or his works for trial runs in the ordinary way of trade. Nothing short of that will be acceptable to the trade.

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The Endorsement of Licences.

SHOULD any revision of the Motor Car Act take place, we trust a strenuous effort will be made to secure something like reason in the endorsing of licences. In the minor offences the magistrate has no option. He must endorse licences, although there may be extenuating circumstances which ought to be taken into consideration. If the rear light happens to go out, or, as a correspondent suggests, be blown out, or if a motorist has changed his coat and inadvertently left his licence at home, the licence is endorsed. That is the law, which in this case has a finality as stringent as that of the Medes and Persians. But if a man careers along at an acknowledged reckless pace the magistrate need not then write the record of his misdemeanour, even though the offence in the latter case is wilful and dangerous, while in the former instances it is simple forgetfulness or absolute ignorance.

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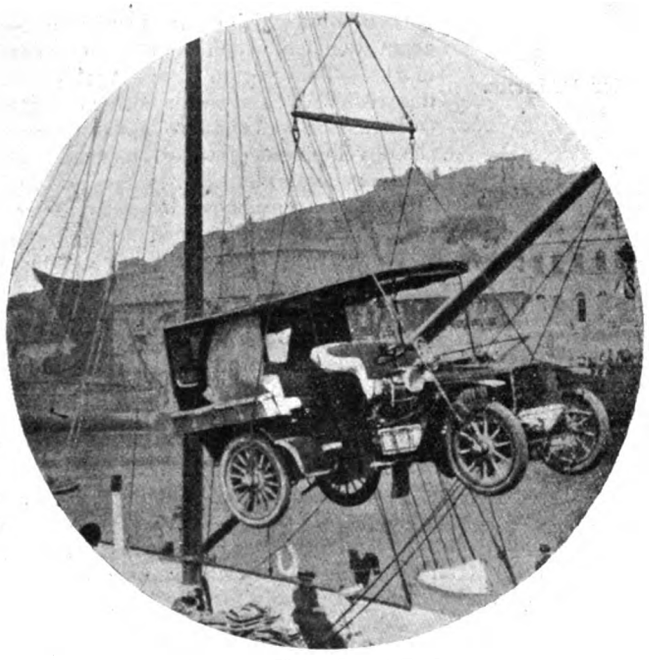
Proposed Club for Sussex.

A MEETING of Sussex automobilists has been convened by the Motor Union for Saturday, the 28th instant, to be held at the Old Ship Hotel, Brighton, at three o'clock. The purpose of the meeting is to form a County Automobile Club for Sussex. There has been a strong feeling in the county for some time that it is very desirable that an organisation of this character should be brought into being, and among those who

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have already intimated their intention of supporting the proposed Club are the following:—Major R. C. Turnor, Captain J. G. R. Homfray, Messrs. B. Y. Bevan, A. M. Singer, J. Lereculey, E. G. Cundy, E. G. Miller, H. C. Stringer, Captain F. D. Lyon, and Mr. Alderman Buckwell, of Brighton; Messrs. J. J. Hissey and E. T. Vine, of Eastbourne; Earl Russell, and Messrs. William James and M. F. Mieville, of Chichester; Messrs. Edgar Soames, J. Godwin King, and E. M. Crookshank, J.P., of East Grinstead; Messrs. C. J. Lucas and A. S. Dickins, of Horsham; Dr. Chas. Ormerod and Mr. S. H. Norman, of Burgess Hill; Captain Gerald Spencer, of Lewes; Mr. G. Hennessy, of Haywards Heath; Mr. R. S. K. Eyre, of Crowborough; Mr. Boyle Lawrence, of Bognor; Messrs. H. S. W. Eyre and C. F. Frowd, of St. Leonards-on-Sea; Sir James Duke, Bart., of Laughton; Mr. W. Bramson, of Arundel; Mr. N. Leslie, of Henfield; Mr. Arthur Biden, of Cooksbridge; and Mr. F. A. Potts, of Wadhurst. Any car owners in Sussex who have not yet put themselves in communication with the secretary of the Motor Union should write to him at 16, Down Street, Piccadilly, London, W.

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Shipping a Motor-Car at Boulogne.

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The Scottish Trial.

So satisfactory has been the response of motor-car manufacturers to the recent circular of the Scottish Automobile Club with reference to the Reliability Trial, that it has been decided to proceed with the provisional arrangements. The date —May 11th, 12th, and 13th—has been definitely fixed, and the committee of the club are now framing the rules and conditions of the Trial. Arrangements are also being made for a preliminary survey of the suggested routes. More than Scottish interest will be taken in the event, which, so far as organisation is concerned, may be expected to run as smoothly as the Glasgow to London trial, which the new fixture has superseded.

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Motor Restrictions Abandoned.

After all, the motor restrictions in the Holland division of Lincolnshire are not to be enforced. As previously stated in this *Journal*, a proposal was made by the County Council to prohibit the motor-car traffic at night time on the Deeping High Bank and the Peakirk Bank, while it was proposed to enforce a 10-miles limit on the Spalding and Crowland Bank after dusk. Naturally, the proposal gave rise to a considerable amount of opposition, and petitions were sent in to the County Council, asking them to reconsider the matter and withdraw the proposed restrictions. Motorists will now be glad to know that these petitions have had weight with the Committee which was appointed to deal with the question, for at a recent meeting at Spalding they reported that in consequence of the petitions and objections they recommended the County Council to withdraw the proposals altogether, although they still held that the roads were dangerous. The recommendation of the Committee was approved. The fact should not be overlooked that motorists have their own safety to consider as well as the safety of the general public, and they will naturally use the roads with proper care when driving along them after dark.

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London and Birmingham.

Some idea of the growth of the automobile movement since the Motor Car Act of 1903 came into force can be gleaned from reports which have just been presented to the registering authorities of London and Birmingham. Within the jurisdiction of the London County Council 12,000 licences were issued last year to drivers of automobiles, and no fewer than 8,250 motor-cars and motor-cycles were registered. 1,217 drivers' licences were issued and an almost equal number of cars were registered at Birmingham in the twelvemonth. These figures, of course, refer to only two centres where automobilism flourishes most, but they are illustrative of the significant advance made during 1904.

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The 5,000 Miles' Trial.

The second week of the trial of the 12-h.p. Siddeley car, under the supervision of the Automobile Club, was concluded on Saturday by a run to Folkestone and back. The week's runs had been most satisfactory, not a single involuntary stop having been registered. Close on 2,000 miles had then been covered, the journeys during the week being to Coventry, Marlborough, North Leach, Southsea, Southampton, and Folkestone. Despite the heavy condition of the roads, the Continental tyres ran without a puncture. These latter are of the 815 by 105 mm. size, with square tread, and, considering the condition of the roads, have done remarkably well. On Monday and Tuesday the 5,000 miles trial was continued and the car added another to its long list of runs in which no involuntary stops were recorded. The journey was to Southsea and back, and the roads were very heavy, owing to the rain and thaw. On Wednesday the journey was to Worthing, through Epsom, Dorking, and Arundel.

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A Word to Certain Drivers.

A motor-car driver who attempts to handle a car whilst drunk may expect little sympathy from motorists or magistrates. A driver of a car belonging to his employer spent an hour and a half the other day in rushing wildly about some of the streets in Ryde, and generally alarming many of the good people of the Isle of Wight. When it was discovered that he was drunk a constable apprehended him, and at the police-court he pleaded guilty. In addition to fining the delinquent the Bench ordered that his present driving licence should be taken away, and his next licence, to be obtained on the 22nd of the present month, should be suspended for three months from that date. Under Section 12 of the Licensing Act, 1872, which by the provisions of the 1896 Motor Car Act is applicable to motor-car drivers, a person "who is drunk while in charge of any carriage on any highway" is liable to a month's imprisonment with or without hard labour. That may have been known to this particular offender, but the idea of suspending a licence not yet granted was perhaps new to him—this being the first time such a course has been taken. This was done by reason

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of Section 4, which gives the magistrates power "to "declare the person convicted disqualified for obtaining a licence for such further time after the expiration of the licence as the Court thinks fit."

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Motor-car v. Motor-Car.

SEVERAL mishaps in which motor-cars have been involved have been recorded during the last few days, and, curiously enough, collisions between automobiles have been as frequent as those in which motor-cars have met vehicles of other descriptions. In a dense fog near Worksop the other night a motor-car belonging to the Duke of Portland was proceeding to Welbeck, when a brewery motor-van, coming in the opposite direction, endeavoured to avoid an encounter. In doing so a milk cart standing by was smashed. At Manchester an electric tramcar stopped without apparent warning to a motor-car that was travelling behind. The latter was caught by the step of the tramcar and overturned, with the result that the passengers were seriously injured. In East London, on Saturday, two motor-cars collided; the wheel of one of the vehicles came off and the occupants were precipitated into the roadway. From the report on another page it will be seen that a collision between two motor-cars in Ireland has resulted in the owner of one obtaining £100 damages from the owner of the other. Such cases should emphasize the necessity for careful driving.

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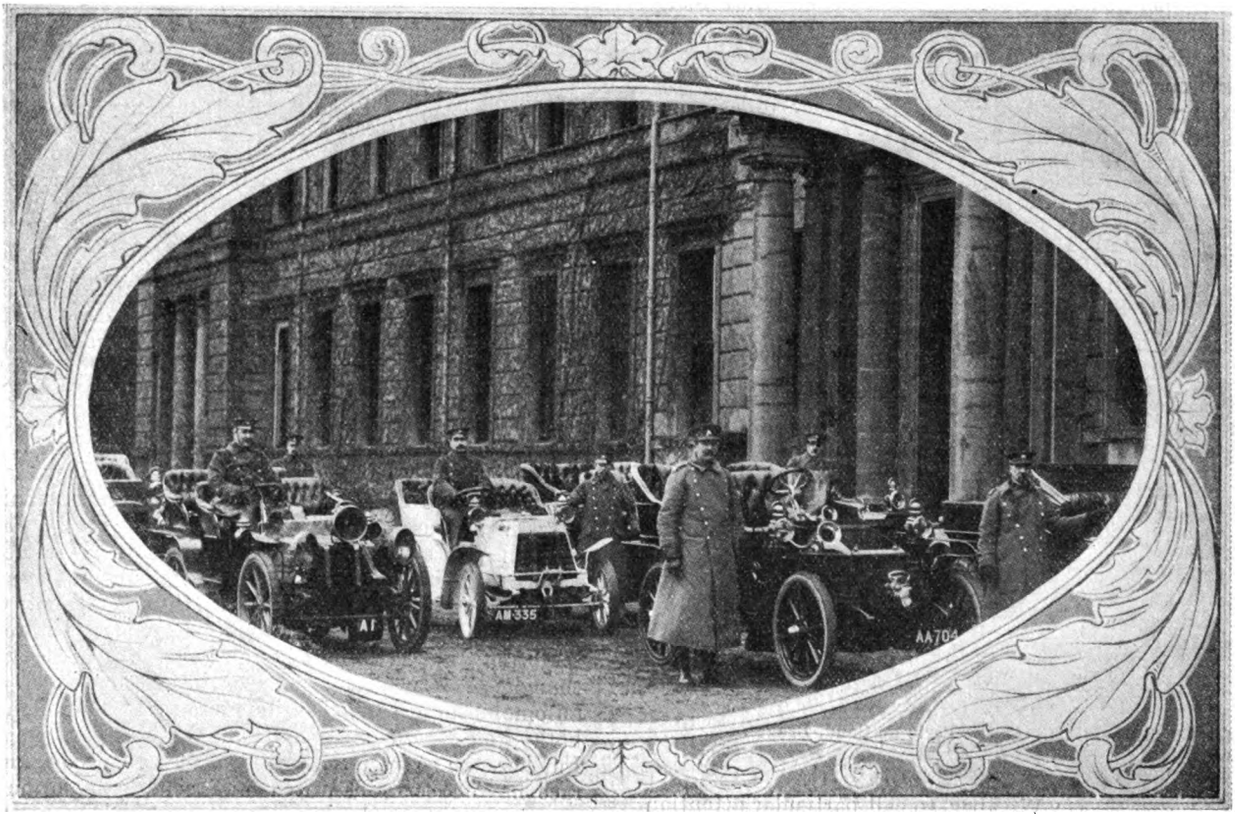
Motor-Car Imports and Exports.

ALTHOUGH there was again a falling off in the number of foreign motor-cars imported to this country during the past month, there was, on the other hand, a marked increase in the value of the imports. The number of cars imported in December is returned as 211, of a value of £97,888. Parts were responsible for £20,085, bringing up the total for last month to £118,573, as against £87,082 in December, 1903. The returns for the whole of the past year show that no fewer than 5,378 cars were imported, these, with the parts, attaining a value of no less than £2,423,940, an increase of, roundly, £435,000 as contrasted with 1903. Passing now to the exports of British automobile productions, the returns are not quite so satisfactory. Altogether 94 vehicles were shipped last month, which, with the "parts," attained a value of £41,882, bringing up the total for the year to £321,966, which compares with £344,325 in 1903.

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Heavy Motor Traffic.

THE regulations issued by the Local Government Board, under Section 12 of the Motor Car Act, 1903, relating to the weight, use, construction, and speed of heavy motor-cars, which regulations come into force on March 1st, have been criticised by Mr. E. B. B. Newton, C.E., borough surveyor of Paddington, in a report just presented to the Works Committee of the Borough Council. Mr. Newton observes that the new cars will probably move at a greater speed than a steam roller. What will be their effect upon underground pipes and mains can, according to Mr. Newton, be surmised only, but he considers that an immense amount of damage will be caused. "There can be no doubt," he says, "that if the number of mechanically-propelled vehicles in use upon the roads becomes greater as a result of these new regulations, the expense of road maintenance will be increased. At the present time the paving material of many of the roads in Paddington is entirely unfitted to sustain such heavy traffic, and, should the use of heavy motor-cars become general, flint, gravel, and granite macadam will have to give place to wood, asphalte, granite sets, etc., with consequent increase to the burden of the taxpayers." The Works Committee of the Paddington Council recommend that the Local Government Board be informed that the Council strongly object to the proposed new regulations for heavy motor traffic.



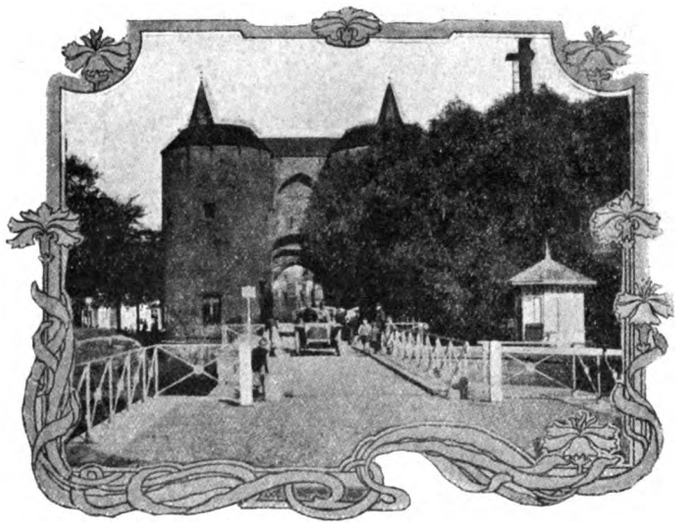
The Motor Volunteer Corps at Camberley preparing for a Staff Ride under General Sir Neville Lyttelton.
Copyright Photo] *[By Walter Shaw, London Road, Camberley.*

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The Leeds Limit.

THE application of the Leeds City Council to limit the speed of motor-cars to ten miles an hour within a two-mile radius from the centre of the city evoked considerable local interest. At the inquiry the Town Clerk pointed out that the Watch Committee and other local authorities were anxious in the matter, mainly owing to the fact that many of the streets were congested. The tram service materially assisted in this congestion. The Chief Constable put in a census of the amount of traffic at several points within this radius, taken on January 5th, which went to show that these are certainly busy streets, although we do not think that the limitation of the motor-car speed pace to ten miles an hour would wholly effect the object in view. Replying to Mr. Rees Jeffreys, the Chief of the Police held that Leeds was in a worse position than Manchester, Bradford, and Hull; and, concluding his defence, the head of the legal department of the A.C.G.B.I. pointed out that the tramcars travelled faster than ten miles an hour, and it was rather unfair that motor-cars should be made to go slower than these vehicles, which were owned by the municipality itself. The maximum speed on the Leeds tram lines was 18¾ miles per hour, not very different to the legal speed limit so far as motor-cars are concerned.

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Motoring in Belgium.—At the Porte de Gand, Bruges.

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Cordingley's Motor-Car Exhibition.

"WE beg to call particular attention to this exhibition, which opens at the Agricultural Hall, London, on March 18th, and closes on March 25th," says "Bicycling News." Our contemporary continues:—"This will be the tenth show Mr. Cordingley has held, and the nine preceding ones have been so excellently managed, and so much business has been obtained at them, that the prediction of success and satisfaction for exhibitors and visitors alike may be quite a confident one. The proprietor is certain of a fine show, as much of the space has already been let, though there are still some vacancies in the gallery, which should be applied for at once. Mr. Cordingley claims that his show will be, as it always has been, the largest exhibition held outside Paris, and his enterprise and capital management will, we hope and feel sure, bring him the success that he deserves. The show is always a most popular one in London, and with motoring of all kinds coming on literally by leaps and bounds, the attendance, interest in the exhibits, and business done, are all likely to be good. Prospectuses may be had from Messrs. Cordingley and Co., 27-33, Charing Cross Road, London, W.C."

More Trials in India.

UNDER the auspices of the Automobile Association of Bengal, motor-car and motor-cycle reliability trials are to be held on the 9th and 10th prox. over suitable roads leading out of and returning to Calcutta, the total distance to be about 200 to 250 miles, and all cars and cycles will return to Calcutta each night. Cars and cycles will be locked up for the night, and no repairs or renewals will be allowed between the time of stopping the engine on completion of the first day's run and the time of starting on the second day. Motor vehicles will be classified as follows:—Class A, for cars costing over £400 in England; Class B, for cars over £200, but not over £400; Class C, for cars costing £200 or under; Class D, for bicycles with or without fore cars or trailers and tricycles. All cars must be fitted with *bona-fide* touring bodies and silencers. A prize or prizes will be given in each class for reliability, economy in fuel consumption, and general condition after the trial, according to the number of entries. Should there be sufficient entries a consolation prize will also be given. No prize will be given in any class unless there are seven starters representing separate interests. H.H. the Maharaja Kumar Tagore has kindly offered a cup, valued at about Rs. 1,000, for the most reliable car in Classes A, B, and C. The judges in connection will be appointed by the Committee of the Automobile Association of Bengal, and the competing cars must be driven at ordinary touring speeds.

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The Races in France.

THE formal protest of the A.C.G.B.I. against the concurrent running of the Gordon Bennett race and the Grand Prix has been forwarded to the French Club. It is on the lines of the resolutions of the committee published in last week's *Journal*. While the committee wish to uphold and support the French Club in every possible way in connection with some such race as the Grand Prix, they feel that it should not be allowed to interfere with the running of the Gordon Bennett race by being run over the same course and on the same day, and necessarily, therefore, seriously affecting the issue. The committee consequently point out that a trophy of such historic fame as the Gordon Bennett Cup should remain the blue ribbon of automobile sport, as it must not be forgotten that it is largely due to the generosity and forethought of Mr. Gordon Bennett in offering such a cup that automobilism has reached its present state of high efficiency, both from the commercial and the sporting point of view. Further, the committee protest most strongly against the new race having been instituted, and conditions formulated, after the entries for the Gordon Bennett race had been received and accepted.

THE German Government has just presented a Daimler 5-ton motor-wagon to the King of Abyssinia.

A SIGN of the times may be fairly gauged by the interest motor-car builders take in anything new introduced relative to improvements in tyres tending to prolong the life of same, and thus reduce the cost of the tyre and repair bills. This was clearly shown last week by the large number of callers at the Hotel Cecil to inspect the new Swinehart-Clincher "concave" type of tyre, for which a life of 7,000 to 8,000 miles is guaranteed by the makers when running over ordinary roads. In order to secure resiliency, the new tyre is made concave, so as to be springy when running over rough roads, and has already been adopted by the Oldsmobile Company, of America, for use on their 1905 touring cars and parcel delivery vans. We learn that Messrs. Shippey Brothers have been appointed sole importing agents for the new tyre, and that arrangements have been made with Messrs. Smith, Parfrey, and Co. to build artillery wheels of any diameter and type of hub to suit the same.

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MOTORING IN CANADA.

ALTHOUGH Canada has not yet come prominently into the motoring world, it has been quietly developing an interest in automobilism that proves the capacity of the Canadians for being in the fore-front of American progress.

The interest throughout the Dominion may not be quite widespread as yet, but in the leading towns, such as Toronto, Montreal, Ottawa, London, Winnipeg and Hamilton, enthusiastic motorists are already banding together in clubs and organisations similar to those which have sprung up in the old country during the last few years, and in all the cities we have named some organised meet of the Automobile Association has taken place during the year that has just closed.

At Ottawa there are at least two well-equipped garages, generally filled with motor-cars belonging to residents of the city and district. It is remarkable that apparently at present the motorists have largely made use of these garages rather than have the cars in private establishments of their own, but of course this is merely a transient stage, and a few months' further experience will lead to the demand for motor houses in connection with the residences of Canadian folks as well as motorists here at home in England.

Already the people of the larger cities recognise that the adoption of the motor-car in the comparatively early stage of their history may do something to prevent the over-crowding and congestion which have become the features of older towns that have developed, reliance being placed upon the railroad only for the transport of the population from work to home. Public men are dwelling, in their speeches, upon the need for watchfulness with a view to encouraging any efforts to establish motor-car services with the object of dispersing the working-class population into the suburbs. Despite the progress of the electric tram system, there seems to be a good chance for successful development in that direction.

By the courtesy of the editor of the "Agricultural Economist" we are able to give a photograph of the joint meet of the Automobile Clubs of Toronto and Hamilton, which was held recently to celebrate the re-making of roads. An association has been formed locally to develop an improvement in the roadways, and a scheme has been devised by which the county authorities will provide two-thirds of the needed outlay, the central Dominion Government giving the other third.

The first road to be made under this scheme is shown in the illustration, the opening being made the occasion for a procession of cars, in which the public authorities and officials were taken a trip over all the principal roads in the locality by the owners of motor vehicles.

Mr. S. O. Greening is the president of the Hamilton Automobile Club, and he, with his committee, are to be congratulated on the good feeling which evidently exists between the motorists and the authorities in that colony—a good feeling which has been engendered by the toleration of the latter and the common sense of the former.

The example thus established by the Dominion Government in connection with Hamilton is inciting other local authorities to improve the main roads between leading towns, and when the movement thus extending gets in full swing, the motor-car will do much to promote touring in the Dominion. Not only that, but great interest is being taken in the heavier classes of automobiles, and nowhere through the British possessions is the development of heavy motor traffic in the old country being so closely watched as in Canada.



Motoring in Canada.—The Joint Meet of the Toronto and Hamilton Automobile Clubs.

In the larger towns steam and electrical vehicles were formerly practically the only automobiles seen in the streets, but petrol cars have now established themselves in the Dominion, and agencies for British vehicles are being sought by Canadian agents.

At Toronto a series of twenty lessons on the operation and construction of automobiles is now being given by Dr. P. E. Doolittle, the president of the Automobile Club there. The doctor is one of the pioneer motorists in Canada, and in 1896 he attended the run to Brighton to celebrate the emancipation of British automobilists from the "Red Flag Law." In 1902 he attended the anniversary meet at Oxford, so that he has acquaintance of the movement in the Old Country as well as in Canada.

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POST OFFICE MOTOR MAIL VANS.

FOR some time past Messrs. McNamara and Co., the mail van contractors to the G.P.O., have been using a couple of motor-vans of a new type, of which we are now able to publish illustrations, together with a brief description. The vehicles are of German construction, having been built by the Berlin Motorwagen Fabrik, of Tempelhof, Berlin. The motive power is supplied by a horizontal engine located in the fore part of the channel steel frame; the cylinder is 120 mm. bore by 180 mm. stroke, and at a normal speed of 800 revolutions per minute the engine develops 7-h.p. The mixture is furnished by a special form of carburettor which, after the engine is started on petrol, is claimed to be able to vaporise ordinary petroleum. The usual type of high tension ignition is adopted. Two speeds forward and a reverse are provided, the transmission being by means of a single wide belt working off a wide pulley on the engine shaft on to either of three pulleys on a counter-shaft at the rear, the free engine being obtained when the belt is slipped on to the central loose pulley. The rear axle is of the "live" type, the power being transmitted from the pulleys to the axle through gear wheels enclosed in the differential case. The makers claim that the belt has proved a most satisfactory medium for transmitting the power on account of its being elastic and allowing the driver to vary the speeds at will without giving any shock to the motor. In case of stretching of the belt, the rear axle is fitted with a pair of special tighteners, and by moving a screw the whole axle can be moved backwards so that the belt may always have the necessary tension. The van is designed to carry loads of from 15 cwt. to 20 cwt. at speeds up to twelve miles per hour. The body, as will be seen from Fig. 2 (page 973), is made with hinged rear doors and top, so that it can be loaded with mail bags in a minimum of time. The road wheels are 32 in. diam. at the front and 38 in. at the rear, and are shod with solid rubber tyres.

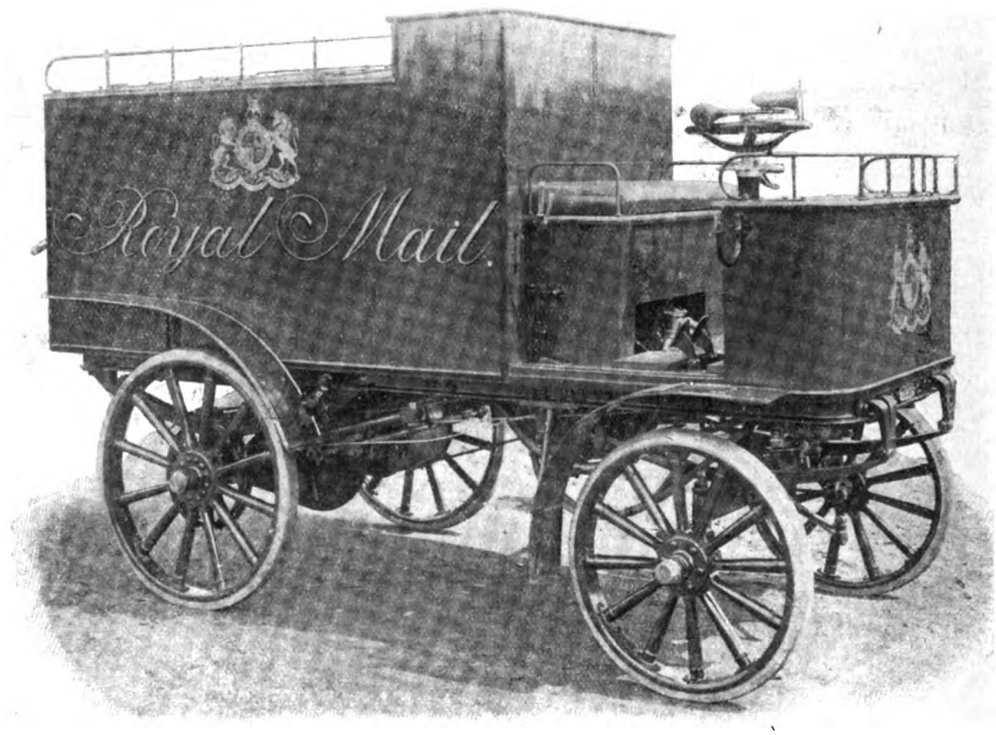


Fig 1.—General View of Van.

In our report of the Paris Exhibition reference was made to a new combination petrol-electric car (Gasnier's patents), exhibited by Messrs. Sage and Co., of Paris. We learn from Messrs. Delamotte and Foster that these cars will be shortly placed by them on the British market.

CONTINENTAL NOTES.

The Gordon Bennett and Grand Prix Races.

The Sporting Committee of the A.C.F. has definitely decided that the Gordon Bennett and Grand Prix races shall be run concurrently, the probable date being July 5th. It appears, however, that their recommendation to the Committee of the A.C.F. is not that forty-two cars shall be allowed to compete in the Grand Prix, but that the number of cars in the joint race shall be limited to that number, the proposed allocation of entries being as shown below:—

	Cup Race.	Supplementary Invitations.	Total in Grand Prix Race.
France	3	12	15
Germany	3	3	6
England	3	3	6
Italy	3	0	3
Switzerland	3	0	3
Austria	3	0	3
America	3	0	3
Belgium	0	3	3
	21	21	42

The twelve French invited cars will be those which are classed in the Eliminating Contest after the first three. The decision of the French Club to restrict entries in the latter to three cars of one type, even if made by different firms, is to be extended to the Grand Prix. In cars built in the same country this ruling will not create difficulty, but it is otherwise when the cars of identical design are of different nationality, as in the case of the German and Austrian Mercedes. For the Gordon Bennett race Germany can enter three Mercedes, and Austria also three, but for the Grand Prix only three Mercedes cars in all can be entered. The subject is still the chief topic of conversation in French motoring circles, and, in view of the protest sent in by the British Club, the result of the meeting of the A.C.F. committee is anxiously awaited.

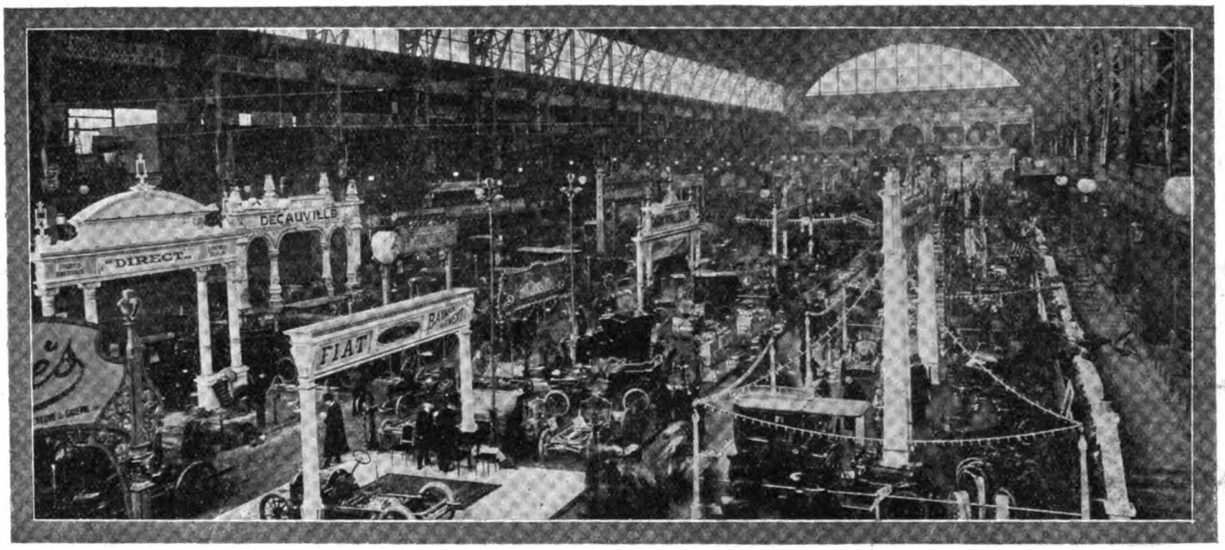
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The Belgian Salon.

The fourth annual Belgian *Salon* was opened in the Palais du Cinquantenaire, Brussels, by King Leopold on Saturday last. Following so soon after the show in Paris, the display appears a small one, but it marks a progress for Belgium. Among the

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native firms exhibiting cars are the Pipe, Bovy, Vivinus, La Metallurgique, Excelsior, La Locomotion (Rochet-Schneider licence), Dasse, Linon, Mecanique et Moteur, Minerva, Direct, Mathieu, De Cosmo, and Germain concerns. A noteworthy stand is that of the last-named company, represented in England by Mr. Theo. Masui. On it is shown a 24-h.p. *chassis;* in its main features the 1905 type is similar to that of last year, the only important change being the adoption of the stamped steel frame. There are also a number of minor improvements, which will all assist in maintaining the reputation of the Germain car. Of the complete vehicles, the most noteworthy is a Limousine with six inside seats, on an elongated 24-h.p. *chassis*. The body work is by the well-known Belgian carriage builder, Van den Plas. French makers are well to the fore, among the types on view being the Aries, C.G.V., Automotrice, Berliet, De Dion, Clement-Bayard, Panhard, Darracq, Decauville, Delaunay-Belleville, Fouillaron, Renault, Rochet-Schneider, Gregoire, Hotchkiss, Mors, Radia, Richard-Brasier and Unic. The Mercedes, Neue Automobile Gesellschaft and Benz companies represent the German motor industry; the Fiat Company that of Italy; Spyker, Holland; and the Oldsmobile, the United States. It has unfortunately to be said that no English vehicles are on view. In the gallery a number of non-skid bands are to be seen, including the Samson,



General View of the Belgian Automobile Exhibition.

Houben, and Desclée. Among the novelties is the "Amans" anti-shock device, introduced by M. Albert Mans, of Dieghem, designed to fulfil the same purpose as the Truffault arrangement used on Peugeot and Richard-Brasier cars. The show will remain open until the 26th inst.

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Heavy Oil Fuel Competitions.

In the early part of August next "Les Sports" will hold a trial of industrial vehicles, the engines of which use ordinary petroleum, naphthalene, shale oil, or other heavy oils as fuel. The test will consist of a run from Paris to Rouen and back, the route including the well-known Gaillon Hill.

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The Progress of the Mechanically-Operated Inlet Valve.

M. Lucien Perissé, in continuing his interesting technical statistics of the recent *Salon* in Paris, in the "Auto," takes up the question of the mechanically operated inlet valve, and shows that while at the 1902 Exhibition only 45 per cent. of the petrol engines displayed were fitted with these, the proportion at the Show lately closed was no less that 97 per cent., leaving only 3 per cent. of engines with the ordinary suction valve. It is also interesting to learn that of the motors fitted with M.O.V. 66 per cent. have the inlet and exhaust valves arranged on opposite sides of the cylinders, and operated by separate cam shafts, 24 per cent. have the valves arranged side by side and actuated off a single half-speed shaft, the remainder having the inlet valves located in the cylinder heads worked by rods and tappets.

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The Scheldt Motor-Boat Race.

At the meeting of the Belgian Automobile Club last week it was decided that the contest for the Coupe Auto-Nautique de l'Escaut should consist of a race from Antwerp to Flushing and back. The decision has not met with universal approval, as at Flushing there are occasionally heavy seas which will be unpleasant to the owners of some of the smaller craft.

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Public Services in Germany.

A service of electrical omnibuses, supplied with current from an overhead conductor, has lately been started between Nieder-Schöneweide and Johannisthal, near Berlin. At Estenfeld a company has been formed to establish a public service between Wurzburg and Bergtheim; three journeys per day in each direction are to be made.

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The Nice Week.

It has now been decided that the Nice automobile week shall be held from the 14th to the 23rd April. The first two days will be devoted to a trial of touring cars, on the 16th there will be a flower fête, and on the 17th a series of standing mile and flying kilometre contests for the Rothschild cup, these taking place not on the Promenade des Anglais, as usual, but on the National Road near Antibes. The Coupe de Caters event will be held on the 18th, and the Coupe Provinciale on the 23rd.

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Motor Racing in Holland.

It is probable that an automobile fête will be held at Scheveningen, the well-known Dutch seaside resort, during the coming season. As items in the fête it is proposed to organise a series of mile and kilometre speed trials.

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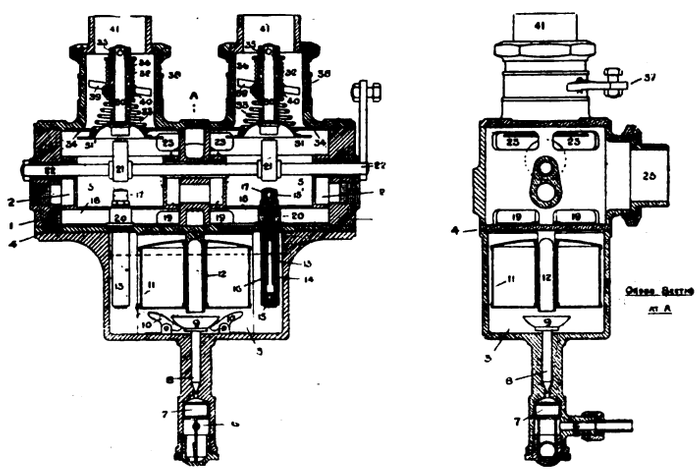
An Austrian Touring Competition.

The Sports Committee of the Austrian Automobile Club at its last meeting decided to organise a touring and reliability competition during May next. The trial will be restricted to petrol cars, which will be divided into a number of categories. The distance to be covered will be between 600 and 800 kilometres, and points will be awarded for regularity of running, average speed, consumption of fuel, speed on the level and on hills, the frequency of cooling water renewal, freedom from tyre troubles, carriage work, and the price of the *chassis*.

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THE NEW ARGYLL CARBURETTOR.

THE Hozier Engineering Company, Ltd., have adopted a new carburettor on the 1905 models of their Argyll 10-12-h.p. double-cylinder cars. Two sectional views of the apparatus, which has been devised by Mr. F. H. Smith, are given herewith, from which it will be seen that the chief features are the positive feed of the petrol and the arrangement employed for governing. One float chamber 3 is employed, in which the petrol stands at about the level of dotted line. A small petrol pump is provided for each cylinder, and in each induction pipe is placed a governor of the inertia or difference of pressure type. The action of the carburettor is as follows:—Petrol flows in from the supply tank through pipe 6, and is filtered upwards through a strainer 7. The latter can readily be taken out and cleaned by removing the screwed cap below it. An arrangement of float and needle valve is employed to keep the petrol at the level of the dotted line in the float chamber. Projecting downwards into this chamber are the petrol feed pump barrels 13, which work the plungers 14. When the piston moves forward on the suction stroke it creates a partial vacuum in its cylinder and in its induction pipe 41. This causes a rush of hot air along the pipe 23, through ports 19, up through holes



Sectional Elevations of Carburettor and Governor as fitted to 10-12-h.p. Argyll Cars.

in the disc 18, which is fixed to the pump plunger 14. This plunger has at its lower end a ball suction valve 15, and at its upper end the delivery valve 15^1. The lifting of the disc 18, due to difference of pressure of air on its two sides, raises the pump plunger, which in turn discharges the petrol from the annular space 16 through the valve 15^1 and spraying nozzles in the cap 17. The quantity of petrol per induction stroke of piston is thus determined by the cubic contents of this space, and this quantity once correctly determined for an engine, and the spirit employed, does not, the makers state, need and ought not to be varied. In order to allow of adjustment when fitted, or to suit another spirit, cams 21, actuated by a shaft 22, are provided. These cams form stops, and determine the maximum lift of the pump plungers, and therefore the maximum quantity of petrol that can be pumped per suction stroke. A fibre buffer 20 brings the plunger to rest on its downward movement. The mixing chambers 5 are each directly below their respective induction pipes, and are warmed by hot air or water circulating in the jacket 2.

In each induction pipe 41 is placed a separate governing device; this consists of a spindle 30 carrying a disc valve 31, held from its seat 34 by a series of springs 33 and 36. In order to follow the action of the mechanism, it is necessary to note that when the piston moves forward in its cylinder it tends to form a vacuum behind it, into which the air from ports 19 and 23 rushes. When the speed is low the air keeps pace with the piston, and there is little vacuum formed; when, however, the piston speed increases, the air is less able to flow in fast enough, and a partial vacuum is formed. Now, as soon as this vacuum—or rather the difference of pressure on the two sides of the valve 31—is sufficient to overcome its inertia, and counterbalance the pressure of the springs tending to keep it open, the valve 31 will close on its seat, cutting off the supply of mixture. Once it has closed it cannot open again during that suction stroke, as the further movement forward of the piston in the cylinder only tends to increase the vacuum, and hold it the more tightly shut. The effect of this cut-out action is analogous to that of a trip gear on a steam engine—only a certain definite quantity of explosive mixture has been allowed to pass to the cylinder to do work. When, however, the speed at which the governor is to act is not exceeded the valve never closes, and the piston draws in its full supply of air, charged with its accurately measured quantity of petrol.

In order to be able to control the speed at which this governing action begins, use is made of the throttling action of the valve 31. It is clear that if the valve be opened fully the air will pass freely into the cylinder, and there will be little or no difference of pressure on its two sides to tend to close it. If, however, it be not quite so fully open, there will be a greater resistance to the flow of air and a greater difference of pressure, consequently a lower engine speed will be sufficient to create sufficient vacuum to make it close. An arrangement is therefore provided for varying the lift of this valve off its seat, controlled by a lever on the steering wheel of the car. This consists of the lever 37 operating the sleeve 38, a pin in which passes through a slit, of the form of a portion of a screw thread 39. This pin engages with a groove in the collar 40, on the valve stem. A movement of the lever 37 therefore changes the amount by which the valve can open, and, in consequence, the speed of the engine at which the governor will begin to act. The levers 37 on each governor are coupled up to a common rod, so that each engine is cut out at the same speed.

Among the advantages claimed for the apparatus are that it does away with the necessity for a centrifugal governor and its control, and prevents a change of level or jolting of the car affecting the working of the engine, as under all and every condition the correct mixture is sent to the cylinder. The governor arrangement acts very quietly and with certainty, and is exceedingly sensitive, while there is no difficulty in "picking up" the positive feed of the petrol, ensuring the supply however rapidly the change of speed may be effected. An important advantage is the increase of power and decrease of petrol used, it being claimed that from 25 per cent. to 35 per cent. further can be travelled on the same quantity of spirit than with the usual spray carburettor and centrifugal governor. Another feature is that ordinary paraffin can be used quite well, owing to the positive feed and method of mixing with the air.

THE annual general meeting of the Yorkshire Automobile Club will be held on the 26th instant at Leeds.

MESSRS. H. M. HOBSON, LIMITED, have been appointed sole concessionnaires for the United Kingdom and Colonies for the Decauville cars.

THE two cars which the Wolseley Company are building for the Eliminating Trials for the Gordon Bennett team will be of 100 h.p., with frame of steel channel section. The wheelbase will be 9 ft. and the track 4 ft. 7 in.; rear wheels will be 36 in. dia. with 5 in. tyres and the front wheels 34 in. by 3½ in. The motor will comprise four horizontal cylinders in line. There will be four speeds forward and one reverse, the transmission being by Renold silent chain to the gear box, and from the differential to the rear road wheels by side chains. One of the cars will be driven by Bianchi, the driver of the second vehicle has, however, not yet been selected.

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"PETROL MOTORS AND MOTOR-CARS." *

IN his preface the author states that "though many works exist on the subject of internal combustion engines, which contain practically all that is known about them, it is thought that there is no book written entirely from the designer's point of view. The present volume is intended to provide designers and draughtsmen with reliable formulæ and information in a readily accessible form." The book is divided into two parts, the first being again subdivided into two sections. One of these is concerned respectively with four and two cycle engines, symbols and definitions, cylinder design, valves, details of motors, balancing, carburettors, governing, ignition, general design and cooling. In the second section the author deals with transmission, friction clutches, gearing, brakes, ball bearings, and carriage springs. While much useful information is given in both sections, we are somewhat afraid that the designer of motor-cars will not altogether find the work to thoroughly meet his requirements; for, while many details of the petrol motor are fully dealt with, there are other parts which are untouched. For instance, we look in vain for some indication as to the most suitable grade of iron of which to cast the cylinder, for information as to the correct form of cam for operating the valves, and also some indication as to the method of timing the ignition and most suitable diameters of inlet and exhaust pipes. We should have liked, too, to have seen included a brief outline of the method of testing the horse-power of petrol engines. The portion relating to the design and form of inlet and exhaust valves appears to be comprehensive, as is also that relating to the important question of balancing. In the section devoted to the transmission portion of the vehicle, the subject of gear wheels is exhaustively treated. On the other hand, several of the other matters dealt with might have been expanded with advantage; thus the author's remarks relating to change-speed gears of the train-balladeur type might have been amplified by giving the dimensions of the various pinions used in the change-speed gear of any of the best known of modern cars. In the section devoted to driving chains, space is wasted in giving the formula for designing sprocket wheels for chains of the block type, which the author himself admits in the preceding sentence are not now being much employed, while in giving the dimensions of block chains on pages 104 and 105 he omits to mention that those quoted relate to chains of one inch pitch, and not to chains of larger pitches. Carriage springs are briefly dealt with in the final chapter, but the subjects of axles, differential and steering gears are not touched upon. A third of the book is devoted to an Appendix, in which are given a series of useful tables; but, as these are to be found in any engineer's pocket-book, it is difficult to see why so much space should have been devoted to reproducing them. A good feature of the work is its well-compiled indexes, both to the subject-matter and the formulæ. Taken as a whole, however, it will be seen that we are somewhat disappointed with Mr. Hyler White's book, which, while useful so far as it goes, only partially meets the requirements of those for whose benefit it was written.

A LICENCE has been taken out for the sale of motor spirit from the depot of the United Motor Industries, Limited, at Gosford Street, Coventry.

MESSRS. R. REYNOLD JACKSON AND CO. have completed a contract with Messrs. Trackson Brothers, Limited, of Brisbane, Australia, for the supply of Jackson dogcarts fitted with kerosene oil carburettors, for the whole of Australasia for three years. Arrangements are pending with another firm for the sole agency in India.

* "Petrol Motors and Motor Cars." A Handbook for Engineers, Designers, and Draughtsmen, by T. Hyler White, A.M.I.M.E. London: Longmans, Green and Co. 4s. 6d. net.

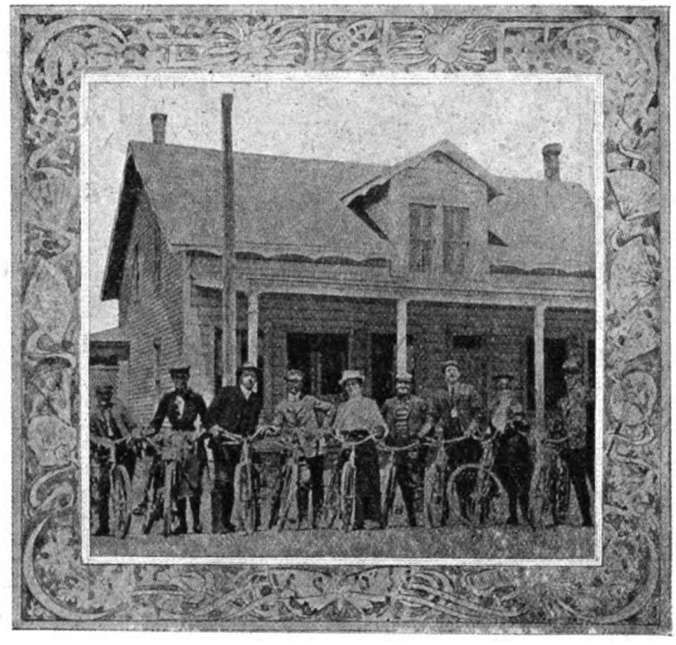
MOTOR CYCLING NEWS.

THE motor-cycle reliability contest which is being organised by the Autocycle Club de France is to be held in May next, over a course starting from Paris, and taking in Dijon, Lyons, St. Etienne, Avignon, Marseilles, Narbonne, Toulouse, Limoges, Orleans, and back to Paris, last year's route being considered too short to really test the endurance qualities of the machines. The start will take place on May 4th, the day's destination being Dijon. St. Etienne will be reached on the 5th, Avignon on the 6th, Marseilles on the 7th, Narbonne on the 8th, Toulouse on the 9th, Limoges on the 10th, Orleans on the 11th, and Paris on the 12th May. Points will be awarded to those competitors covering each stage within the time allowed, and during the trial a series of mile and kilometre speed tests, on the level and on hills, will be held.

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THE motor-cycle section of the Austrian Automobile Club has decided to give the first place in the Austrian team for the 1905 International Motor-cycle Cup race to the Laurin-Klement firm, which ran two machines in last year's race. An eliminating contest is to be held to select the other two members of the team

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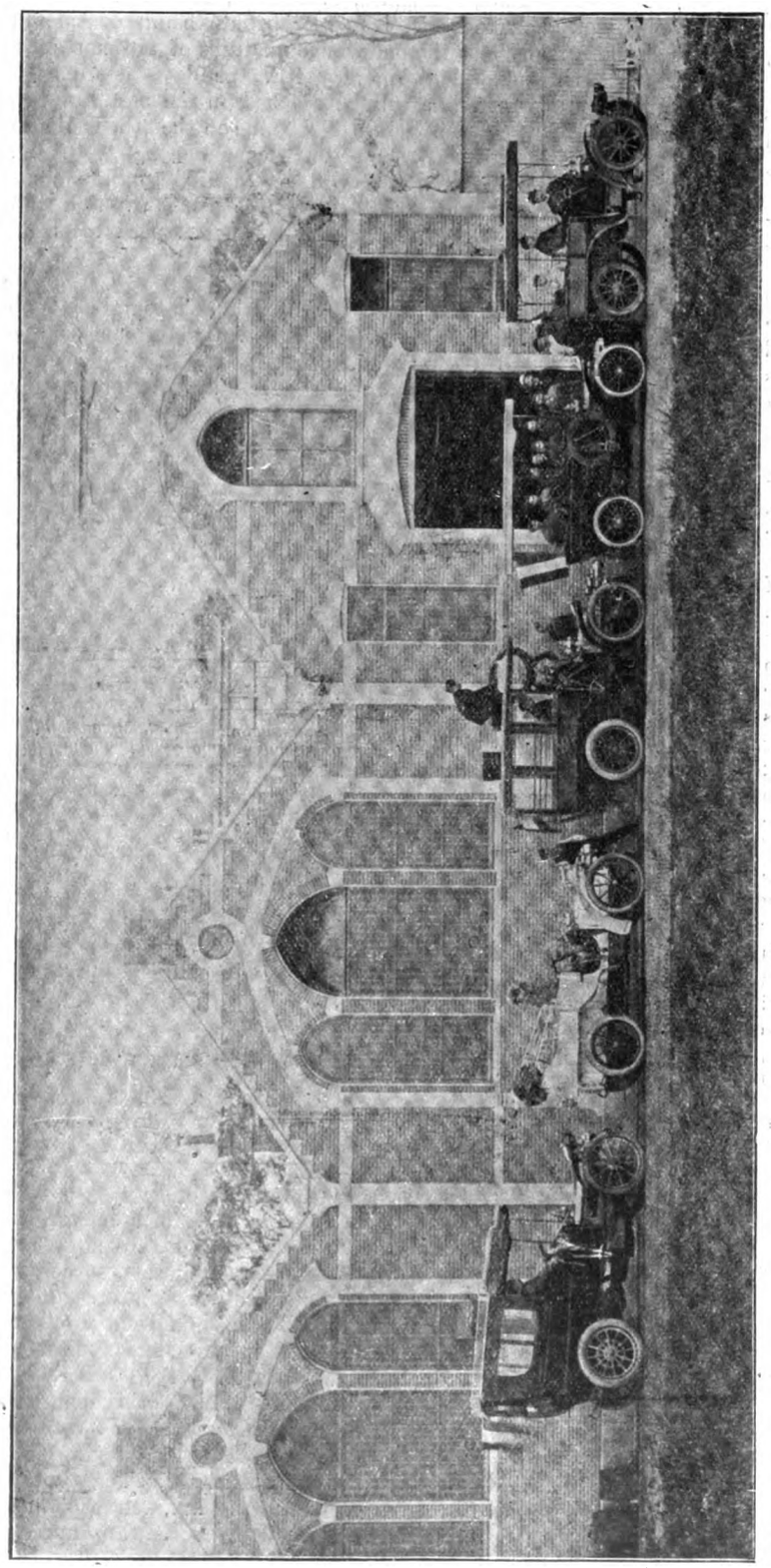
A Motor-Cycle Meet in California.

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THERE was a gathering the other night of members of the Coventry Motor-Cycle Club at the Railway Hotel, Coventry, the occasion being the first annual dinner of this successful organisation. Gracing the table was a valuable challenge trophy, won by the club last season in a hundred miles non-stop run, open to the clubs of all England. The winning team consisted of Messrs. R. W. Ayton, H. W. Duret, A. Riley, B. H. Owen, S. Wright, and Bert Yates. Medals won in other contests arranged by the club were presented to Messrs. E. W. Walford and H. W. Duret. The president, Colonel Wyley, having proposed the toast of "The King," submitted that of "The winning team," which, having been enthusiastically drunk, was responded to by Captain Duret, who remarked upon the appropriate nature of the win of the Coventry Club, having regard to the encouragement which that town had given both to cycling and to motoring.

THE ANGLO-FRENCH AUTOMOBILE SYNDICATE, LIMITED, has been registered with a capital of £1,000.

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A Fleet of Peugeot Cars employed in the recent Dutch Manœuvres leaving the Depot of Messrs. Verwey and Lugard at the Hague.

SOME USEFUL NOTES.

MOTOR-CAR chains are required to perform their functions under more adverse circumstances than any other part of the mechanism of a motor-car. They are exposed to the grinding action of mud and grit, and conditions are such that proper lubrication is a difficult matter. If a large amount of lubricant is externally applied, it serves only to collect dust and grit, and soon becomes a destructive agent rather than a preventive of wear. On the other hand, lack of lubrication is nearly as bad, for rusting may then set in, and the resulting wear would be nearly as great.

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To prevent wear, or stretching, as it is popularly termed, as much as possible, the chains should be frequently removed and thoroughly cleaned, by first placing them for a time in a bath of paraffin, and then going over them carefully with a brush until all traces of grit are removed. When perfectly clean, it is well to allow them to hang for a little time to allow the paraffin to drain away, and then they should be immersed in a bath of warm melted tallow mixed with a little graphite. The chains should be left in this bath until they and the tallow become cold and form practically one solid mass. The chains may then be removed and all surplus tallow wiped off with a cloth. This operation impregnates all the bearings of the chain with a good lubricant, which stays in place and prevents mud from working in between the wearing surfaces. Instead of making the tallow-graphite mixture himself, the motorist can buy such chain lubricants already compounded.

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ANOTHER matter of importance in the care of chains is to keep them at the proper tension. Too great a tension not only increases wear between the various parts of the chain itself, and between the chain and sprockets, but also causes a greater loss in the transmission of power and greater wear in the sprocket bearings. A slack chain is, on the other hand, likely to climb the sprocket or to jump off under sudden shocks. The proper tension is that which will hold the chain between the two chain wheels in two straight lines without sag, without bringing a greater strain upon the bearings than is necessary to accomplish this.

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IT should be kept in mind that as a chain wears, its "pitch" varies, and in time a tendency to "ride" the teeth of the sprocket chain wheel develops. This increase of "pitch" increases the amount of wear on the sprocket teeth, and, as a result, when replacement becomes necessary, a new chain will not fit perfectly, and it will be more difficult to make it run quietly. It will be necessary also to use it under greater tension to prevent its jumping off, and this in turn will result detrimentally as described above. It is expedient, therefore, to replace chains before the sprockets show much sign of wear.

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ANOTHER cause for unnecessary wear in chains is failure to keep the sprockets in proper alignment. In cars fitted with side chains this condition may arise through the shifting of the axle sidewise under the springs, or the unequal length of the distance rods. Care should be taken in adjusting the chains to see that these rods are taken up or let out equally, so that each pair of chain rings revolves in the same plane.

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IT cannot too often be pointed out that novices in motor matters should be very careful to see that the ignition lever of their cars is retarded before they attempt to start the engine. Otherwise the nasty blow of a "back-fire" may be experienced.

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HERE AND THERE.

MESSRS. R. AND J. PULLMAN are bringing out a new non-skid band for motor tyres.

THE annual meeting of the Lincolnshire Automobile Club will be held on the 18th prox.

THE offices and showrooms of the United Motor Industries, Ltd., are now installed in the new premises, 45 and 46, Poland Street, London, W.

HIS Excellency Sir Reginald Talbot, Governor of Victoria, has purchased a 14-h.p. Talbot car from the agents of Messrs. Clement-Talbot, Ltd.

AFTER an extended tour in Australia, General Booth, of the Salvation Army, hopes to go on another motor tour campaign in the Old Country.

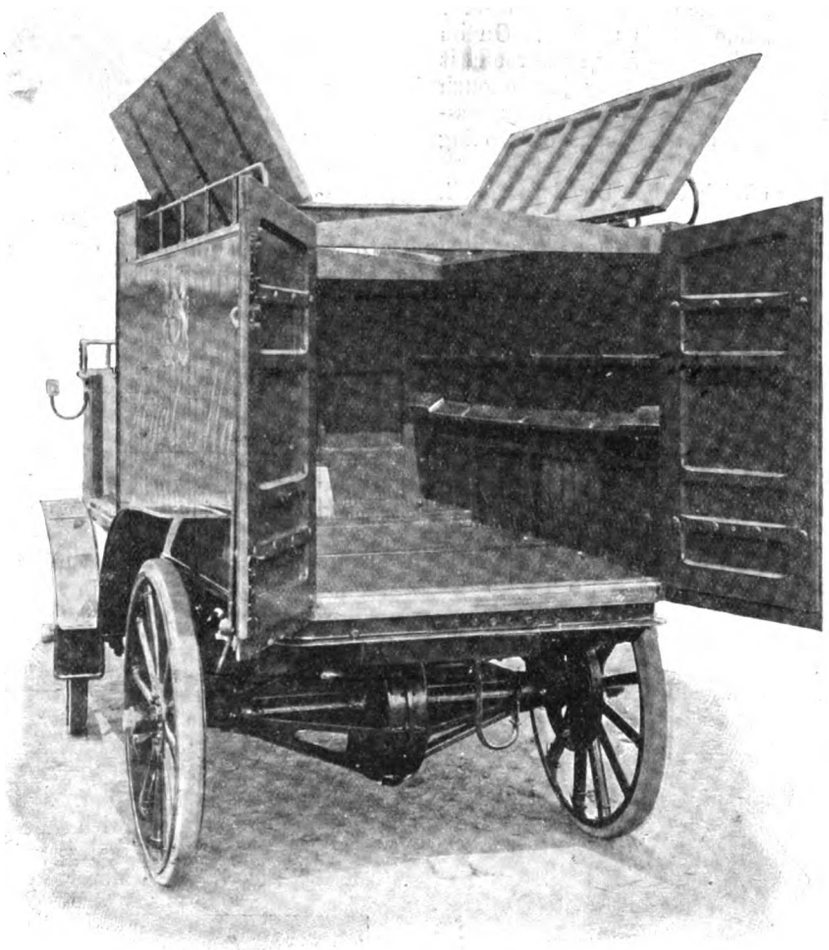
IT is possible that the Anglo-French cross-Channel motor-boat race may finish this year off Gravesend instead of off Dover.

A STOCK of Brampton's motor-car chains is now being kept by Messrs. Montague Hawnt and Company, of Clerkenwell Road, London, E.C.

THE Great Western Railway Company have commenced a motor-omnibus service between their station at Stroud and Painswick, to be run in connection with the London trains.

CAPTAIN MITCHELL-INNES, the Chief Constable of Lincolnshire, has been making a complete tour of the county on his motor-car, visiting every married constable in the rural districts.

IN the report of the Societe des Ateliers Germain, of Monceau, Belgium, for the last financial year, reference is made to the steady growth of the automobile department of the works, which during the twelve months turned out cars to a net value of £51,550, an increase of £5,100 over the preceding year.



The G.P.O. Mail Van. (See pape 968.)

THE WOLSELEY COMPANY have taken an order from the General Omnibus Company for six motor-'buses, which will commence service with them towards the end of March—about the time of opening the Motor-Car Exhibition at the Agricultural Hall, London. They are also building similar 'buses for the Great Western Railway Company and the Birmingham Motor Express Company.

A CORRESPONDENT who has run Collier tyres for fifteen months says the cost of running works out at, approximately, a farthing per tyre per mile. These tyres are of the large size, 36 in. by 4¾ in. by 5¼ in., and the car a 20-h.p.

ARRANGEMENTS have been made so that the members of the Ladies' Automobile Club can now have the same facilities for taking their cars abroad as have the members of the Automobile Club. The club triptyques will obviate the necessity of a wait at the French Customs.

MESSRS. JARROTT AND LETTS, LTD., are now fitting all the Oldsmobile cars with Continental detachable tyres.

MR. W. ACTON is the manager of the Motor Makers and Garage, Ltd., which has been established in the High Street, Epsom.

DR. PARKE, of Newtownards, Ireland, is one of the latest recruits to the ranks of motorists, he having just acquired an 8-h.p. Wolseley car.

MESSRS. J. KEELE AND COMPANY, 15, Priestwood Mansions, Highgate, N., have been appointed sole agents for London and South-East of England for the Spyker cars.

DR. W. R. ORMANDY, of Warrington, will give a lecture before the Western Section of the Scottish Automobile Club on Monday, the 23rd instant, on "Motor Fuels," with special reference to those of home and colonial manufacture.

THE municipal authorities of St. Louis, U.S.A., have voted a sum of £400 for the purchase of an automobile for the use of the chief of its fire department.

WE hear that a petrol motor on novel lines is about to be brought out by Mr. A. Burgess, of Saltley, Birmingham. The engine, which runs on ball bearings, is provided with a special form of carburettor and contact breaker, and among the claims made for the new motor are that it is extremely light and much less complicated than the usual type.

MR. J. D. BISHOP, motor-car agent, of Albert Street, Barrow-in-Furness, has sent us a sample tin of "Auto-Grindene," a preparation designed to do away with the trouble and inconvenience hitherto associated with valve grinding. A tin can easily be carried in the tool-box and is always ready for use, being invaluable when a valve has to be replaced on the road. It is supplied in two sizes—for motor-cycles and cars—that for the latter being in tube form.

THE WILTON COX DEVICE COMPANY are placing a detachable non-skid on the market. It has already been run 1,000 miles on a motor-car, and will be run a second thousand miles before the opening of the Birmingham Motor Show, where it will be on view. This non-skid is made in sections, any of which can be easily repaired and replaced when necessary. Instead of the tyre having the whole weight of the non-skid to carry, this is carried by the wheel, so that it practically supports the tyre. The studs are made of malleable iron and in two sizes—the larger one has a rounded top, so cast that it presents four corners to the road; the smaller one is so cast that it presents one point to the road, having the same effect as a horse when roughed for frosty weather. The whole of them are hand-riveted, and do not in any way come in contact with the tyre, as an extra pad of hide is placed at the back.

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THE first automobile ever seen in Bogota, Colombia, made its appearance upon the streets of that city in October last, and created great excitement.

TYRE troubles were the principal cause of difficulties in the Delhi-Bombay reliability trial. The Thornycroft car, for instance, lost no marks except for tyre troubles, causing it to be unplaced in the list of awards.

A USEFUL little adapter for use in connection with acetylene lamps has been brought out by Mr. F. G. Milne, of Bensham Lane, West Croydon. It is intended for use in clearing out a choked burner, and, as will be seen from the illustration, consists of a little brass fitting which may be screwed on to the end of an ordinary tyre pump and to the burner, a stroke or two being sufficient to clear the obstruction.



IN a sketch at the Bedford Palace of Varieties, a 10-h.p. Peugeot car, supplied by Friswell, Limited, is utilised. On its exit from the stage, owing to there being so very little room, it has to climb a gradient of 1 in 4, and there is only just enough space to allow it to get through the wings; however, it successfully accomplishes the business, and is the means of evoking tremendous cheers.

AT a meeting of the Hampton Wick Urban District Council, a resolution of protest was unanimously passed with reference to the Parliamentary powers granted to the London United Electric Tramways Company to construct a double line over Kingston Bridge, the Council stating that the construction of tramway lines over the bridge was impossible, owing to the narrowness of the carriage way, and asking that the laying of lines should be deferred until the bridge was widened.

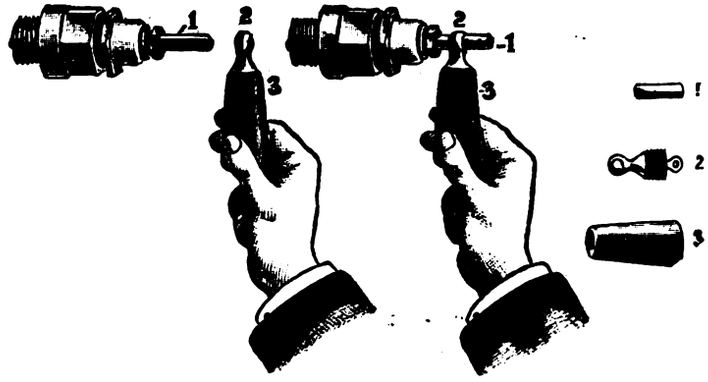
THE WESTERN MOTOR CO., LTD., has started business in Glasgow as motor-car agents. This company will handle the "Argyll" cars in Glasgow and the West of Scotland in a large showroom at 70, Buchanan Street, Glasgow. It is the intention to carry a large stock of cars and accessories suitable for all types of cars. A large staff of engineers has been secured for the execution of repairs, and by arrangement with the Hozier Co. the Western Motor Co., Ltd., will be enabled to secure the advantages of the use of their workshops and special machine plant for the repair of cars.

WE illustrate herewith an improved lubricating oil distributor lately introduced by the Coventry Motor Fittings Company.



The apparatus is arranged so that it can be fixed slightly above the dashboard, consequently the sight feeds are easily discernible, the light showing through the glasses. In conjunction with the lubricator a cylindrical oil tank arranged for pressure feed is supplied and is manufactured in two sizes to take approximately a half and one gallon of lubricating oil respectively.

A NEW sparking plug attachment and ignition testing device is one of the latest novelties to be introduced by Messrs. A. W. Gamage, Ltd. The device is built up of three parts:—(1) a small brass piece, which screws on to the outer end of the sparking plug; (2) another brass fitting, to one end of which the high-tension wire is attached, the other end



being in the form of a spring eye; and thirdly, an ebonite piece which screws on to the brass piece 2, so acting as a shield to the wire connection. Referring to the illustration it will be seen that to attach the wire to the plug it is only necessary to push the spring eye over the brass piece on the end of the plug. To test the ignition the spring eye piece can by means of the ebonite shield easily be pulled off and held a short distance away from the end of the plug. The device is made to suit a wide range of different plugs, and enables the attachment to be made without the use of any tools.

MESSRS. PETER LEE AND SONS, of Glasgow, have been appointed wholesale agents for Scotland for the sale of "Shell" motor spirit, the importers of which, the General Petroleum Company, Limited, have erected large stores in Glasgow, where sufficient stock is held to supply motorists in Scotland.

THE value of the motor-cars and parts exported from the United States during November last is returned at £21,223, as contrasted with £21,504 in the corresponding month of 1903. For the eleven months ending with November, the shipments attained a total of £336,598, comparing with £283,896 in the first eleven months of 1903.

THE NEW ERA MANUFACTURING COMPANY are bringing out a petrol extinguisher, specially adapted to be carried on motor-boats, motor-launches, 'buses, vans, etc. The extinguishing solution is a secret process, and experiments have demonstrated the merits of the invention.

WE illustrate herewith a new combination detachable non-skid band and tyre gaiter which has lately been brought out by the Glasgow Motor Tyre Company. It consists of a substantial piece of chrome leather, backed with canvas and fitted with three rows of solid steel studs; the gaiter is provided with straps so that it may be attached to three of the spokes of the wheel, rendering it impossible for it to move. The makers claim that four of the gaiters on each wheel make a perfect non-skid. It is not necessary to deflate the tyre in order to detach the gaiter, whilst it will be readily observed that the gaiters can be used in case of a burst tyre.



FROM the Walter Scott Publishing Company, Ltd., comes a useful little volume on petroleum, by Mr. S. H. North, in which the history of petroleum, from its place in the oil-fields to its transport and storage for commercial purposes, is traced with knowledge and clearness. A slight chapter dealing with oil for motors mentions the views of Captain Longridge with regard to Russian and American oils, and also gives the result of experiments made by the Automobile Club of France with regard to the densities of spirit and the power obtained.

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CORRESPONDENCE

[*Letters to the Editor should be addressed to the offices, 27-33, Charing Cross Road, London, W.C.*]

THE USE OF THE ACCELERATOR—HAND v. FOOT CONTROL.

To the Editor of *The Motor-Car Journal.*

Sir,—We have followed this discussion with much interest. In our 1904 Motobloc cars we fitted a foot accelerator, but found that the vehicles were rendered far more handy by the addition of a hand control, which we fitted for most of our clients. In our 1905 types we are adopting hand control only; the lever is mounted on a quadrant on the steering wheel, and is arranged so that it can be regulated by the thumb without removing the hand from the wheel; certainly the hand control is capable of far finer regulation, and our experience is that the average driver has sufficient occupation for his feet in managing his clutch and brake. We have lately been experimenting with an automatic cut-out in conjunction with the clutch pedal and have now a car fitted with a very simple attachment.—Yours truly,

Montague Hawnt and Co.

TROUBLE WITH DIFFERENTIAL GEARS.

To the Editor of *The Motor-Car Journal.*

Sir,—My experience with the above may be interesting to your readers, and at the same time it will be interesting to me to know whether others have met with similar experiences. My car is a 7-h.p. Allday and Onions, to seat three, purchased last August. It has been in daily use since purchased and has travelled over 2,000 miles without any mishap until last week, when I noticed difficulty in going round corners. Instead of taking corner sharply and well, the car would not go round except with a wide curve, taking the vehicle to the opposite side of road. At first I attributed this to possibly incorrect steering, and it was not until going down a narrow lane winding very sharply in the form of several S's joined together that it was forcibly impressed upon me that the differential was out of order. The hind wheels would not take the curves, and consequently the car gracefully glided into a ditch, out of which we could only extract it by the aid of a horse. When withdrawn from its miry bed and examined, I found the car had met with no damage, not even a scratch upon the paint, and I managed to complete my journey of ten miles further.

I have had the car examined by an expert, feeling confident that the trouble was as stated, and he found that of five wheels or cogs upon which the cardan shaft works, four had lost some of their teeth, some as many as a quarter of the number and other not so many, and the pieces of steel torn off had got fixed amongst the other cogs, with the result that the driving wheels were compelled to act together and not separately. Now I would like to know if this is a common accident with differential gear. If so, it must be a very serious obstacle to its being commonly adopted; or is it possible that the stripping of the cogs was due to faulty material? The makers in their description of the car state that all gears are made from mild steel forgings, accurately cut and, with the shafts, are case-hardened and afterwards ground to gauge. Is this metal strong enough to take so much work as is entailed upon it in the working of a car of this description or ought the metal to be of a harder nature? I must say that I am delighted with my car and the work it has done, but consider 4½ months a very short time for a differential gear to wear out, considering that the car has only travelled about 2,000 miles.—Yours truly,

Constant Reader.

TOURING IN FRANCE.

To the Editor of *The Motor-Car Journal.*

Sir,—If any readers of the *Journal* propose to tour in France during the coming season, it will be well to remember that you have to pay a duty on the car—approximately £1 per cwt. This money is, of course, returned when you leave the country. The Custom-house in France will only accept the duty in French money. This is one of the few instances where English gold does not carry one. It is always well to arrange about getting the necessary permits a month or two before leaving this country. The best plan is to write to the motor-car agent in whatever port you land and get him to arrange everything for you. I did this myself, and can recommend anyone to M. Sergent, 14, Rue Victor Hugo, Boulogne, whom I found most courteous and obliging.

There are two permits necessary—one is practically a licence for the car, the other, a licence to drive the latter, being only given after an examination is passed. The official who passes the car (and in most cases examines the driver), will either come to the place of landing, or one can drive to the Prefecture.

Petrol costs double what it does in England, but I think it is of far better quality, and consequently carries one further. Petrol, by the way, is called "essence" or "moto-naphtha" in French, the French word "petrole" denoting paraffin. It is as well not to mix them up. Speaking generally, one can drive infinitely faster in France than England, but caution should always be exercised in passing through villages. If one is driving a car which does not err on the side of heaviness, care should be taken of the little ditches (the French call them "caniveaux") which cross the road. They are usually near villages. If one is travelling at any speed at all, the car will leave the ground, and an axle may easily be bent in this way.—Yours truly,

C. A. R.

OVERHEATING TROUBLES.

To the Editor of *The Motor-Car Journal.*

Sir,—Perhaps some of your readers could help me to overcome the overheating troubles I have lately experienced in my De Dion motor. The pump throws a stream of water over 10 ft., but, nevertheless, after travelling about three miles at fast speed the engine invariably stops from overheating, though the water in the tank never boils. I have tried the following unsuccessfully:—(1) Complete repairs to pump; (2) new coil and auto-trembler; (3) new piston-rings; (4) scraping the radiator; (5) new joints throughout the circulation. The mixture is perfect, and so is the pump. I begin to think that the defect must be due to "furring" of the cylinder jacket, though only a thin coating of rust is visible.—Yours truly,

J. L. L.

["J. L. L.'s" trouble from overheating is most probably due to the "furring" of the water jacket, or, failing this, a stoppage in the return pipe from the radiator to the tank. This would cause steam to generate in the head of the jacket, and so in turn cause enough pressure to prevent the pump from keeping up the water supply. We should advise our correspondent, in the first place, to take off the cylinder, remove all the plugs, and scrape away all possible sign of furring, more especially around the valve chamber. In the event of this failing, the inside of the water tank may be found "furred" or choked around the return pipe from the radiator.

BRITISH METHODS.

To the Editor of *The Motor-Car Journal.*

Sir,—I should like to give my experience of British trading methods. On December 22nd I sent the two plugs belonging to my car to the maker, a well-known manufacturer of plugs, to be put right, as compression was leaking through the mica. I asked if they would kindly rectify or replace per return, as I wanted to use car for Christmas. I did not hear anything, so wrote again on the 27th or 28th ult. No answer. I wrote again on January 2; still no answer. On January 8th I wrote again, speaking sharply of their want of business etiquette. Received on January 10th, on a post-card, an acknowledgment of my letter, and promise to see into the matter On January 11th I received a letter, but am still waiting for plugs.—Yours truly,

Arthur C. Ashby.

PRIMARY BATTERIES FOR ACCUMULATOR CHARGING.

To the Editor of *The Motor-Car Journal.*

Sir,—I was much interested to see in your issue of January 7th two letters relating to the use of Boron cells. I have lately purchased a set of four to charge my accumulators, but am not altogether satisfied. The zincs seem to waste very quickly, although I have amalgamated them with mercury. I see both your correspondents say that if this is the case use less acid in the porous pot. I am told to use one part acid to twelve of water; is this too strong? For how long should the cells remain effective after being charged; I also notice that some of the zincs are coated with a thick white-looking substance, somewhat like moistened sugar to look at. What is the cause of this? Any information would be most acceptable to—Yours truly,

Boron.

THE GRAPHITIC LUBRICATION OF PETROL MOTORS.

To the Editor of *The Motor-Car Journal.*

Sir,—I am interested in the letters from your readers in reference to the above-named subject. Not only is graphite useful for the cylinders of petrol motors, but for change speed and differential gear boxes there is nothing to equal it. It is unnecessary to wash graphite if you get a good brand such as supplied by the Auto-Lubrine Company.—Yours truly,

Old Subscriber.

To the Editor of *The Motor-Car Journal.*

Sir,—Referring to the correspondence, *i.e.*, W. D. Bowman and G. Gibson, on December 31st and January 7th, respectively, they appear to be very unfortunate in their experience with graphite. In our opinion graphite is what might be termed a perfect lubricant, if perfection in anything is possible; but, of course, it is a *sine qua non* that the graphite be entirely pure and free from grit, such as our pure air floated graphite. Prepared in this way, the graphite is in a very fine state of division, as it is only the lightest and finest particles which are collected, and consequently may be said to be free from grit.

As to the introduction of graphite into the cylinder, this is a point upon which opinions differ, and we may say that personally we find no drawback to a certain amount being blown into the crank chamber, but a decided benefit. In the gear cases and other parts it is a very decided

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advantage, but must be in moderate quantity, as there would be no sense in loading up a machine with lubricant, and expecting the best results. We are quite at one with your correspondent, Mr. Bowman, as to the use of graphite for cylinders, and also for crank bearings, but as to graphite getting burned into the porcelains, and destroying the plugs, we fail to see how this can happen, as it requires a very much greater heat than we are able to command, being at the same time an entirely inert substance, and unchangeable under heat. We have only touched on the one or two points, raised by your correspondents, as our desire is not to raise any discussion, but if possible, to prove that graphite can be had having all the properties necessary for thorough satisfactory lubrication.—Yours truly,

GLASGOW MOTOR TYRE COMPANY.

CRACKED CYLINDERS.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—I have noticed very frequent letters in your valuable paper asking for information as to repairing cracked water-jackets. It seems to be the invariable conclusion that there is no reliable means of repairing them. The sal-ammoniac method has the drawback that even if a good job is made of it there is always a quantity of rust produced inside the water-jacket. The iron patch method cannot be applied round difficult bends and corners with any fair amount of success. The best means of repairing a crack must be a mechanical one, especially if inside the head. I have come across a very reliable method of repairing cracks to either inside the head or outside. Details of this I shall be pleased to give to any reader requiring them, and giving name and address. As it is a trade secret, I am, unfortunately, not able to give them in these columns.—Yours truly,

ANOTHER SUFFERER.

THE FIAT CAR.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—Will any owner of a 24-h.p. Fiat car say if the driving mechanism has been satisfactory? I have run my car about 800 miles and have had somewhat heavy repair bills. This may be bad luck, bad driving, or inferior material. I have now reduced the speed by fitting sixteen-teeth sprockets in place of nineteen, and the car seems to run better.—Yours truly,

C. D. L.

CHANGING IGNITION.

TO THE EDITOR OF *The Motor-Car Journal*.

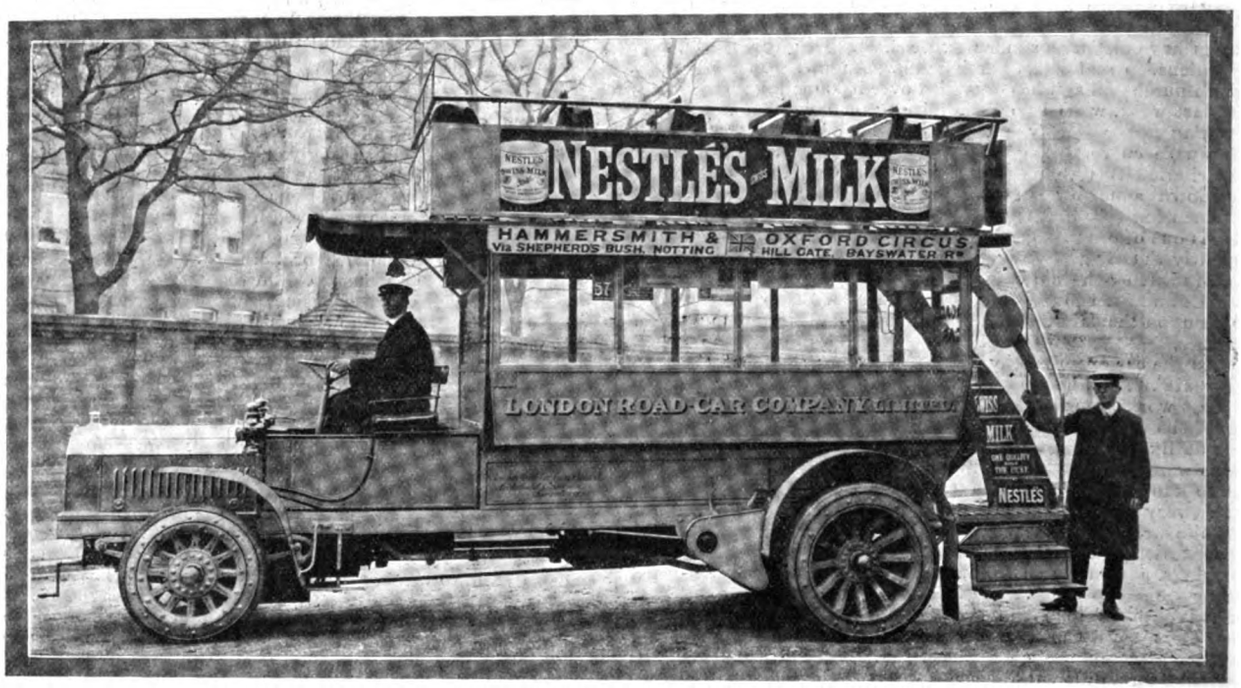
SIR,—In answer to "Free Manse's" letter in the *Journal* of the 24th ult. *re* fitting electric ignition on a Leon-Bollée tandem, I have fitted the above to mine, and find it very satisfactory. I screwed a chain ring (bicycle) on to the engine shaft about 1 in. from the flywheel. To do this I had to remove the whole of the governor collar. I do not now use the governor, as I found it rather a bother. I drive by chain to a sprocket wheel, having, of course, twice as many teeth as the chain ring. The sprocket is mounted on a shaft running in two bearings raised on uprights attached to the back of the rear seat. This arrangement allows the contact breaker to be easily inspected. The above is very cheaply put on, and works very well. I have attached a box to the back of the seat to hold the accumulator and coil. Hoping the above will be of some use.—Yours truly,

EYRETON.

BRAKE AND CLUTCH.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—It seems to be the universal practice of makers to so connect the brake pedal that when it is depressed it also withdraws the clutch. I do not think this is good practice, and when I get a car so connected I always remove the connecting-piece. The reason for this is, that if you are going down a long hill you can use your engine as the first brake with the first, second, or third speed in gear, according to steepness of the hill, and if these are not sufficient you can then apply the foot brake in addition, without withdrawing the clutch; you then have the side brakes left for severe work. By using the engine (with gas shut off) as a brake, you save the other brakes from wear and getting hot. I think this is worth consideration.



One of the New London Motor-Omnibuses.

An order for fifty-one motor-'buses of the type illustrated above has been placed by the London Road Car Co. with the Motor Car Emporium Co. The motor power is supplied by a four-cylinder 24-h.p. vertical petrol engine. Three speeds forward and a reverse are provided, the final transmission to the rear road wheels being by side chains. A double system of high tension ignition is fitted, the commutator and plugs being in duplicate. An automatic carburettor and a variable lift and timing of the inlet valve opening are special features, by means of which an extremely flexible engine is obtained.

I find that strips of copper riveted to the steel brake band is better than leather or fibre, as it does not burn, and seems to get a good grip, so much so that I use a little oil to take off the fierceness and save the wear. I have a strong prejudice against the internal expanding brake. The out-side band brake divided in two halves, double acting, large diameter drums, with a wide face, is in my judgment much the best for the following reasons. First everything is outside, can be seen, is get-at-able, more easily adjusted, will lock the wheels if necessary, cheaper to make and renew, can be examined without having to pull wheels off the axles, can be protected from mud by use of leather covering pieces being fitted over the drums. Fashion seems to have set in favour of internal brakes, but fashion is not always best in these matters.—Yours truly,

J. COOP.

SPARKING TROUBLES.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—Referring to the enquiry under the above heading in the last issue of the *Journal*, your correspondent does not state whether the wipe is the one supplied with his car nor the type of the latter. Most probably the cause of the trouble is that the return or earth through the half speed shaft is not efficient. I have always added a separate earth wipe to all my commutators with improved efficiency.

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My present car—a 10-h.p Motobloc—was originally arranged with the earth going through the shaft; after a time the commutator, by reason of its resting on the half-speed shaft, wore badly and the engine started to misfire, so I designed a bracket to encircle the shaft, on which bracket the commutator rocks with a separate earth wipe. This made things perfect, for I have not had a misfire since on this class of wipe. You must not put too much oil—there ought to be only a moisture. The commutator is a Bassé-Michel. I shall be pleased to show my cars and to advise your correspondent what to do with his if he will let me know its make and the type of commutator.—Yours truly,

LEONARD BAYNES.

TO THE EDITOR OF *The Motor-Car Journal.*

SIR,—"County Motorist's" trouble, referred to in the last issue of the *Journal*, may in all probability be due to other causes than the contact breaker; a faulty coil, or even a bad earth, would cause this. Before fitting a new contact breaker, I would advise taking the existing one off, thoroughly cleaning, and again trying it, making sure that the initial contact in the commutator is in good circuit with the cam shaft. If the trouble still continues and a new contact be decided upon, I would recommend a roller contact of the Lacoste type. I have had this form running daily on a car for the past seven months, and can thoroughly recommend same.—Yours truly,

H. J.

PRIMARY CHARGING BATTERIES.

TO THE EDITOR OF *The Motor-Car Journal.*

SIR,—Would any of your readers give us their experience in the use of the Boron battery? We bought a set of twelve cells and followed out the instructions sent, but up to the present they have been a failure. If we place more than one forty ampere-hour accumulator on them at one time we cannot get over three volts, and unless we fill up with fresh acid we cannot get that; the result is that it costs us about 2s. 4d. per accumulator. We have hitherto charged accumulators from a plating dynamo, but thought the above would be splendid to charge at night. We have managed to charge eight accumulators in nine weeks. We read a letter from one of your correspondents a few weeks ago asking for similar information, but have not seen any replies.—Yours truly,

THE SOUTH-WESTERN MOTOR COMPANY.

SEE TO THE BRAKES.

TO THE EDITOR OF *The Motor-Car Journal.*

SIR,—I notice in your issue of the 7th inst. a letter by Mr. J. Thompson recommending the use of Plaxine for the brakes. I have often thought of giving it a trial, but, having a vague idea that it would be detrimental to the leather or ironwork, I have been deterred from using it. May I ask if Mr. Thompson's friends have given Plaxine an extended trial, *i.e.*, long enough to ascertain what effect it has on the ironwork and leather of the brakes? I may mention that I find that my hand brake works satisfactorily, when properly adjusted, merely by the application of castor oil now and again. It is the foot-brake that gives trouble owing to oil splashing on the drum.—Yours truly,

CONQUEROR.

CHAINS FOR TRI-CARS.

TO THE EDITOR OF *The Motor-Car Journal.*

SIR,—In connection with the rapid development of the three-wheel motor-vehicle, which has become to be known as a tri-car, the majority of which are chain driven, there is one point which does not seem to have had the thought bestowed on it that it certainly needs, viz., the size of chain fitted. Almost invariably the same size of chain is used for the second drive as for the first. Since the second motion chain runs at a considerably reduced speed as compared with the first, the pull upon it is greater, and consequently a stronger chain should be used. So far this point appears to have been overlooked by most designers of this increasingly popular type of machine.—Yours truly,

W. K STELFOX.

HEADLIGHT TRIALS.

TO THE EDITOR OF *The Motor-Car Journal.*

SIR,—In a recent issue you suggested a trial for motor head lights. I have lately had a "Sampson" head light fitted to my car, which I think fulfils all the requirements of such a light, being brilliant, but with such a *concentrated* beam that no inconvenience is caused to other users of the road. I am sure if a trial could be arranged and Messrs. G. Polkey and Company would compete, the trial would be of real value,—Yours truly,

FRED H. MABERLY.

SIX VOLTS FOR IGNITION.

TO THE EDITOR OF *The Motor-Car Journal.*

SIR,—Regarding the recent letters on the subject of six volts for ignition, I may state that I have used a six-volt current through the coil of my four-cylinder Gladiator for the past eighteen months. My coil, of course, was built for four volts, and what led me first to try six volts was the fact that shortly after getting the car I detected a slight miss-fire when the engine was running at a high speed. This I attributed to either the tremblers being not quite fast enough, or to slight uneven wear taking place in the wipe-pattern contact breaker. At any rate, I changed over to six volts, and I can only say that the use of the higher pressure current has with me been a great success. I never have a miss-fire, presuming, of course, that everything is in its proper order, and the power or "life" of my engine has been increased to quite a remarkable extent. I am a strong advocate of six volts for the primary circuit of *four volt* ignition coils, presuming the coils are properly made and by some good maker, and I feel sure that your correspondent, W. F. Rhodes, could improve his running by adopting the higher voltage, and without the slightest danger of injuring his coil, trembler, or any other parts of his ignition system.—Yours truly,

W. P. BURKE.

A COUPLE OF QUERIES.

TO THE EDITOR OF *The Motor-Car Journal.*

SIR,—I should not like to be so dogmatic as to give a definite reply to your correspondent "E. D. Fawcett's" query as to the best single-cylinder car, but I fancy my experience with a model B. Cadillac may interest him and possibly other readers of your valuable *Journal*. I purchased this car last August and have run it nearly 4,000 miles since then. It has given me practically no trouble whatever. I have only had one road stop, and that owing to no fault of the car but through too thick oil being put in the lubricator. I have yet to meet the hill it will not climb. I have had it in Wales and other hilly districts. I took the long, and, in parts, extremely steep Birdlip Hill (Gloucester) in fine style, passing a 16-h.p. four-cylinder car, the driver of which had to get out and run by the side of the car, the engines stopping twice on the hill. I have driven three miles in less than six minutes. The car is simplicity itself, and it is almost impossible to damage it by careless driving; it is practically noiseless and has been taken for a steam-car on several occasions. My longest run was one of 105 miles in 5¼ hours (including Birdlip Hill).

I may say that you can drive on top speed from four to thirty-two miles an hour and it will take hills on low speed at about eight. It is running to-day as well as ever. I have no interest in the sale of these cars, but I am so well satisfied by its performance that it is a pleasure to testify in its favour.—Yours truly,

F. C. H.

HEAVY MOTOR-CAR ORDER, 1904.

TO THE EDITOR OF *The Motor-Car Journal.*

SIR,—I should be obliged if any reader of the *Journal* will explain part of Article 6, dealing with strips or strokes on the wheels, which says "Provided" if the tyre is constructed of separate plates, these plates or strips may be separated by parallel spaces, etc., the space between each stroke plate I understand is to be ⅛ inch of the width of the tyre; that I interpret for a tyre 8 inches wide you could have one inch spaces, but it does not say what width the strokes may be, or yet what thickness they will be allowed. This latter part I shall be glad of information upon.—Yours truly,

T. C. MOLESWORTH.

TRI-CARS.

TO THE EDITOR OF *The Motor-Car Journal.*

SIR,—Thinking of buying a good tri-car, and having had no experience of that class of vehicle, I should be greatly obliged to any users of these who would favour me through your columns with their experience and with any information that would assist me in avoiding the mistakes to which beginners are liable. I propose, if I buy one, getting a good powered machine with free engine, as I am physically incapable of pedalling.

For runs say up to 100 miles a day are tri-cars generally satisfactory and easy to manage? Are they comfortable for driver and passenger, and how do they compare in this respect and cost of running and upkeep with light two-seated four-wheelers? I have heard that the vibration is excessive and that driving tyres soon wear out. Can any particular make of tyre be recommended for this class of machine? Is the water-cooled engine preferable to the air cooled? Is the licence fee the same as for four-wheelers? Are the best makes of tri-cars now generally fitted with two-speed gear? Advice on these points and information as to cost of running and repairs would be much appreciated by the writer and probably by others somewhat similarly circumstanced.—Yours truly,

BEGINNER.

DIMENSIONS OF INSPECTION PIT.—Replying to W. Lockwood, who enquires as to the dimensions of an inspection pit, we would recommend the following:—Length, 7 ft.; width, 2½ ft.; and depth about 4 ft. It should be furnished with a cover of stout boards fitting into a ledge, so that it can be closed flush with the floor when not required. If the pit is out of doors, or water is otherwise likely to penetrate, a drain should be provided. Steps at one or both ends of the pit will also be found useful not only in giving access thereto, but enabling the user to adjust himself, as it were, to any particular work.

NON-SKID BANDS.—"Norwich" writes:—"I would be glad if some of your many readers who have used the "De Fornier" leather detachable non-skid device could give their experience and opinion of same."

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THE FIRST YEAR'S WORKING OF THE MOTOR-CAR ACT.*

By A. Moresby White.

The object of the Motor Car Act, 1903, was to remove existing restrictions upon the use of light locomotives on highways and to facilitate the better identification of any offending motor-car. The right to use a motor-car on the highway is not a common law right, but depends upon a statutory privilege enabling light locomotives to be used on the highway. It is important to notice that the motor-car is a carriage within the meaning of the Highway Act or any other Act of Parliament, and therefore under existing highway law a motor-car being a carriage has as much right to the use of the highway as any other vehicle. Under the Act of 1903 there are still considerable restrictions on the use of motor-cars; some of these are of a highly penal nature. The rule of law is that all penal statutes, such as the Motor Act, 1903, must be strictly construed and always in favour of the person exposed to the penalty. In considering the effect of a year's working of the Act it may be useful to take particular instances from its various sections and show how these have been enforced by the magistrates.

The object of Section 1 is to prevent reckless driving and as a necessary result to protect the public from danger. It contains four separate misdemeanours.

1. Driving *recklessly*.
2. Driving *negligently*.
3. Driving at a *speed* which is dangerous to the public, having regard to all the circumstances of the case, including the nature, condition, and use of the highway, and to the amount of traffic which actually is at the time or which might reasonably be expected to be on the highway.
4. Driving in a *manner* which is dangerous to the public, having regard to all the circumstances of the case, including the nature, condition, and use of the highway, and to the amount of traffic which actually is at the time or which might reasonably be expected to be on the highway.

Each of these four offences is termed an offence under the Act, the penalty being a fine up to £20, and also endorsement of the licence of the driver. The licence *must* be endorsed for any offence under Section 1, and there is no power in the Court to dispense with the necessity of endorsing the licence.

For a second offence under Section 1 the driver may be sent to prison for a period not exceeding three months.

The appeal against any conviction where the fine is over 20s. or where imprisonment is ordered lies to the quarter sessions of the county or borough, as the case may be. The value of this right of appeal is more apparent than real, for the magistrates at quarter sessions as a rule support the views taken by their brother magistrates at petty sessions. When the fine is one of 20s. or under 20s. there is no right of appeal. It sometimes happens that the Court will regard the offence as a trifling one, deserving merely a small fine, *e.g.*, 5s. and costs. This is cruel kindness, because the licence is endorsed and there is no appeal. In such cases, if it is at all likely that an appeal may be desirable, the defendant should at once ask the magistrates to alter the fine to 21s.

The proper course in such trifling cases for the Bench to pursue is to dismiss the information without proceeding to conviction, and if necessary to order the defendant to pay a reasonable sum to cover costs. Express power is given to this effect by the Summary Jurisdiction Acts, but it is rarely used.

The four offences in the first part of Section 1 being different, it follows that a summons which charges the defendant with more than one of them is bad and must be amended. The defendant can force the police to elect on which charge they will proceed at the hearing before the justices. If the conviction is drawn up to include more than one offence it is bad, and will be quashed upon *certiorari*, as was done in Rex *v.* Wells, where the motorist was convicted for driving at a speed *or* in a manner which was dangerous to the public.

An important point in the rules of evidence is that in trying to prove one criminal offence you are not entitled to adduce evidence of another criminal offence; therefore on a charge of driving in a *manner* dangerous to the public, evidence of the motorist going at a dangerous rate of *speed* is, strictly speaking, inadmissible. Again, if the summons is for driving at a *speed* which is dangerous to the public, evidence that the car zigzagged about the road ought not to be admitted.

It is highly important to notice that the real gist of Section 1 is danger to the public. In every charge made there ought to be affirmative evidence of public danger. A car may go at eighteen miles an hour without incurring any punishment, mere speed under twenty miles an hour is no offence; even if twenty miles an hour is exceeded the penalty does not entail endorsement of the licence. It has been contended that the exception in Section 4 of an offence "consisting solely of exceeding any limit of *speed* fixed under this Act" applies to the offence under Section 1 of driving at a *speed* dangerous to the public, and that therefore for this offence the penalty of endorsement of the licence is not incurred. I have argued this point in the High Court, but the answer of the Lord Chief Justice practically enforced the necessity of recognising that danger to the public, not mere speed, was the object of Section 1. The *manner* of driving may be dangerous to the public wholly irrespective of the pace at which the motor-car is moving.

Strict proof of public danger must be insisted upon in every case. Be it carefully observed for any offence under this section an Englishman may be sent to prison without having any right to trial by jury. It is most important, where the cherished birthright of an Englishman is taken away and his liberty placed absolutely at the mercy of any two magistrates sitting in petty sessions, that so penal a law should be strictly interpreted by the Bench. Unfortunately, there are countries where an appeal from petty sessions to quarter sessions upon a question of public danger—indeed, on any point affecting motorists—would be futile.

The words in Section 1, "nature, condition, and use of the highway," are sufficiently clear; "use" refers to the *quality* of the traffic as distinguished from the *quantity* of the traffic.

The phrase "the amount of traffic which might reasonably be expected on the highway" presents a very serious question. Magistrates frequently read this as enabling them to assume that when a motor-car is running at twelve miles an hour on the open road there might be a large crowd of people going to the village feast, or a number of children might be going in or out of school; therefore as persons might be there, they think they are entitled to hold that the public have been endangered by the motor-car. A car going six miles an hour, hypothetically speaking, *might* run into a village party or a band of school children; therefore a conviction *must* follow. But this hypothesis is quite untenable. The best evidence of the traffic which might reasonably be expected to be on the road is found in proving what traffic was actually there at the time in question and at the place in question. Every criminal offence is, broadly speaking, local in place and definite in time; in motor-car offences, the exact time and place are most important considerations which the magistrates frequently ignore. To suggest that at some other time of the day at the place in question there *might* be a quantity of traffic cannot be evidence of public danger. If the traffic had been there when the car passed, then the driving of the car might have been different. The truth is, convictions are arrived at on the assumption that the motorist will pursue the same conduct in any state of facts, whatever they may be.

The magistrates have used Section 1 as an instrument to reduce the speed of motor-cars. Speaking generally, they have not made application to the Local Government Board under Section 9 of the Act to limit the speed to ten miles an hour in their area, nor have they applied under Section 8 to enforce restrictions on particular roads, but they have stretched Section 1 in a manner and to a use for which it was never intended. They seldom require any proof of danger to the public; on evidence of speed being given they readily infer danger to the public, and on mere inference they convict the motorist. Thus, by means of Section 1 the speed of motor-cars is reduced to such a limit as in the opinion of the particular Bench is a fit and proper speed, a variable limit entirely dependent upon the fancies of any two county justices. This direct limitation on speed is the result of the way in which the Act is now administered, which I believe to be utterly illegal, and was never intended by the statute.

The police trap question calls for a short notice. As a rule the evidence of a policeman when timing cars is wholly unreliable, not merely as to the correct taking of the time, but as to the surrounding circumstances of the case. Unfortunately the magistrates are somewhat prone to act upon this sort of evidence, however strongly it may be denied by the motorist and rebutted by other facts. When stopped by a policeman the motorist should inquire if there is a watch, and demand to see it, taking a careful note of the position of the hands and of the watch itself. Make a written note as soon as possible of the conversation, and particularly as to the presence of traffic on the highway at the time. The wheel marks of a car left on the road surface are frequently of great value in proving where the car was. The man who, after being stopped, hurries on without taking some precautions, is foolishly throwing away his best chance of defeating the police. To give warning to anyone of a trap is no offence, it is warning a person not to break the law.

I have said that there must be strict proof of danger to the public. Mere opinion is not evidence, and the opinion of a policeman ought not to be admitted as evidence.

The offence of driving in a *manner* dangerous to the public is further elucidated by reference to Article 4 of the Regulations of the Local Government Board, which contains several directions to be observed by all drivers.

In all cases, when summoned into Court, the motorist should ask: "Have there been any complaints by the public of my driving? Do the police produce any witnesses, drivers, cyclists, or other members of the public, who say I have endangered them?"

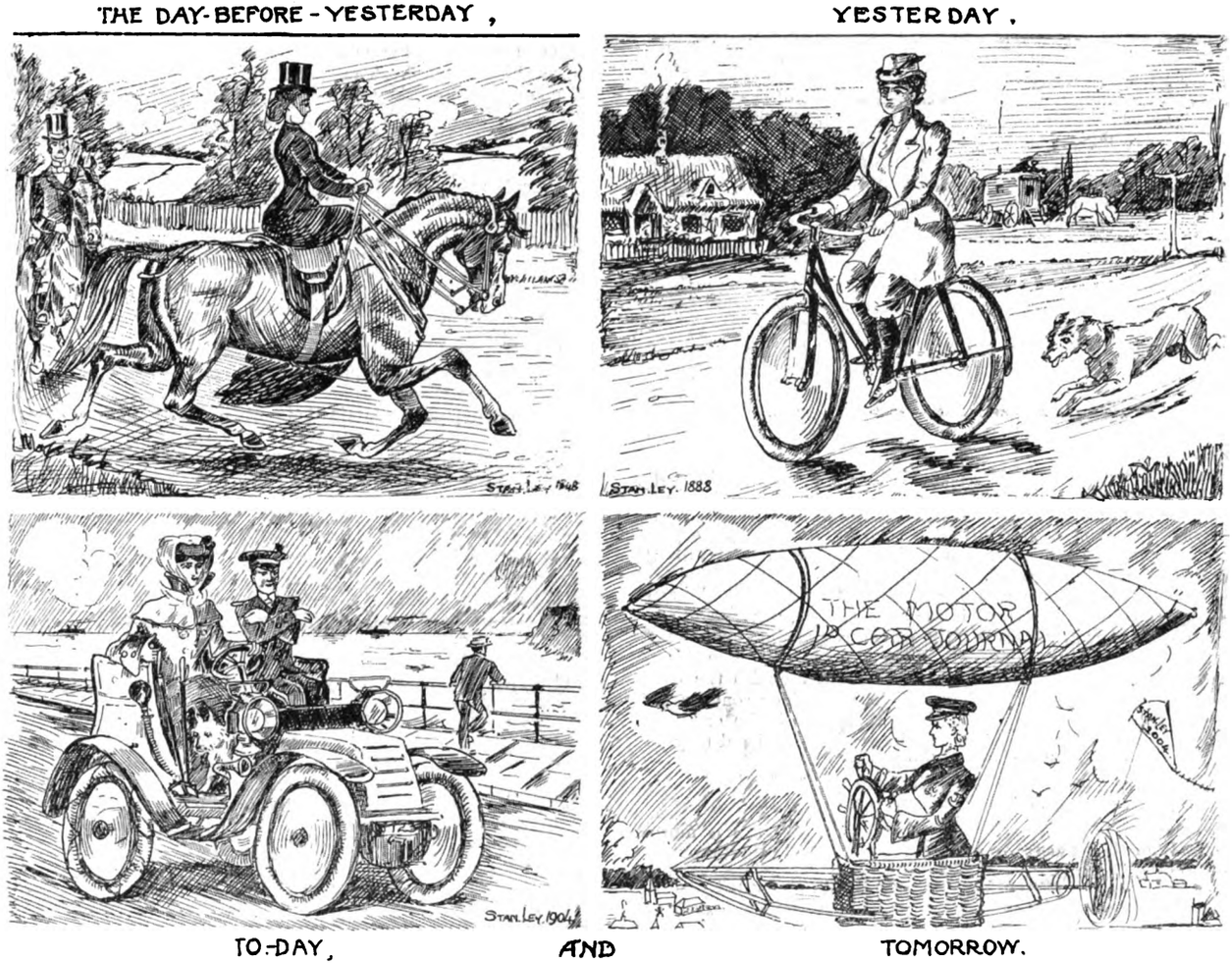
The offence of furious driving on the highway is dealt with by other statutes. In the Highway Act of 1835 there are ample provisions for restricting the speed of any carriage, which includes any motor-car. Again, in the Towns' Police Clauses Act, 1847, there are further restrictions on driving which are applicable in urban districts. Moreover, under the Metropolitan Police Act, power is given to punish the furious driving of any vehicle within the metropolitan area, which extends, roughly speaking, twenty miles round Charing Cross. But in the zealous working of the new Act these valuable provisions have been utterly ignored; it is always "a case under the new Act!"

The power of a policeman to arrest without warrant is strictly limited to cases of felony, or of breach of the peace, or where authorised by special statute, as, for instance, by Sub-section 2 of Section 1. It may be observed that the power of arrest does not justify an assault, it only

* A Paper read at a meeting of the Automobile Club on the 12th inst.

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avails against the actual driver. If a driver has not got his licence with him, then there can be no *refusal* to produce it, but the driver may be proceeded against under Section 3 for not producing his licence.

There is a new liability imposed by the Act on all owners of motor-cars entirely without precedent in the criminal law. In certain circumstances he is bound to give information which may lead to his own conviction. The plain reading of the Act is that if a car has committed an offence under Sec. 1, then the owner of such car must give any information which it is within his power to give which may lead to the identification and apprehension of the driver. It has been assumed that he is bound to give this information to the police, but the Act does not say so, nor does it say who has a right to ask for such information. An attempt is being made to extend this liability of the owner to the case of a car exceeding the legal limit of twenty miles, and the point will shortly be brought before the Court for decision. The owner's liability is on the face of the section restricted to those cases where the driver has refused to give his name or address, or has given a false name and address, and there is every reason for contending that it is only in such cases, where there has been a deliberate attempt by the guilty person to deceive the police, this serious liability should be thrown upon the owner of the car. On the other hand, it is said if a driver travels at excessive speed for many miles, refusing to stop, there is no method of catching him, it being almost always impossible to identify him. In such a case, it is argued, the car has offended under Sec. 1, and although the driver has not refused his name or address, yet the owner must give information to the police, otherwise the more guilty the man the more chance he would have to escape. But the truth is this case is not provided for by the Act; to cover such flagrant cases the section has been extended by the Courts in a most unwarrantable manner.

No test of skill in driving is required by the Act. Before a licence is issued to a driver there seems to be no reason why some examination should not be imposed upon the applicant.

The endorsement of the licence is the principal penalty provided by the statute, and it *must* follow on any conviction in connection with the driving of a motor-car. It is not limited to convictions under the 1903 Act; it is wholly immaterial under what Act or regulation the driver is convicted, his licence must be endorsed. To this sweeping rule there is an exception—the first offence and the second offence of exceeding the speed limit of twenty miles per hour. Any "offence under the Act" entails endorsement of the licence, and it is open to argument that the mere non-production of his licence by the driver owing to his inadvertently having left it behind him must entail the serious penalty of endorsement of the licence.

For the purpose of endorsement the licence must be produced within a reasonable time, but the motorist is not bound to produce it in court immediately on his conviction. Indeed, he is not bound to have it with him in court. The only time the licence *must* be produced is when the holder is actually driving a motor-car. It is a common practice in motor-car cases for the police to get the licence from the accused directly his case is called, and hand it up to the Bench for their inspection; should there be any existing endorsement upon it, the chances of that motorist escaping conviction are very small. This practice is quite illegal, and every motorist should resist any application of this sort made to him. He is under no obligation to produce his licence until a reasonable time after his conviction, which would probably be seven days, the period allowed for giving notice of appeal.

The regulations as to marks, particularly manufacturers' marks, stand in need of revision. The general identification mark ought to be extended in its use; the present restrictions upon it are so narrowly construed by the magistrates that the dealer finds himself severely hampered in his business. Indeed, unless he is very careful he is exposed to a charge of fraudulently using identification marks under Section 5 of the Act, a charge only to be brought on the strongest evidence of dishonesty or forgery. Nevertheless, the Inland Revenue authorities have recklessly brought such charges against dealers, putting them to great inconvenience and expense in defending themselves. The meaning of "trial after completion" is in each case a question of fact, whether completion has happened; there may be several such trials. "Trial by an intending purchaser" does not justify the hiring or loan of a car with a general identification mark.

The Local Government Board have power to restrict in any way or prohibit entirely the driving of cars on any road where motor traffic would be especially dangerous. This has only been exercised in England, at Beverley, while no instance exists in England of an area with a ten-mile limit, although numerous applications have been made to put this limit in force. It is a pity some of these anxious local authorities have not utilised their own powers under the Act to erect sign-posts at dangerous

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places on the highway, which would be of real value to *all* travellers. This valuable power is wholly neglected.

Exceeding the legal limit of 20 miles per hour is an offence not so frequently charged as an offence under Sec. 1. There must be in evidence something more than the opinion of one witness, not merely a watch held by him, but independent coroborative testimony. The driver must be warned of the intended prosecution at the time, or notice of the intended prosecution must be sent to him or the owner of the car; in either case it gives him a chance of getting witnesses on his behalf. If a policeman says, "I shall report you," it is hardly telling a man that a prosecution is intended; in such a case, if a written notice has not been given, it seems that the driver cannot be convicted under Sec. 9.

All motor-car offences may be dealt with by the summary jurisdiction of the magistrates, and from their decision there is no appeal on the facts unless a fine of over 20s. is inflicted. Then the appeal is to quarter sessions, where the prejudice against motorists is frequently a serious matter. If an appeal is intended, the proper notice must be given within seven days of the conviction. This is a most important point; the person aggrieved must make his decision quickly, and serve his notice within seven days. Other remedies only apply to matters of law. Where a conviction is bad on the face of it, and in some other instances, it may be quashed by a writ of *certiorari* from the High Court, a procedure which has already been used successfully. It is a valuable protection to motorists, though little known at present.

The magistrates may state a case, on a point of law, for the opinion of the High Court, but this remedy is of little use, as it is very easy for the magistrates to so word the case that the appellant has no chance of success. A fourth course open is to apply to the High Court for a writ of mandamus, ordering the magistrates to hear and determine according to law, which is of no practical value.

The Heavy Motor-Car Order was issued after this paper had been written, but a word on one aspect of it may be useful. Extraordinary traffic is not prohibited by any statute; the person responsible for it must pay for any damage thereby occasioned. Excessive weight is one thing, and may damage a road; traffic is another thing, and includes the continuous or repeated use of a road by various vehicles belonging to one owner, quite apart from the load carried. The thing to regard is the ordinary traffic of the particular road in question. Claims under this head may be brought in the County Court if not exceeding £250.

Has the public mind been satisfied by the 1903 Act? Probably not. The nuisances of dust, of noise, of smell, all survive. For each of these the motorist is liable at common law if it is clearly brought home to him individually. The main objection in the public mind to the motorist is speed, not the fallacious test of speed in miles per hour, but improper speed at any special place. The highway is still regarded as the legitimate playground of children, dogs and fowls. Any speed which threatens this ancient vested interest is obviously to the public mind dangerous. Therefore it is that Sec. 1 of the Act has been relentlessly enforced, backed up by more false swearing than any other Act ever evoked, until the experienced motorist has painfully realised that his statements are scarcely ever believed in a court of summary jurisdiction.

The main object of the Act has been achieved; cars can be easily identified, and, in most cases, the drivers also, this without serious friction. So far as the public safety is secured, but the apprehension of danger remains. Deep rooted in the public mind is this fear of the speedy vehicle on the public road. Until by gradual education this is removed the motorist must expect to suffer the usual fate of a minority.

CLUBS AND ASSOCIATIONS.

THE SOUTHERN CLUB.

The headquarters of the Southern Motor Club are being removed to the Canterbury Hotel, Brixton.

A club evening will be held as usual every Thursday and a smoking concert and lantern lecture will be held on Thursday next, the opening night of the new rooms. Members, friends, and non-members are equally cordially invited to attend.

CLAIMS AGAINST MOTORISTS.

At the Ripon County Court, Ambrose Morrell, of Burton Leonard, near Ripon, farmer, sued H. Johnson and Co., Ltd., Montpellier Parade, Harrogate, for £35 damages caused to plaintiff's mare and cart by reason of the negligent driving of a motor-car by a servant of the company on December 2nd, 1904. The jury were unable to agree on the question of negligence, and were discharged.

At Dublin, the case of M'Niel v. Glendinning has been concluded in Nisi Prius Court. It was an action to recover damages laid at £500 by the plaintiffs, Henry M'Neill, Limited, who own a posting establishment, and carry on a tourist trade at Larne, Co. Antrim, from the defendant, Robert G. Glendinning, of Belfast, for damage to a motor-car caused by the alleged negligence of defendant in driving his own motor-car on August 19th. It appeared from the evidence that the plaintiffs' tourist motor-car was proceeding with passengers along the sea road between Carnlough and Larne, and when about a quarter of a mile from Carnlough a motor-car driven by the defendant came up behind and a collision occurred, the car of the plaintiffs being forced up against the side of the road and wrecked, while the passengers were flung out and more or less injured. The jury found that the defendant had been guilty of negligence, and they awarded the plaintiffs £100 damages.

CASE DISMISSED.

At the Guildford Borough Police Court, Mr. John Dennis, Guildford, appeared in answer to an adjourned summons for having driven a motor-car in High Street, Guildford, without exhibiting an identification mark thereon, on December 11th.—P.C. Biles said on Sunday, December 11th, about 12.30 p.m., he saw the car go in the direction of London Road without any identification mark. At 1.40 p.m. the car returned, and witness stopped defendant and asked him where the number of his car was. He said it was not on the car and that he had lost it on the road. Witness then said he had no number when he left the town, and defendant replied that he had only just had the car delivered to him, and that no number was required.

Defendant cross-examined the constable at some length, and elicited the fact that he had been in the police force two months and was ignorant of the provisions of the Motor Car Act of 1903. Witness said he did not think that from appearance and finish the car had just come out of the works. Witness made no reply when Mr. Dennis suggested that it was rather curious that he as a motor-car manufacturer should have a car delivered to him, and admitted that the statement about the identification mark having fallen on the road was made immediately after his (the constable's) question. Gordon Wise, chauffeur to Mr. Naumann, of Redhurst, near Cranleigh, said on December 9th he called on defendant with instructions from his employer to hurry on with the delivery of the car. It was overdue on that date. Arrangements were then made that the car should be delivered either Saturday night or Sunday. Defendant said the car was a new one, and at the time in question was the property of the purchaser, it having been paid for a few days previously. He pointed out that under the Motor Act proper time had to be allowed for the owner of a car to get it registered, and he submitted that in this case he had not had reasonable time.—The case was dismissed, but the Mayor said the constable had done quite rightly in bringing the case forward. The members of the force could not be expected to know all the provisions of the Act.

CASES AGAINST MOTORISTS.

Place.	Summoned for	Fine.
Haywards Heath....	Several cases of driving beyond legal limit	Fines between £5 and £10.
Dumfries	Failing to stop at the request of the driver of a horse-drawn vehicle	£5.
Bournemouth	Driving dangerously	£7 10s.
S.W. London	Driving to common danger	Dismissed.
Lewes	No rear light	£1.
Lambeth	Failing to produce licence	10s., etc.
Buckingham.....	Furious driving	£5, etc.

TO CORRESPONDENTS.

All communications intended for insertion in this Journal or relating to Editorial matters should be addressed to The Editorial Department, Motor-Car Journal, 27-33, *Charing Cross Road, London, W.C., and must be written on one side of the paper only. Letters must in all cases be accompanied by the name and address of the writer, as no notice will be taken of anonymous communications.*

The Editors cannot undertake to return MSS. or drawings, although every effort will be made to do so in the case of rejected communications. Where such are regarded as of value, correspondents are requested to retain copies.

To insure insertion communications and contributions must be in the Editor's hands by Tuesday forenoon of the week in which the same are intended to appear. Disappointment may be caused by non-compliance with this rule, and to avoid this earlier receipt, if possible, is necessary.

The Editors do not hold themselves responsible for the opinions expressed by their correspondents, or for statements and facts which do not appear in the editorial columns.

The Editors and Publishers beg also to state that they will accept no responsibility for unsolicited contributions, even if used, unless payment for same is directly specified in forwarding, and the terms arranged before publication.

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THE

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COMMENTS.



THE police on the Brighton road have commenced the year in characteristic fashion, and a trap for motorists at Slaugham has produced a nice little crop of motorists for taxation by the Bench at Haywards Heath. Over a measured furlong an electrical timing apparatus was employed, the policeman in charge discreetly superintending operations from "over the hedge"—to quote his own account of his location. During the course of the discussion at the A.C.G.B.I. recently it was mentioned that many other traps arranged by local superintendents have been made on the suggestion of one or two local residents, and that their existence is unknown to the Chief Constables of the counties. Letters written to the latter officials have brought disapproval and warning to the minor authorities, and such a practice was recommended wherever traps become an intolerable nuisance. The idea is worth bearing in mind, especially by provincial clubs whose members fall victims to such methods.

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King's Car in a Collision.

IT has only just transpired (says a correspondent) that, as the King's two motor-cars were returning to Sandringham from Chatsworth, after the Royal visit to the Duke and Duchess of Devonshire, an accident occurred to one of them while it was running between the villages of Glaston and Morcott, in Rutland. It appears that a horse attached to a trap belonging to the Hon. P. C. Evans Freke, J.P., crossed the road immediately in front of one of the cars, and, the chauffeur being quite unable to pull up, a collision occurred. The trap was damaged—one wheel being smashed—and the coachman was thrown out, but, happily, escaped serious injury. The King's car received no damage, and after some delay the automobiles proceeded on their journey.

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Ten Mile Limit Wanted at Guildford.

AT a recent meeting of the Town Council of Guildford a resolution was adopted calling upon the Highways Committee to report as to the desirability of application being made to the Local Government Board to fix a reduced speed limit on automobiles passing through the borough. The Highways Committee considered the matter, and, having looked at it in all its bearings, decided that they could not recommend an application for such an order. Instead they urged the Watch Committee to give greater attention to the speed of all vehicles passing through the town, with a view to preventing danger to the public. When the Council discussed the view of the Highways Committee, several members of that body became picturesque in their language, and the ex-mayor, in supporting an amendment to the proposal, declared that by asking for the restriction the Council would be doing its duty, "and responsibility—and I may almost say blood-guiltiness—would not rest upon us." Eventually, by twelve votes to ten, it was agreed that the Town Clerk should take the necessary steps to obtain from the Local Government Board an order restricting the speed of motor-cars in the borough to a maximum speed of ten miles an hour.

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Notes on the Paris Salon.

THERE was but a poor attendance of members at the Automobile Club on Thursday last week to hear Mr. E. H. Cozens-Hardy deliverl his paper on "Notes on the Paris Saon," an abstract of which is given elsewhere in the present issue. The lack of interest was probably due to the fact that the features of the recent show in the French capital have so thoroughly been dealt with in the *Journal* and its contemporaries; so leaving the author but little scope to bring out points of the *Salon* that have not already been dealt with. Mr. Cozens-Hardy's conclusions are, however, interesting in so far that they confirm to a large extent those we ourselves gave expression to in our issue of the 17th December last. The discussion was opened by Mr. Frederic Coleman, who remarked that the French manufacturers were apparently not devoting so much attention to the question of simplicity in design as were British makers, and also that builders in France who had hitherto been looked upon as originators in design were now picking up ideas abroad.

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Magnetic Clutches and Fixed Ignition.

AMONG the others who took part in the discussion of Mr. Cozens-Hardy's paper were Messrs. Crawley, Thompson, and O'Gorman. The latter looked with favour on the system of change-speed gears in which the pinions are continually in mesh, the requisite pair being made to drive by means of magnetic clutches. Colonel Holden, who was in the chair, and who has had considerable experience of magnetic clutches, pointed out, however, that while these were very efficient when run dry, there was a considerable loss of power when such clutches had to work in oil. Another interesting point raised by the paper was whether it is an advantage to be able to advance or retard the sparking ignition, certain makers in France having abandoned all means of varying the point of ignition. The general feeling was in favour of retaining the facility, but it is evident that the last word has not been said on the question.

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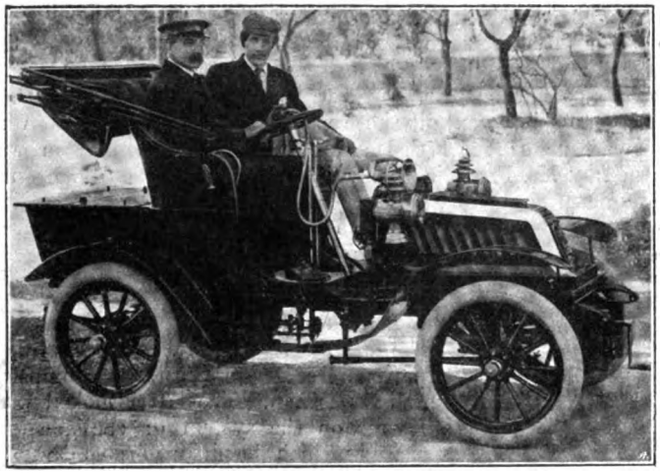
A Run on an Orleans Car.

ON Saturday last we had an enjoyable run on one of the 1905 models of the 15-h.p. Orleans cars, for which Messrs. C. S. Rolls and Co. are now sole London agents. Mr. Claude Johnson was at the wheel, and, starting from the new offices of the *Journal*, we wended our way amidst the busy traffic of Pall Mall and through the parks to Hammersmith, Barnes Common, and Richmond Park, in order to put the car through its paces up the rough stretch which has become known as the "Test Hill." This has a length of 354 yards, and, although it

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includes a gradient of 1 in 7·8, the car made the ascent in 36½ seconds, which works out at a speed of 19·6 miles per hour. With so satisfactory a result on the hill we were anxious to taste the speed qualities of the car, so the run was continued along the Portsmouth road as far as Wisley, our desires being fully realised as we speeded along the Fair-mile. The homeward trip was equally successful, the run throughout being of a non-stop character. Of the car itself it may be said that it is provided with a four-cylinder engine, with the usual high tension ignition and an automatic carburettor, which renders it exceedingly flexible. The rated power —15-h.p.—is developed at an engine speed of 1,000 revolutions per minute. The transmission is through a leather-faced clutch of special design, a gear-box giving three speeds forward and a reverse on one lever, a cardan shaft and bevel gear to an enclosed live axle, which drives the rear road wheels through its ends, the weight of the car being carried by the fixed casing. On the high speed the drive is direct, and as the bulk of the running is done on "top notch," the car speeds along very quietly; indeed, it was difficult at times to hear the engine, the only audible noise being the ticking of the trembler. The car has a long wheel base, enabling a roomy side-entrance body to be fitted. It is some time since we had a run on one of the Orleans cars, but the result of Saturday's experience is such that we may safely say the 1905 model will fully maintain the reputation earned by its forerunners, both as regards speed, hill-climbing capability, and reliability.

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The Delhi-Bombay Trials. Mr. F. B. Stewart's 8-h.p. De Dion.

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The Indian Trials.

Already we have published the awards in connection with the Delhi-Bombay trials. This week we are able to give some views in connection with the event, which will have considerable interest to motorists generally. Supplementary to what has previously appeared, it would appear that K. S. Ranjitsinhji, the cricketer, was extremely unfortunate, his record for a non-stop performance being vitiated by the loss of 1½ marks on the first day. But for this his Lanchester would have secured a good place. The gymkhana at Gwalior was a great success. Lieutenant Skelton won the prize on a Wolseley in the trial of skill for driving, and Mr. Grant, on an Argyll, won the Gretna Green race. One of the most interesting incidents of the trial was the descent of the Thull Ghat on the last day. The Kalyan Creek had then to be crossed by ferry, a process which took nearly an hour. From thence to Bombay the run was uneventful, and all the cars left in the competition arrived there in good style.

An Incident of the Streets

In a case heard at the Marylebone County Court the judge has been descanting on the advantages and disadvantages of stopping a motor-car practically "dead." Often, he declared, such a capacity was an advantage, but frequently it might become a source of danger. In the particular case which called forth such remarks there were three vehicles travelling in the order named, 'bus, motor-car and cab. The first stopped slowly; the second halted quickly to avoid running into the 'bus; the third could not stop quickly and smashed into the rear of the second. Danger to the first was averted by the excellent behaviour of the second; the third, having no such advantage, did damage where a mechanical vehicle might have proved guiltless. Had all three vehicles been equally as governable as the automobile there would have been no case to take to the courts. In addition to that, the safety of our streets would become a matter of fact and not a thing of chance.

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The International Contests.

British motorists are not inclined to look any more favourably than they did a month ago upon the programme of the international races in France this year. With an unanimity rarely observed in automobile circles the feeling is growing that the protest of the A.C.G.B.I. was right in spirit and dignified in tone. The arguments of the French Club hardly apply to the situation as it now presents itself. When the Gordon Bennett race was previously run in conjunction with another the course was over a straightaway route, not on a circuitous one as now proposed. This is a point of which probably something will be heard when the reply of the French Club is officially considered in this country. Meanwhile some idea of the intensity of feeling that has been evoked by the proposals may be gauged from the motion of which notice has been given by Mr. C. Johnson, to the effect that the number of foreign cars allowed in British competitions should, in future, be determined proportionately to the actual British entries. Whether our Continental friends had reckoned on such a counter move is not within our knowledge, but it should help them to a conclusion that the best way to settle the present rift in international amity is to leave things as they were in 1903 and 1904.

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Motoring and Skating.

Surely an ideal combination of luxury and exercise, of which full advantage has been taken by motorists during the continuance of the recent hard frost. The roads have been like iron, free of ruts and dust, and travelling through the keen air has been most exhilarating. All the ponds within thirty or forty miles round London have been well patronised, and car owners have had the advantage over other skaters of enjoying lonely and "out-of-the-way" sheets of water nearly by themselves. At the Hut, at Wisley, the crush of cars has been very great, and Sergeant Jarrott, with the aid of a police-constable, has had plenty to do in keeping the road open for traffic. Never, indeed, has this favourite spot been so busy, and the wonderful popularity of motoring was further evidenced last week-end by the continuous passing of vehicles in numbers of four and five. On the Fair Mile there must have been between sixty and seventy cars at the time on the road, making the scene bright and enjoyable.

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Presentation at Blackpool.

Last week some of the leading public men of Blackpool met to make a presentation to Mr. G. Hubert Woods, of Blackburn, who officiated as hon. secretary for the motor-car speed trials at the Lancashire resort in October last. Alderman J. Brodie, the mayor, presided, and Alderman T. Bickerstaffe, the chairman of the Trials Committee, gave a brief history of the

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event. Last season there were some motor speed trials at Portmarnock, and there was sufficient racing element in them to make the competitors feel that they had not got the highest results out of their cars they thought them capable of yielding. One of the leading spirits was Mr. Huntley Walker. He was in the habit of staying in Blackpool, where he had a furnished house during the season, and he noted the exceptional facilities offered by Blackpool for racing. Mr. Walker had some conversation with some other gentlemen, and they became anxious that speed trials should be arranged in the town. Mr. Walker, Mr. Stephenson, and Mr. Woods then went to Alderman Bickerstaffe with a promise to undertake the work if the Corporation would give its patronage. Largely owing to the organisation developed by Mr. Woods the event was a great success, and last week a gold chronograph was publicly presented to that gentleman as a slight recognition of the valuable services he had rendered the town.

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Trial of Head Lights.

THE suggestion has been freely made that the time is opportune for a trial of head lights, and already Messrs. George Polkey, Limited, of Birmingham, have publicly announced their desire to participate in such an event, while other makers are only awaiting particulars from an official source to put their specialities to a practical test. The difficulty of organisation will primarily be concerned with the points for the judges to consider. These should not be narrowed down too much, but should be wide enough to be conclusive to motorists that makers entering lamps in such a trial were well confident as to their merits. The power and steadiness are essential considerations; economy in use, the effect upon other users of the road, the direction of the light, are others that, apart from the quality of the workmanship, will need close examination. Of the utility of such a trial there can be no question.

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The Delhi-Bombay Trials. On the Road at Sikenderabad.

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The Sussex Club.

THE formation of an automobile club for Sussex comes at an opportune time, in view of the promised automobile meeting at Brighton during the coming summer. Already Mr. G. H. Warne, of Worthing, and other local motorists are urging the Corporation of "London by the Sea" to prepare their roads with a view to the comfort of the public as well as the convenience of motorists during the race week. Some idea of the number of motorists in the county of Sussex may be gleaned from some recently-published figures, showing that last year 317 cars and 287 motor-cycles were registered in East Sussex, and 175 cars and 234 motor-cycles in West Sussex, the number of drivers licensed in each division of the county being 953 and 561 respectively. At Brighton 120 motor-cars and 179 motor-cycles were registered, and 332 drivers licensed; 54 cars and 64 motor-cycles were registered at Hastings, and 125 drivers licensed, making a total of 666 cars, 764 motor-cycles, and 1,961 drivers for the whole of the county of Sussex.

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A Society for Drivers.

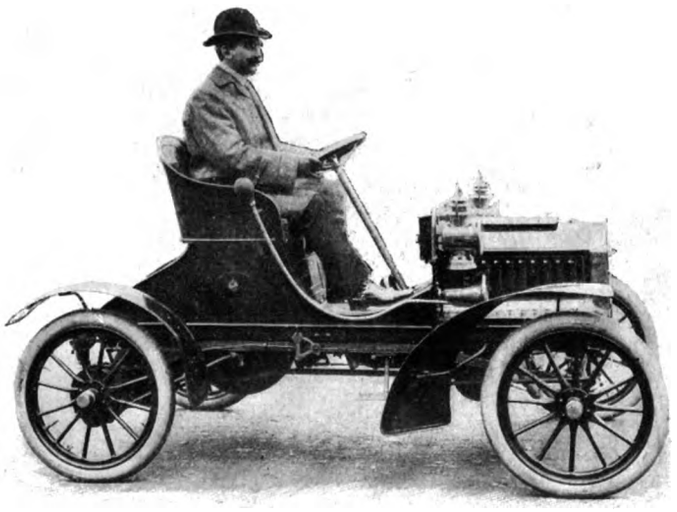
SOME of the most experienced mechanic-drivers in the Metropolis have formed a Society of Automobile Mechanic-Drivers, and the provisional rules for a friendly society have been discussed and considered. The idea is to limit membership to drivers who have had at least six months' experience on the road, and who have had two or three years' acquaintance in the workshop. Thus, it is hoped, to prove of value to qualified drivers, and while the committee will not interfere with any questions of wages or conditions of employment, it hopes to be able to establish satisfactory sick and unemployed benefit funds. The second general meeting of members will be held at the offices of the Society, 51, Brick Street, Piccadilly, W., at 8 p.m. on Thursday next, the 2nd prox. Forms of application for membership can be obtained from the secretary, who will be pleased to send particulars of the society to all drivers interested—whether resident in London or the provinces.

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The 5,000 Miles' Motor Test.

On Saturday last, in the Automobile Club's 5,000 miles' reliability trial, the 12-h.p. Siddeley car by a run to Southampton and back completed the third week of its test. So far the trial has been remarkable for the small number of involuntary stops recorded by the official observer, Mr. Leonard Spong. Beyond one stoppage of the engine owing to a short supply of petrol there have been no troubles, and the last 2,329 miles have been covered without any involuntary stoppages. During the week now closing the Southern coast routes to Margate, Southsea, Worthing, Folkestone, Brighton *via* Lewes, and Southampton will again be utilised. As mentioned last week, the car is fitted with 815 by 105 mm. "Continental" motor tyres, square tread pattern. These tyres have proved their value over some very rough roads.

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Mr. W. M. Letts on the New 7-h.p. Oldsmobile Touring Car.

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A Vicar's Sport.

Fashions change even in sport, and the motoring parson is becoming a successor to the rector who followed the hounds in the middle of the last century. But the clergy who motor have something added to the idea of mere sport; they can indulge in the pastime and, at the same time, economise time when making their ordinary calls. Thus the automobile has given them a new delight, and also increased their opportunities for usefulness. The Rev. J. Buchanan, M.A., vicar of S. Thomas' with S. Luke's, Leeds, is an enthusiast for the motor-car of small degree, and the article from his pen, which appears on another page, should do something to bring other clergy in the county of broad acres into the automobile movement.

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The Motor Van and Wagon Users' Association.

At Monday's meeting of the Motor Van and Wagon Users' Association, it was resolved to hold the annual meeting of the Association during the week of the Motor-Car Exhibition at the Agricultural Hall, London. Considerable discussion took place with regard to the annual Parade of heavy motor vehicles, and ultimately the view was expressed that it was not desirable to have a Parade this year, as previous events had really fulfilled the idea of the promoters, and, so great has been the advance, future displays of the kind might become inconvenient, both to users and to the public. Another point of immediate concern to the industry was the question of drivers for public-service vehicles, and it was resolved to communicate with the makers of motor'-buses on the subject, with a view to some practical scheme being evolved.

Motor-cars for Excursions.

Some excitement was caused in the West End the other day as a cavalcade of automobiles of every description, and nearly every date, went gaily through London on their way to Dartford. The fourteen vehicles were bedizened with the flags of almost all nations, though the Stars and Stripes had the greatest prominence. By the side of each driver was a small banner bearing the mystic letters N.C.R., which proved as puzzling to the average pedestrian as was the famous inscription to the immortal Pickwick. As the cars passed our office a 'bus driver solved the riddle with the information that they were concerned with the National Cash Register, and were off to inspect the opportunities for recreation provided for their employees by Messrs. Burroughs, Wellcome and Co., at Dartford. Doubtless as the season for workmen's trips and excursions comes along such motor-car processions will become familiar in our streets—a fact which agents and dealers who let cars out on hire should quickly recognise.

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The Brighton Trials.

The Mayor of Brighton, Alderman Blaker, speaking at the annual dinner of a local Commercial Travellers' Association at Brighton on Saturday night, made the first public and official announcement that Brighton will have a speed trial this year. The date provisionally fixed is July 18-21, while the motor-launch races will take place on July 22. The Mayor remarked that some members of the Automobile Club had pronounced the Brighton course on the sea front to be one of the finest in Europe. The Corporation were ready to do anything that the club might deem necessary for the event, while the correspondence showed that France, Germany, and Belgium would be represented at the trials. Now that the date has been suggested it is to be hoped that the promotors of other trials will avoid their events clashing with the Brighton meeting.

The paper which Dr. W. R. Ormandy was to have read at the Western Section of the Scottish Automobile Club last week on the subject of fuels for motor-cars, with special reference to those of home production, has been postponed till Monday next.

One of the Lanchester Engine Company's novelties for the year is a four-cylindered water-cooled car, designed on novel lines, the engine being raised and placed between the two front riders; the cooler is in the form of a cross, and is situated in the front of the car.

A Reuter's telegram from Daytona, Florida, states that Mr. Frank Croker, while riding his powerful racing-car on the beach, came into collision with a motor-bicycle. The car was overturned and the driver killed. Mr. Croker who had a leg, arm, and three ribs fractured, and various cuts and contsions, died early next morning from his injuries. The motor-cyclist was also seriously injured.

Recently we referred to the increase in the number of motor garages at Brighton. One has been opened by the Brighton and South Coast Garages, Limited, at St. James' Street, Brighton. Tbis company is in connection with the Fiat Motors, Limited, of Long Acre, W.C., and the Royal York Hotel, Brighton, and the garage has standing room for more than a hundred cars, with a score of private lock-ups as well as repair shops, &c.

In the biting cold winds that have lately been experienced lady motorists have felt the need for a preparation to protect their skin from the effects of exposure to varying and trying climatic conditions. Messrs. Dunhill's are now placing upon the market a toilet requisite known as Motorose, which fulfils the conditions essential in such an application. Its use should prevent chaps and roughness of the skin, and prove agreeable to all lady motorists.

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The Sport of Motor-Cycling.

By the Rev. J. Buchanan, M.A.

IT was a proud moment of my life when the editor of the *Journal* invited me to give my experiences and opinions on motoring. Being quite a beginner, my ideas are very elementary, but they may be of some slight use to other elderly men who are thinking of taking up the tri-car. After many thousands of miles on a push-bicycle, an accident to my knee caused me to look out for some less dangerous method of locomotion. I got my 3½-h.p. Phœnix Trimo (chain-driven, two speeds and free engine) last June. The boy Alberto, from Greenwood's excellent motor depot in Leeds, drove me out of the town, and then took his seat in the fore-car. I had never steered a tricycle, and he had a large scar on his face owing to a combination of telegraph post and a former customer; but, remembering that he would be the first to suffer, I took my seat and paddled away on the first speed. In a day or two confidence came and I could change speeds and free the engine in traffic with comfort.

Feeling then fully qualified, I invited my friends to occupy the fore-car and taste the joys of motoring. Unfortunately it was their busy time; slackness in trade had suddenly vanished; professional men, too, who, as I knew, played billiards all day, pleaded press of work. Alone, therefore, on the Trimo I went, tyres board hard and vibration terrific. The roads round my district are like the episcopal egg, good in parts; but, once out of the town, fast round corners, up hill and down dale went the powerful motor. I occasionally broke things, I admit, and lost expensive bolts, but I could always switch off and the brakes were excellent, so no accidents happened. Experience, however, taught me to keep the tyres slack and to be content with a moderate speed on rough roads. Any hill could be climbed with a heavy passenger without overheating.



The Rev. and Mrs. J. Buchanan on their Tri-car.

Being entirely ignorant of mechanics, I bought a manual, and puzzled out the necessary adjustments on the road when things went wrong. I think I only twice had to send for help; once when I could not get the petrol out of the back tank, and, on the advice of a villager interested in that commodity, tried paraffin; and a second time because the needle valve of the carburettor needed adjusting. But I plead not guilty of sending for help because I had forgotten to turn on the petrol or because the points of the sparking plug were touching. Such insinuations arise from envy and are without foundation! Long before this, however, I had learned moderation; passengers became plentiful, and my general officer commanding (*vide* photograph) was persuaded to join. Pleasant runs and short tours followed, and old tandem days returned. In theory I still plump for a quad. with water-cooling, but in practice the Trimo is a success, and after 3,000 miles in all kinds of weather I can appreciate being without the complications of my ideal. Pedals were soon discarded, and Greenwood (who drives a Trimo himself and is most obliging) fitted me up with spring foot-rests and wider mud-guards.

A pessimist in a contemporary lately drew up a very heavy indictment of the three-wheeler. The experience of tri-carists here does not agree with his conclusions, and Leeds is an engineering centre of some note. We find (1) that the driving wheel spindle does not break; (2) "coffee-grinding" extraordinary is not required; (3) fan-cooling is sufficient; (4) vibration is not felt if the tyres are fairly slack and spring seat-pillar and foot-rests are fitted; (5) it is, of course, advisable to slow down round corners; (6) skidding: tram-lines are plentiful here, but fourteen stone on the back wheel corrects any frivolity in front; (7) one gallon of petrol takes two people from forty to seventy miles according to circumstances; (8) two-inch Palmers have never required blowing up, and are unscratched; (9) repairs are not a big item; (10) chain drive is satisfactory, and the Phœnix gear reliable. Evidently the aforesaid writer had either got an inferior mount or is not experienced as a driver of a tri-car. At any rate the three-wheeler is very popular here and many are on the roads daily.

In conclusion, may I say that man wants but little here below, but that he cannot enjoy it by himself? More especially he likes his wife (who, alas! in most cases knows him rather too well!) to see him in a new rôle. When she observes his skilful (?) driving, his ability to put things right on an apparently (but not really) complicated motor, she revises her opinion of him. He becomes once more the brilliant man of ante-nuptial days; his faults are forgotten as the oxygen fills her lungs and her cycling friends are left behind with a distant wave of the hand. Edwin and Angelina once more, they can start out on a little tour any day with plenty of luggage and stay where they like. The passenger is comfortable and cannot get wet or dirty; the proud driver keeps himself warm with excitement and joy if the engine is running well. The rush through the fresh air, the tea at pretty wayside taverns, the idling about in pleasant places, the whizz past the light car on the hills, make motor-cycling with a congenial passenger the finest pastime in the world. Alpine climbing has its moments of pure joy when you have "made" the modest peak of your ambition. Cricket, shooting, cycling and all the other sports of our youth will never be forgotten, but for the townsman of forty with a moderate income the Trimo holds the field, and it will be a long time before the light car at double the price can beat it.

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A TRI-WEEKLY motor-car service is now in operation from Mafeking to Potchefstroom and *vice versa*, the time taken in the single journey being 10½ hours, and the fare charged £5.

THE members of the Birmingham Society of Mechanical Engineers were recently shown over the works of the Wolseley Tool and Motor-Car Co., Ltd., at Adderley Park, Birmingham. They were greatly impressed by the variety of work in progress and the up-to-date methods used.

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CONTINENTAL NOTES.

The Gordon Bennett and Grand Prix Joint Race.

The French Automobile Club, at its meeting last week, definitely decided that it will conduct annually a race to be known as the Grand Prix de l'Automobile Club de France, and that this year the event will be run at the same time as the Gordon Bennett. The rules that have been drawn up, to the number of twenty-two, have also been issued. They provide that the first fifteen cars in the French eliminating race shall be qualified to take part in the Grand Prix, and without the payment of any additional entry fee. The first three in the eliminating test, forming the team for the Gordon Bennett, will compete simultaneously in the two races. If, in the eliminating event, fifteen cars do not finish the entire course in such a way as to be qualified, the number will be completed by those cars which have passed the last preceding timing post before the hour fixed for closing the race. With this in view, besides the timing post at the finish there will be established three supplementary timing posts. For foreign cars entries will be accepted by invitation, and according to the following conditions:—Each country will have a limited number of cars in the Grand Prix, corresponding approximately to its relative importance in the automobile industry. The number of machines assigned to each country is as follows: France, 15; Germany, 6; Great Britain, 6; Italy, 3; Switzerland, 3; Austria, 3; United States, 3; Belgium, 3; total, 42; the numbers allotted to any one country including those which may compete in the Gordon Bennett. The amount of entry fee for the Grand Prix of foreign vehicles is £200 per car, this being apart from any sum payable for competition in the Cup contest. The foreign car or cars which form a team for the Gordon Bennett, and which do not pay this fee, will compete exclusively for the Cup, and any vehicle so entered will not be entitled, no matter what place it secures, to obtain a prize or classification pertaining to the Grand Prix. The manufacturers who use motors or mechanisms built according to an identical license, or under an arrangement in which the same name enters, cannot together enter more than three cars, this rule being applicable to all the vehicles entered without any distinction of nationality. Entries must be addressed to the Commission Sportive de l'Automobile Club de France, and will be closed on March 1st at 6 p.m. The vehicles competing for the Gordon Bennett Cup will start first, in the order prescribed by the rules. The other cars will start in an order to be decided by the drawing of lots, without distinction of nationality. The joint race is to be run in the first week in July, the precise date not having yet been selected.

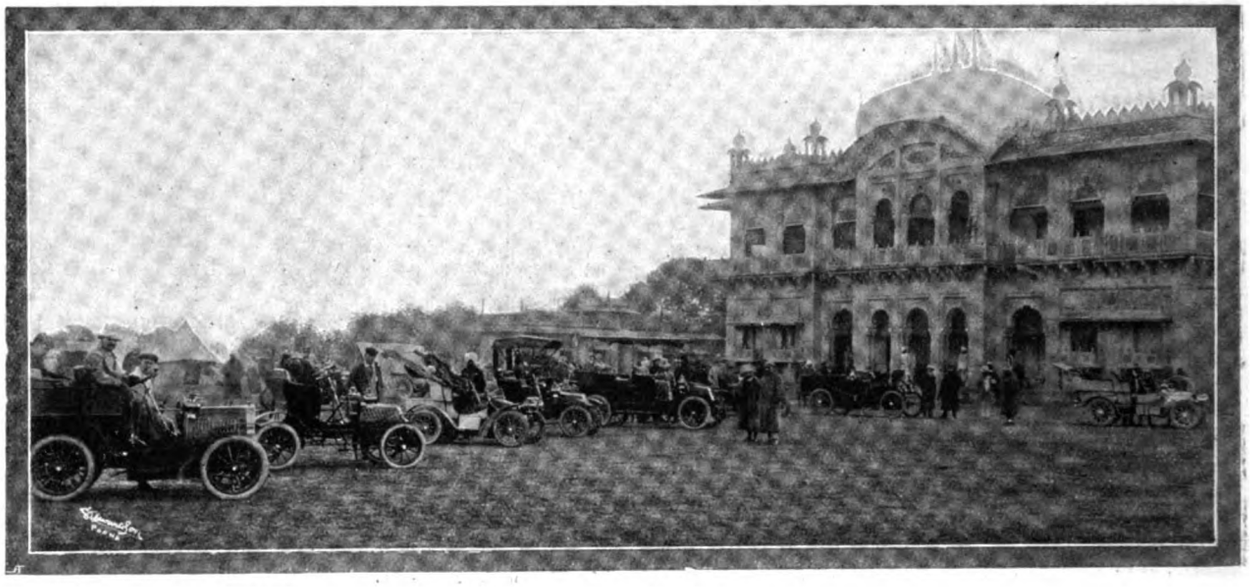
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The A.C.F.'s Reply to the British Protest.

The protest sent by the A.C.G.B.I. to the A.C.F. against holding a joint race, which has already been outlined in the *Journal*, was next considered and a reply drawn up. The letter, which is dated January 19, and is signed by Baron de Zuylen, the president of the A.C.F., is a lengthy document, so that the following extracts from it must suffice:—

"It is correct, as you have read, that the Automobile Club de France has just promoted a new contest, called the Grand Prix de l'Automobile Club de France, and that, following certain rules and regulations, this international contest will take place on the same day and on the same track as the Gordon Bennett Cup. We are surprised that this news should have so disturbed the Automobile Club of Great Britain as to cause it to protest, because, if you will remember, our decision makes no innovation, since twice already, in 1901 and 1902, the Gordon-Bennett Cup was run accessory to the two principal contests, Paris-Bordeaux and Paris-Vienna, and at the latter contest an English car carried off the Cup to England. We drew up the regulations of the Cup, and it is thanks to our perseverance that the contest has achieved its present reputation. We think, then, that we are well in a position to say that, in spite of its importance, the Gordon Bennett Cup cannot be considered, as you call it, the 'blue ribbon' of automobile sport. By reason of the conditions the manufacturers are too little represented, and find themselves placed at a disadvantage one with another. Be assured that we consider the question with the most sporting impartiality, and we think that a contest fulfilling a programme like that of the Grand Prix will really bring together all the conditions necessary to make a race that the manufacturers of all countries will be glad to contest and proud to win. . . ."

A reply in somewhat similar terms has also been sent by the A.C.F. to the Swiss Automobile Club.



The Delhi-Bombay Trials. The Gymkhana at Gwalior

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Entries for the French Eliminating Contest.

Entries for the French eliminating trial are being sent in at a somewhat slow rate. The Panhard Company have entered three cars, naming Messrs. H. Farman, Heath, and Teste as the probable drivers; the C. G. V. Company one car, which M. Girardot will drive, and the De Dietrich Company three cars,

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the drivers being respectively Gabriel, Rougier and Duray. Thus at the time of going to press only seven cars have been entered, notwithstanding that the list closes on the 1st February. The delay in entering may be due to the fact that some discussion has arisen with regard to the entry fee for the eliminating trial. As has already been stated in these columns, this has been fixed at £400 per vehicle. This figure is considered too high by many of the manufacturers, who are, it is reported, getting up a petition to the A.C.F. on the matter in favour of a reduction of the charge to £200.

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The Drivers of the French Cars.

The "Auto" is authority for the statement that one well-known French firm is paying its drivers £400 each to drive cars in the eliminating contest, a further sum of £1,200 being awarded to the successful man, should any of the team win the race. A similar fee will be paid for the Gordon Bennett and Grand Prix race, an award of £1,600 being given to the successful driver in case of victory. We append a list of probable drivers so far as they are at present known :—

Cars.	Drivers.
Panhard	Heath, H. Farman, Teste.
Mors	Salleron, Burton, Leger.
De Dietrich	Gabriel, Rougier, Duray.
Hotchkiss	H. Fournier, A. Fournier, Le Blon.
Richard-Brasier ...	Thery, Caillois, Stead.
Darracq	Baras, Hemery, De la Touloubre.
Clement-Bayard ...	A Clement, Hanriot and X.
C.G.V.	Girardot.

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The Progress of Magneto Ignition.

A striking feature of the interesting technical statistics of the recent *Salon* in Paris compiled for the "Auto" by M. Lucien Perisse is the section relating to ignition, which shows that the magneto system is rapidly superseding the high tension type by coil and accumulator. The appended table shows the proportions of the different systems of ignition found on the petrol cars at the three last shows :—

	1904. Per cent.	1903. Per cent.	1902. Per cent.
Magneto ignition	81	28	22
High tension ignition by accumulator or dry battery	19	72	74
Tube ignition	—	—	4

Subdividing the figures relating to magneto ignition it is shown that in 1902 only the low tension system was in use; the 1903 total was made up of 22 per cent. low tension and high tension 6 per cent. At the last show the respective figures were :—Low tension 26 per cent., high tension 35 per cent. It is also to be noted in the case of cars fitted with the latter more than half are also provided with accumulator ignition as a reserve.

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Carriage Builder and Tyre Manufacturer.

An interesting dispute has arisen between motor body carriage builders and tyre manufacturers in France. M. Michelin a few weeks ago offered a prize cup to the coach-builder capable of turning out the most comfortable carriage not exceeding a certain weight for a given number of persons. The idea was to bring down the weight of the body of the car as much as possible, as the present long *chassis* and commodious bodies are far from advantageous to the tyres, which under the existing conditions of weight and speed become a drawback rather than otherwise. The coach-builders are, however, indignant at the suggestion that their work proves a handicap to motoring, and Kellner, one of the leading builders, has offered a cup to the tyre maker (pneumatic or otherwise) who can manufacture a tyre capable of supporting any weight at no matter what speed. He considers that the weight is due to a considerable extent to the number of persons which the car is supposed to carry and to the spaciousness and comfort which have become a *sine qua non* of automobilism, and the actual coach-building has little to do in the matter.



The Delhi-Bombay Trials. Crossing the River at Kalyan.

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Motoring in Algeria.

The Algerian Automobile Club is organising a hill-climbing competition for February 23rd. It is to be held over a ten kilometre course on the Tablat-Sakamody road. The club is organising a contest for the Sueden cup on March 26th, a touring competition for the Broussais trophy on April 26th, and a driving competition for May 21st.

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Motor-Boat Racing on the Danube.

Following the example of the French Automobile Club in organising a series of motor-boat races on the Seine in connection with the Paris *Salon*, the Austrian Club is now arranging to organise a series of such races on the Danube, to be held at the time of the automobile exhibition in Vienna in March next.

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Public Services in Germany.

A concession has been granted in respect of a projected public service between Todtnau and Freiburg (Baden). A service is also to be started between Holst and Altona.

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MAINLY FOR LADY MOTORISTS.

By "Petrola."

THE "motor widow" has never been invented even by the most imaginative newspaper, though the sorrows of the lonely, neglected golf widow have been sung in many volumes.

But nobody has ever accused the motor man of the wife he left behind him when he went on a delightful tour. For motorists generally are nice men who do not take their pleasures singly; and only a motorist with a heart as solid as naval hard tack would go off on a tour of enjoyment without packing his feminine belongings into the tonneau. So that women do not need to feel jealous of the motor, although I must confess to a few heart-pangs when I read that two men actually fought a duel the other day on the Italian frontier over a motor-car.

Cherchez le car instead of *la femme* is a new kind of chivalry which tends to make women fear that they are losing their value, so far as sentiment and romance are concerned.

However, I regained my spirits, which had been considerably lowered by the motor duel, when I was told last week by a very well known car agent that motor trade follows weddings. The announcements of engagements in the fashionable papers are the signal for clever motor agents to send their car circulars to the happy couple. For there is always the chance, even if the bridegroom's finances are not equal to setting up a motor-car and a wife simultaneously, that the bride's parents, relatives and friends may club together to present a motor-car or electric brougham as a wedding gift.

It is well, however, to settle before marriage the problem a recent bride set before her puzzled better half. A motor-car had been given to her by a syndicate of prosperous relatives "on the occasion of her marriage." Her newly-wedded husband was most anxious to officiate in the driving seat, and took a course of lessons and a certificate of competence before the wedding day.

"But," said the bride, "it's my car, and in case of accident—if, for instance, you should run over and kill a pedestrian—should I have to pay the damages out of my private income, or would you be liable?"

She was a prudent young person. And the question she raised is interesting to husbands. As a matter of fact, with due deference to Mr. Staplee Firth, her husband as driver would be responsible for an accident. That is to say, if he committed an offence while on the car, he, not she, would be liable to fine or imprisonment. If solvent, he would, too, be called upon to pay the damages. And if he were not solvent—well, she shouldn't have married him!

But the law as to liability—save in the case of a hired driver in receipt of wages—would naturally make the husband responsible for any damage he committed whilst in charge of the car.

If, for instance, I stab somebody with another woman's hat-pin, she as owner is not held guilty of manslaughter.

Hence the bride-to-be can set her mind at rest. If she hands over the driving of her car to her spouse, he, not she, is liable to imprisonment, actions for damages, and the endorsement of the licence.

While on the subject of brides, I cannot resist recording the kind act of a chivalrous motorist well known at the Automobile Club. He lives at Hampstead, and not long since, when out on his car, he encountered a newly-married pair en route in a carriage and pair for Euston station. The best man and one or two guests followed to "see them off" to Newcastle, and, after the vulgar fashion of the day, were pelting them with rice and confetti, thus calling attention to the unfortunate blushing couple.

In a moment he drew up his car, invited the honeymooners to enter and outdistance their confetti-throwing friends. Most gratefully they accepted his kindly haven of escape, and in three minutes passed beyond the range of the rice and confetti persecution.

Motor Fashions.

I have been favoured with an early forecast from headquarters of the motor fashions which will prevail this late spring and summer.

But I would like to warn my feminine readers against buying all their new outfit too soon. For my part I shall wear out most of my winter things in the dark days of February, when one is too muffled up to hope to look smart. And by waiting prudently till the Motor-Car Show opens at the Agricultural Hall in March, I shall make sure of the newest, latest, and smartest car kit.

Nothing is so mortifying as to buy one's new clothes in February and then to run the gauntlet of feminine criticism from those who, with the wisdom of the wise, looked before they leaped into buying old winter styles for new spring ones.

Soft leather petticoats are being largely worn by lady motorists in charming shades of pink, grey, or white. No other material makes so warm and light an underskirt, with the great advantage that it takes up so little room that it does not add an inch to the waist measurement.

The motorina whose fingers are clever with the needle may buy plain leather or kid collars and cuffs, and ornament these with embroidery and steel beads, or beads to shade or harmonise with the colour of the coat they are to be worn with.

The plainest cloth coat ornamented with these most dainty accessories looks as smart and dainty as though it had come straight from a Parisian house.

Suede may be substituted for leather, and a toque of swathed suede or thin leather is not only very smart, but is weather proof and long wearing.

So-called "wheel rosettes" of suede, kid, or leather complete these smart toques. A motor lady of a substantial bank balance showed me her outfit for the Riviera, in which figured several white suede coats lined with various shades of velvet and trimmed with real topaz or amethyst buttons. To match each coat she had a silk motor cushion decorated with her embroidered monogram, each cushion packing neatly away into a leather case of the same shade, which was fitted with a handle and pockets for veils to match.

This is motoring of the "under a glass case" order.

The undersleeves of the white suede coats were of puffed silk to match both the shade of the velvet lining and the jewelled buttons. She informed me that suede lined with velvet is as cosily warm as a fur coat, while it does not destroy the graceful slender symmetry of the figure. White chiffon veils edged with lace, white gauntlets and white suede gaiters completed her fascinating though somewhat theatrical motor outfit.

For the Monaco boat races she had a supply of white silk rubber skirts and coats made in nautical reefer style piped with red or blue silk and decorated with silver gilt buttons with a motor boat design on each. A peaked yachting cap made of white Terry velvet piped to match the nautical costume and finished with silver gilt buttons gave the sea flavour to her outfit.

I hear a whisper that the newly-formed British Motor-Boat Club intends to admit ladies to membership. But I hope, both for the sake of their husbands' bank balances and the common-sense reputation of the Club, that *les skippeuses*, as lady motor-boatists are called, will not copy the wardrobe of this Riviera butterfly!

We learn that the Burlington Carriage Company, Limited, have secured the sole English rights in the Delaunay-Belleville car made by the St. Denis firm, whose water-tube boilers are used so extensively in the British and foreign navies. The cars, which are made in three sizes—16-h.p., 24-h.p., and 40-h.p.—will be on view at the Motor-Car Exhibition at the Agricultural Hall in March next.

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NEW LOW-TENSION IGNITION SYSTEMS.

IN the "Continental Notes" in the *Journal* of the 7th inst. it was briefly mentioned that the Bullock and Simplex systems of low-tension ignition, first described in these columns, are attracting considerable attention on the Continent, where new systems on somewhat similar lines are beginning to make their appearance. As a result, we have been asked to give fuller particulars of the latest devices, two of which we are now able to illustrate.

Fig. 1 gives a general view of the Zubalof arrangement which is being introduced by M. Beaupied, of Paris. As will be seen, the apparatus, which is illustrated in full size, is so arranged that it can be fitted in place of the ordinary high-tension sparking plug. Referring to the sectional view (Fig. 2) it will be noticed that the central rod of the plug, by means of which the internal break in the electrical current is obtained, has an oscillating movement instead of a to and fro motion. The rod, or lever, is supported at the point of its centre of gravity on a spindle *S*, from which it is insulated by

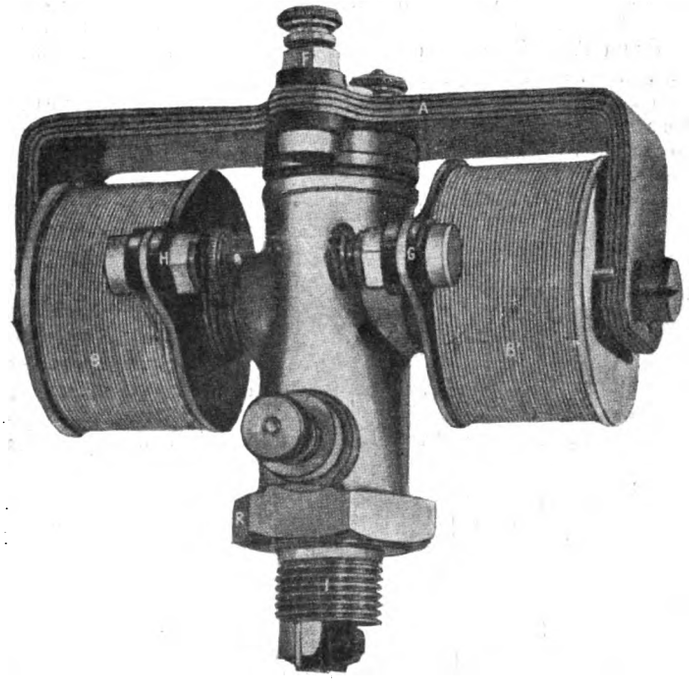


Fig. 1.—General View of Zubalof Ignition Device.

means of mica. The lower end *D* of the rod carries a hammer, fixed to it by means of a pin. The hammer, rod, and spindle are of nickel, while the end *O* of the rod is mica insulated. The electrical current, which may be furnished either by an accumulator, dynamo, or magneto, is divided into two portions. When the external break in the circuit is closed—that is to say, when contact is made on the contact maker on the half-time shaft of the engine the current flows through the coil *B*; at this moment the hammer *D*, or rather the lever *M*, is attracted towards *N*, and, turning on its spindle, causes the hammer *D* to make contact with the block *C*. This done, the coil *B*¹ in turn becomes magnetised, as a part of the current from the battery passes through the coil *B*¹, the lever, hammer and block, which are in series with it. The engine continuing to run, the external contact on the half time shaft is broken; the blade being on the insulated portion, current ceases to flow to *B*. The coil *B*¹ only is now magnetised, and attracts in turn the lever *M*, causing the hammer *D* to leave the block *C* suddenly, a large spark due to the extra current taking place between the two parts. The contact maker on the engine can, of course, be advanced and retarded in the usual way. The apparatus is strongly made, and will work in any position, a special claim being made for the fact that its regular action does not depend in any way on springs. The only parts subject to wear are the hammer *D* and block *C*; these will, however, last for several thousand miles, and are so attached that they may readily be renewed. The device is adaptable to single or

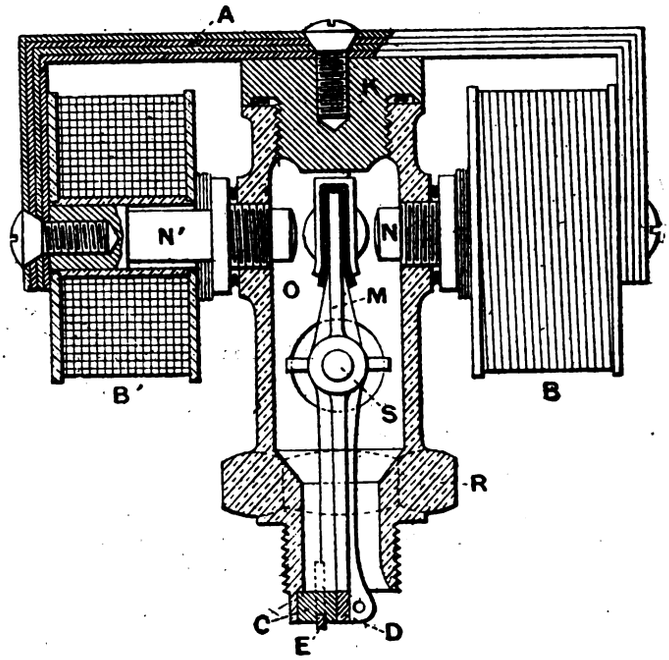


Fig. 2.—Section of Zubalof Ignition Device.

multi-cylinder engines, each cylinder being fitted with its own magnet and plug, wired up to the usual contact maker.

The Caron device, introduced by La Société Industrielle des Telephones, of Paris, is illustrated in section in Fig. 3, from which it will be seen that it is an exceedingly compact arrange-

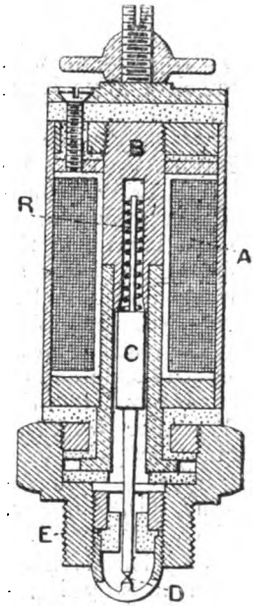


Fig. 3.—Section of Caron Ignition Device.

ment, the whole apparatus not being much larger than an ordinary plug, whose place it takes in the cylinder. As in the Simplex arrangement, the rod *C*, by which the internal break is obtained, has a to and fro motion. When the circuit is closed at the contact maker on the half-time shaft of the motor, an

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electrical current flows through the coil *A*, magnetising the soft iron core; the latter in turn drawing up the rod *C* from the point *D*, a huge spark, due to the extra current, taking place when the rupture is made. A light spring around the rod returns the latter to its normal position, resting on *D*, when the external contact is broken. The only part subject to wear is the point *D*, which, as in other

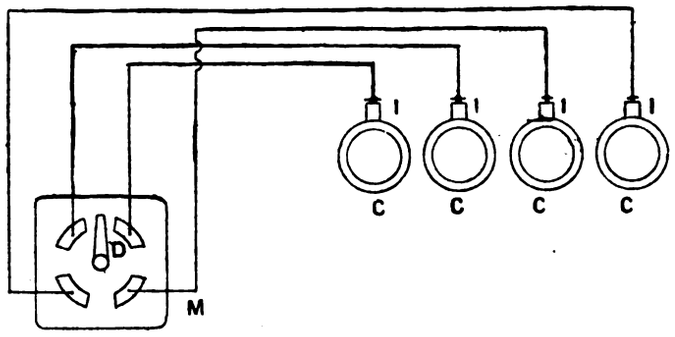


Fig. 4.—Arrangement of Wiring Caron Ignition on a Four-Cylinder Motor.

devices of the kind, can be renewed at a small cost, the renewal only being necessary after several thousand miles of running. Each cylinder is provided with its own combined magnet and plug, and while it will work equally well with accumulators and a contact breaker of the usual type, the Société des Telephones prefer to use a special low-tension magneto driven off the half-time shaft to furnish the primary current. The magneto is of the four-pole type, and has a rotatable armature; it furnishes two supplies of current at each revolution of the crank shaft, the current being sent by a distributor successively to the terminals of a collector, which are directly connected with the plug magnets, the number of terminals corresponding to the number of cylinders. Fig. 4 shows the method of connecting up a four-cylinder engine.

Messrs. Rochet and Schneider, Limited, is the title of a new company registered, with a capital of £300,000, to acquire the business of La Société Lyonnaise de Construction d'Automobiles Rochet Schneider. Société Anonyme, at Lyons, and to adopt an agreement with the Anglo-French Automobile Syndicate, Limited.

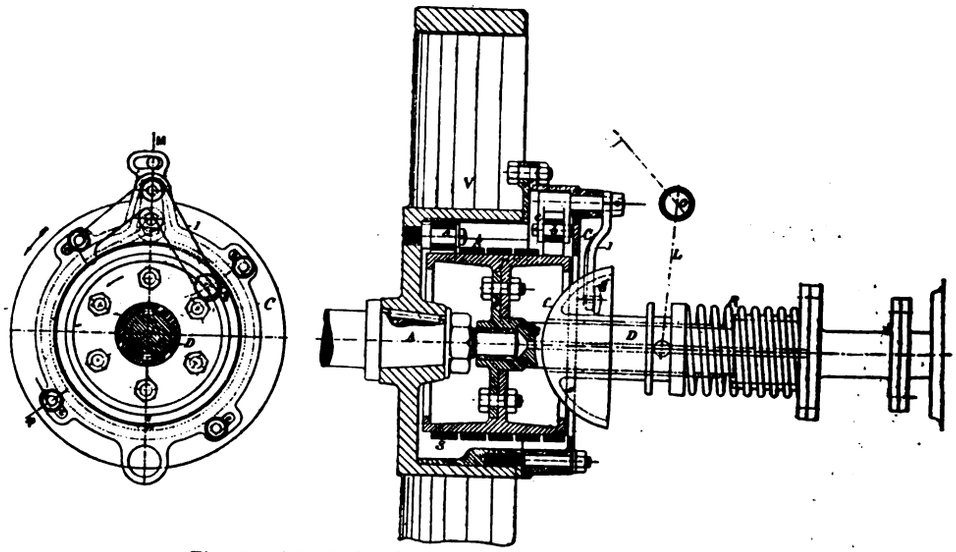
Mr. A. G. Dickinson recently made an interesting run on his Little Star car. He left Willesden at 10.10 on a Friday morning, intending to reach Newark, but, owing to a strong gale which was blowing in the afternoon, he was obliged to stop at Grantham. The following day he left that town at 7·50 a.m., and reached West Hartlepool at 5.15 p.m. The roads as far as Grantham were in a very bad state, and on arrival at that town hardly any part of the car was visible for mud. After Grantham the roads were dry, but in many places long stretches of unrolled new metal were encountered; notwithstanding this, however, the car went through without any trouble.

A useful little accessory for motorists is a Double Purpose Can recently introduced by Messrs. Brown Bros., Limited, Newman Street, London, W. The can is fitted with a funnel-shaped spout provided with a strainer of wire gauze, and can be used with either petrol or water. To fill the reservoir all that is necessary is to pour out a supply of petrol or water into the can, and insert the end of the funnel in the usual filler, when the reservoir can be filled without any waste.

THE MERCEDES COIL CLUTCH.

One of the features of the Mercedes cars is the clutch, which differs in several respects from that previously employed. Two sectional views of the clutch, which is of the coil type, are given herewith. The arms of the engine flywheel V are formed to act as a fan to draw air through the radiator and round the motor. The central portion of the flywheel is provided with a hollow drum within which the clutch is located. The steel drum T, on which the coil S is wound, is fixed to a flange at the end of the change speed gear shaft by means of six bolts. The shaft is supported at its forward end on a pin projecting from the end of the crank shaft, it being counterbored and provided with a bronze sleeve. The ends of the coil are bent round to form a loop. The fixed end of the coil is secured to a stud bolt *a* screwed into the web of the flywheel, and the tension is applied to the opposite end, at *b*, the loop at this end of the coil being fixed to a forked lever C fixed to a shaft, which also carries the lever *l* provided with a roller. The lever *l* is moved around its pivot support by means of a semi-spherical turned head *f* of hardened steel. The manner in which tension is applied to the movable end of the coil is at once apparent. The coiled spring R acts on the sliding collar D and forces the semi-spherical head *f* in the direction of the flywheel, thereby forcing the lever *l* outward from the clutch shaft and drawing the coil S tight on the drum T. When it is desired to disengage the clutch the sliding sleeve D is withdrawn from the clutch by the pedal, which compresses the spring R. The lever *l* then automatically approaches the centre of the clutch shaft. All tension on the free end of the spiral is then removed, the spiral automatically unwinds and the clutch is disengaged. A play of one-half millimetre between the interior of the convolutions and the outer surface of the drum suffices to insure perfect freedom of the clutch.

To allow of adjustment being made for wear, the cover C, in which the operating lever of the coil is supported, is provided with oblong circumferential slots, through which pass the bolts securing it to the clutch drum, and can by this means be slightly adjusted in a circumferential direction. By varying the position of the coil on the drum it is possible to limit the maximum power which the clutch will transmit. The coil and the drum are lubricated, and the interior of the flywheel is provided with passages



Figs. 1 and 2.—End and Sectional Views of Mercedes Clutch.

to insure copious lubrication and to retain the lubricant. All parts are protected from rust. The advantages claimed for this type of clutch are its smooth working and ready adjustment and the small moment of inertia, a point which will be realised when it is remembered that the clutch drum has a diameter of only 6·4 inches for a car of 60-h.p.

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USEFUL NOTES.

FULLER'S earth, which can be obtained from almost any chemist, is a good dressing for a slipping friction clutch.

◆ ◆ ◆

THE heat of the exhaust pipe or silencer will melt the insulation of the high tension cable, if too close, and cause a fault.

◆ ◆ ◆

IN mapping out a route, so to speak, for locating troubles, begin with the most likely points and work down towards the more remote possibilities. A little experience will show which points in one's particular car should be the first to fall under suspicion.

◆ ◆ ◆

SHOULD an engine prove refractory in starting in cold weather, petrol squirted into the cylinders very often overcomes the difficulty; or, if the mixing chamber has a removable top with a cone, warming up the cone will nearly always effect a ready start.

◆ ◆ ◆

MOTORISTS who make a practice of carrying a spare set of fully charged accumulators should give these an occasional turn and turn about with those in regular use. Such a practice improves the batteries, prevents them from sulphating up, and renders them easier and more economical to recharge.

◆ ◆ ◆

BEGINNERS should make a study of the anatomy of their vehicles, or they never will become intelligent or satisfied motorists. The comfort of knowing how to repair any of the minor causes of stoppage can only be estimated when they come to grief miles away from any one capable of doing the repairs or adjustments for them.

◆ ◆ ◆

SOME people have been troubled to know why, on some occasions, their gears jump out of mesh. It will usually be found that this occurs on cars in which the clutch-shaft carries the sliding sleeve, and if the sliding sleeve is too tight or too loose a fit upon its square when the clutch is either withdrawn or engaged, the gears may be carried with the shaft. It should be noted that this cannot happen if the speed lever quadrant is fitted with square slots.

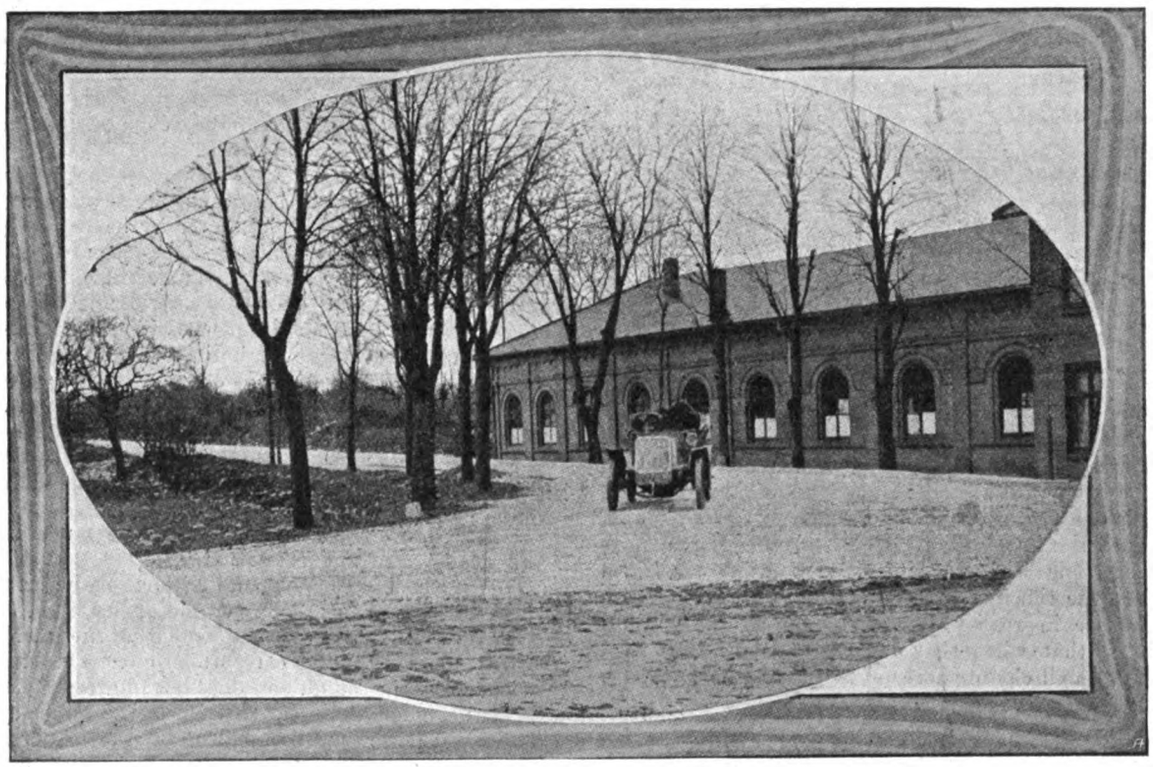
SOMETIMES a motor may suddenly stop from the failure of the exhaust valve to seat properly. This may be due to the warping of the valve through the engine having run dry and become too hot, or it may be from the failure of the closing spring or the sticking of the valve stem in its guides. The valve should be removed, and the stem cleaned and scraped—or straightened if it requires it, until it moves freely in the guide—and the closing spring given its full tension. If the valve still leaks so that the engine will not start or develop sufficient power, the valve will have to be ground into its seat.

◆ ◆ ◆

THE construction of some cars, and the carelessness of the owners of some others, make it possible for oil to reach the tyres and accumulate thereon. It would appear unnecessary to state that oil is extremely injurious to rubber, and, if its reaching the tyres cannot be prevented, its accumulation should not be permitted. Enclosed live axles are often filled too full of oil, with the result that when an incline in the road is reached it works out through one outside bearing and down the spokes to the tyre. To remove oil from a tyre, the safest method is to first wipe it off carefully with a dry cloth, and after this rub the parts which were covered with French chalk. The chalk should be dusted on to the cloth and rubbed vigorously over the tyre.

◆ ◆ ◆

SOME water-circulation systems are so poorly designed that steam pockets may be formed in some portion of the tubing, interfering with the continuity of the circulation; or the pump may be worn out and have lost its efficiency. In both cases the cooling effect suffers; the cylinder, overheated, ignites the gases before they are properly explosible, the valves become coated with carbon or deformed by the heat, and do not seat properly, or the exhaust-valve stem seizes in its guide or is lengthened by the expansion from heat until it will no longer permit the valve to be entirely closed. On a hilly road these effects of overheating, even if present only in mild degree, may stop the motor; but a short rest to examine the cause reduces the overheated parts to their normal temperature, and the motor can again be started. Often the trouble is due simply to an insufficient amount of water in the cooling system.

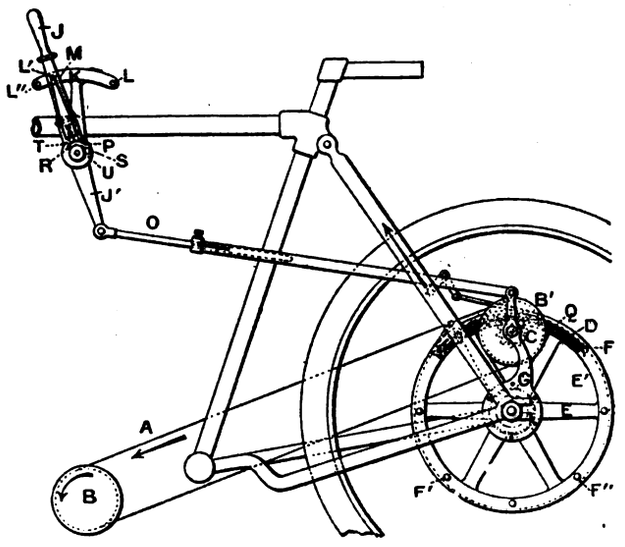


The Starting Point at Lubscher Brunnen of the Course for the Eliminating Contest for the German Gordon Bennett Team.

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MOTOR CYCLING NEWS

A somewhat novel system of belt and chain transmission for motor-bicycles has lately been introduced by Messrs. Jules Bruey and Sons, of Ronchamps, Upper Savoy, France. As will be seen from the accompanying sketch, on the engine shaft is fitted the usual pulley B, of small diameter, encircled by an endless belt. On a bracket attached to the back fork is another belt pulley B^1. and formed with it is a small chain wheel C with about ten teeth, which gear into a chain fitted into the trough of a large diameter drum attached to the back wheel. To start the motor, the rider slackens the small pulley on the bracket on the back fork ends by means of a lever J on the top tube. He



then pedals along until the machine attains a certain speed, and by carefully tightening the belt by means of the lever, the small chain wheel is forced to turn and pick up the chain in the trough which drives the back wheel. The large diameter drum on the back wheel is also made use of for the purpose of a band brake. The trough-shaped rim is of special design, and consists of a six-spoked wheel carrying a double-rimmed periphery, each arm being attached to the rim by means of pins with rollers. These pins and rollers are in reality so many of the ordinary chain pins and rollers, so that when they come into engagement with the teeth of the small chain wheel on the bracket, they pass freely in the same manner as the rest of the chain links.

The report presented at the first annual meeting of the Manchester Motor Club showed that there are 72 motor-cyclist and 32 car members, some of the best-known motorists in the North of England being amongst them. The newly-elected officers are:—President, Mr. George Spencer; vice-presidents, Messrs. F. C. Hunt and S. B. Haynes; hon. secretary, Mr. J. Fraser; hon. treasurer, Mr. T. Kilfoy; club captain, Mr. P. T. Butler.

The International Motor-Cycle Cup Race will take place in June—probably the 18th or 25th. Entries for the British eliminating trials in connection with the event are now being invited. The present intention is to make the occasion of the home eliminating tests a means to promote a big international fifty kilogramme motor-cycle race meeting. The fund which has been started for defraying the expenses of the winners of the qualifying test when representing Great Britain in France is increasing most satisfactorily, and it is probable that the preliminary race will take place in the Isle of Man.

The annual dinner of the Birmingham Motor Cycle Club at the Crown Hotel, Birmingham, was an enjoyable meeting. Mr. H. Austin presided, and in proposing the toast of "The Club" remarked that although he did not ride a motor-bicycle he did the next best thing, he drove a motor-car. Responding, Mr. J. R. Bedford (hon. sec.) gave some particulars as to the club runs, which now took place fortnightly, the average attendance at which for the past season had been twenty members. The club contests had proved a great success, and the club had a balance in hand at the end of the year's working of £20. It has now seventy members.

THE REDUCTION OF NOISE

ONE of the most noticeable improvements in petrol cars is the great reduction in the noise of their operation. It is not too much to say that the first-class petrol cars of 1905 are free from any reasonable objection on this account. Indeed, the operation of some of them is attended with no more noise than that produced by a steam or electrical vehicle which have long presented in this one respect an ideal hitherto unattained by their competitor.

Among the causes of the improvement noted may be mentioned the increase in the use of multiple cylinder engines, particularly those of four cylinders; the general adoption of the direct drive on the high speed; the provision of large and more efficient exhaust silencers and of means of silencing the suction into the carburettor; the more careful design and construction of valve gears, and a general improvement of mechanical construction.

A considerable portion of the noise hitherto so objectionable an accompaniment of the use of single-cylinder petrol cars was due to the intermittent character of the engine power and the lack of balance of their motors. Not only did this mean an infrequent exhaust of large volume, difficult to silence without back pressure, and decidedly noticeable on account of the very sensible time elapsing between the "puffs," but it also made inevitable large fluctuations in the angular velocity of the moving parts, and variations of the driving torque at the engine through very wide limits, and at times from a positive to a negative value. The latter condition, especially, gave rise to knocking and rattling sounds, particularly in the engine itself, but noticeable as well in all other parts of the driving mechanism where any backlash existed.

The four-cylinder engines, now so much used, produce a practically constant rotational velocity and a driving torque which is sensibly constant and without change of sign. This is virtually true of three-cylinder motors as well. Cars equipped with these engines are nearly free from the rattle and knock to which single-cylinder cars are prone. The exhaust, too, is a nearly constant sound, and does not impress the ear so markedly as does the definitely periodic puff of the single-cylinder engine. The slight noise that is produced by the modern multi-cylinder engine is more of a hiss or subdued rustle than a combination of rattle and puff. The clicking of the valve mechanism and the mild sound of the exhaust are its principal components. The very hollow and objectionable gasp of the air entering the carburettor has also been much ameliorated by proper division of the inspirated air and by the better design of the passages.

Gear noise has hitherto always proved a very objectionable element in the sound produced, and the recent general employment of a direct drive on the high speed has largely eliminated this. Since modern cars are of high power in respect to their weight, generally geared rationally, and propelled by engines under a very wide range of throttle control, it is seldom necessary to use other than the direct drive, except in starting and hill climbing.

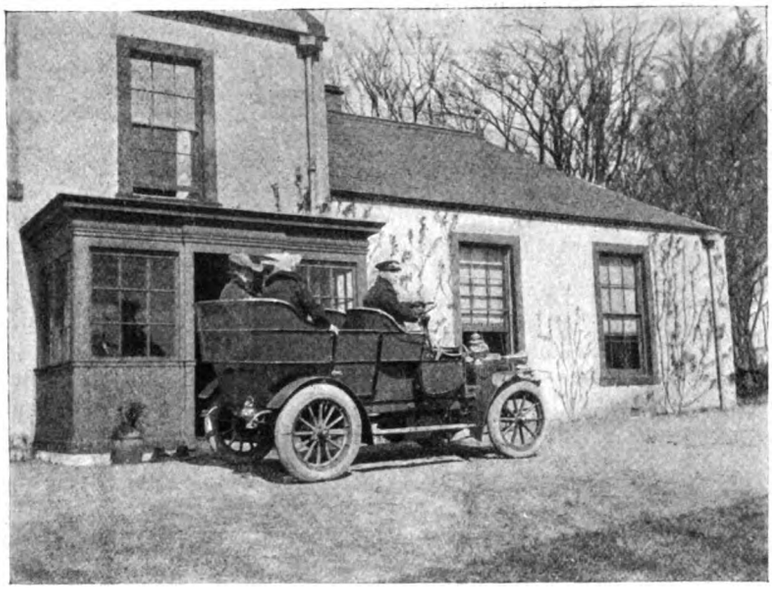
It has become generally recognised, remarks the "Horseless Age," that a large silencer is essential to a quiet running car, and that no artifice in construction can make up for the disadvantages of small gas capacity without the danger of introducing back pressure. Capacious silencers are thus the rule on the best cars. It is, moreover, far easier to silence the exhaust from the relatively small cylinders of a four-cylinder motor than from the one or two cylinders of an engine of the same horse power.

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HERE AND THERE.

THE Gordon Bennett eliminating trials in the Isle of Man will be held on May 30th, or as near that date as possible.

MR. M. J. MACGREGOR, of Edinburgh, whose 12-h.p. Beaufort is depicted in the accompanying illustration, writes in enthusiastic terms of the behaviour of the Collier tyres fitted to the wheels of his car. He writes :—"The tyres have now done 8,560 miles in the last eight months, without a single puncture, and have been over some of the very worst roads. I have just finished a trip round Scotland of 860 miles, and went over the Pass of Glencoe, where the roads are very rough. The front tyres have never even been pumped up in the last nine months."



Mr. M. J. Macgregor's 12-h.p. Beaufort at Corsbie, Earlston, Berwickshire.

COMMENCING next month, the Great Western Railway will run a rail motor-car service once daily on the main line from Chippenham to Bath and back.

SIR THOMAS LIPTON has presented a claim to the Southampton Corporation for £167 10s. as compensation for damage recently caused to his motor-car in an accident due to alleged negligence of the local authorities. The Works Committee of the Council has recommended the payment of £125 in full settlement of the claim.

AT the next meeting of the Committee of the A.C.G.B.I., Mr. Claude Johnson will move a resolution, "That in all races and competitions held under the rules of the Club in future, including the race for the Tourist Trophy, the number of entries of cars made in a foreign country should be limited to two cars for every five British cars entered."

WISLEY Hut, near Cobham, would seem to be as popular with Surrey motorists in winter as in summer. We ran down there on Saturday and found fully twenty cars had arrived before us. The scene was a bright and unusual one, for the lake was frozen over and many people were indulging in skating. The combination of motoring and boating is familiar, but that of motoring and skating is a new experience.

MESSRS. MONTAGUE HAWNT AND CO. have appointed Messrs. J. E. Denness and Co., of Easy Row, Birmingham, as their agents for the Midlands.

EARL DE LA WARR, Mr. John Kerr, M.P., Sir E. P. Duncombe, Bart., and Major the Hon. E. S. St. Aubyn have been elected to membership of the Automobile Club.

THE formation of the Automobile Club of Andalusia is announced from Madrid.

Two more double-decked motor-omnibuses have been put into public service at Eastbourne.

MR. W. BECKET-HILL has consented to read a paper on "Motor-car Break-downs and Incidents on the Road" before the members of the Liverpool Self-Propelled Traffic Association.

THE Mutual Garage and Motor Association, Limited, has been registered with a capital of £10,000 to adopt an agreement with Messrs. F. Bryer and C. L. Baker.

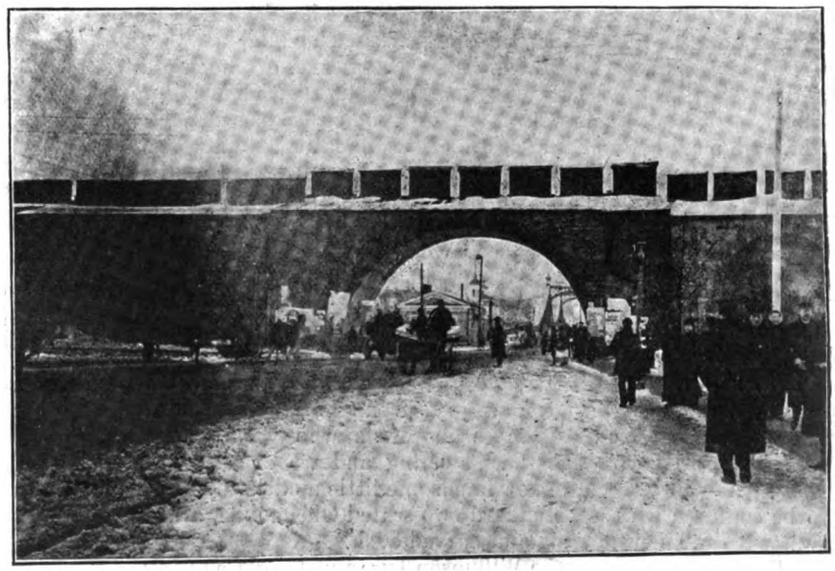
MR. PERCY FROST SMITH has been appointed engineer and manager of the motor-omnibus department of Messrs. Thomas Tilling, Limited, who are developing motor-'bus services in London.

MESSRS. WHITEHALL AND CREWE, of Week Day Cross, Nottingham, have sent us a sample of graphite suitable for use in connection with the lubrication of petrol motors and the gear cases of cars. It appears to be very finely ground and free from grit.

THE MOTOR-CYCLE AND MOTOR-CAR ACCESSORIES COMPANY, LIMITED, has been registered with a capital of £2,000 to adopt an agreement with Mr. C. Fonteyn, and to carry on the business indicated by the title. The registered office is at 35, Lamb's Conduit Street, W.C.

MR. REGINALD BONSOR, son of Mr. Cosmo Bonsor, ex-M.P. for Wimbledon, has sustained severe injuries as the result of a motor-car accident. The steering gear is reported to have gone wrong on a decline on the Great North Road, and swerving on to the grass the car overturned on its owner, afterwards rolling over again and crashing into the ditch by the roadside. The car was completely wrecked.

THE automobile dealers of New York are congregating on those few blocks of Broadway just south of Central Park and the Columbus Circle at Fifty-ninth Street. The Panhard Company's new branch is near Forty-fifth Street, "in the midst," London agents will be interested to know, "of the surging life of Longacre Square."



Motoring in Russia—A Snapshot from Nijni Novgorod.
[*La France Automobile.*

MR. BALFOUR and other Cabinet Ministers are expected to be guests at the eighth annual dinner of the A.C.G.B.I. on the 15th prox.

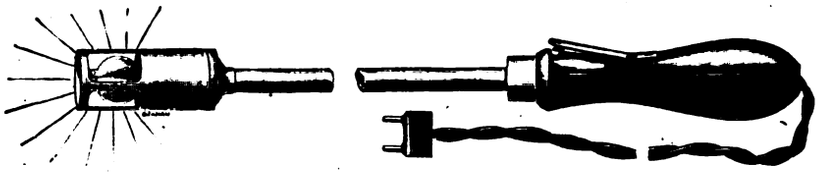
A GARAGE has been opened on the Radford Road, Nottingham, by Mr. F. Mitchell, who also stocks petrol and accessories for cars. An inspection pit is part of the equipment.

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An Automobile Club is being formed for the Isle of Thanet.

During last year 197 automobiles were registered in Stirlingshire.

The Bristol Electric Safety Lamp Works, Westminster, S.W., has recently introduced an electric torch lamp, consisting of a miniature lamp-holder, with a handle of suitable length attached, in which is provided a switch. The lamp is well protected, and very light and compact; it will pass through an aperture of less than 1⅛ in. diameter, is well adapted for the inspection of the mechanism of motor-cars, and can be used in conjunction with an ignition cell.



The King of Siam is the latest addition to the list of royal motorists, he having acquired a Rambler car.

The Lohner-Porsche Company, of Vienna, have lately completed a 70-h.p. combination petrol-electric car for Count Siegfried Wimpffen.

A Stoewer 12-15-h.p. double-cylinder omnibus has lately been put in service at Novorossysk, in the Caucasus. The vehicle has accommodation for sixteen persons.

The Mechanical Development Syndicate, Limited, has been registered with a capital of £9,000 to adopt certain agreements, and to carry on the business of motor-car manufacturers, etc.

The Heaton Moor Motor Works and Garage has been opened at Birch Avenue, Shaw Road, Heaton Moor. Facilities are provided for the storage of ten cars, the supply of petrol, spare parts, etc.

The result of an inspection of our waterways, extending over eleven years, and necessitating travelling a distance of more than 14,000 miles, appears in Bradshaw's "Canals and Navigable Rivers of England and Wales."

The receiver and manager of the Motor Manufacturing Company, Limited, wishes to point out that the business is being carried on as usual, and confidently hopes will be so carried on after the company has been wound up.

Messrs. Hughes, Butterfield Brothers, of Stechford, Birmingham, have brought out a useful circular with lighting-up table, identification marks, table of cylinder capacities, etc. They are making a special feature of accumulator repair work.

The Lancashire Steam Motor Company, Limited, Leyland, have sent us a copy of a pocket diary they have just issued, and which is one of the most attractive productions of the kind we have seen. The cover, which is of celluloid, is of unusually artistic design. In addition to the diary portion a number of pages are devoted to postal and telegraph rates and other useful information.

The illustration on page 984 depicts Mr. W. M. Letts, of Messrs. Jarrott and Letts, Limited, at the wheel of a new two-seated Oldsmobile that firm are just placing on the market to meet the requirements of those motorists who would like a moderate-priced car with wheel steering and a French type of body. As will be seen, it is a handsome little model, and is not to be confused with the standard two-seated Oldsmobile, which is fitted with tiller steering and curved dash.

The new price list of the Wilkinson Tyre and Tread Company, Limited, contains some well-executed illustrations of the tyres, treads, upper rims and upper covers placed upon the market by that firm. Considerable success has been achieved by the Wilkinson tyre and non-skidding tread. The upper covers are intended to provide a wearing tread attachable to the tyre without the necessity of subjecting the tyre itself to a second process of vulcanisation or necessitating the sending of tyres away for the purpose of having the treads fixed.

A car with a ten-cylinder engine has just made its appearance in Paris.

Between Kilmarnock and Glasgow a motor-van is now being employed daily by a firm of local carriers.

The Duryea Company, Limited, of Coventry, has gone into liquidation for the purpose of reconstruction, and Mr. Harvey Preen, of 17, Basinghall Street, London, has been appointed liquidator. In the meantime the work at Coventry is being pushed on with vigour.

The Birmingham postal authorities have contracted with the Wolseley Company to maintain a motor mail service between Warwick and Birmingham. Two special vans have been constructed for this service, which comes into operation on March 1st. These vans are of 12-h.p. and will normally carry a load of about one ton weight at from sixteen to eighteen miles an hour.

Dr. Harrison, the coroner for Mid-Sussex, makes use of the motor-car in journeying among the remote villages of his district.

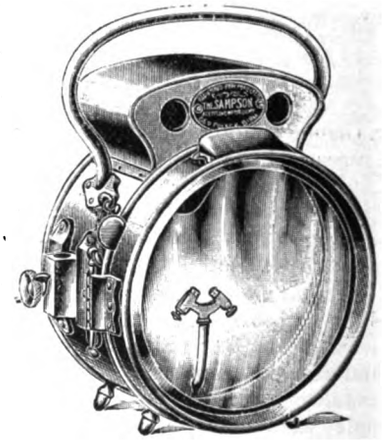
A new motor steam fire engine, capable of turning out under full steam in sixty seconds for a call, has been ordered by the London County Council from Messrs. Merryweather.

The new calendar issued by Messrs. J I. Thornycroft and Co., Ltd., is illustrated with photographs of several notable motor vehicles produced by the firm.

Mr. P. P. Whitcombe has been appointed the official doctor to the A.C.G.B.I. Members will now be able to obtain medical assistance in the event of an accident in London or its environs. They may telephone or wire to the Club, and the Club will send the doctor.

A novel idea has been put into practice by a motor company in Toledo, U.S.A., a physician's emergency call service having been inaugurated, small enclosed touring cars being provided, in which doctors will be hurried to their patients at any hour of the day or night by drivers employed by the company.

Messrs. George Polkey, Limited, of the Hockley Lamp Works, Birmingham, have just brought out a new acetylene head light for motor-cars. It is known as the "Sampson," and is illustrated herewith. The twin burner is so arranged as to give a knife-edge flame to the front, which, in conjunction with a specially-designed reflector set at an angle to the flame, is claimed to give a maximum of light on the road with a minimum of glare to anyone approaching. At the eye line the reflector is dark, only the knife-edge flame being visible; at ground level the reflector is perfectly full, throwing a strong beam of light on the road. The reflector, which is 7 in. in diameter, consists of silver rolled on to a copper back. The burner is provided with a cleaning device, it being only necessary to screw up a button below the burner two or three times until the tip is clean, and then screw back the button as far as it will go. The lamp is supplied with or without generator as desired, and is provided with fork bracket fittings.



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CORRESPONDENCE.

[Letters to the Editor should be addressed to the offices, 27-33, Charing Cross Road, London, W.C.]

PRIMARY BATTERIES FOR CHARGING ACCUMULATORS.

To the Editor of *The Motor-Car Journal.*

Sir,—In reply to "Boron," from the particulars given the trouble with the zincs might arise from the use of impure vitriol containing sulphate of lead, which would cause both the white deposit and waste, or from too large a proportion of pure vitriel, which would produce the same results. When the cells are not in use they remain active for any length of time, the zincs of course being removed. When in use the duration of activity naturally depends upon the number and capacity of accumulators. I find one charge of a four-cell Boron battery sufficient to charge from four to six 4-volt, 35-amp.-hr. accumulators before the battery is exhausted.—Yours truly,

H. Harrison.

To the Editor of *The Motor-Car Journal.*

Sir,—I have had over twelve months' experience in charging accumulators from primary batteries, and have used Boron cells in preference to others in batteries of 4, 6, 8, and 12 cells to suit the capacity of the various accumulators. For a 4 volt 40 amp.-hr. I use a 6-cell battery (in parallel of two threes) which charges the accumulator in twelve hours, one charge of the battery being sufficient to charge three accumulators of the same capacity if proper attention is given to the condition of the zincs and strength of acid used.

As to the cost of charging, I have found them very economical, but using large quantities. I purchase wholesale—Bichromate of soda at £1 12s. 8d. per cwt., 3½d. per lb.; zinc, 16s. per cwt., 1¾d. per lb; vitriol, 6s. per cwt., ¾d. per lb. At this rate one charge for six cells costs less than 4½d., and allowing 1d. for depreciation of zincs, gives a whole total of 5½d. as the cost of charging; this for charging three accumulators is less than 2d. per charge. This is, of course, the lowest possible estimate—using chemicals at wholesale price and exercising due care in the use of the batteries, but even when purchasing retail, with ordinary care, the charging should not be more than 3½d. per charge. I may add that during the past year I have charged hundreds of accumulators—from fifteen to seventy amp.-hrs., various voltages—with Boron cells working on the above scale, the result being perfectly satisfactory both to my clients and myself. —Yours truly,

G. Busschots.

A CYLINDER-COOLING QUERY.

To the Editor of *The Motor-Car Journal.*

Sir,—I should be very glad to know if anyone has attempted to keep the cylinder or cylinders of a small car, 6 to 12-h.p., cool without water circulation by using alternate mixtures in the cylinder of petrol gas and finely-sprayed water; the idea being that the finely-sprayed water would at once be turned into steam on entering the cylinder by the heat developed in the cylinder by the previous explosion of petrol gas, the cylinder being cooled by the finely-sprayed water every other explosion. If this idea is practical, it would do away with half the petrol bill and all the trouble of water circulation and radiators.—Yours truly,

T. T.

COLD WEATHER PRECAUTIONS.

To the Editor of *The Motor-Car Journal.*

Sir,—I have read with a great deal of interest the paper on the above subject by Prof. Henshaw, but, as the farmer said, I am no "forrarder." One thing, however, that he mentions is perfectly true, viz., the motor itself must give the verdict; what may be all right in theory may turn out in practice to be utterly valueless or worse. I am rather surprised at what he advocates might be tried, and will call his attention to the fact that caustic soda, even in very dilute solutions, and especially when warm, as would be the case in the circulating system of a motor, would in the course of a very few hours actually dissolve the fabric which is generally present in the rubber connections as fitted to most motors; its action would be worse than diluted glycerine, which softens the indiarubber only, but leaves the fabric intact. The writer is also unaware, evidently, that what is known as soda lye, the standard solution of caustic soda, contains about 5 or 6 per cent., only half the strength of what he recommends, yet this, when allowed to dry on the skin, often produces ulcers which are very difficult to heal—they are sometimes as bad as severe burns where the tissues are actually destroyed.

Last winter I wrote a few lines on the subject, but the point which I emphasized has been always overlooked; it is simply that a solution of any salt whatever, though lowering the freezing point and absorbing heat from the cylinder, will not part with it so rapidly as plain water, hence a larger radiator must be fitted to give an equal cooling effect. Why does not someone advise motorists who cannot arrange to store their machines where the frost cannot touch them to use something perfectly innocuous, say ordinary loaf sugar, that will reduce the freezing point, and will have no deterious effect whatever on any part of the mechanism? I do not say make a syrup, only a very dilute solution, else one might hear a repetition of the account which appeared in the newspapers the other day, where some locomotives were placed *hors de combat* by having had their tanks filled up with molasses instead of water, and which, with the heat, was converted into toffee.—Yours truly,

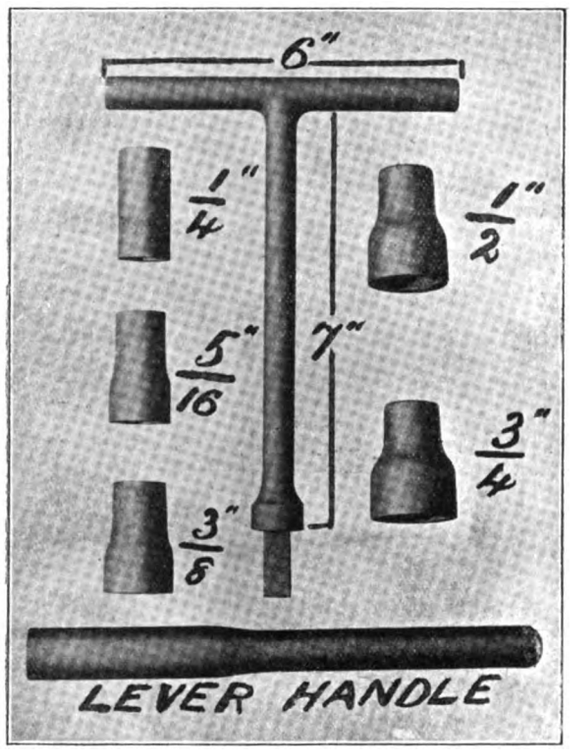
C. D.

THE "EUREKA" PATENT INTERCHANGEABLE SPANNER.

To the Editor of *The Motor-Car Journal.*

Sir,—I have the pleasure to send you a photograph of a tool which will, I think, be much prized by every automobilist in the United Kingdom. It is by far the most useful article I possess in my motor outfit. Having for more than two years tested its utility and durability, I can recommend it with absolute confidence. Unfortunately, few gentlemen take the trouble to dismantle their cars themselves, but those that do, and all mechanicians, will be for ever grateful when the Kennard "Eureka" interchangeable spanner is lying handy beside them.

Since I perfected this indispensable article a spurious foreign imitation, of cheap, inferior quality, has been "dumped" among us by Continental competitors, but with this important difference, that whereas the rival tool has badly fitting *cast* sockets, which spread open in every



day use, the "Eureka" is hand wrought from the best tapped steel Needless to say, the British manufacture stands wear and succeeds, while the foreign article fails altogether to satisfy. Two eminent civil engineers of Westminster, both ardent automobilists, have recently begged me to get them my spanner, at any price, and all who see it say it is precisely what they have long been looking for, I have therefore christened it the "Eureka." The spanner can be obtained from any of the important providers of motor requisites, and all sized sockets can be supplied. Individually, I find five amply sufficient for my requirements. I have the same tool, but smaller, included in my 3½-h.p. motor-bicycle outfit.—Yours truly,

Edward Kennard.

THE WAGES OF DRIVERS.

To the Editor of *The Motor-Car Journal.*

Sir,—Would some kindly disposed person, through the columns of your esteemed *Journal*, give a little advice to a would-be motor-driver? I am in good employment as caretaker in a large City office, but last August determined to take lessons in driving and repairs, in the hope of getting a country berth. I paid £5 5s. to a firm of instructors, and after a month's lessons, was given a certificate as an efficient driver and capable repairer. I got my licence and started looking out. I wrote to fifty-seven firms of car manufacturers and agents in London and suburbs and at last I had an answer. I was to go and see a lady near Regent's Park who required a driver, and her first question was, "What wages do you want?" I modestly replied about 30s. per week to start. "Oh," the lady said, "I couldn't think of giving more than 20s. to a trained driver, and

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you are an inexperienced man." I am wondering if that is what I have spent so much money for.—Yours truly,

J. B.

THE EISEMANN HIGH TENSION MAGNETO IGNITION.

To the Editor of *The Motor-Car Journal.*

Sir,—I have been using this for a year and am very pleased with it. It wants a little understanding, however, and I have been unable to get full directions and explanation of the system, and therefore venture to write you.

(1) The Eisemann magneto on my car has its own coil, and has given every satisfaction, but the other day the engine suddenly stopped, and since I have been unable to get a spark on either of the plugs. Nothing appears to be wrong, all connections clean and light, no oil about. I have made all usual ignition tests. It is the Eisemann, as the plugs are quite right with the high tension accumulator system, which also has its own coil and is quite separate from the Eisemann. The two systems are never coupled up at the same time. I am expert and have solved all previous ignition troubles.

(2) When the Eisemann fails thus, what are the tests other than the usual ones of trying the plugs and wires, seeing to connections, etc.? How can one test the coil and magneto separately?

(3) Say the magneto is losing its magnetism; I take it, it would give gradually weakening sparks, but would it eventually and suddenly cease to give any spark at all, even with plugs in the open?

(4) The coil can be burnt out, I find. What causes this? How can one know if it has happened? What is the test?

(5) Does the Eisemann system suffer from cold?

(6) Is it possible for oil to gradually work inside the magneto and stop it working?

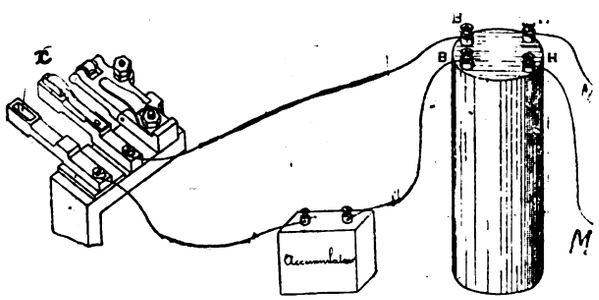
I shall be much obliged if you will advise me what may be wrong and what tests to make.—Yours truly,

Evan.

[We submitted our correspondent's queries to Messrs. G. T. Riches and Co., who, as the representatives of the Eisemann system in this country, are well qualified to deal with the points raised, and they have favoured us with the following reply:—

(1) From the sudden stoppage it is probable that the coil has broken down, although a breakage in the connection between the armature winding and the collecting brushes would have the same effect.

(2) The coil can be tested separately as follows:—Remove one of the carbon brushes, and from the same brush holder disconnect the wire con-



M. Wire to Distributor. N. Wire to Earth. X. Brush Removed.

necting it to the coil, and attach it to one terminal of an accumulator. The other terminal of the accumulator should be connected to the brush holder; the engine should now be started up, and if it runs steadily there is nothing wrong with the coil. To test the magneto, the wires connecting it to the coil should be detached, also the condenser wires which will be found on some of the later machines, which have a condenser under the arch of the magnets. If the armature of the magneto is now revolved a bright flash should occur at the platinum contacts; should there be none, it is the magneto that is at fault. The carbon brushes should be examined to see if they are free to move up and down in their holders, and also that they actually touch the copper collecting rings.

(3) Magnets gradually lose their magnetism, and consequently the sparking gradually weakens, but this would not cause the abrupt stoppage.

(4) If the coil breaks down, it is generally through its having been placed too near the engine, the heat melting the wax insulation. Attempting to start the engine after overhauling without the high tension or the earth wire properly connected up will put an undue strain on the coil and tend to produce internal sparking. Test as mentioned in paragraph 2.

(5) Cold has no effect on the Eisemann magneto.

(6) Owing to the construction of the bearings it is next to impossible for oil to work inside on to the armature, but, even if it did so, no harm would result.

We append a diagram showing how to test the coil. In the event of the breakdown of the magneto, the car can be run by connecting up with an accumulator or dry battery as per diagram.]

THE BEST WHEELS FOR MOTOR-CARS.

To the Editor of *The Motor-Car Journal.*

Sir,—Sir Hiram Maxim in a recent article said that the bicycle wheel was the strongest wheel made; if this is so, why is this type of wheel not universally used on motor-cars? One well-known firm that builds a sound—and heavy—machine uses this type of wheel exclusively, and apparently with entire success. Is it "the look of the thing" that makes the artillery wheel so universal? I must confess I prefer the appearance of the artillery wheel myself, and I don't think I should fancy my car with wire wheels now, but I did not fancy the pneumatic tyre on a bicycle when first I saw one. Suppose the interspaces of a wire wheel filled in with sheet steel welded accurately to the edges of the spokes, hubs and rim, would not a great increase of strength result? This would form the double disc wheel. Here is a type that differs radically in appearance from either form now used; it is found on some American racing machines and I have not heard of one breaking. It would be interesting to have the opinion of an expert on this type, as it appears to me to offer advantages all round. First as to weight, could it not be built as light as the wire wheel? Eighty pounds is not an outside weight for a strong artillery wheel with tyre. Second, ease of manufacture, and consequent cheapness. Steel stampings are not difficult or tedious to produce once the plant is in working order. Wire wheels are easier to make than artillery and much easier to mend.

An owner of a Lanchester writing in the *Journal* recently said that the wire wheel used on his car would carry one safely home with a number of spokes out. An artillery wheel in the same condition is to be avoided. When a spoke has to be replaced in an artillery wheel, the whole thing has to be rebuilt. As regards mending a disc wheel, would it ever require mending? Even rebuilding would appear simpler than mending a wire wheel. Third, appearance; this is a matter of opinion, but there is a smooth, frictionless look about the disc wheel that appeals to me; it suggests spinning like a top. Fourth, ease of cleaning. Very important, as anyone who has tried to clean four wire wheels ought to appreciate. The artillery wheel is bad enough, especially with side chains, but the disc wheel only needs a sluice of water and a wipe with a sponge. Even the wiping dry of such a wheel is done in half-a-minute. Would anyone who knows say whether the disc wheel could be used equally well with solid tyres?—Yours truly,

Robt. H. Armstrong.

THE LANCHESTER CAR.

To the Editor of *The Motor-Car Journal.*

Sir,—I shall be obliged if you will kindly allow me to correct a point in my letter on the above subject, published in the *Journal* of the 14th inst. It is in connection with the first two questions asked by "A. U." I said that "the main valve can be taken out in less than ten minutes." I should have said the "feed valve." The main valve takes much longer to get out. In the second question I give twenty minutes for taking out and replacing a broken exhaust or inlet valve. The "feed" or inlet valve could probably be changed in twenty minutes, but I expect it would take an hour to replace the main valve. The principal question is not much affected by this, as the breakage of either valve, or the necessity for grinding in, is in most people's experience unknown.—Yours truly,

Charles W. Dixon.

APPRENTICESHIP.

To the Editor of *The Motor-Car Journal.*

Sir,—I wish to place a boy just leaving school with a good firm of motor manufacturers. Will some reader inform me whether he must of necessity be bound to an apprenticeship, or would it be possible to get a firm to take him for a time on trial, as I feel doubtful whether he is physically strong enough for the hard work?—Yours truly,

X. M.

SPEED TROUBLES.

To the Editor of *The Motor-Car Journal.*

Sir,—I shall be greatly obliged if you can help me with your valuable advice on the following:—I have recently purchased a small 5-h.p. two-seated car, fitted with a two-speed Dupont gear. This latter was formerly driven by belt, but was altered to chain drive before I purchased the vehicle. My trouble is this: I cannot get more than eight miles an hour out of the car on top speed on the level, and then the engine is racing badly, and the noise too terrible for words. The car will climb gradients of one in eight with two up, so that there is a reserve in engine power. What I should like to know is—1. The drive is now fitted direct from engine shaft to back axle by Brampton chain. The sprocket on crank shaft has twelve teeth, and that on the axle fourteen teeth; approximate speed, four and eight miles an hour. What must I do to increase the top speed to, say, sixteen miles per hour, and will the increased speed be likely to make the car run quieter? 2. Will speeding up the car affect the hill-climbing power, and if so, to what extent? 3. Seeing the sprocket wheel is fixed on the engine crank, I should like to know if an increase of speed would strain the crank shaft and engine unduly. 4. Supposing you advise a larger sprocket wheel, must this larger wheel be fixed on the crank shaft or on

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the back axle to increase speed? 5. If you think the Dupont gear unfit for chain drive, will you please tell me what I can best replace it with, and probable cost?—Yours truly,

T. 98.

[With regard to "T. 98's" trouble, there appears to be something radically wrong, as the gear from engine to axle is almost equal, and yet only four and eight miles per hour are got out of the car. The gear box must greatly reduce the speed unless the engine is very slow running. To get a higher gear it will be necessary to fit a larger sprocket to the engine shaft, say a 20 or 24-tooth. This would gear up to the gear box, which is a very unusual practice. The higher gear would also greatly reduce the noise. With regard to power, it would take a great deal more, but as our correspondent appears to have a reserve with his present gear, the car would no doubt negotiate ordinary hills. The strain on the crank-shaft would not be any greater than at present, as the engine would not race as it now does. The chain drive should run satisfactorily with the gear at present fitted.]

THE GRAPHITIC LUBRICATION OF PETROL MOTORS.

To the Editor of *The Motor-Car Journal*.

Sir,—We have followed this matter in your *Journal*, so now we think it is time to let you know that we have used the above, mixed with oil and grease, throughout our motor over three years, with most excellent results. The engine is running as well to-day as three years ago, and has cost nothing beyond three piston rings six months back. We do not think the virtues of black lead are generally known, but in the lubricating trade it is acknowledged to have no equal for lubricating purposes. We supply very large quantities to the textile trade, some of the most expensive machinery being worked with it. The secret of its success is due to the fact that it must be fine and entirely free from grit; and all the lead we manufacture is, by a special process, rendered entirely free of any grit whatever.—Yours truly,

Whitehall and Crewe.

To the Editor of *The Motor-Car Journal*.

Sir,—In answer to Wilfred B. Wateyn, half a pound of graphite to the gallon of oil will be found sufficient. Add the oil slowly at first and mix well. Start the engine as soon as possible after the mixture is in the crank chamber to make sure of its being properly distributed. The pistons will carry up all that is required by the cylinders. Pure graphite can be obtained from Messrs. Townsend and Mercer, Bishopsgate Within, E.C., price about 1s. per pound. It is not necessary to add graphite every time oil is pumped in the crank chamber; if in constant use once a month will be enough.—Yours truly,

R. D. Bourman.

COURTESY ON THE ROAD.

To the Editor of *The Motor-Car Journal*.

Sir,—Doubtless you will have noticed in the general Press that I had to sacrifice my car to make room for a car which was passing in the same direction in Ridge Hill road, near Barnet. I should like particularly to point out the assistance and the courtesy I received from Mr. Frazer, the proprietor of the "Green Dragon" Inn. With regard to assistance which I asked for from another large motor, it was not so satisfactory. When I asked the owner to drive my two lady passengers to Barnet Station, in which direction their motor was going, they told me that they had no room unless the ladies would sit on the footboard, which offer I declined. This is the first instance I have met with during five years' motoring where gentlemen have not volunteered to give up their seats to ladies,—Yours truly,

F. Suter.

MOTOR INSTRUCTION.

To the Editor of *The Motor-Car Journal*.

Sir,—Your correspondent "Motoneer," in your issue of the 14th inst., has expressed a sensible view of what an automobilist should know of motor matters. Personally, my opinion is that we should hear considerably less of the incompetent chauffeur if his employer was in the position of judging of his (the chauffeur's) capabilities. We should also, for the same reason, hear less of the incompetent repairer and his exorbitant charges, etc.—Yours truly,

D. Doyle.

PROPOSED STEAM CAR CLUB.

To the Editor of *The Motor-Car Journal*.

Sir,—I think Mr. Murphy's idea of a steam car club an excellent one. At present one confesses to the ownership of a steam car with something like an apology; but, "Vis unita fortior," we may yet be able to hold up our heads with the petrol men. Will Mr. Murphy kindly furnish his address through the *Journal*, so that those readers who wish to communicate with him may be able to do so?—Yours truly,

Steamer.

[In answer to "Steamer" and other enquirers, Mr. T. Murphy's address is 135, Cloudesley Road, London, N.]

To the Editor of *The Motor-Car Journal*.

Sir,—The suggestion as to the formation of a steam car club is excellent, and deserves the support of those motorists who have adopted this branch of automobilism. The proposal is by no means inopportune, for, owing to the prejudice against steam cars, this branch of the motor industry has made comparatively little progress. That such prejudice exists, and is assiduously fostered by the petrol motor trade, can scarcely be questioned, in view of the extremely unfair treatment meted out to steam car users in the matter of competition rules, when they are either entirely debarred from entry, or else hopelessly handicapped.

A matter I would commend to the earliest consideration of the steam car club that is to be is the fuel question, for I have yet to hear of the garage, outside London, which stocks, and will supply at a reasonable figure, C petrol, for to fill up one's tank at 1s. 6d. per gal. is costly.—Yours truly,

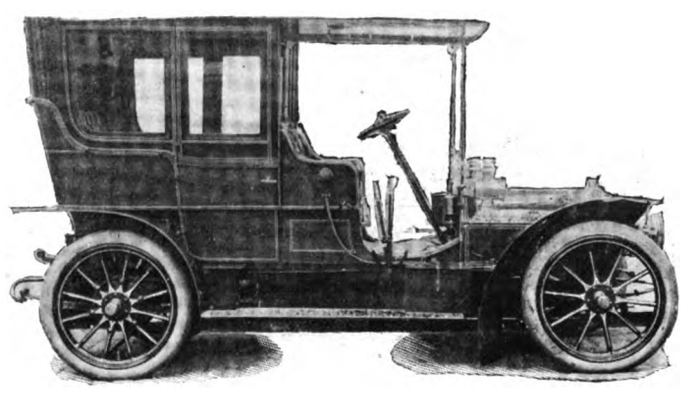
Vapeur.

EXPERIENCES WITH ENGLISH-BUILT CARS.

To the Editor of *The Motor-Car Journal*.

Sir,—I shall be much obliged if you will publish my experience of an English-built car. I bought a 10-h.p. double-cylinder tonneau body car from the Motor Manufacturing Company last October twelve months, and had one of their men down for a fortnight to teach me. Since then I have driven the car myself over all the most hilly roads in the Devonshire district, and we have some very bad and steep ones, never sparing the car, nearly always with full load of four, and sometimes five; three people have learnt on her. Last October I ran up to London in the car with my man and luggage; it rained hard all the way, and took 14½ hours from my door, two miles from Tavistock, to Cavendish Square, 221 miles. Coming down I had my wife with me as well, and we did the journey, on dry roads, in 13 hours from start to finish; taking out stops, actual running time was 12 hours, being an average of 18½ miles an hour. These two runs and a run out of London made in all over 500 miles by the time I got home, which I did without any adjustments in any form to the car, engine or gear, and without an involuntary stop. I think this shows well for a 10-h.p. English-built car that had been running for twelve months over most hilly and bad roads.—Yours truly,

C. J. G. Still.



The Germain 16-h.p. Coupè Limousine.

WATER CIRCULATING PUMPS.

To the Editor of *The Motor-Car Journal*.

Sir,—Could any of the readers of the *Journal* kindly inform me the name and address of the manufacturers of a small rotary circulating pump similar to the one I have recently purchased. It is a very small and compact pump of the roller pattern, with cut grooves along the face and sides of the teeth, which form a water-tight sealed joint, and thus makes the pump very effective. I should much like to know the patentees of this pump, as several of my friends are looking for a good circulating pump.—Yours truly,

S. James.

TRI-CARS.

To the Editor of *The Motor-Car Journal*.

Sir,—In answer to "Beginner," as a maker and rider of tri-cars, I should recommend for a three-wheeler that he buys a machine with 3½-h.p. air-cooled engine and chain drive, the machine being built as light as possible, cost say £40. If he feels inclined to go in for two-speed gears, free engine, water-cooled, with all attendant troubles, the best thing is to have a light four-wheeler, cost say £80. The licence fee and initial expenses will be a little more, but the upkeep of the four-wheeler will be less than the heavy three-wheeler. In the case of bad weather the four-wheeler is much better than the three-wheeler.—Yours truly,

A. Saunders.

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AN INTERESTING MOTOR QUERY.

To the Editor of *The Motor-Car Journal.*

Sir,—I must apologise to Mr. Fortune's watch, but my excuse is that he did not, in his former letter, state that he had used it. There are so many variables in motoring, *e.g.*, condition of roads, wind, gradient, tyres, mixture, lubrication, and, last but not least, driving, that I do not think we need go to "higher atmosphere gases" to account for actual variations in power, which, by the way, are observable at all times of the day.

Anyone who has suffered from an overheated engine will readily admit that efficient, or rather inefficient, cooling will affect running to a far greater extent than noted by your correspondent. Assuming, of course, that your correspondent is not comparing his time home with his time out in the morning, a systematic consideration of the variables should disclose the cause of any actual increase of power, or at least, should bring it within very narrow limits.—Yours truly,

A. 710.

OVERHEATING TROUBLES.

To the Editor of *The Motor-Car Journal.*

Sir,—Referring to "J. L. L.'s" letter on overheating troubles, in your issue of January 21st, it appears to me that the whole cause of the same is that the exhaust silencer and pipe is choked with soot, etc.—Yours truly,

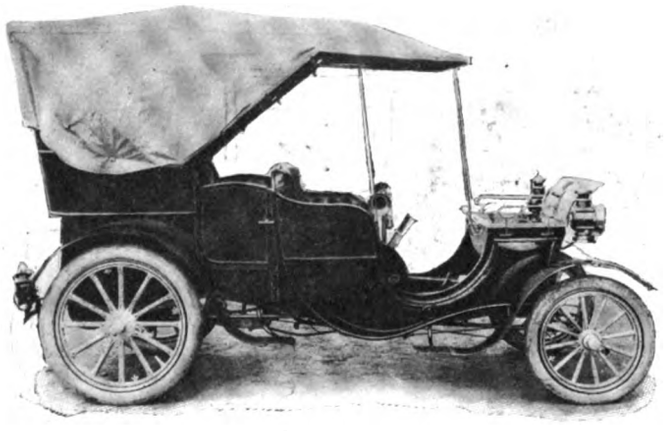
Arthur Burgess.

SPARKING TROUBLES.

To the Editor of *The Motor-Car Journal.*

Sir,—A short time ago I experienced misfires at high speeds although the car ran well enough slowly. On investigation I traced it to one of the tremblers on the coil, so took off the blade and screw, hammered them gently, replaced, and the trouble vanished. I should advise "Country Motorist" to try it. In reference to cracked water jackets, has any reader tried the Smooth-on compound largely used in America on marine boilers for stopping leaks?—Yours truly,

E. H. S.



The 1905 15-h.p. Duryea side-entrance Tonneau with Cape Cart Hood. The car has a wheel base of 8 ft. 6 in. with ample seating for three in the tonneau, or five in all. The weight complete is just over 16 cwt.

PRECAUTIONS AGAINST FIRE IN MOTOR GARAGES.

To the Editor of *The Motor-Car Journal.*

Sir,—The fires which recently took place at the G.W. Ry. Co.'s motor house in Cornwall, at the London Power Omnibus Company's depot, and at a big garage in New York, are evidence that such institutions are not always guarded with that excess of vigilance which alone is a guarantee of safety.

Anyone at all familiar with the average conditions existing in too many garages will have no trouble in assigning several probable causes for fire. The omnipresent cigar and the still more numerous and dangerous cigarette find in the modern garage a wide field of destructiveness. Another element of danger in the garage as compared with most buildings usually rated as extra hazardous is the use of petrol for cleansing purposes. Motor garages are now an absolute necessity in every large city; they cannot be banished to the suburbs, for they must be convenient to business or residential centres; and they cannot exist without a liberal supply of petrol. From even the narrowest point of view of self-interest, the proprietors of such institutions owe it to themselves, if not to the public, to observe every possible precaution against fire. The first element of safety is a definite system of authority and discipline by which the rules of the garage are stringently enforced at all times. There should always be present some one person whose duty it is to enforce the rules; if this task be divided among several persons or left to chance, all discipline will relax. There should be rigid regulations regarding the use of petrol, whether in filling the tanks of cars or in using it for general purposes about the garage. Second only in importance is the matter of general cleanliness—the prevention of accumulations of dirt and waste in corners and closets, the immediate removal of petrol and oil from the floors, and the maintainance of order and neatness throughout the establishment. With floors and lockers in proper order, and with all oil and petrol confined to their tanks, the possible danger from an accidental spark of any kind is reduced to a reasonably safe minimum. There is no guarantee of safety in the mere posting of placards prohibiting smoking, even though phrased in several languages; the only safety lies in the rigid enforcement of the rule by one central authority. The abolition of smoking will doubtless prove a hardship to many, but it has been found necessary in the case of theatres and similar institutions, and sooner or later it will probably be made a legal requirement in the case of garages in the central portions of cities.—Yours truly,

Precaution.

HINTS ON DRIVING METHODS.

To the Editor of *The Motor-Car Journal.*

Sir,—It would be interesting to have the opinions of your readers concerning the best methods of driving a motor-car. Few people are able to spare the time necessary for a course of lessons from competent teachers, and the majority have to rely upon themselves, or the advice of friends, who possibly were in a similar position a few months previous, but have worked out their own salvation in what seems a satisfactory manner.

Their method of driving may, however, be far from the best. One will drive by means of the ignition lever, while another will use the throttle lever. In running down hill there are more ways than one of arranging matters. One driver goes at it on the top speed, with motor running out of gear, relying solely on his brakes, while another stops his engine and uses it as a brake. Yet another will use the middle or low speed gear, with engines either working or switched off, or in or out of gear. Still another uses his foot brake with the hand brake in reserve, while a motorist of my acquaintance always uses his hand brake first. Other problems might suggest themselves, answers to which would make interesting reading and greatly assist those who are anxious to drive well.—Yours truly,

Prometheus.

A QUERY *RE* RUSTY WATER JACKETS.

To the Editor of *The Motor-Car Journal.*

Sir,—Can any of your readers tell me how to remove rust and lime from the inside of the water jacket of my engine? The water obtainable in my district is very hard, and contains much iron, and I cannot procure soft water.—Yours truly,

T. Fothergill.

[We would advise our correspondent to first remove as far as possible all the rust, etc., from inside the water jacket—this by removing water connection plug in the jacket, and scraping. After this is done, by using a small quantity of Boilerine or any composition used for preventing fur in boilers, the rusting and deposit will greatly be reduced.]

LEATHER FOR FRICTION CLUTCHES.

To the Editor of *The Motor-Car Journal.*

Sir,—I should be glad if you or any reader of the *Journal* could inform me as to the right kind of leather to use for the friction clutch of a motor? Also in removing the clutch for the purpose of renewing the leather, is it necessary to use clamps to overcome the spring?—Yours truly,

Lancastrian.

[The best leather for clutches is such as is used by harness makers, this being more pliable than that employed by shoemakers. For the shape it is best to first cut a paper pattern, all wing enough on the width for trueing up. The rivets must be let in the leather so as not to come in contact with the metal portion of the clutch. It is also advisable to turn up the leather after it is riveted on. For removing the clutch it is generally necessary to take down the gear box, no clamps being used. The releathering cannot be done satisfactorily with the clutch in position.]

The Purley Racing Track.—"Philippine" writes asking what has become of the scheme for a motor racing track at Purley, about which so much was heard a year or so ago.

Graphite for Lubrication Purposes.—Messrs. R. Humm and Co., Market Buildings, Plymouth, ask us to mention that they can supply superfine graphite in ¼ lb. tins.

Primary Charging Batteries.—The Boron Battery Company write:—"We beg to contradict the statement of the South Western Motor Company, in last week's issue of the *Journal*. The instruction given, as in all such cases, was to charge each 40 amp.-hr. accumulator with six cells in parallel; any other method, even if 500 cells are used, would only prove a failure."

Oldham Couplings.—"Inquisitive One" writes:—"I often see references to the term 'Oldham Coupling'; as I have failed to find a definition of this in several engineering dictionaries, I think it would be interesting to others as well as to myself if any reader of the *Journal* in a position to do so would inform us what an Oldham joint really is."

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NOTES ON THE PARIS SALON.*

A FIRST glance at the stands at the recent Paris *Salon* did not reveal any striking novelties, and it needed a careful inspection to notice those improvements in details of construction which characterised the Exhibition. In general design, a distinct and welcome tendency towards simplicity was evident and less was seen of individual freaks. The French Exhibition appears to scorn the small car, more than half the vehicles displayed being rated at over 20-h.p. In fact, with a few noticeable exceptions, the small cars which attracted attention were not of continental make. Taken as a whole, there was very little indication of any considerable fall in prices, which I notice Mr. Siddeley has estimated to work out at an average of £40 per horse-power for four-cylinder cars. Other points brought out by the Show are the predominance of four-cylinder motors, the rapid adoption of magneto ignition, and the continued influence of Mercedes practice. Last year one saw everywhere the cellular radiator, the square bonnet, and the pressed steel frame which the Cannstatt Daimler firm had introduced. This year there has been a general copying of Mercedes practice in regard to change gear with two sliding sleeves, forward moving pedals, fly-wheel fans, sheet metal aprons, pressure-fed petrol. Just as the earlier model for builders was the Panhard, on account of its successful adoption of the vertical motor in front, the sliding gear, and wheel steering, so now it is the Mercedes which sets the fashion on account of the practical genius of its designers, coupled with care in selecting for each of its parts material of the most suitable composition, and disposing that material in the best way to stand the strains to which it is subject. We in this country, and our kinsmen over the sea, may certainly claim credit for greater originality of design than is found on the Continent, and when our products are seen fairly side by side with those of foreign makers, I do not fear the comparison.

In engines themselves no considerable change is general. Separately cast cylinders seem to be coming back to favour, probably because they are cheaper to repair, and permit a bearing between each crank. Light water jackets, mechanically secured around the cylinders, are giving place again to jackets cast with the cylinders. Cam shafts and their gears are now generally enclosed in an extension of the crank case, though others seem to take a delight in obstructing the front part of the machine with a gorgeous display of fibre and gun-metal wheels, some of them as big as those in the gear box. Pipework is greatly improved from the points of view of neatness and efficiency by the general adoption of shorter and more direct pipes of larger diameter. Considerable trouble has evidently been taken in many cases to place the carburettor symmetrically with regard to the engine, so as to avoid differences in suction on the carburettor on account of the differing lengths of induction pipes to the cylinders. The advantage of reducing the volume of the exhaust gases by cooling before reaching the cylinder is beginning to be appreciated, and gilled exhaust pipes for this purpose are in evidence; even water-cooled, in one case, where the exhaust valves must gain from this kind treatment.

Carburettors are noticeably simpler, though nearly all have some device which attempts to obtain automatically a constant mixture at all speeds of the engine, and with all degrees of throttling. A good deal of attention has again been given to water circulation, and though it has become recognised that a cheaply-made cellular radiator is a source of endless trouble, yet the advantages of this pattern in giving more cooling surface per unit of weight have led to its adoption on almost all the larger cars in preference to the cheaper flanged tube pattern, which is, nevertheless, as simple and strong as anything that has been designed. In a few instances natural circulation is relied upon, and there are some laudable attempts to make the engine more accessible by removing the radiator from the front of the engine to the dashboard. On the majority of cars there is at least one fan, and on many there is one in front close by the radiator and another in the flywheel. This second fan is, of course, only of use if there is a closed-in metal case under the engine, and in this connection it is curious how few firms seem to take the trouble to make their fan blades fit their surroundings. Unless the blades are almost surrounded by some sort of circular duct there must be waste, and the usual plan of having a few small blades spinning about at the centre of a large square radiator may, perhaps, churn up the warm air that is already under the bonnet, but it cannot materially increase the amount drawn through the radiator.

There is a tendency to omit the ordinary form of ball governor and substitute a throttling device, actuated from some medium whose pressure varies with the speed of the car, and which is necessarily there for some other purpose—for example, the Panhard hydraulic governor, worked by the pressure of the circulating water, and the Winton pneumatic governor, one of the simplest and most ingenious combinations for securing the correct mixture at all speeds, whilst at the same time forming an effective speed governor. Though there is still room for improvement, much has been done to avoid inaccessible parts. In particular it was interesting to notice that several firms have at last abandoned the idea that there is never any need to get at the big end bearings of the connecting-rod, and are now taking pains to so design their main bearings and engine supports that the lower half of the crank case can be dropped down without first taking everything else out of the car. It is also becoming appreciated that even if valves are correctly set by the makers originally, the inevitable wear makes it very desirable to have better means of accurate adjustment than has hitherto been usually given. To this end the Mors firm provides simple means of adjusting all valves separately, and the desirable practice of clearly marking the fly-wheel and providing a pointer to show the position of the pistons in the various cylinders is becoming more general. The acme of accessibility was reached in a most ingeniously designed engine, which it was possible to take completely to pieces in three or four minutes, and in most cases the device for obtaining this desirable result seemed mechanically sound. Though there is a natural reluctance to have an engine which might conceivably resolve itself into its constituent fragments unexpectedly, yet I shall be surprised if some of the features of this engine do not come into general use.

Perhaps the most marked improvement in any part of the cars is in the electrical accessories. With the strange exception of one of the leading models, we no longer see those straggling wires which used to be so conspicuous and troublesome. This is partly due to the more general adoption of magnetos, and partly to the greater care taken in rigidly supporting and encasing all wires. In this connection it is doubtful, however, whether the use of red fibre will prove satisfactory in view of the way in which its insulating powers are affected by heat and damp. Where the battery and coil are retained one finds few commutators hidden out of the way behind the frame, as was frequently the case hitherto. A vertical spindle for the commutator, driven by bevel gear, is now very usual, and allows a handy position to be chosen for it. It would be interesting to know whether the claim that the spark from a high-tension magneto is capable of igniting a mixture of 1 part of petrol vapour with 19 of air, whereas the weakest mixture which the ordinary induction-coil spark can deal with under the same compression is 1 in 15, is substantiated by experiment. It is surprising to find some of the well-known makers abandoning all means of adjusting the point of ignition. This is presumably done to avoid possible damage by an unskilled operator with the increased engine-powers now usual, but it can hardly fail to reduce fuel efficiency and to increase the noise of the exhaust. Unfortunately, the reactions which take place in the electrical systems of high-tension magnetos tend to retard the spark as the speed increases, and there would therefore seem less excuse than ever for a fixed point of ignition in this case. If it is really found that serious damage is often done by the ignorant when they are provided with means of altering the time of ignition, it would seem better to move it automatically by means of a governor rather than abolish it.

Turning now to the transmission, there has perhaps been more care bestowed on this part of the car than on any other. We see a continuance of the praiseworthy efforts of the past year to reduce the number of steps in speed reduction. The problem is becoming more involved to those who, like the Mors Company, are anxious to have the minimum number of gears in mesh not only on "top notch," but also on those speeds where power waste is most to be avoided—the hill-climbing gears. Many makers are awaking to the fact that the ordinary direct drive on top notch, which is so much liked for its silence, has the drawback of introducing two-gear reductions, with the corresponding loss of horse-power on the hill-climbing speeds. The cure sought has, in some cases, been the simple one of reverting to the old plan, as in the Panhard gear box of 1904, but to cut the gears more carefully to avoid noise. One firm obtained the economy of one reduction on the lower speeds by having two bevel wheels instead of one, as is usual on the differential shaft, one bevel for a high, and another for a lesser speed reduction. The plan seems good, the wear is divided between the two, so that both will remain undamaged for a longer period, and as the heavy work never comes on that bevel which is used on the level, the faces of its teeth are not likely to begin striking with that musical note which some motorists are perverse enough to enjoy.

Finality in clutches has not yet been reached, and a desire to secure some form of metal-to-metal clutch which will allow of gradual application is noticeable. Several forms of multiple ring or disc clutches running in oil were shown, one having three concentric rings, of which the inner one comes into operation first and the outer last. In another case an epicyclic gear is combined with the clutch, so that as the clutch is gradually let in the first action is to start the car moving on a lower gear through the epicyclic train, and then to lock the epicyclic gear and connect the engine direct to the transmission shaft. A well-ventilated and lubricated clutch which can be allowed to slip when desired may yet be the solution of the gear question. The extra loss of power in friction which this would involve beyond that in the numerous gears displaced is not a matter of very great moment when starting from rest, and the advantages from the point of view of simplicity and cost would be considerable. I know that the leather-lined clutch has given fair satisfaction and can slip, but continued slipping is impracticable between any surfaces which are not good conductors of heat.

In gear boxes the Mercedes pattern with two sliding sleeves seems the most popular, and there is a laudable desire to avoid bringing levers through the bottom of the gear-box and so encouraging waste of oil. One or two makers have realised the advantages of double helical or herring-bone gearing for diminishing noise, removing end thrust, and increasing efficiency. In almost all the larger cars the gear-box shafts are provided with ball bearings. Where live axles are used, the wheels more often take their bearings on the outside of the stationary tube than hitherto, so as to relieve the live axle itself from sagging strain. The users of propeller shafts have evidently felt the need of some elasticity in their transmission, and several forms of spring drive were noticeable. Bodies and body suspension show two very marked features. By far the large majority

* Extract from a Paper read by Mr. Edward H. Cozens-Hardy at the Automobile Club on January 19th.

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of bodies exhibited were of the closed pattern, with side entrance, and apparently of considerable weight, and there was a noticeable tendency to increased length of spring.

Perhaps the occasion of the Paris *Salon* is a legitimate one for discussing the use of French terms. Personally, I see nothing wrong about the word "chauffeur," except printing it in italics and attempting to pronounce it as if it were French. It records automobile evolution from the days of steam, it is not a term of servitude like "coachman," or "motor-man," or "driver." It is a useful word, conveying as definite a meaning as the words "chassis," or "police trap," and does not imply too much, like "automobilist," or specialise too much like "steersman." Motoring has developed entirely since the days of newspapers and telegraphs, hence its new terms must become international, and the balance of indebtedness is well on the side of the Continent, where the words "sportsman," "moto-girl," "stop," "alright," "stand," "respectable," "speed," "gentleman," "square," "shocking," "barmaid," "record," "yes," "endurance," "touring," "club," have been found by the writer on one page of a French automobile journal this week.

THE BIRMINGHAM MOTOR SHOW.

THE first of a new series of motor exhibitions in Birmingham was opened in the Bingley Hall on Saturday last by the Lord Mayor of the city, Mr. R. H. Berkeley, and closes to-day (Saturday). Most of the cars on view have already been dealt with in the *Journal*, but a brief *resume* of the exhibits may not be without interest.

One of the largest exhibits is that of the WOLSELEY TOOL AND MOTOR CAR COMPANY, LIMITED, the cars on view ranging from the popular 6-h.p. two-seated to a handsome 24-h.p. brougham. Fig. 1 depicts a useful adaptation of the 6-h.p. vehicle for use as a light parcel delivery van or as a commercial traveller's car. A replica of the 28-36-h.p. Daimler car, which created a record by scoring the first five places in the Sunrising Hill climb held last summer by the Midland Automobile Club, is shown on the stand of Messrs. G. T. HEATH AND COMPANY. The car is fitted with a tonneau body of the Roi des Belges type. Messrs. HEATH also exhibit examples of the 8-h.p. and 15-h.p. Darracq cars, and a Corre 9-h.p. *chassis*.

The ROVER CYCLE COMPANY, LIMITED, furnish one of the chief features of the Show in their new 6-h.p. two-seated car. We give an illustration of the little vehicle, which has been introduced to meet the demand for an automobile at a popular price, in Fig. 2. In general arrangement it is a minature reproduction of the 8-h.p. Rover recently described in these columns. The motive power is supplied by a single-cylinder engine 95 mm. bore by 110 mm. stroke. The valves are mechanically operated and the mixture is furnished by one of the Rover automatic carburettors. A new design of cam shaft is employed, so arranged that it can be quickly detached. The car is gear driven, three speeds forward and a reverse being available. The wheel base of the new car is 6 ft. and the track 4 ft. The wheels are of the cycle type, 28 in. dia. and shod with 2 in. tyres. The



Fig. 1.—The Wolseley 6-h.p. Commercial Traveller's Car.

vehicle, which can attain a speed of twenty-four miles per hour, is attracting considerable attention and seems likely to become a popular type, particularly in view of its relatively low price.

One of the latest 12-h.p. Pipe cars is shown by the LONDON MOTOR GARAGE. The engine comprises four cylinders 80 mm. bore by 124 mm. stroke. The valves are all mechanically actuated by one camshaft. A special form of carburettor is employed to furnish the mixture, a jacket being fitted to it through which part of the hot water may be circulated. The transmission is by side chains, four speeds and a reverse being provided. NEWEY'S MIDLAND GARAGE makes a big display, the cars on view comprising the latest types of Napier, De Dion and Star vehicles. The BIRMINGHAM MOTOR-CAR COMPANY have on view examples of the 20-h.p. Hotchkiss and 10-12-h.p. Argyll cars, the new features of which we dealt with in our report of the Paris *Salon*.

Messrs. HORNER AND SONS exhibit for the first time a new type of American-built car known as the Queen. These are made in two sizes, 12-h.p. and 16-h.p. The horizontal engines have mechanically-operated valves. The cars appear to be well finished and are fitted with a detachable tonneau body. On the same stand is a Leda motor-launch with a 1½-h.p. motor. The boat will carry six people comfortably, and with this load can make about six knots. A range of tyres and motor-car accessories are also displayed. The Mobile cars are shown by the MOBILE MOTOR ENGINEERING COMPANY, LIMITED. The 6-h.p. and 8-h.p. types, which are fitted with De Dion motors, are now provided with armoured wood frames and wheel control. Three speeds forward and a reverse are available, the power being transmitted through a cardan shaft to a rear live axle. A handsome vehicle is the 24-30-h.p. Mobile with pressed steel frame and the latest type of Aster

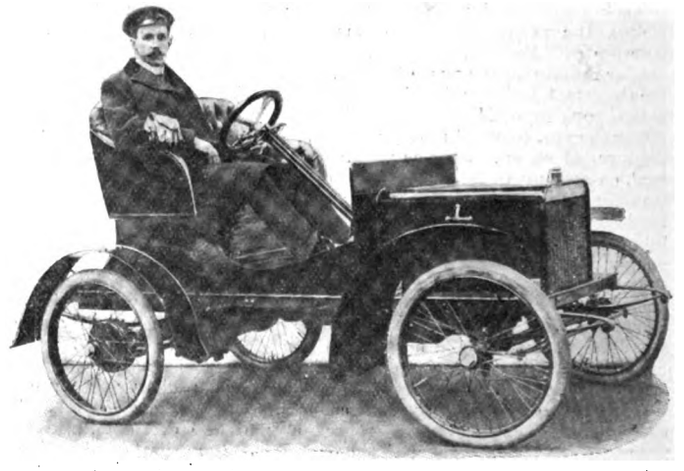


Fig. 2.—The Rover 6-h.p. Car.

engine; the car is chain driven and is provided with a well-appointed side entrance body. The BEAUFORT MOTOR COMPANY display a number of Beaufort cars, including a 15-19-h.p. Princess side-entrance double phaeton and a 12-18-h.p. double-cylinder petrol lorry. The LANCHESTER MOTOR COMPANY, LIMITED, are also present with several of their well-known cars.

The BELSIZE MOTOR-CAR AND ENGINEERING COMPANY, LIMITED, show one of their 18-24-h.p. three-cylinder cars, the engine of which has mechanically-operated inlet valves and an automatic carburettor. Three speeds and a reverse with a direct drive on top speed are provided. A new model is found in a 12-h.p. double-cylinder Belsize car with central chain transmission. The engine, which has mechanically-actuated valves, is 4 in. diameter by 4½-stroke. The car is arranged as a two-seater, but an extra seat can be fitted at the rear when desired. Mr. MILBROWE SMITH shows a 16-20-h.p. car fitted with Aster engine. The vehicle has a pressed steel frame and is built throughout on modern standard lines. Messrs. ALLDAYS AND ONIONS exhibit a number of their motor-bicycles and a new 8-h.p. four-seated car, while the Martini cars are shown by Messrs. H. H. P. DEASY AND COMPANY, LIMITED.

A novel form of tri-car, known as the Priory Autette, is exhibited by the HAMILTON MOTOR COMPANY. The transmission is not by gears, belts, or chains, but by means of an infinitely variable gear obtained by a to and fro motion of a rod connecting the engine shaft with the lower extremity of an upright lever. The latter is pivoted at its centre. Able to slide from the upper extremity of the lever to the centre and below it is a bearing on which two rods are pivoted. These rods are directed to two ratchet wheels arranged as free wheels on the axle of the back wheel. The rods act on opposite sides of the circumference of the wheels, and are so arranged that one can pull the ratchet wheel from above and the other push it from below. By manipulating the slide above mentioned by means of a lever at the side of the driver the length of stroke of the two rods can be altered, and thus the length of push. There are other novel points about the machine, notably an ingenious method of steering and the way in which the machine is sprung.

A new firm in the heavy petrol wagon branch is Messrs. F. G. PICKERING AND CO., LTD., of Berwick-on-Tweed, who display a 20-24-h.p. vehicle designed to carry a load of two tons at a speed of twelve miles per hour.

In the heavy steam wagon section we noticed a seven-ton vehicle, shown by Messrs. FODENS, LTD., a four-ton wagon by the BRISTOL WAGON AND CARRIAGE WORKS CO., LTD., a five-ton lorry by the YORKSHIRE PATENT STEAM WAGON CO., LTD., and a five-ton tip wagon by Messrs. JAS. ROBERTSON AND CO. Messrs. JESSE ELLIS AND CO., LTD., also intended to show one of their four-ton wagons, but at the time we visited the Exhibition on Monday we learned that it had been delayed on the road owing to the heavy snow encountered on the way down from Maidstone. It was, however, only a few miles from Birmingham, and is doubtless by this time in position on its stand. Messrs. WALLIS AND STEEVENS, LTD., are present with one of their useful steam tractors, while Messrs. CLAYTON AND SHUTTLEWORTH, LTD., also show for the first time one of their new tractors.

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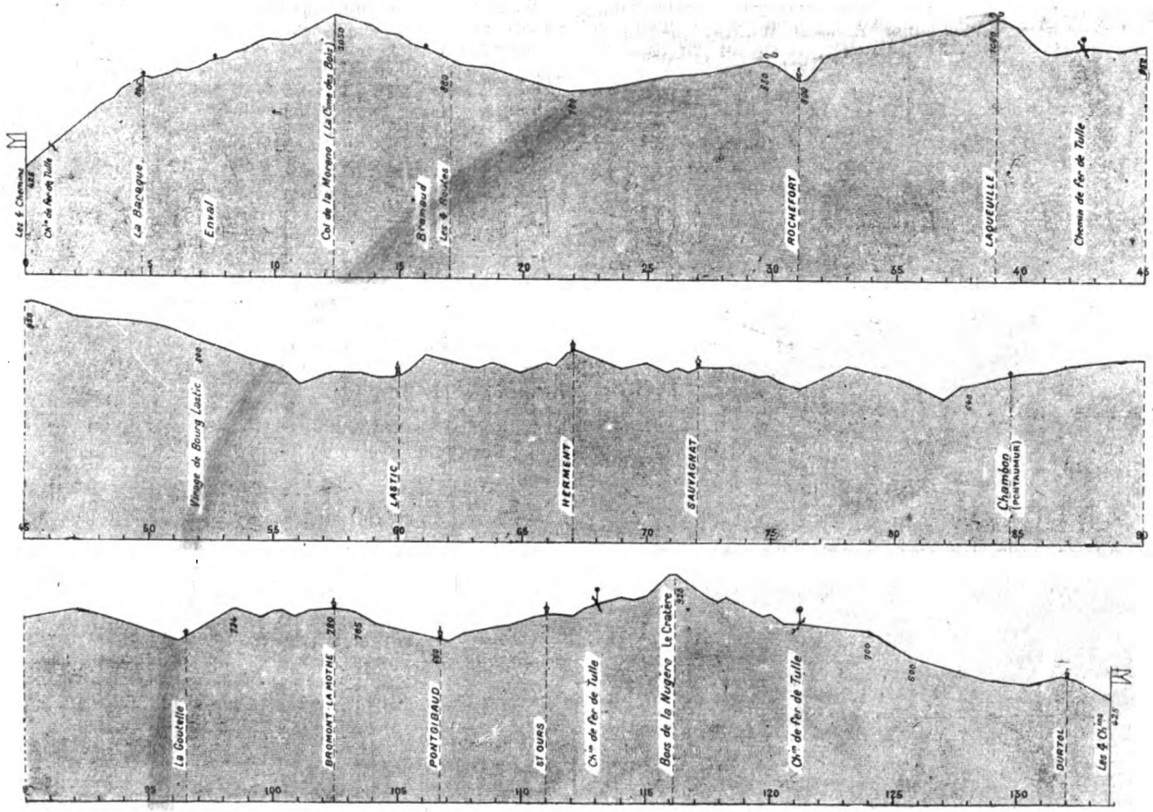
Messrs. ALFRED DUNHILL, LTD., have as usual a large stand, on which is displayed a very complete selection of their "motoralities." The Haste water circulating pump, described in a recent issue of the *Journal*, is to be seen at the stand of the ASTON MOTOR ACCESSORIES COMPANY, where are also displayed the A.V. sparkling plugs and other ignition accessories.

The VACUUM OIL COMPANY, LIMITED, make a display of their well-known lubricating oils and greases. The "One Year" sparking plug, which we can recommend from practical experience, is to be seen at the stand of Messrs. LAMB BROTHERS and GARNETT.

A new speed and mileage indicator is shown by the SPEED AND MILEAGE RECORDER COMPANY. The BRITISH MOTOR FITTINGS COMPANY display a series of the J.A.P. cycle motors, ranging from 2¼-h.p. air cooled to 4½-h.p. water-cooled, as also the new two and three cylindor air-cooled engines. Other exhibits include the Prested batteries and patent accumulator charging board, the Watawata motor-cycle belt, and a comprehensive set of motor-car parts.

Challiner's mechanically-attached pneumatic tyre is shown by the SHREWSBURY AND CHALLINER TYRE COMPANY, who also exhibit a variety of rubber tyres, notably their "Twin Solid" type, which is being used on public service vehicles. Motor-car and cycle tyres are also exhibited by the BAVARIAN RUBBER AND ASBESTOS WORKS, the SELF-SEALING AIR CHAMBER COMPANY, LIMITED, and Messrs. DAVID MOSELEY AND SONS, LIMITED. THE SHAW MOTOR TYRE TREAD COMPANY are again making a feature of their non-skid bands, and also display their emergency garter for burst tyres. Non-skid devices are also shown by the WILTON COX DEVICE COMPANY, Messrs. DESILEE AND COMPANY, and Messrs. GROSE, LIMITED.

display a number of Ford cars. The Pivot cars, made in three sizes, 16-h.p., 24-h.p., and 30-h.p., are exhibited for the first time in this country by Mr. P. Cuthbertson. Messrs. Benz and Company have a range of the latest models of Benz cars. Of the Horbick cars, Messrs. Horsfall and Bickham stage examples of three and four cylinder cars. The Vinot cars, in 10-h.p., 14-h.p., and 20-h.p. *chassis*, are shown by Messrs. T. J. Harman and Company, and the popular Jackson dog-cart by Messrs. Reynold Jackson and Company. In addition to their well-known non-skid bands, the Otto Bennett Motor Company exhibit the Avon Tri-mobile. The British Automobile Commercial Syndicate have an extremely interesting range of cars on view, including the Spyker, Hotchkiss, Altona, Fiat, Mercedes and Bollée. Three sizes of the Brouhot cars and a side entrance Dechamps will be found at the stand of the Brouhot Motor Company. Mr. W. H. M. Burgess is displaying Clement-Talbot and Altona cars. In addition to examples of their 10-h.p., 10-12-h.p., 14-18-h.p. Hallamshire cars, Messrs. Durham, Churchill and Co have on view specimens of their change speed and steering gears, and also reversing gears for motor-boats. The Neue Automobil Gesellschaft exhibit an extensive range of the N.A.G. cars, which enjoy a high reputation in Germany. The cars on view range from 8-h.p. double-cylinder to 20-24-h.p. four-cylinder. The Star Engineering Company are present with examples of their 20-h.p., 10-h.p., and 7-h.p. cars, one of the latter being fitted with a detachable brougham top. Messrs. Hall and Co., in addition to a range of Darracq



The Gordon Bennett and Grand Prix Race. Profile of the Circuit d'Auvergne. [*La France Automobile.*

THE CRYSTAL PALACE AUTOMOBILE EXHIBITION.

THE first of the series of London automobile exhibitions, which opens at the Crystal Palace to-day (Friday), while not of large dimensions, will be found to be of a varied character. Altogether there are about eighty exhibitors, and among those displaying petrol cars are Messrs. Friswell, Limited, a range of Peugeot cars being shown on their stand. In the centre will be a landaulet, distinguishable this year from the fact that the steering column is taken through the dashboard. Two models of the popular Baby Peugeot are on view, No. 1 having a sloping bonnet and ordinary open seats, and No. 2 a honeycomb radiator, square bonnet and bucket seats. A comparatively new model is the 7-9-h.p. Peugeot, which has a two-cylinder engine fitted with magneto ignition and wheel control. Examples of the 12-16-h.p. side entrance Peugeot, the 10-12-h.p. four-cylinder car, and of the latest 28-32-h.p. type are also to be seen.

Another large stand is that of Clement-Talbot, Ltd., on which cars extending from 7 to 50-h.p. are shown. The Central Motor-car Agency cars of the 1905 type, exhibit a novelty in the 5-h.p. "Lilliput" car with friction drive, which has been introduced to meet the demand for a two-seated vehicle at a popular price.

Electrical vehicles are displayed by the Krieger Electric Carriage Syndicate and the Scheele Electric Carriage Company. Heavy steam vehicles are shown by Messrs. Jesse Ellis and Company and the Thames Engineering Company. The latter, which is a new comer in this branch of motor engineering, in addition to a four-ton steam lorry, is exhibiting a 20-cwt. petrol van. Messrs. Wallis and Steevens exhibit one of their miniature traction engines. Probably the largest stand in the show is that of Messrs. Dunhill. Ltd., whose exhibit comprises "everything but the motor.' Messrs. Geo. Polkey, Ltd., exhibit the Sampson acetylene head-light reference to which is made in another part of the present issue, and are inviting suggestions as to the best methods of conducting a trial of motor head-lights, a matter in which they are greatly interested. Messrs. G. T. Riches and Co. display the latest form of the Eisemann high-tension magneto ignition and other electrical accessories. Amongst the other exhibitors are Messrs. Adams and Co, (jacks), the Anglo-American Oil Co., Aquascutum, Ltd. (motor clothing), Messrs. Botiaux (carriage work), Messrs. Beardmore and Co. (motor-car frames), Chloride Electrical Storage Co., Ltd. (accumulators), Continental Caoutchouc and Guttapercha Co., Mr. C. H. Edenborough (oils), Messrs. Burberry (motor clothing), General Accident Assurance Corporation, Ltd., Messrs. Glaskin and Co., Messrs. Green and Son (motor lawn-mowers), the Gratze Patents and Engineering

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Syndicate, Ltd. (speed indicators), the Horley Motor Co., Messrs. King and Co. (motor-boats), Messrs. Longstreths, Ltd. (accumulators), the Motor Patent Appliances Co. (motor-car whistles), the Market Harborough Rubber Co., Patcho Ltd., Messrs. S. Smith and Sons (motor clocks and speed indicators), Messrs. Sawyer and Co. (non-skid bands), Union Accident Insurance Co., Messrs. Lacoste and Co. (ignition apparatus), Messrs. Kuettner and McDonell (accumulators), Messrs. Leonard and Co. (motor-cycles and the Leonard car), Messrs. D. Moseley and Sons, Ltd. (tyres), the New Kyma Car Co., the North British Rubber Co., Price's Patent Candle Co., Ltd., Messrs. Statter and Co. (jacks, lamps, etc.), the Samson Leader Treads and Tyre Co., Ltd., Stern-Sonneborn Oil Co. (oils), Messrs. Vandervell and Co. (accumulators), and Messrs. Willcox and Co. (oils and general motor-car accessories).

In connection with the Exhibition, which closes on February 4th, a series of competitions is being organised, relating respectively to accessories for cars and for motorists, and non-slipping contrivances.

CLUBS AND ASSOCIATIONS.

NORTHAMPTONSHIRE A.C.

THE first annual dinner in connection with this club was held at headquarters, the Great Northern Hotel, Peterborough, on Thursday of last week. Councillor Richard Winfrey presided, and amongst those present were:—Mr. F. W. Southwell (who occupied the vice-chair), Mr. A. Noel Mobbs (secretary of the newly-established automobile



Motorist to Tramp (who has been knocked down): "While down there you might just see if the tyre is all right!"

club at Northampton), Mr. T. Cooke (Yaxley), Mr. T. W. Mays, J.P. (Bourne), Mr. A. Adams, Mr. R. Julyan, Mr. H. Ruff, Mr. J. Rowe, Mr. F. S. Southwell, Mr. R. Parris, Mr. C. Godfrey, Mr. W. Walshaw' Mr. F. Caster, Mr. F. J. Redhead, Mr. R. G. Gentry, Mr. C. Guest, Mr. F. C. Colls, Mr. J. Montgomery, Mr. F. Heighton (of the Peterborough and District M.C.), Mr. E. H. M. Wood (secretary and treasurer) Mr. J. E. Plummer, Mr. R. Woodman, Mr. F. Clarkson, and Mr. F. W. Morris.

After the loyal toasts had been duly honoured Mr. A. Noel Mobbs proposed the toast of "The Club." He expressed the thanks of the Northampton automobilists that they (the local club) had consented to change their name to the Peterborough and Counties A.C., in order that their old appellation, "The Northamptonshire Club," might be adopted by the county town. He hoped that the two clubs might have some joint runs next season, so that their members might become acquainted with one another, and possibly they might organise a hill-climbing competition or something of that sort. If they could arrange a competition or a gymkhana he should be pleased to do all he could to make it a success. Mr. E. H. M. Wood (the energetic secretary) responded. He mentioned that they had had a fairly successful first year. The club commenced in good earnest, and then for a time things went a bit slack. However, they soon got some fresh works in the form of an Executive or Winter Programme Committee, and since then they had done extremely well. After acknowledging the assistance of several individual members, Mr. Wood mentioned that they hoped shortly to amalgamate with the Peterborough and District Motor Club. He had received a communication from Mr. Heighton saying that their club had consented to the union. In the future, therefore, he had every reason to believe that theirs would be a big organization. He hoped the club might be able to start the season with a speed trial in Milton Park in the morning, a hill-climbing competition at Caistor in the afternoon, and possibly a dinner in the evening. That should give the club a very good send-off. Mr. J. Montgomery gave "The Visitors." He said that motorists seemed to be buffeted about by hostile J.P.'s and "horsey" gentlemen, but if they united they would be a power in the land. If they showed gentlemanly conduct on the road the prevalent prejudices would soon wear down. He would like to have seen the bishop, who had lately joined the ranks of automobilism, present, but he was pleased to notice his Lordship's driver, Mr. Plummer, amongst them. The latter humorously replied. Other toasts followed, and an excellent programme of music and singing was rendered in the course of the evening.

HEREFORDSHIRE.

THE annual general meeting of the Herefordshire Automobile Club was held at the Mitre Hotel, Hereford, last week, when Mr. J. T. Hereford presided. The hon. secretary and treasurer, Mr. Wilfred Groom, in submitting his report and statement of accounts, said he thought the club ought to congratulate itself on the fact that it had a balance at all in hand considering the large demands made upon its funds. He pointed out that they had relieved the A.C.G.B.I. of nearly £100 in expenses in connection with the recent small car trials. This was a large amount for a new and small club to find, the half of whose receipts were paid away in fees to the A.C.G.B.I. for affiliation. However, there was a balance in the bank of £2 9s., and he saw no reason why there should not be a handsome balance to their credit at the end of 1905, as they would not have the expenses of forming the club again, nor would they have to work fifteen months instead of twelve on one subscription.

The following officers were elected:—Col. E. S. Lucas Scudamore, president, Col. Hopton, Rev. H. G. Morgan, Messrs. J. T. Hereford and H. Graystone, vice-presidents. Capt. Inglefield, Messrs. E. W. Chave, J. Fryer, J. H. Hall, E. C. Woollard, A. W. Marriott, Q. Miller, A. Townsend, J. C. Vaughan, J. Parker and E. W. Langford, committee, and Mr. Wilfrid Groom, hon. sec. and treasurer.

It was decided to approach the County Council over the Universal Lighting question, and the hon. sec. was requested to ascertain the views of other provincial clubs on the matter.

A vote of thanks was passed to Mr. J. T. Hereford for his services during the past year as president, and to Mr. Groom as hon. sec.

SHEFFIELD.

THE committee of the Sheffield Club will have a very satisfactory report to present to the members at the annual meeting to be held on Monday next at the King's Head Hotel, Sheffield. The balance at the bank is £78, and during 1905 it is proposed to have a short-distance speed contest, if a suitable private road can be obtained, a gymkhana, the annual hill-climbing competition, in addition to lectures, the monthly club meets, and other events. A strong sub-committee is at present revising the rules under which the various club trials are held.

AN "ADVANTAGE" AND A "SOURCE OF DANGER."

AT the Marylebone County Court, last week, before Judge Stonor, Mr. Thomas McKenna, 31, Basinghall Street, E.C., sought to recover £3 12s. from Mr. Alfred Henry Waters, 9a, Harrow Street, Marylebone, W. The claim was in respect of damage to a motor-car, alleged to have been caused through the negligence of one of defendant's cabmen. The plaintiff stated that, driving his motor-car slowly along the Marylebone Road one morning, he had to stop rather sharply, because a 'bus immediately in front did so. Half a second later a shaft of a four-wheeler, driven by one of defendant's men, smashed into the back of the motor-car.

In cross-examination, the plaintiff said that he had had considerable experience in driving motor-cars. The defendant's driver in question said that the motor-car "must have backed into the shaft."

His Honour remarked that the ability to stop motor-cars dead almost instantly was often an advantage; but it was easy to see that it might prove a source of danger; for, of course, a horse could not be stopped in the same way. A London cabman, however, should by this time know something of the peculiarities of motor-cars; and, as regarded the present case, his Honour thought that the cabman was to blame in getting so close behind the motor-car. Judgment for the plaintiff, with costs.

CELEBRITIES of the motoring world, including the King, the Duke of Connaught, and Mr. A. J. Balfour, are included in a new series of picture postcards brought out by Messrs. Raphael Tuck and Sons, Limited. They are produced by the firm's well known oilette process.

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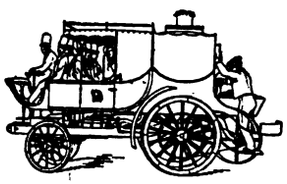
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COMMENTS.



THE suburbs of London will soon prove to be a network of motor-'buses, and at Upper Norwood an agitation is being organised urging that a motor-'bus service may be instituted there in place of the tram-lines, which one section of the community is advocating. Another suggestion for the development of public-service vehicles in South London is that the Brighton Railway Company should run two or three motor-'buses in connection with some of their stations in the southern suburbs. At Croydon, where the tramcars have established a monopoly of the High Street, suggestions for motor-'buses are also becoming rife. After five weeks' successful running of the Orion motor-'bus upon the actual work required of it by the London General Omnibus Company, Messrs. Moss and Woodd stopped the 'bus and had the machine to pieces for the inspection of the company's engineers, who found no appreciable wear or strain on any of the parts. This week Messrs. Moss and Woodd have received an order from the London General Omnibus Company for a large number of vehicles.

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Inland Revenue.

THE Inland Revenue authorities, on the declaration form for motor licences, point out that "when, by reason of a change in the character of a motor, an additional licence is duly taken out upon payment of a full year's duty, the duty paid on the motor previously kept will be repaid by the Collector of Inland Revenue." We take this to mean that where a motor-cyclist who has paid 15s. for a licence for a motor-bicycle decides in the same year to go in for a car, he will have to take out a new licence for £2 2s., but will have the 15s. previously paid refunded to him. Perhaps some of our readers who have been thus situated will let us have their experiences.

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The Automobile Mutal Protection Association.

A MEETING of the Council of the Automobile Mutual Protection Association took place on Thursday of last week at the registered offices of the society, Cecil Chambers East, Strand, W.C., when the chair was occupied by the President, the Earl of Shrewsbury and Talbot. There were also present:—Messrs. Charles Cordingley, Henry Spurrier, jun. (the Lancashire Steam Motor Co. Leyland), W. E. Rowcliffe (the Hercules Motor Wagon Co., Manchester), W. Lecoq le Bride (the Roadway Autocar Co.), A. Pereno (the Farman Automobile Co.), Walter H. Maudslay (the Maudslay Motor Co., Coventry), J. Donovan (the Londonderry Steam Wagon Co.), F. P. S. Harris (the General Petroleum Co.), Lt.-Col. Elton-Burroughs (Messrs. Hewetson's), and Albert Brown (Messrs. Brown Bros.). It was reported by the secretary, Mr. E. Shrapnell Smith, that the Automobile Club of Great Britain and Ireland had rejected the proposal of the Society of Motor Manufacturers and Traders, that the Heavy Motor Trials should be held in April, and that the recommendation of the Mechanical Transport Committee of the Automobile Mutual Protection Association, that the trials should take place early in September, had been agreed to by the Club. Various matters of procedure in conjunction with the forthcoming Royal Agricultural Hall Motor Car Show, from March 18th to 25th, which is under the patronage of the Association, were discussed, and it was formally reported that the commercial vehicle section of this Exhibition would receive the official support of The Motor Van and Wagon Users' Association, which body had also appointed a jury of experts to make awards for novel features in design. The fourth annual general meeting of the Association was fixed to be held during the same show. The following firms, being Nos. 182 to 191 on the register, were admitted members of the association:—Messrs. H. E. Hall and Co. (Tonbridge), the Cowey Engineering Company, Limited (Kew Gardens), Messrs. Lewis (Liverpool, Birmingham and Manchester), Messrs. Dean and Burden Bros., Limited (Salisbury), the Shrewsbury and Challiner Tyre Company, Limited (Manchester), Messrs. Scammell and Nephew (Spitalfields), Messrs. John Stewart and Son, Limited (Poplar), Messrs. H. M. Hobson, Limited (Chelsea), Messrs. Jacobs and Barringer (London), and the Glasgow Motor Lorry Company, Limited (Glasgow). Meetings of the Finance and Mechanical Transport Committees were also held, the latter under the chairmanship of Mr. Walter H. Maudslay, of Coventry.

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Non-Skidding Bands.

EVEN when the tyres of the rear wheels of a motor-car are fitted with non-skid bands, it is necessary to drive with care on greasy roads, especially on turning cars. In the course of a conversation with a well-known member of the Automobile Club the other day, he told us how on turning a corner the front wheels of his car skidded into the kerb, breaking one of the wheels. What had happened, so far as he could gather, was that he had taken the corner a little quicker than he should, and a skidding tendency being present which the non-skids on the rear wheels would not allow to have effect, the motorists' bugbear transferred its attentions to the front wheels, with the result mentioned. The sensation was, so he informs us, a strange one—just as if the steering gear of the car had become inoperative. The moral of the story is that, notwithstanding non-skids are fitted, greasy corners must be negotiated slowly and with care.

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Honours for Motorists.

HONOURS in the peerage are being bestowed on two distinguished motorists who have won fame in the legal world. Sir Francis Jeune, the retiring President of the Divorce Court, was one of the first to associate himself with the automobile movement, and his speech at one of the earlier Agricultural Hall exhibitions first drew attention to the valuable assistance the motor-car would render country gentry in extending their social radius in the country. Mr. Graham Murray, M.P., who is to be the Lord Justice-General and Lord President of the Court of Session in Scotland, is also a motorist, and has

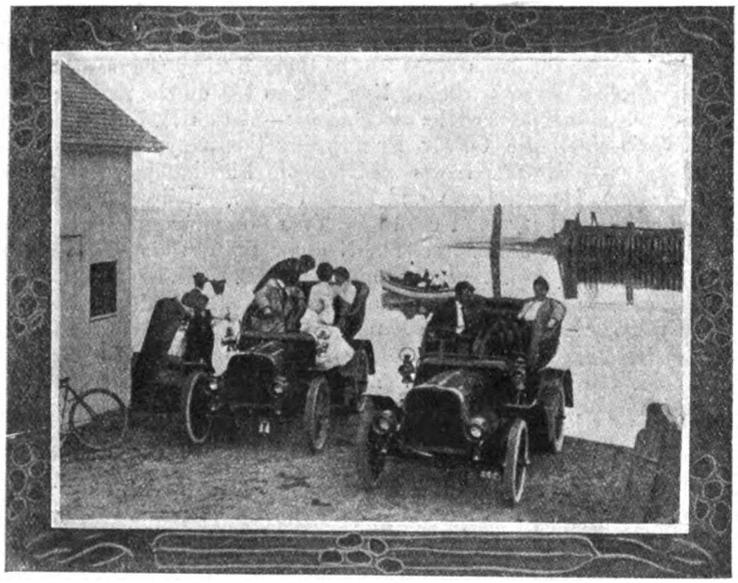
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lately used his great influence north of the Tweed to make easier the path of the motorist. We congratulate both gentlemen on the honours they have received, and would also offer felicitations to the automobile movement on thus extending its influence among the greatest in the land.

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Motoring in Sussex.

EVERYTHING points to a lively season for the motorists of Sussex, who successfully inaugurated their Automobile Club on Saturday—as is recorded on another page — when committee and officers were elected, and some useful work was done. The idea is that, while Brighton will be the headquarters of the county organisation, sub-centres will be formed throughout Sussex, which will actively concern themselves with local movements likely to adversely affect the rights of motorists. A resolution was adopted against the proposal to close Middle Street, Horsham, to motorists, and altogether the largely-attended meeting demonstrated the enthusiasm with which the Sussex friends of automobilism are taking up the question. In this connection mention may also be made of the speed trials which it is proposed to hold at Brighton in the third week of July. Permission for the races to be run on the Madeira Terrace is being recommended to the Town Council by the General Purposes Committee, and from the list of the local committee that has been formed it is evident that a strong effort will be made to attract motorists as well as the general public.



Motoring and Motor Boating. [*Motor, New York.*

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Dover not to be Scheduled.

AT length the Local Government Board seems to be making up its mind with regard to the inquiries which its inspectors have lately held under the Motor Car Act. An announcement has just been made that it cannot accede to the request of the Dover Corporation to schedule Dover as an area, under the Act, in which motor-cars shall not be driven at more than eight miles an hour. The Board state that, since the local inquiry held at Dover, several similar inquiries have been held at other places, with the result that they feel they would not be justified in framing such orders for considerable areas. Upon this decision Earl Russell, and the other members of the A.C.G.B.I. who have taken a leading part in the various local inquiries, are to be congratulated.

Dust in the North.

ELSEWHERE we give a report of the annual meeting of the Manchester Automobile Club—a flourishing institution with nearly 200 members. During the past year the committee of the club, recognising the important bearing that the dust nuisance has on automobilism, tried experiments in conjunction with the local councils, in treating 1½ miles of road in Cheadle and 220 yards in Withington with Westrumite. A donation of £5 was also given towards similarly treating the road by St. Margaret's Church, Bowdon, and a donation of two guineas towards the fund for dealing in the same way with 1½ miles of Brooklands and Hale Road. The Committee consider that the results were sufficiently encouraging to warrant local authorities in suburban districts of the north in experimenting further, and we trust that the incentive thus given will have a good effect in Lancashire.

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Uniform Speed Limits Wanted.

MR. W. T. COCKBURN, the chairman of the Kingston bench of magistrates, in fining a motorist who had contravened the regulations in Richmond Park—regulations the legality of which has been called into question in another court—agreed that with the different rates of speed allowed by the law a driver was apt to forget at what speed he was allowed to travel. On the ordinary road the legal limit is twenty miles an hour; in the Royal parks the apparently illegal limit is but ten miles an hour. In the case in question the defendant had not, according to the trap and stop watch, travelled more than nineteen miles per hour. But sympathy was all he could get from the Bench. Still the expression against the want of uniformity that some authorities would like to establish should be useful to the motorists who are considering how best to amend the present Act when attempts are made to re-impose it in its present form.

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Richmond Park as a Trial Ground.

SEVERAL correspondents have called our attention to the suggestion that Richmond Park should be utilised for testing cars, a proposal that is likely to encounter much opposition from residents of the district, who regard the Park as their own domain. The Test Hill is, of course, already fairly well used by motor-cars, and considerable tolerance has been shown by the authorities, but the idea of making it a recognised place of resort for trial purposes will be resented by motorists who pass that way as a matter of ordinary convenience, for the immediate effect would be to displace them from the favourable regard of the keepers and frequenters of the Park. There will also follow the prohibition of motor-cars altogether, or else the restriction of automobiles to minor roads along which they now scarcely ever travel.

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Horse v. Motor-Car.

AN interesting comparison between the relative cost of the horse and the motor-car is afforded by an experience of the London County Council. For the visits paid by the chief officer of the Parks Department and the inspectional staff to the parks and open spaces a horse and phaeton are employed. It is found that to hire a horse from a jobmaster costs £90 a year. Quotations have been obtained recently for the hire of two motor-cars for the use of committees and heads of departments. The estimates sent in varied from £11 to 18 gs. a week for each car, and the offer which is likely to find acceptance is based on a charge of £15 8s. per week for each car—a substantial saving, which should be made widely known for the benefit of the automobile industry as well as the possible relief of patient and

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long-suffering ratepayers. Mr. Blandy Jenkins has reported to the Roads and Bridges Committee of Glamorgan County Council at Cardiff, that the sub-committee appointed to deal with the question of obtaining a motor-car for the use of the county surveyor had had an expert's opinion, and recommended the purchase of a car at a cost not exceeding £475. It was unanimously agreed to recommend the County Council to adopt the sub-committee's suggestion. Another municipal testimony to the economy of the motor-car!

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Technical Instruction.

It is gratifying to notice the increase of interest in automobile technical instruction in the provinces. Reference has previously been made in these columns to the enterprise of Messrs. Crosfield and Son in inaugurating such classes at Warrington, and now we learn that the other day a large party of students from the Handsworth Technical School visited the works of the Wolseley Tool and Motor Car Co., where considerable interest was evidenced in the motor-car department. As a possible preliminary step towards the establishment of technical classes in motor-car work at some of the technical institutes in the Midlands, this is to be welcomed. Motor work is a department of engineering study to which greater attention will have to be given, and we would again emphasise the fact that the official classes at all these establishments should be conducted by practical men who are fully acquainted with the details of the modern car as well as with the general principles of engineering work.

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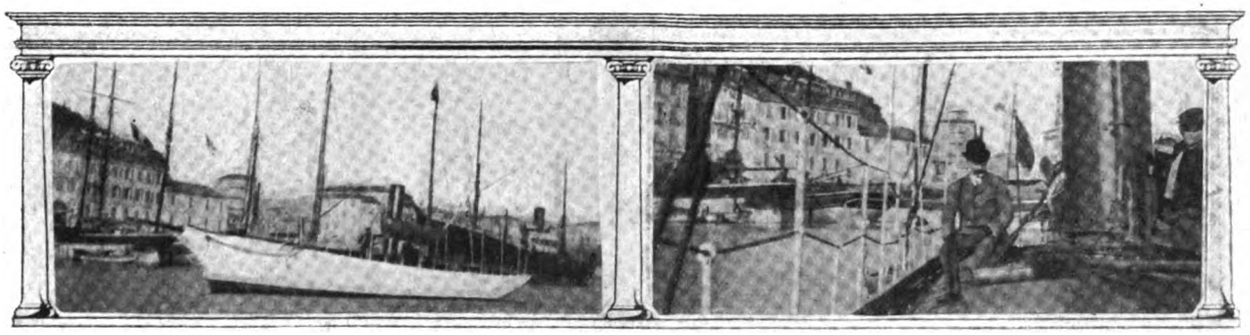
The Monaco Motor-boat Races.

We have received from Mr. Harrington Moore preliminary notice of his projected party for the Monaco motor-boat races, from April 6th to 17th next. This event seems destined to attract world-wide interest, and, judging from the number, power, and speed of the competitors of all nations, will doubtless afford something sensational in the way of speed racing at sea to those who are fortunate enough to witness the contests. Mr. Harrington Moore, who has had no little experience in organising similar projects, has anticipated the probable wish of many automobilists to take advantage of this unique occasion of visiting for the first time the matchless beauties of the Riviera or of renewing their acquaintance with them and at the same time assisting at the motor-boat race meeting. Mr. Moore has chartered the clipper steam yacht "Bohemien," depicted above, to follow all the races, and, recognising the advantage of numbers, has completed arrangements by which a party of not less than thirty can travel by special first-class train from London to Monte Carlo, returning independently at any time within the month at option, and then obtain hotel and board for a week and the use of the yacht for the moderate inclusive payment of not more than £20—perhaps less, according to number. Already Mr. Moore has been promised half the minimum number, and he asks that those who expect to be able to join his party should, without pledging themselves, write him to 18, Adam Street, Adelphi, W.C., for the programme of the tour. We may add that Mr. Harrington Moore has very sensibly decided to welcome ladies, who are accompanied by relatives, to take part in the expedition.

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Objections to Universal Lighting.

The movement that has lately been developing in favour of the universal lighting of vehicles, and for all who drive cattle on the highways at night time to carry warning lights, has been met by the members of the Teviot Farmers' Club in a spirit of opposition. The Secretary, at a meeting held recently, reported the receipt of a communication on the subject from the Scottish Chamber of Agriculture, and considerable feeling was evinced by the suggestion of the Scottish Automobile Club to the effect that persons in charge of cattle or sheep on highways should carry a lighted lamp after dark. It was urged that this would be an intolerable nuisance to agriculturists, and whilst little heed was taken of the suggestion so far as it applies to vehicles, it was evident that its application to drovers and others would meet with considerable antipathy from the Scottish farmers. Ultimately it was agreed to give support to the proposal for the reasonable lighting of vehicles, but to oppose any suggestion for men to carry lights when driving sheep or cattle.



The Steam Yacht "Bohemien." Mr. Harrington Moore, the Organiser of the Projected Trip.

THE MOTOR BOAT RACE AT MONTE CARLO.

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A Large Tyre.

Most of the trouble experienced with pneumatic tyres is owing to the fact that the driving wheels are fitted with tyres of too small a diameter for the weight to be carried. Many instances might be given of users of cars who have been endeavouring to obtain satisfaction from the use of 90 mm. tyres on all four wheels, although the weight of the car unladen has been as heavy as 28 cwts. The more common use of the 120 mm. and 125 mm. tyres on the rear wheels has given a much greater degree of satisfaction, but even now with the 120 mm. and 125 mm. tyres many cars fitted with heavy luxurious bodies, with brougham and limousine tops, and with seating capacity for six or eight persons, are shod with tyres of too small a size. If every owner of a car would understand that by the fitting of efficient and large size tyres half his troubles would be obviated, and that the tyres themselves would stand better and last longer, we should see many more cars shod with tyres of a proper diameter necessary to carry the weight. Bearing this point in mind, the Continental Caoutchouc and Gutta Percha Co. have this year brought out a new model tyre, 935 by 135 mm. (5½ in.), of which they are making a speciality. It will cost a little more than the 120 mm. and 125 mm. tyres, but at the same time they believe that they will give absolute satisfaction

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to those owners of high-powered heavy vehicles, which it has been impossible for them to obtain in the use of small-sized tyres. Exhaustive road tests have been carried out in order to produce a tyre which is strong enough for the work it has to undertake. The extra size does not make the tyre appear ungainly, but, on the contrary, the larger size is hardly noticeable. This new tyre is made with the company's well-known square ribbed tread.

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Refreshments when Travelling.

At a meeting of licensed victuallers and others at Ipswich, Mr. H. C. Westgate has been reading a paper with reference to the supply of refreshments as affected by the Licensing Act which has just come into operation. The obligation to supply refreshments was not by any means a new provision. Under the old law all innkeepers were already under this obligation, and objections had in a few instances been made against the renewal of licences upon that very ground, though comparatively few seemed aware of its existence. The fact of the clause making it compulsory to supply suitable refreshment being inserted in the present Act would necessarily draw public attention to it, and it might certainly be taken as an intimation that all on-licence holders must be prepared to meet the reasonable requirements of the public in this respect. Of this he felt convinced, that by cheerfully accepting the situation they would find a fresh source of profit, and might attract to their houses some who had been led to regard them and their calling in a somewhat unfavourable light. Motorists are naturally interested in the greater stringency of the law in this respect.

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Motor Traction in Ireland.

The much-vaunted Iveagh-Pirrie scheme of motor transport for Ireland seems scarcely likely to fructify, and the delay that has taken place in its realisation has disappointed those who ardently hoped the prosperity of Ireland might be restored by means of the automobile. But here and there local enterprise is seeking to supply the needs of the agricultural community. The farmers of North Wexford recently met and discussed a scheme of motor transit for the districts of Enniscorthy, Orlart, Kilmuckridge and Gorey. A committee was formed, to which representatives of the local banks have also been elected, which will further consider the matter, and those who wish well to the district are hopeful of the early adoption of a system of motor transport in the locality.

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A Blameless Motorist.

With the fairly familiar heading, "Killed by a Motor-car," the daily papers have been chronicling the death of an old Thames ferryman who stepped off the pavement into the roadway at Surbiton in front of a motor-car, and when its horn sounded hesitated and got confused as to the way to go. The car slowed up, but the man was knocked down and died from the result of injuries received. At the inquest a verdict of "Accidental death" was returned, the jury exonerating the driver of the automobile from all blame. Had a horse-drawn carriage caused the sad mishap the event would have been chronicled in a short paragraph, but because a motor-car was involved—although held to be blameless so far as the accident was concerned—the sensational heading was published far and wide. Fortunately, however, some members of the general Press are beginning to recognise that the motor-vehicle is not necessarily an instrument of murder.

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London and Motor Traffic.

The paper read before the A.C.G.B.I. last week by Mr. J. Swinburne was a delightful essay, full of quaint sayings and happy references, but contributing little in the way of solid facts and arguments to the solution of the difficulties of traffic in London. He spoke of the use of the motor-car for bringing business men from the country and back every day; and of the automobile as a means of transport in town. On the first point reference was made to railway communication as being a drawback to the full development of the motor-car in that connection. A humorous classification of sport followed, and the difficulties of housing the car, should the owner come to town on it every day from the country, were mentioned. Mr. Swinburne, however, was good enough to say that the motor-omnibus seems to have come to stay, and that it would be followed by the motor-cab in a very short time—in fact, we hear of a company with a capital of £150,000, now in course of formation, to develop the motor-cab in London. The whole matter was summed up in the sentence with which the author concluded the paper, declaring that "the question of tyres wearing out owing to unsuitable roads is, I take it, the chief flaw in your happiness." Discussion was subsequently indulged in by Earl Russell, Colonel Crompton (who presided), Mr. Roger Wallace, K.C., Mr. E. Shrapnell Smith, Mr. F. Coleman, Mr. Roger Wallace, Mr. Fairbank, and Mr. O. Thompson.



The Duke of Connaught on a Motor Car at the Military Manoeuvres in Algeria.

The report of the directors of the Car and General Insurance Corporation, Limited, for the year ended November 30th, 1904, states that in the first year a gross premium income of £30,445 was secured, and, after deducting reinsurance premiums, a net premium income of £26,828; there were appointed 1,443 representatives of the corporation throughout the United Kingdom; and branch offices were opened in Birmingham, Cardiff, Dublin, Edinburgh, Glasgow, Leeds, Liverpool, Manchester, Newcastle, and Southampton. The claims paid amount to £4,225. The net result of the year's working is a balance of £1,875, against which the directors propose to charge the whole of the promotion expenses, amounting to £1,751, and to carry forward a balance of £123.

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The "Brotherhood" Car.

IT is now more than a year since the announcement was made of the formation of the Brotherhood-Crocker Motors, Limited, to introduce a new type of petrol-car on the market. Although very little has been heard of the company in the interim, it has been quietly at work, and the result of its labours is to be seen in the batch of "Brotherhood" cars now coming through, and of which we are able this week to commence a description. As the car comprises a number of special features needing separate explanation, it may be well if we briefly outline the general arrangement which has been adopted ere passing to the detailed description. In the first place, it may be mentioned that the vehicle, which is throughout of British design and manufacture, has been constructed under the personal supervision of Mr. Percy Richardson, the general manager of the company, who, as is well known, has been connected with the automobile industry since its inception in this country. If proof were needed of the high-class workmanship embodied in the construction, it is only necessary to mention that the engines, gear-boxes, commutator gear, etc., are manufactured by the old-established engineering firm of Mr. Peter Brotherhood, Westminster Bridge, which has now enjoyed, for a considerable number of years, an unrivalled reputation for high-speed engines and fine engineering work.

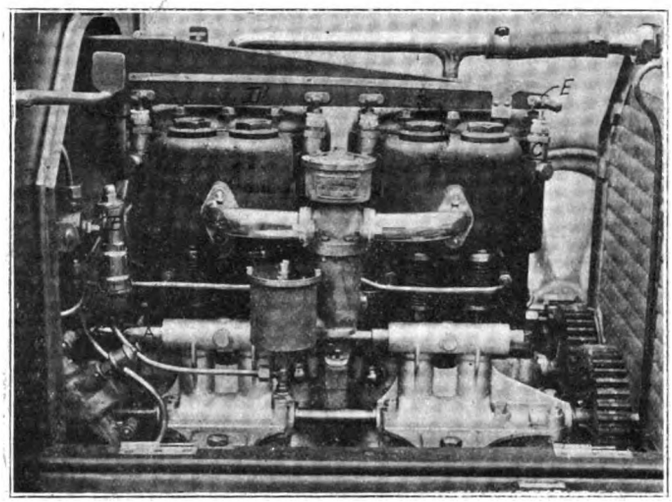


Fig. 1.—View of Inlet Valve Side of Engine.

A Rack shaft varying lift of inlet valves.
B Exhaust pressure valve and filter.
C Sparking plug.
D Casing for ignition wires.
E Snap connections to sparking plugs.

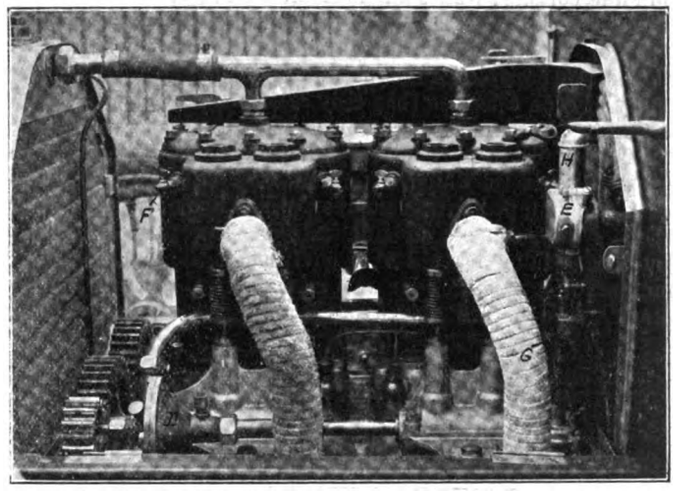


Fig. 2.—View of Exhaust Side of Engine.

D Pump.
E Worm gear driving commutator.
F Compression cock.
G Governor automatically controlling ignition.
H Removable cap to adjust ignition governor spring.

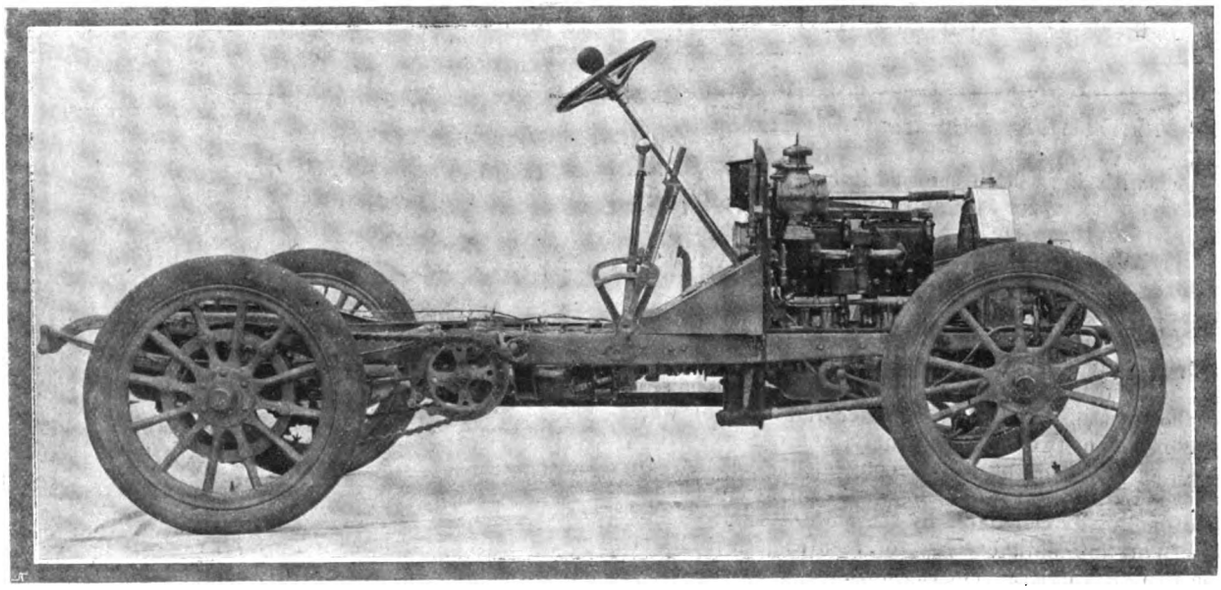


Fig. 3.—Side View of Chassis of the "Brotherhood" 20-h.p. Car.

The general design and construction of the car has been carried out on the most modern and accepted lines, the engine being carried in the fore part of a pressed steel frame, the power being transmitted through a clutch to a gear-box and through bevel gear to a differential shaft, which in turn is connected by

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side chains to the rear road wheels. The object of the designers has been to turn out a car which will prove reliable, economical and efficient in its operation, whether in the hands of an experienced or an inexperienced driver. The result is that simplicity of construction and control, and accessibility and ease of detachment of parts, with increased convenience for making adjustments in a simple manner, are the key notes throughout the whole design. As will be noticed by the side view of the *chassis* (Fig. 3) the frame has been kept low, facilitating mounting and dismounting to and from the car, assuring steady running by keeping the centre of gravity near to the ground, and safety in rounding corners; whilst ample clearance has been allowed under the point nearest to the ground, obviating the risk of striking gate stops or other road obstructions of exceptional height.

As far as possible all the parts are made and fitted independently of each other, so that they can be removed without also having to detach other parts or affect adjustment of the same, this facility being particularly noticeable as regards the brakes. Another point to which attention may be drawn is that all parts are stamped with a number, which has only to be quoted when a replacement or duplicate of the part is required. Another striking feature of the vehicle is the reduction in the number of levers, etc., for the control of the engine and car; altogether there are only five, these being composed of (1) the

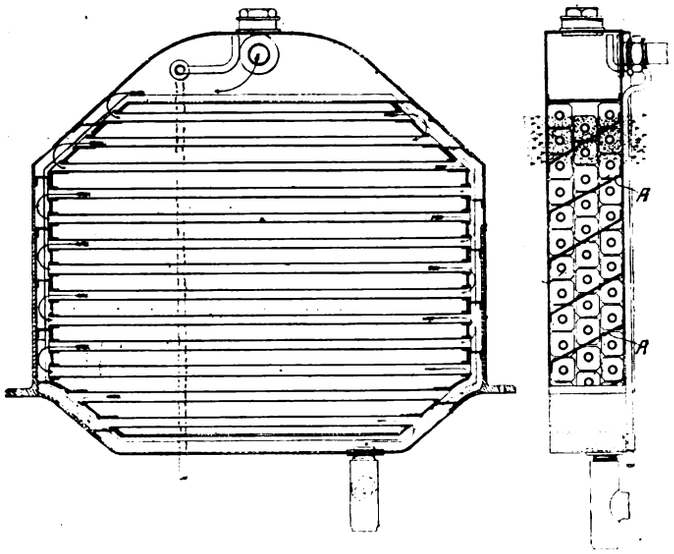


Fig. 4.—Front and Side Part Sectional Elevations of Radiator.

steering wheel with horn bulb screwed in centre; (2) a single change-speed lever for all forward and reverse speeds; (3) one foot lever only for throwing out the clutch and applying the foot brake; (4) a hand lever for the rear brakes; and (5) one pedal only for varying the speed of the motor, so arranged that the finest possible graduation of engine speed can be obtained, or the same can be entirely shut off and used as a brake without tiring the foot in any way, or being affected by undue pressure of the foot when driving over rough roads. As will be seen from the above, the whole car is under full control when travelling by means of two foot levers only, and can be started, speed varied, or stopped, by these convenient means. No ignition lever is required, as the timing of the spark is mechanically and automatically controlled by the motor itself, and this, combined with an automatic carburettor, assures perfect adjustment of the two vital functions of the working of the engine, so that the same will always automatically give the most efficient results.

The frame is of pressed steel construction, narrowed in front to give a large lock to the front wheels and slightly raised at the rear to allow of the employment of a straight back axle, and also add to the appearance of the vehicle. As will be seen from Fig. 3 the frame is built low, yet the parts are so arranged as to be accessible and also to give plenty of clearance, the lower part of the mechanism being 10½ in. from the ground. The engine comprises four cylinders, each 4 in. diameter by 5 in. bore; they are cast in pairs with large water jackets extending round the valve chambers as well as the cylinders, provision being made in the jackets for the thorough circulation of the

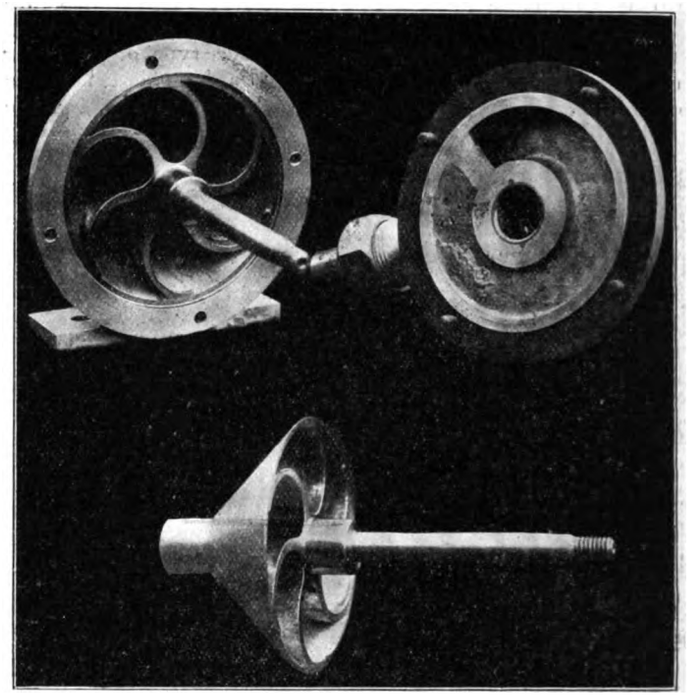


Fig. 5.—Details of Water Circulating Pump.

water. The valves are all mechanically actuated, the inlet valves being arranged on the opposite side to the exhaust, each set having consequently its own cam shaft. The engine is supported from the main frame by four feet cast with the crank chamber, and although the frame is carried low the

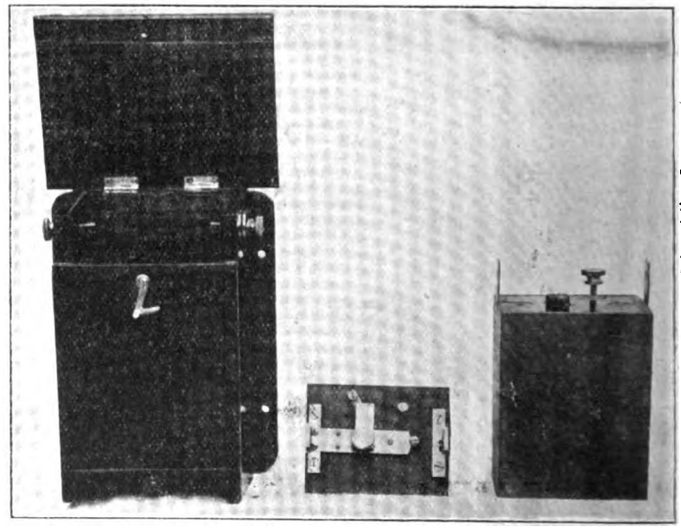


Fig. 6. Views of Parts of Coil Detached.
A Coil Case. B Trembler. C Cartridge.

engine is fixed at such a height as to render all its parts easily accessible without unnecessary stooping on the part of the motorist or his mechanician. At its normal speed of 900 revolutions per minute the engine develops 20-h.p.; it can, however, be run up to 1,150 revolutions, and as low as 180 revolutions. The connecting rods and

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the crank shaft are of forged steel; the cranks are set at an angle of 180 deg. to each other, the shaft being provided with three bearings, a central one and a bearing at each end. The cam shafts are actuated by large diameter and wide fibre pinions at the forward end of the engine. Compression release cocks (Fig. 2) are fitted to each cylinder.

The water circulation is maintained by a gear-driven pump and a radiator of the frame ribbed-pipe variety. Dealing first with the pump, a general view of this is seen at D, Fig. 2, while it is shown detached in Fig. 5. It is of the rotary type, and it runs at a slow speed—its maximum is 1,200 revolutions per minute—and even with the engine running at its minimum rate an efficient circulation of water is maintained. The pump vanes are cast in a conical-shaped piece enclosed in a gun-metal casing of similar form, the surface of the cone forming a thrust bearing, as an addition to the ordinary bearings on the pump spindle. The pump is fixed so that it can be readily dismounted, and, although not a probable occurrence, the circulation system is so arranged that should any stoppage take place in the operation of the pump, it will still continue by gravity. As already mentioned, the radiator is of the ribbed-pipe variety set in a frame forming the water tank. There are thirteen rows of pipes, in a nest of three deep. Fig. 4 gives sectional views of the radiator, from which it will be seen that the pipes are not placed directly one behind the other, but are "staggered" in such a way that each pipe gets a full draught of air round it. It will also be noticed that by a series of baffle plates in the side tanks the circulation of water is arranged to pass through the tubes in series, to prevent stoppages, and in case of deficit in water supply, to cause the same to flow through the coolest tubes, so assuring maximum efficiency under all circumstances. A sump for collecting any dirt in the water, or for drawing off the latter, is provided at the lowest point in the circulating system.

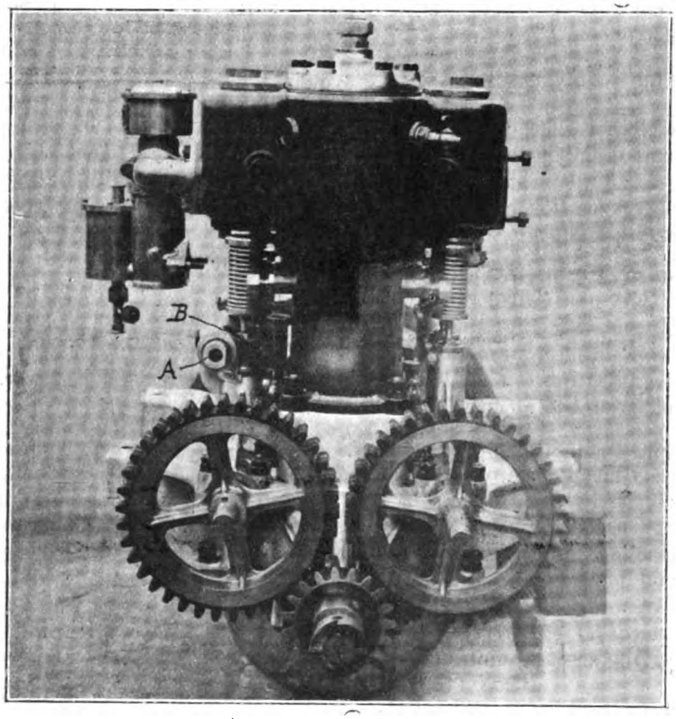


Fig. 7.—Front End View of Engine.
A. Rack Shaft varying lift of inlet valves. B. Star pinion on valve push rods.

Each pair of cylinders exhaust into an asbestos-jacketed pipe, which runs into a main pipe of such a diameter as to act as a sort of expansion chamber for the hot gases ere they reach the silencer proper.

We now pass to a description of the automatically-controlled ignition system. This is of the high-tension type with accumulators, and one coil and trembler for the four cylinders. The commutator and high-tension distributor are mounted in a case on the dashboard, and is so arranged that either can be instantly inspected or cleaned independently of the other. A double-jump spark is provided on the high-tension circuit, showing not only the working of the coil and trembler at all times, but providing

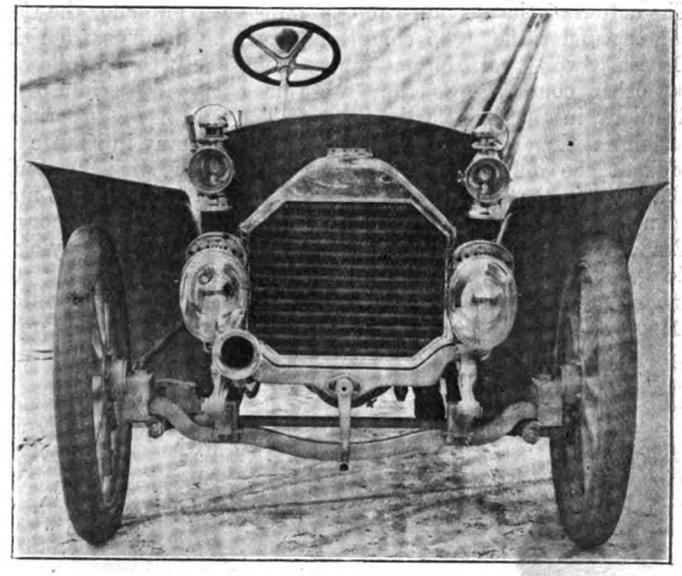


Fig. 8.—Front View of "Brotherhood" Car.

immediate and visible means of detecting any working defects, and of correct adjustment of the trembler to assure the best results. The commutator is driven by positive spiral gear drive from the half-time shaft, combined with a governor automatically varying the advance and retard of the ignition. The coil is of a special high-speed design, arranged so that the windings and condenser are made up in the form of a cartridge, enabling the same to be instantly removed without necessity of detaching the coil case or disconnecting any wires.

Both the high and low tension wires are well insulated with protected terminals. The high-tension wires are encased in an insulated frame, D, Fig. 1, with hinged handled terminals to the sparking plugs, providing convenience for instantly disconnecting them from the plugs for the purpose of removing the latter or testing the cylinders. The accumulators are located in a box immediately below the left hand side of the inclined footboards behind the dash. The wiring is short throughout, the terminals easily accessible, and all contacts and terminals clearly numbered to facilitate tracing circuits. A specially constructed vulcanite 2-way watertight switch is provided, assuring perfect contacts, and easily taken apart for examination or cleaning. A spare of each part of the coil can, if necessary, be carried, so that, should anything go wrong with those in use, they can be readily changed. The coil case, cartridge, and trembler are shown detached in Fig. 6.

(To be continued.)

MR. LINDSAY HOGG, M.P., had an eventful ride in a motor-car the other Saturday while journeying to Newhaven to attend the annual dinner of the Steam Packet Office Staff. Owing to the darkness and the diverging roads the driver experienced some difficulty in finding the way. At length Seaford was safely reached, but, instead of taking the main road to Newhaven, the driver by mistake went in another direction, and in the end the car was precipitated on to the beach. Fortunately nobody sustained any injury, though the services of seven men had to be requisitioned to draw the car out of the shingle.

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CONTINENTAL NOTES.

The Gordon Bennett and Grand Prix Joint Race.

The decision of the French Automobile Club to run the Gordon Bennett race concurrently with its Grand Prix event continues the main topic of conversation in motoring circles. The action of the Belgian Club in refusing to enter for the Cup contest under the 1905 conditions, and the protests from the British, Swiss, and German clubs, seem likely to be followed by other countries, so that there is every indication of a deadlock in the big classic event. The storm of opposition which has thus arisen has apparently caused many in France to look at the matter from other points of view, with the result that even in that country the decision of the A.C.F. is not now being viewed with any degree of unanimity. Even Georges Prade points out in "Les Sports" that the A.C.F. is playing a dangerous game in insisting on the Gordon Bennett being run in conjunction with the Grand Prix. If France wins the Gordon Bennett under the proposed arrangement people will discount



The Waterpoort, Amsterdam.

the victory, because of the advantages which she is proposing to secure for herself; but if she is beaten, the defeat will be all the more crushing.

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Mr. Gordon Bennett's Opinion.

Mr. J. G. Bennett, the donor of the cup which bears his name, has hitherto declined to make any statement concerning the action of the French Club with regard to the Cup race. The Paris edition of the "New York Herald," however, published a leader on the subject the other day, which is taken as expressing the opinions of Mr. Bennett, he being the owner of that paper. Therein the changes which have been made are strongly deprecated. Such changes, it adds, degrade a purely sporting event into a commercial undertaking.

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Germany and the Joint Race.

Just as we had gone to press last week we received intimation that in consequence of protests by numerous German motorists the Daimler Motoren Gesellschaft had voluntarily foregone the privilege accorded it by the German Club of having two places in the 1905 German Gordon Bennett team, and will retain the right of supplying, without competition, one car only for the Cup contest. The remaining two cars which will represent Germany in the race will therefore be determined by an eliminating trial, in which the builders of the Mercedes may compete. Should no eliminating contest be held, they will claim two places in the team. Following the example of the British and Swiss Clubs, the German Automobile Club has since sent a letter of protest to the A.C.F. The letter states that "We have the honour to inform you that in all probability we shall not be in a position to compete in the Cup race should this be run at the same time as the Grand Prix. As it is probable that other automobile clubs will take the same position in the matter, we beg you, in the interest of the Gordon Bennett, which has become the classic race for automobilists, to run the event distinct from the Grand Prix." There is also some talk in German motoring circles of following France's example by organising a German Grand Prix, the projected course for the race being from Vienna to Berlin.

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The French Eliminating Trial.

Entries for the French eliminating trial are being sent in at a remarkably slow rate. Up to Tuesday only thirteen cars had been entered, these including three Panhards, one C.G.V., three De Dietrichs, three Darracqs, and three Renaults. The final list, which was to be closed on Wednesday, had not reached us at the time of going to press.

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A French Touring and Reliability Trial.

Considerable interest is being shown in the touring and reliability trial which the Automobile Club of Seine et Oise will hold from the 19th to the 26th inst. The competition is divided into four categories:—(1) single-cylinder cars; (2) double-cylinder ditto; (3) three and four cylinder ditto; and (4) motor-cycles. So far seventeen entries have been received, including four Serpollets, six De Dions, two Boyers, two Chenard-Walckers, a Decauville, a Krieger petrol-electric and a Sage petrol-electric.

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The German Motor Volunteer Corps.

The rules of the new German Motor Volunteer Corps, of which Prince Henry of Prussia is honorary colonel, provide that members must be of German nationality, and must possess a car of at least 16-h.p. The members will be liable to be called up for service on not more than three occasions in four years, each period not to exceed ten days.

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A New Italian Automobile Club.

A new Automobile Club of Italy has just been formed at Turin with the Marquis Ginori as President. Hitherto there have been a number of clubs in Italy, but no real national organisation. This has now been constituted, and takes the place of the former Italian Automobile Union.

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The Protection of the Hands.

The Prince of Arenberg has given a sum of 500 francs (£20) to the French Club, to be awarded to the person who presents the best arrangement for protecting the hands from cold when driving. Those intending to compete must send in their designs to the Commission Technique of the A.C.F., Place de la Concorde, Paris, before the 15th inst. No scheme in which the driver is enclosed by glass, preventing him from hearing or giving signals to other drivers, will be considered.

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Public Services in France.

A public service of motor-cars is about to be inaugurated between Saint Vallery, Cayeux, Onival, Mers, and Treport. Arrangements are also in hand for starting a service in April next between Villers-sur-Marne and Plessis-Trevise.

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Another Touring Competition.

The Automobile Club of St. Etienne has decided to organise a touring car competition for the 9th April next. The course is over a distance of 213 kilometres, and, starting and finishing at St. Etienne, takes in Firminy, Monistrol, St. Agrève, Bourg-Argental, and Planfoy.

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HERE AND THERE.

THERE are now said to be 700 registered motor-cars in St. Petersburg.

A SYNDICATE is in course of formation to run a service of motor-'buses at Oxford.

THE "AUTO" ENGINEERING COMPANY has a garage which is always open at North Street, Leeds.

THE METROPOLITAN MOTOR ROAD-CAR COMPANY, LIMITED, has been registered with a capital of £100.

A FINE display of wheels for public service automobiles is made by Messrs. Bayleys, Limited, at the Crystal Palace.

A COMPANY has just been formed at Caserata, Italy, to establish a number of public motor services in the province of that name.

THE SOCIETE ANGLAISE DES AUTOMOBILES, LIMITED, has been registered with a capital of £5,000 to carry on the business indicated by the title.

THE IRISH MOTOR-CAR COMPANY, LIMITED, has been registered with a capital of £1,000 to deal in automobiles. The registered office is at 17, Golden Lane, Dublin.

BY the help of two motor-cars provided by the West-End Motor Company, Limited, Mr. S. Mayo is appearing at nine music-halls in London every night.

THE number of motor-cyclists in the United Kingdom is computed at 29,000.

A MOTOR mail service is about to be inaugurated between Nantes and Paimbœuf, France.

THE COMPENSATION GEARING SYNDICATE, LIMITED, has been registered with a capital of £1,000.

A CENTRAL garage with accommodation for fifty cars is about to be established at Hastings.

A SERVICE of motor-'buses will commence to run from Southborough to Tunbridge Wells at Easter.

MR. W. H. FOWLER will carry on the Hockley Hill Garage, Soho Hill, Birmingham, his partnership with Mr. E. W. Cashmore having expired.

THE Richard-Brasier car on which Thery won the 1904 Gordon Bennett race has been acquired by Baron Fedor Nicolics, a well-known Austrian sportsman.

THE Germain motor garage at 8, Earl Street, Westminster, is replete with every convenience for the storage and repair of cars. A system of subscription tariff has been adopted by the proprietors.

THE Turner-Miesse steam cars will be exhibited on the Duryea Stand at Olympia, and a large display of these vehicles will also be made at the Motor-Car Exhibition at the Agricultural Hall next month.



A Scotte Train in the French Military Manœuvres.

THE FORMAN MOTOR COMPANY, LIMITED, ask us to mention that the dimensions of the 18-20-h.p. four-cylinder engine illustrated in a recent issue are 90 mm. bore by 110 mm. stroke.

MESSRS. MATTHEW WELLS AND CO. have issued a new price list of their "Wellsaline" motor oils, for which they are now appointing agents in towns where they have not previously been represented.

MESSRS. FRISWELL, LIMITED, have just thoroughly overhauled the machinery of a motor-car in five working days, the work done including the fitting of new brasses to the engine, examining every detail of the parts, and repainting and upholstering the body.

THE annual dinner of the Motor Volunteer Corps, at which Lord Roberts is to be the principal guest, has been postponed from the 13th to the 14th instant. Among those who have accepted invitations are Lord Methuen and Sir John French, both of whom have had experience of the value of the corps at manœuvres and elsewhere.

AT the meeting of the Edmonton Board of Guardians, upon a question being raised with respect to a proposed expense in connection with the motor-car which was purchased for the removal of lunatics to the asylum, the vice-chairman stated, amidst laughter, that the car was the best investment the Board had ever made, as there were now twenty-five per cent. fewer cases being removed to the asylum.

LAST year 602 foreign-built motor-cars were imported into the United States. Their value, according to the Customs appraisers, was £441,898, or an average of £734. During 1903 only 375 foreign cars were imported.

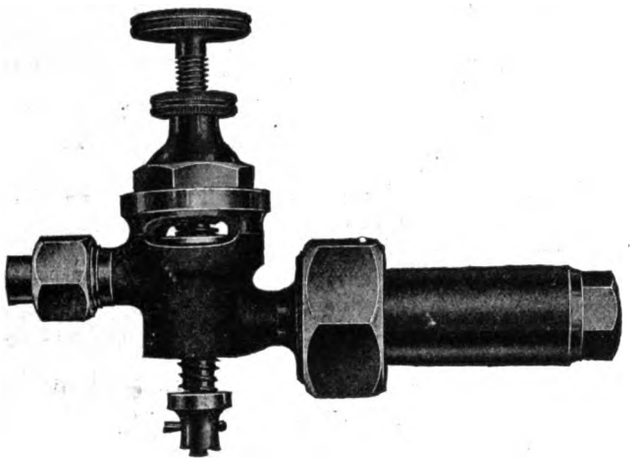
THE reconstruction of the Lanchester Motor Co., Ltd., has now been successfully completed, new capital having been introduced. The support accorded to the company in the past season, under the difficulties of reconstruction, has been most gratifying, and the promise of business for the forthcoming season exceedingly satisfactory. This company is now known as "The Lanchester Motor Co., Ltd."

THE RICHARD-BRASIER COMPANY last week gave a dinner to its employees to celebrate the victories of the Richard-Brasier car during 1904 and the promotion of M. Brasier to the Legion d'Honneur. Over 600 were present at the dinner, at which it was announced that the company had decided to give a sum of £1,000 towards the funds of a provident society which is being formed in connection with the works.

THE name of the New Orleans Motor Company, Ltd., has been changed by the omission of the word "New." The necessary permission of the Board of Trade has been obtained, as the directors were able to tell that authority that the public was under the impression that the New Orleans car was of American manufacture, which was not a fact. The company will in future be known as the Orleans Motor Company, Ltd.

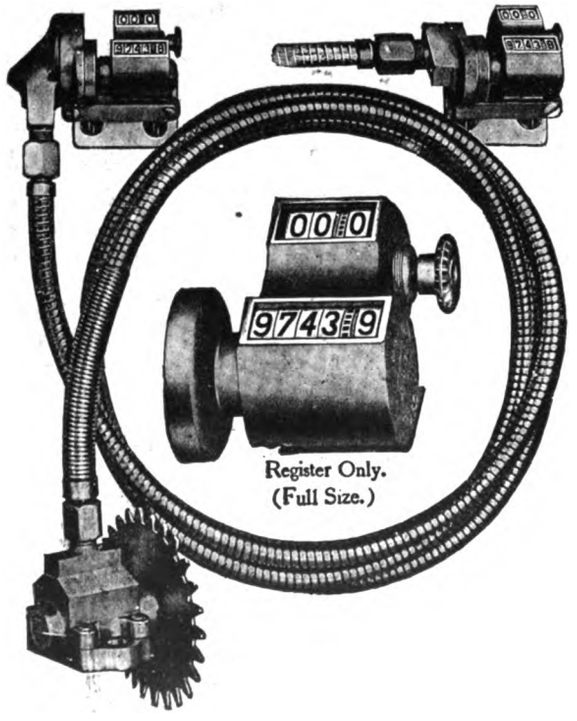
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The accompanying illustration depicts a combined double-acting pressure valve and filter chamber lately introduced by the Coventry Motor Fittings Company. The valve is used where the pressure of the exhaust gases of a petrol motor is utilised for any purpose, such as pressure lubrication and



supplying the carburettors with petrol when the tanks are below the carburettor level.

Messrs. Markt and Co. have lately introduced a new form of Veeder odometer, so arranged that it can be mounted on the dashboard where the dials can be easily read. The instrument has two registers, one of which may be set back to zero at the start of each day or trip, while the other keeps a record of the total distance travelled. Both registers indicate in tenths of miles, the right hand figure on each being in red. The odometer is operated by gears and flexible shaft drive from the left front wheel of the car. It is made in two patterns; in one the shaft is introduced straight into the side of the instrument, as shown in the upper right hand corner of the



Register Only.
(Full Size.)

illustration; in the other it is brought up straight from the floor of the car or through the dashboard directly behind the instrument, the movement being conveyed to the odometer by small incased bevel gears. The registering dials are shown in full size in the centre of the illustration.

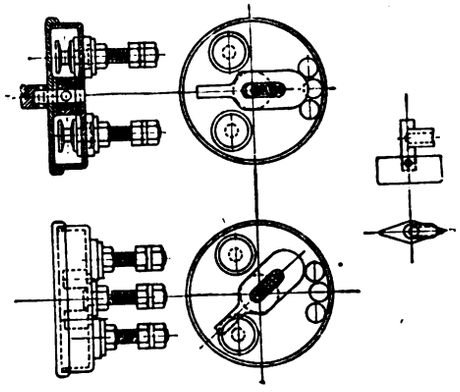
Mr. Seymour Browne has been elected hon. secretary of the Isle of Thanet Automobile Club, which has been formed at a meeting held at the Britannia Hotel, Margate.

The Stanley Electric Carriage Company, Limited, has been registered with a capital of £10,000 to adopt an agreement with Messrs. A. E. Gadd and G. Stephenson, and to deal in motor-vehicles.

The Langdon Davies Motor Company, Limited, has been registered with a capital of £5,000 to adopt an agreement with the Langdon Davies Motor Company, Limited. The first directors are Messrs. F. B. O. Hawes, A. W. Cree, F. W. Hartman, and E. Yatman.

Mr. R. J. Corbet is forming the Driver-Mechanic and Motor Drivers' Agency, with a view to obtaining situations for qualified men of good character. A notable feature of the enterprise will be that no fee for registration of names will be required.

We herewith illustrate a new switch which has just been put on the market by Messrs. Brown and Barlow, Limited, Birmingham. The apparatus is so designed as to give a high efficiency and at the same time it is simple, having but few working parts. It is also practically dust and water proof and the contacts are made with a rubbing motion. From the drawings it will be noticed that the switch is composed of primarily four pieces—the case, the two insulated terminals and the contact piece. The action of the latter is somewhat peculiar. Assuming that the switch is in the off position, then when



either switched on to the right or left hand insulated termina the central piece first rises over the two pegs in the base and then gradually falls on to the other side, this being in addition to the rotary motion imparted to it by the handle. By this means the small end of the contact piece when engaging into the tapered grooves on the terminals has a sliding motion, which will keep the point of contact clean however dirty the other portion of the switch may be. The switch itself can be readily taken apart for inspection by simply unscrewing the cap, when the cap, together with the contact piece complete, comes away.

On Saturday last, on its return from Southampton, in the 5,000 miles reliability trial under the supervision of the Automobile Club, the 12-h.p. Siddeley car completed 3,650 miles. There had been no involuntary stops from the start due to mechanical troubles. The Continental tyres by running 2,536 miles without a puncture now hold the record. This week, the fifth of the trial which is drawing to a close, the Siddeley car is covering the South Coast routes.

Messrs. J. B. Brooks and Co., Limited, Birmingham, have lately introduced a non-slipping cover for the tyres of motor vehicles. It is made throughout of chrome leather, consisting of an outer lining, on the tread of which is attached a band containing rows of steel studs, and which, owing to the tubular formation of their stems, and the fact that they are spun or riveted over at the back, cannot pull through. The whole fabric is stretched and shaped to the curvature of the tyre by a special process, and affords protection to the whole interior of the cover.

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AN ELECTRIC GOVERNOR FOR INTERNAL COMBUSTION ENGINES.

AN ingenious electric governor for petrol motors and other internal combustion engines has recently been devised by Mr. G. A. E. Roberts, of Twyford, near Winchester, in which the coils of an electro-magnet are connected up in series with the primary circuit which forms a portion of the ordinary electric ignition. The coils must have sufficient resistance to prevent a spark taking place at the ignition plug capable of

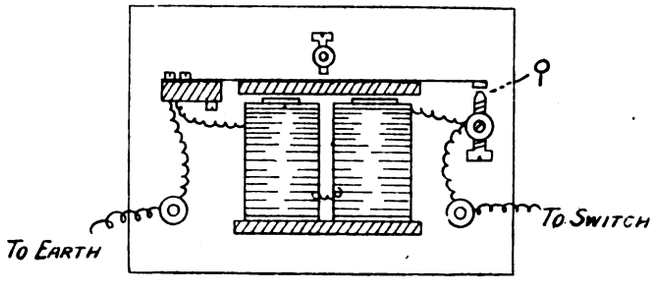
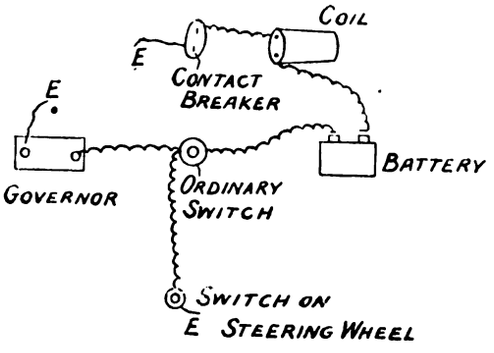


Fig. 1.



ig. 2.

properly firing the charge in the cylinder. A moving armature is placed near the poles of the electro-magnets, which, being attracted to the latter, closes the primary circuit and cuts out the wire on the electro-magnets and thus allows a proper spark to take place. The armature is drawn back by a spring, and by regulating the strength of this spring and varying the stroke of the armature by means of adjustable screws, the pace of the engine can be regulated to the required speed, when the screws can be permanently fixed.

Referring to the accompanying drawings, Fig. 1 shows the governor, and Fig. 2 the method of wiring. Commencing at the battery the current passes from one pole round the coil to the contact breaker and thus to earth. From the other pole of the battery it passes to the usual switch, and then, instead of being earthed in the ordinary way, it has two alternatives, either to pass through the governor to earth or by means of the switch on the steering wheel direct to earth, in which case the governor is cut out and the circuit is as usual. When it is required to put the governor in action, the switch on the steering wheel is switched off; the current then has to pass round the coils of the magnets and consequently no efficient spark takes place, but the armature is attracted, and contact is made at the platinum points Q, Fig. 1; the current then bridges across the armature, short circuiting the coils, and cutting them out so that an efficient spark takes place at the moment of contact.

The advantages claimed for the electric governor are as follow:—1. It is cheap, costing only a few shillings; 2. It is easy to fix, only a few extra feet of wire being necessary; 3. There are no extra complications to the engine with parts to be kept lubricated, etc.; and 4. Should anything go wrong, the switch on the steering wheel cuts the governor out. With this governor, Mr. Roberts informs us that he can leave his car standing, and it will immediately slow up to its minimum speed and will continue running without gradually gaining speed and "racing." Furthermore, in coasting down hills with the clutch out, it is possible with a slight movement of the finger to slow up the engine and glide down almost noiselessly and in a moment to be once more on full power.

MOTOR CYCLING NEWS.

DURING the motor week to be held at Munich during the coming summer, in connection with the Herkomer touring competition, the German Motor-Cycle Union proposes to organise an international endurance motor-cycle trial. The programme will include a speed test and a hill-climb up the Kesselberg.

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ARRANGEMENTS have been made by which motor-cycle clubs affiliating with the Auto Cycle Club can do so on payment of 2s. for each motor-cyclist in the club. The general meeting of the council of the club will be held in March, when the election of officers for the year will take place.

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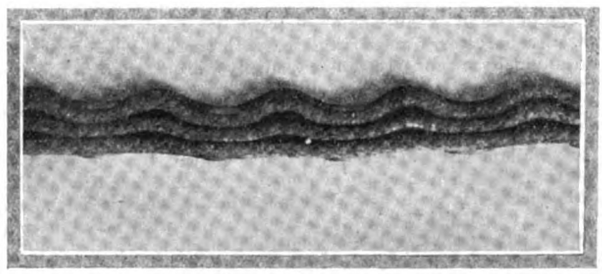
THE Motor-Cycling Club have, elected the following committee for 1905:—Messrs. Reeves, Cowles, Fry, Abraham, Van Hooydonk, Perman, Johns, Kennett, Sewell, Jenkins, Wells, and Chester Fox. Mr. A. Candler has been elected secretary, Mr. March has been re-elected treasurer, and Mr. W. C. Brown trials hon. secretary.

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THE Auto-Cycle Club have, in accordance with the rules governing the International Cup race for motor-cycles, sent the necessary challenge, accompanied by a deposit of £40, to the French club. Several English makers have already announced their intention of taking part in the selection trials to be held in May next. Appeal is being made for a special fund, so that the makers who are successful therein may be relieved of the expense of the final contest.

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THE Rex Motor Manufacturing Company are introducing a new driving belt for motor-cycles, which for simplicity and efficiency they claim has proved a great improvement on the ordinary type of belt. It is made of three-ply Balata, and is unstretchable. Its chief value lies in the tenacity of its grip at the point where it pulls over the driving pulley. An efficient belt to transmit power without loss of power should be made in such a manner as to preserve the top ply taut on the drive and slack on the bottom ply. This disposition is adopted in



the new belt, the grip of which allows it to be adapted to the pulley without over-tightening, and when in action the gripping parts come into play automatically. As soon as the belt can be made in sufficient quantities the Rex Company will adopt it as their regular transmitter.

THE annual dinner of the A.C.G.B.I., which was to have been held on the 15th inst., has been postponed, in consequence of Court and Parliamentary engagements detaining those who were to have been the principal guests.

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THE CRYSTAL PALACE SHOW.

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On Friday last week the show at the Crystal Palace was opened to the public; it closes to-day (Saturday.) The support accorded to the exhibition by the trade has been very meagre, and the *Times* had to confess that all did not seem well with the Show. Certainly we looked in vain for anything like a representative display of any department of the industry. Below we refer to practically all the exhibitors who have ventured to attend the Crystal Palace this year.

In addition to the *chassis* of a 12-h.p. Leonard double-cylinder car recently illustrated in the *Journal*, Messrs. J. J. Leonard and Company exhibit one of the latest 12-16-h.p. M.M.C. cars and the "Medici" car. As the name implies, the latter is specially designed for the use of members

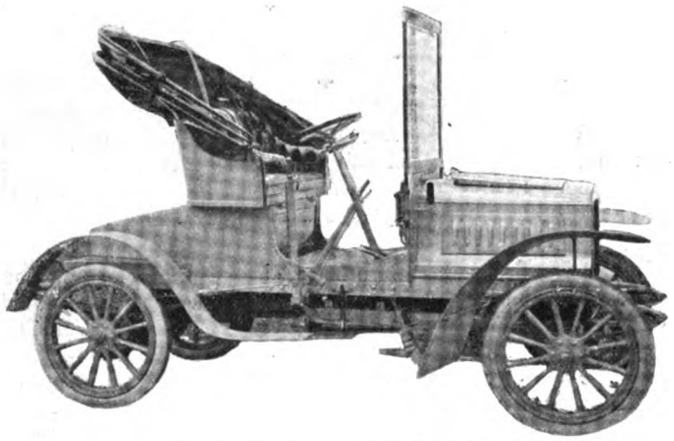


Fig. 1.—The Leonard "Medici" Car.

of the medical profession. To this end the car, a two-seater, is provided with a hood and front glass for the protection of the occupants in bad weather. We gave an illustration of the vehicle in Fig. 1 and may say that, while built on the standard lines of live axle cars, it is being sold at a very moderate price, especially having regard to its power. The engine is a double-cylinder Tony-Huber developing 10-12-h.p. The pump is friction driven and the radiator is provided with a fan to assist the cooling. Three forward speeds and a reverse are available, while ample brake power is provided.

The Gratze Patents and Engineering Syndicate, Limited, exhibit their speed indicator, the first of which was shown at the Agricultural Hall Show last year. This shows at a glance the speed at which the motorist is travelling, and by merely touching a button the pointer is fixed at the exact speed the car was travelling when stopped, while an electric alarm rings on a fixed speed being attained.

The Pivot cars, reference to which was made in our report of the Paris *Salon*, are shown for the first time in this country by Mr. P. Cuthbertson, two handsome cars, a limousine coupè and a side entrance double phaeton, both of 24-h.p., being on view. The vehicles, while not comprising any startling deviation from standard practice, show evidence of careful construction. The pressed steel frame is mounted on equal sized artillery wheels running on ball bearings. The motor has mechanically operated valves, the inlet and exhaust being on opposite sides. Magneto ignition, automatic carburettor, framed radiator with vertical gilled tubes, and induced draught by means of a fan-shaped fly-wheel, are other features of the car. The water circulation is on the thermo-syphon system, no pump being employed. Four speeds and a reverse are provided, the transmission being through a cardan shaft and live axle.

The Hallamshire *chassis* and cars shown by Messrs, Durham, Churchill and Company, bear evidence of the fact that this well-known Sheffield concern has made great advances during the past twelve months. The 10-12-h.p. polished *chassis* has a wood frame with steel flitch plate; the motive power is supplied by a Forman four-cylinder motor, the cylinder dimensions being 80 mm. diameter by 85 mm. bore. The carburettor, which is hot water jacketed, is provided both with an auxiliary air inlet and a "snifting" valve, cold air being drawn through the latter into the cylinder when the throttle is closed. The friction driven pump is held to the flywheel by a spring device, so maintaining regular contact therewith. The framed ribbed-pipe radiator is provided with a air-inducing fan. The clutch is of the enclosed metal-to-metal type, and three forward speeds and a reverse, with direct drive on top speed, are available, the power being transmitted through a cardan shaft and bevel gear to a live axle. The motor is controlled by levers on the top of the steering wheel, the sector being, however, so arranged that it does not move with the steering wheel, and is therefore always conveniently located. The clutch and brake pedals are of the push type, while the accelerator pedal is of the press-down variety. The firm also exhibit a 10-12-h.p. double-cylinder tonneau with Aster motor, and a 14-18-h.p. side-entrance double-phaeton, with four-cylinder Aster engine. The latter is undoubtedly the finest car Messrs. Durham, Churchill have turned out, and is well worthy of close inspection.

A new and novel form of silencer for petrol motors is exhibited by Messrs. Glaskin and Company. The outer casing, which is open at both ends, contains within it the exhaust box in which the hot gases are broken up by being caused to pass along several tortuous passages. They emerge through a nozzle about the centre of the outer casing, which at this point is so shaped that as the gases are emitted a vacuum is formed and a strong current of air drawn through the casing. The forward end of the latter is coupled up to a pipe which extends behind the radiator, where the air is sucked in, so assisting in cooling the water in the latter. A drawing is also shown of a new automatic air-regulating attachment for carburettors which Messrs. Glaskin are about to put on the market.

An exceedingly varied exhibit is that of the N.A.G. Automobile Company of Great Britain and Ireland, Limited. We first inspected the *chassis* of a 20-24-h.p. car which is built on the standard lines of chain-driven cars. The engine, which comprises four cylinders cast in pairs, has cylinders 105 mm. diameter by 125 mm. stroke. The valves are arranged on opposite sides and are all mechanically actuated. The ignition is by gear driven low tension magneto. The cars are controlled by levers on the steering wheel. The radiator is of novel construction, consisting of a close mass of vertical tubes, set in a circular frame, which also forms the water tank. The cage of tubes is simply bolted into the reservoir, and the joint is made watertight by a packing of lead or other suitable material. A large diameter clutch is employed, and a feature is that the leather is not fixed on the female cone but on the inner face of a flange bolted to the fly-wheel, the flange being readily detachable in two parts should it be necessary to renew the leather. The change-speed gear is of the Mercedes type, giving four speeds forward and a reverse. The chain wheels are connected direct to the hubs of the back wheels, and not to the spokes, so avoiding the boring and consequent weakening of the latter. Ball bearings are used both in the gear-box and in the road wheels. The foot brake acts not on the differential, but on the forward end of the second motion shaft of the gear-box. The side brakes act independently of the



Fig. 2.—The "N.A.G." 6-8-h.p. Delivery Van.

clutch, and are arranged to pull up. A governor is provided, this being arranged to act only when the clutch is withdrawn. Altogether the car is an excellent specimen and does credit to its builders, the Allgemeine Electricitats Gesellschaft of Berlin. A complete 20 - 24-h.p. car with seven-seated side entrance body, is shown, this being a replica of the type used by the German military authorities for inspecting outlying forts. Of the 10 - 12 h.p. double-cylinder cars a side entrance double phaeton and a landaulet are displayed. These are on similar lines to the 20 - 24 h.p. car, except that the transmission is by a cardan shaft and live axle, in place of side chains. Much interest is being shown in a 6 - 8 h.p. double cylinder motor-cab, with live axle drive and seating capacity for four persons. A number of these vehicles are plying for hire in Berlin, a feature being the provision of a device known as a "taxameter," by means of which, before starting the journey the machine is set to register by one of three tariffs, according to arrangement, and when the trip is finished it shows the amount to be paid. Fig 2 depicts the N.A.G. 6-8-h.p. double-cylinder delivery van designed to carry a load of 15 cwt. The company are also going in extensively for the construction of heavy petrol lorries, and have on view one fitted with a 10-12-h.p. double-cylinder engine, and designed to carry a load of three tons. Four speeds forward and a reverse are provided, the transmission being by side *chassis*. The various details of the vehicle

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appear to have carefully designed to withstand the rough work such wagons are called upon to perform.

The BRITISH AUTOMOBILE COMMERCIAL SYNDICATE, LIMITED, of which Mr. F. F. Wellington is now the manager, have a very handsome stand, on which are to be seen quite a number of types of cars, including an 18-24-h.p. Mercedes car with Rothschild side entrance body, a 20-h.p. Bollée, a 24-32-h.p. Fiat *chassis*, a 20-h.p. Hotchkiss, and a 16-20-h.p. Clement-Talbot, all of which have already been described in the *Journal*. A new comer is seen in a 15-18-h.p. Altona car. This is a vehicle of Belgian construction and contains several points of interest. The motor comprises four separate cylinders, 90 mm. dia. by 110 mm.; it develops 18-h.p. at 1,000 revolutions. The carburettor is a Longuemare automatic one with throttle. The regulation of the motor is effected by a pedal, and also by a hand-lever on the steering wheel. Ignition is by coil and accumulators. The friction clutch is made in two parts, which allows

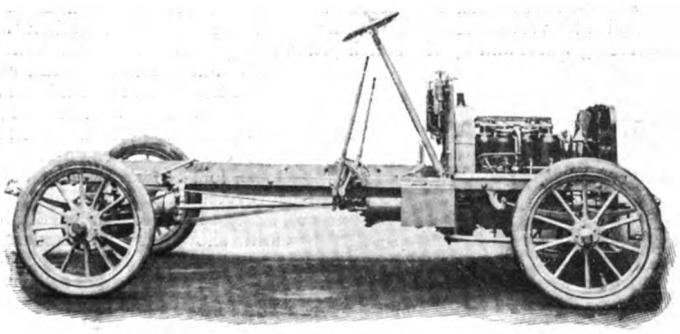


Fig. 3.—Chassis of Altona 15-18-h.p. Car.

the leather to be quickly changed when necessary without dismounting any part of the gear-box. The complete clutch is made entirely independent of the motor and the gear-box, by means of a single bolt uniting both sides of the coupling sleeve. The clutch pedal is mounted directly on the shaft of the fork which compresses the spring. The gear-box is connected to the motor by an aluminium shield, and forms a rigid joint which ensures the parallelism of the shafts. Three speeds and a reverse are provided, the drive on the third speed being direct, the second motion shaft in the gear-box, on this speed, remaining stationary. Transmission is by a cardan shaft and bevel gear to a live axle. The road wheels turn on the live axle casing, and are driven by squares on the ends of the axle. The frame is of armoured wood, to which the motor and gear-box are directly attached. The car is fitted with a double phaeton side entrance body, and from experience we can state that it not only runs quietly but is speedy both on ordinary roads and hills. One end of the stand is devoted to a display of the Spyker cars, for which the Syndicate has taken up the general agency. The new points

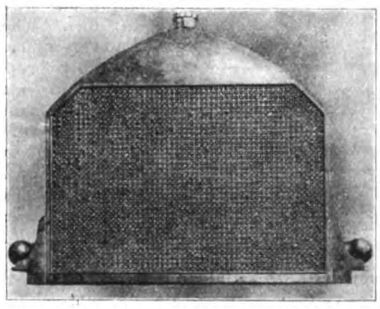


Fig. 4.—The Spyker Radiator.

in the Dutch built cars were explained to us by Mr. A. House, of Bradford. The novelty of the exhibit is the chassis of a 32-40-h.p. four-cylinder car (Fig. 5). The frame is of pressed steel filled in with ash, while the engine (Fig. 6) has the cylinders cast in two pairs, the inlet valves being on one side and the exhaust on the other, all being mechanically actuated. It is in the transmission, however, that the principal feature lies. The power is transmitted through a leather-faced clutch to a gear-box, from which extend two cardan shafts, one driving on to the rear axle and the other on to the front one, so that all four road wheels are driven. No less than three differential gears are employed, one on each of the axles and one in the gear-box. It is claimed that the car is proof against side-slip, and that steering is no way affected. The gear-box is adapted to give three speeds forward and a reverse. We noticed that the live axle does not carry the weight of the car, the road wheels being mounted on a sleeve, and having the power transmitted to them through the axle ends. As regards the standard Spyker cars, these are shown in two sizes, 12-16-h.p. and 15-20-h.p., both having four-cylinder engines. The car follows the usual lines of cardan shaft transmission vehicles, among the features being the ready means of access to the pinions in the gear-box, and the pivots of the front wheels, which are entirely enclosed and work in an oil bath. Ball bearings are used throughout, while the brakes are of the metal-to-metal type. The honeycomb radiator used on the (Fig. 4) Spyker cars is also worthy of notice. The square tubes are fitted with a screw thread, by which means what can be best be described as a whirl wind is created, the air induced by the fan not only impinging on the entire surface of the tubes, but is drawn through at a high speed. Owing to the increased cooling effect obtained it is claimed that the radiator may be built 25 per cent. less in weight and with 25 per cent. less surface than the usual type.

Interest at the stand of the LONDON and PARISIAN MOTOR COMPANY, LIMITED, is principally centred on the *chassis* of the 1905 Hotchkiss 17-25-h.p. car, the feature of which is that all the shafts, even the crank shaft, run on ball bearings. Although the general lines of the vehicle are the same as last year, a number of detail improvements have been introduced. The engine has cylinders 112 mm. diam. and 120 mm. bore, and is stated to develop about 32-h.p. on the brake. The ignition is by low tension magneto, gear driven. The radiator is of the honeycomb type, of a circular shape; the tubes of the honeycomb are of a

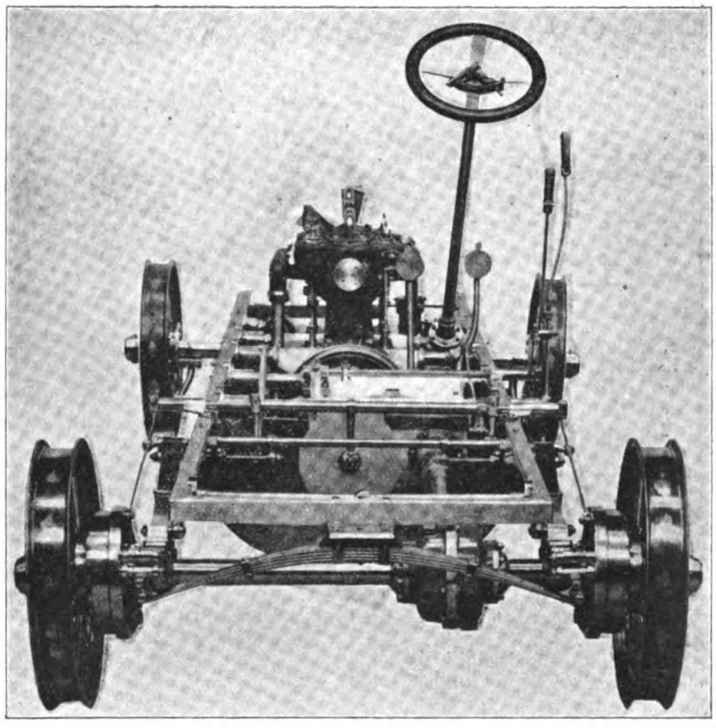


Fig. 5.—Rear View of Spyker Four-wheel Driven Car.

triangular section, giving a large radiating surface. The clutch is on novel lines; it is of the leather-faced type, and is provided with a locking device which prevents any tendency to slip. Four speeds forward and a reverse are provided, the power on the top speed being transmitted direct to the rear live axle through a cardan shaft and bevel gearing. The rear axle is entirely enclosed and does not carry the weight of the car; the road wheels are mounted on the axle casing, and have the power transmitted to them through the axle ends. The bevel gear has been strengthened, a bearing being now provided behind the small bevel pinion.

THE STAR ENGINEERING COMPANY have a large stand, but very few cars on view, this state of things being, we understand, due to the fact that the firm is considerably behind with its orders, and consequently not in a position to prepare any vehicles for exhibition. At the time we called at the stand only a couple of the popular 7-h.p. double-cylinder Little Star cars were on view, although we were informed that one of the latest 10-h.p. four-cylinder vehicles with several improvements was expected to be staged before the close of the Show.

Cort's non-skidding motor tyre band is shown by the MARKET HARBOROUGH RUBBER COMPANY. This is made of chrome leather, the distinctive feature being that the steel studs can be renewed when worn. A

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similar band with rubber pads in place of steel studs is also shown, the pads being similarly renewable.

The GENERAL ACCIDENT ASSURANCE CORPORATION, of the Motor Advisory Board of which Colonel Mark Mayhew is chairman, with Mr. Alfred Nixon as manager of the motor department, take advantage of the occasion to draw attention to the facilities they offer for the insurance of automobiles.

Messrs. G. T. RICHES AND Co., representatives in this country of the "Eisemann" high-tension magneto-ignition, have a large display of accessories, including the Eisemann combination plug. This has a porcelain interior, dispensing with the trouble of mica heads. The mica exterior obviates trouble with cracked porcelains, so that the plug is practically indestructible. The Simplex ignition recently fully described in our pages is to be seen at this stand. There is also a good type of lubricator with force feed to each bearing, and the firm are extending their business in small parts, packing these in neat boxes for postal dispatch.

Messrs. R. REYNOLD JACKSON AND COMPANY display one of their popular little 6-h.p. Jackson dogcarts with the engine under a bonnet at the front, and also one of the 8-h.p. Jackson tourist cars, both of which are worthy of the notice of those looking for moderately priced vehicles. In addition to their 8-h.p. two-seated car, the HORLEY MOTOR COMPANY exhibits a 9-h.p. tonneau car fitted with a single cylinder having mechanically-actuated inlet valve. The vehicles follow the usual lines of cardan-shaft driven cars, their most noticeable feature being the moderate prices at which they are sold. A novel form of three-wheel, two-seated car is to be seen at the stand of the NEW KYMA CAR CO. The motive power is supplied by a twin-cylinder engine which is connected by a short chain drive to a gear-box, giving two speeds; side chains then transmitting the power to the rear road wheels, which are of the cycle type. No differential is employed, its place being taken by free wheel clutches mounted within the sprockets on the cross shaft. A three-wheel delivery van on similar lines is also shown, the rear wheels being, however, of the artillery type shod with solid rubber tyres. The van is designed to carry a load of 5 cwt.

A couple of highly-finished electric laudaulets are to be seen at the stand of the KRIEGER ELECTRIC CARRIAGE SYNDICATE, LIMITED. The Krieger system has already been described in the *Journal*, but it may be mentioned that two 4½-h.p. compound electric motors drive the front road wheels through spur gearing. The electrical energy is furnished by a battery of forty-four Fulmen or Société de Metal accumulators, one charge of which is stated to be capable of running the vehicle a distance of forty-five miles. The control, which is so arranged as to be easily manipulated, is adapted to give six forward speeds, two battery recuperating positions, one electric brake and a reverse motion. We understand that over fifty of the Krieger vehicles are now in use in the London district. The SCHEELE ELECTRIC CARRIAGE COMPANY exhibit an electric vehicle of novel construction, inasmuch as it is provided with two bodies—a brougham and a victoria, either of which can be readily substituted for the other. An eleven-seated omnibus, with solid rubber tyres, is also on view. In the Scheele system, which hails from Germany, two 5-h.p. motors suspended on springs and running on ball bearings drive the rear wheels through spur gearing. The battery consists of forty cells of the Hagen type, having a capacity of about 190 ampere hours, sufficient to run the vehicle a distance of from forty-five to fifty miles on one charge. The controller is arranged to give five forward speeds and two reverse motions.

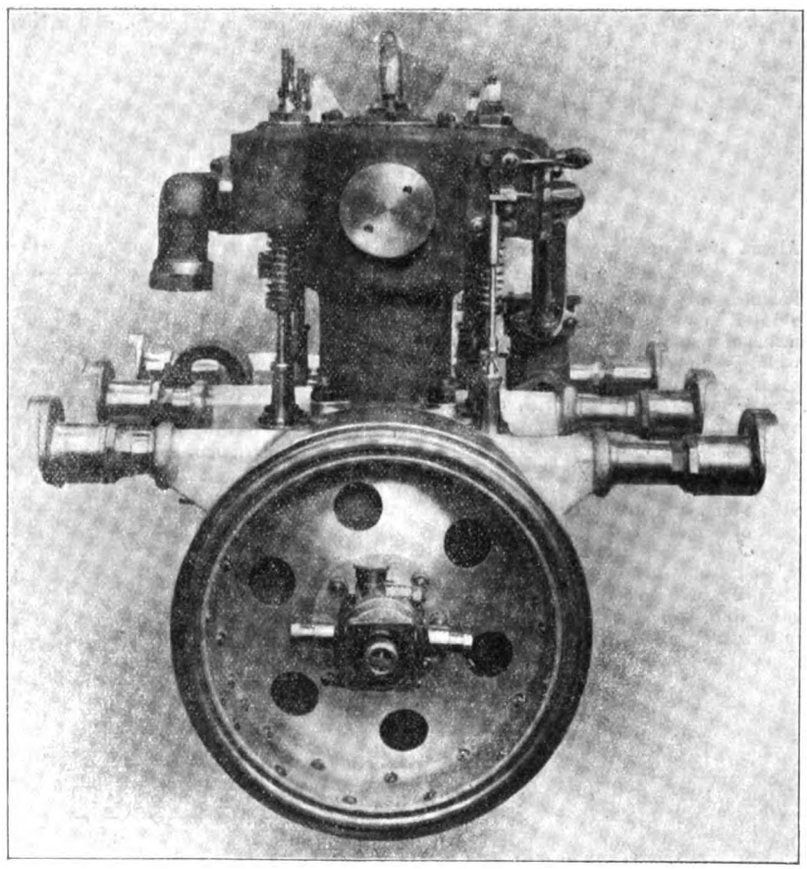


Fig. 6.—Rear view of Spyker Four-cylinder Motor, showing Clutch.

Examples of three of the sizes of the Brouhot cars are shown by the BROUHOT MOTOR COMPANY, LIMITED, of Great Britain, viz., 12-14 h.p., 15-18-h.p., and 20-24-h.p., all having four-cylinder engines. All the valves, both inlet and exhaust, are mechanically actuated off one cam shaft. The ignition is by magneto or by coil and accumulator and a dynamo. The carburettor has automatic regulation of the air in order to give the correct mixture at any or all speeds. A device is also provided whereby the lift of the inlet valves may be varied and the speed of the engine consequently controlled. Pump circulation is adopted in conjunction with a honeycomb cooler, through which a current of air is drawn by a belt-driven fan. The transmission is by side chains, the drive on the top speed being direct. An ingenious form of friction clutch is employed to connect the engine with the gear-box. Among the detail improvements worthy of notice may be mentioned the chain-adjusting device and the steering bar, which is now located behind the front axle. On the same stand is also to be seen one of the latest 20-h.p. Dechamps cars fitted with a side-entrance double-phaeton body. The engine has mechanically operated inlet valves provided with a variable lift, actuated both from the steering wheel and by the clutch pedal, the speed of the motor being thus automatically reduced when the clutch is withdrawn, the use of a governor being also in this way dispensed with. The car is of the chain-driven type, four-speeds forward and a reverse being available.

Madame MARA, of Bradford, shows the "Crusader" motor-cap for ladies—an effective piece of millinery well designed for motor touring. Garlio is again to be seen on the stand of Messrs. M. and E. MARX, who report its continued favour with motorists as a polishing cloth for the bright parts of their cars.

Messrs. BEARDMORE AND COMPANY illustrate their work for the motor-car trade by a selection of pressed steel frames for cars of 12-h.p., 16-h.p. and 24-h.p. respectively, with hydraulic riveted joints. Sections of rivet joints, pressed steel sections of different sizes and flanged steel plates are also exhibited on this stand, which will appeal to everyone interested in motor vehicle construction.

Messrs. W. H. WILLCOX AND COMPANY, LIMITED, have their usual wide range of motor engineers' stores and lubricating oils. The latter are of known efficiency, and are specially prepared for steam cars and motor-wagons, as well as touring cars and the parts thereof. Motor greases are also shown, as well as gear and chain greases and general lubricants. Among the accessories will be found an aluminium-cased "Centrifugal" motor pump in two sizes, to run at from 1,800 to 2,400, and from 1,400 to 2,300 revolutions per minute respectively. A collection of motor kits and tools of every kind will be inspected with interest by every motoring visitor to the Palace.

The patent motor-car whistle illustrated in our issue of December 3rd last is shown by the MOTOR PATENT APPLIANCES COMPANY, whose new device for warning other users of the roadway of the approach of a car is attracting much attention on the Continent. A new Quick-Grip cone spanner will be found on the stand of Messrs. A. G. TAYLOR AND COMPANY. This is on the same principle as the well-known spanner familiarised to motorists by Mr. Taylor, but is made only 1-16 inch thick, so as to be available for adjusting the bearing cones of small car wheels, taking any cone, irrespective of shape. Mr. J. F. JANES makes a display of accessories for motor-cycles, including a switch which can be operated by the slightest pressure on a finger lever.

A novelty at a motor-car exhibition is a display of artificial horse-hair from the GROVE MILLS, Mitcham, who also show some good types of cushions for cars, stuffed with their speciality.

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Among the firms which have recently produced a three-cylinder car is Messrs. Horsfall and Bickham, an excellent specimen of which is shown on their stand. We give an illustration of the car in Fig. 7. The frame of the vehicle is built of ash with steel flitch plates; the engine, situated in the fore part under the bonnet, comprises three separate cylinders 80 mm. diameter by 90 mm. bore, and is designed to develop from 10 to 12-h.p. according to the speed. All the valves are mechanically actuated, the inlets being arranged on the opposite side to the exhaust valves. The engine is provided with an automatic governor as well as both hand and foot accelerators. The ignition is of the usual high tension type, by coil and accumulators; the water circulation is maintained by a friction-driven pump and a framed ribbed-pipe radiator with draught inducing fan. From the motor the power is conveyed through a leather faced friction clutch to the gear-box and thence by a cardan shaft and bevel gear to the rear live axle. The change-speed gear is of the sliding pinion type, giving three forward speeds and a reverse with direct drive on the top. The reverse motion is controlled by a separate lever. The brakes are of the internal expanding metal-to-metal type and the steering is controlled by worm and segment. The car is built as a two-seater, but is adapted to receive a detachable tonneau, so that four persons can be carried at a maximum speed of about twenty-eight miles per hour. The car weighs between 11 and 12 cwt., and has a wheel base of 6 ft. 6 in.

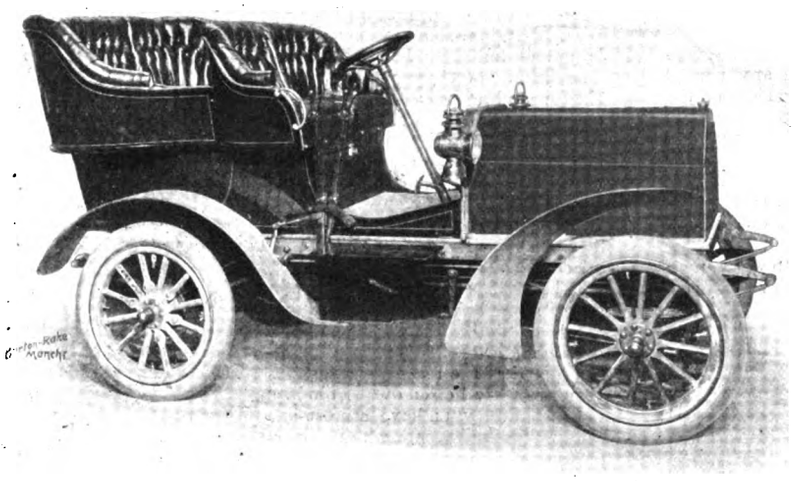


Fig. 7.—The "Horbick" 10-12-h.p. Three Cylinder Tonneau Car.

One of the 15-20-h.p. Horbick cars, with double-phaeton side entrance body mounted on a pressed steel frame is also shown. The engine comprises four cylinders, 90 mm. diameter by 105 mm. stroke, and develops 21-b.h.p. at a speed of 1,200 revolutions per minute. Both the inlets and exhausts are mechanically operated off a single cam shaft. The water cooling is effected by a friction-driven pump and a honeycomb radiator and fan. Three speeds and a reverse are controlled by one lever, the drive being through a leather-faced internal cone clutch and cardan shaft on to a live axle. The clutch is self-contained on its own shaft and operated by a pedal working on an inclined plane, no rocking shaft being necessary. The brakes are of the internal expanding metal-to-metal type, and those connected with the hubs of the rear road wheels are so arranged that the strain is carried by the frame and not by the springs, as usual. Throughout the car gives evidence of careful design and construction.

A new exhibitor is the firm of Messrs. C. A. Vandervell and Company whose excellent accumulators, however, have had a long trial among motorists. Electric headlights and portable lamps for inspection purposes are also shown.

Messrs. Kumitner and MacDonell have a display in which accumulators and accumulator accessories have a large space. Motor castings are another feature of a generally interesting exhibition. On the stand is a complete outfit for electrically lighting motor vehicles, including the headlight, side and tail lamps—and a roof lamp in the case of covered cars—all run from one accumulator battery.

The "Aquascutum" motor coat is well known as a stylish and serviceable garment for those who travel by automobile. This is made for ladies as well as gentlemen, and the detachable wool, silk, leather, or fur lining with which it can be supplied give it a distinctive character.

Messrs. J. G. Statter and Company make their usual excellent display of "De Luxe" jacks, headlights, side lamps, tail lamps. The jacks are among the handiest devices of the kind on the market.

Users of Pratt's motor spirit will find some points of interest at the stand of the Anglo-American Oil Company, where lubricating oils for machinery and cylinders as well as heaters for motor garages are on view.

Among the recent additions to the list of builders of heavy steam wagons is the Thames Engineering Works, Greenwich, who exhibit two different types of vehicles. The first is a 7-ton wagon fitted with a locomotive type boiler adapted to burn either coke or coal. The engine is of the enclosed compound horizontal type, having cylinders 4 in. and 7 in. diameter by 7 in. stroke. Two speeds are provided, the transmission being by steel geering, the differential gear being mounted on the main axle. The 4-ton wagon is quite a new departure in heavy steam vehicle design, more particularly as regards the transmission. As in the heavier wagon, the boiler is of the locomotive type; the horizontal compound engine, which has cylinders 3½ in. and 6 in. in diameter by 6 in. stroke, is placed at right angles to the usual position and drives the rear live axle through bevel gear. It will be interesting to watch whether the company find this arrangement gives satisfaction in actual practice, but in the meantime we may say that the workmanship is of the highest class. The Thames Engineering Works have also taken up the construction of petrol commercial vehicles, and show one designed to carry a load of from 20 to 25 cwt. It follows the general arrangement of chain-driven petrol cars, the motive power being supplied by a 12-h.p. double-cylinder engine, having mechanically-operated inlet valves and magneto ignition. Three speeds and a reverse are provided, the road wheels being shod with heavy solid rubber tyres. The steering pillar passes through the dashboard, the driver's foot board being reduced in width in order to allow the fitting of a very large body, so utilising, as far as possible, all the available space behind the dash.

Messrs. Alfred Dunhill, Limited, have a fine show thoroughly comprehensive of everything but the motor—to quote a phrase popularised by the firm. In motor clothing the selection is extensive, embracing leather garments, umbrella coats and capes, tweed motoring coats, knee aprons and rugs, fur motoring raiment, etc. Some special lines in servants' liveries are attracting much notice. The novelties include some of the devices lately described in the *Journal*, including dissolved acetylene, the musical horn, the Kennard valise, etc. To enumerate all the accessories ranged on this stand is a task prevented by consideration of space, but special mention may be made of a new indicator of simple yet ingenious construction whereby, should the tail lamp go out, the driver is notified of the same by a small electric lamp on the dashboard.

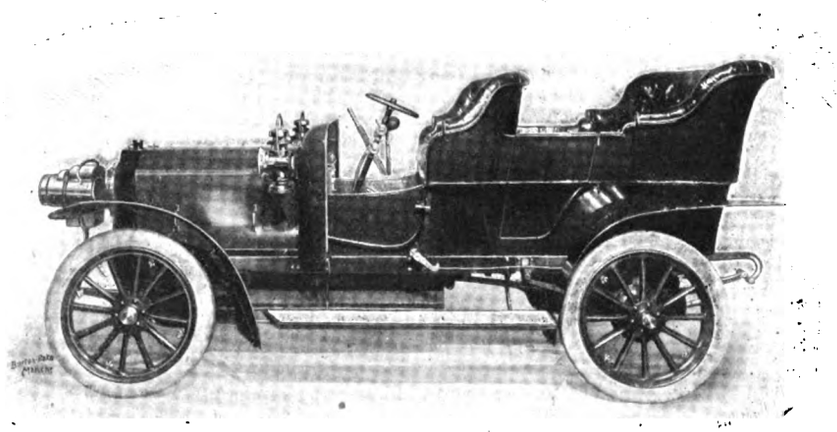


Fig. 8.—The "Horbick" 15-20-h.p. Side Entrance Double Phaeton.

Messrs. Thos. Smith and Sons, of Saltley, Limited, have an assortment of iron and steel stampings for motor-cars and motor-cycles. Motor tools are another department of their activity.

A capital exhibit of motor-cycle engines and accessories is made by Messrs. Leadbitter and Company. Veltmeters, plugs, cyclometers, goggles, electric lamps, horns, etc., are comprised in the display.

Messrs. Pumfrey and Company have a 3½-h.p. motor-bicycle with a duplex frame between which the tanks are fitted. The drive is by V belt and the saddle is suspended on a spring instead of a pillar. The long wheel base is a notable feature of the device.

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From Tunbridge Wells comes Mr. H. ADAMS with his patent quick lift and short locked motor jack, designed for use in showrooms, garages and workshops. The front or back part of any car can be lifted bodily from the ground by tilting the jack towards the car, placing the claw under the axle and pulling the handle down. The car, being then raised, as the jack is on wheels, can be quickly transferred to any place in the garage without taking up any great space. In fact Mr. Adams is showing how a vehicle can with the aid of his jack be turned round in a space its own length. It certainly facilitates the easy manipulation of a vehicle, while, by allowing the leg under the handle to rest upon the floor, the car is placed in a firm position on the jack for repairing, overhauling, or cleaning. The idea is ingenious, and the way in which it has been carried out is highly creditable to the inventor.

A non-skidding band forms the exhibit of the WATKINS PATENTS SYNDICATE. This consists of springs, through which pass threaded stems fixed to plates on the edges of the band, and held in tension by winged nuts screwing up on the stems against the laminated springs. The attachment holds the band down tight on the tyre so as to prevent creeping, slipping, or friction between the band and the tyre, and any partial deflation of the tyre is taken up by the band under tension of the springs, so that the two are always in close contact.

The "Sampson" lamp of Messrs. GEORGE POLKEY, LIMITED, has been so recently described in our columns that it now remains but to be said that, whilst the lamp gives a central beam of light on the road, there is no alarming glare to anyone approaching. In addition to this acetylene head light the firm have paraffin head lights of good design and finish.

The OTTO BENNETT MOTOR COMPANY draw attention to their non-skidding leather bands and non-skids. These have been previously described in the *Journal*, and the accompanying illustration will recall their excellence to our readers. The Stepney motor wheel is also on view.

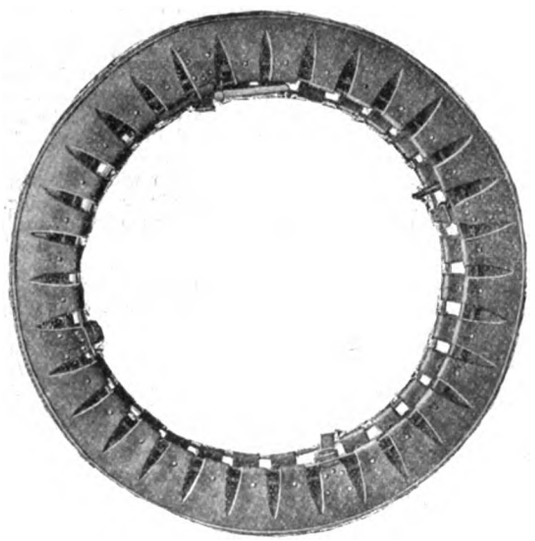


Fig. 9.—The Otto Benrett Detachable Non-skid Bard.

Non-skidding devices are numerous. The Eyre anti-skid consists of loops of twisted steel wire covered with a spirally-wound casing of hardened steel wire. These are secured to the spokes of the wheel by clips, and travel in a parallel line with the course of the wheel, so that when a side-slip occurs the wheel slides on to one of the loops, and the action is corrected. As the appliance does not encircle the tyre, the speed of the vehicle is not slackened by its use. The Samson non-skidding treads and tyres fitted to a Germain car are to be found on the stand of the SAMSON LEATHER TREADS AND TYRE COMPANY, LIMITED. These are universally known.

Moseley's beaded-edge motor tyre is a feature of Messrs. DAVID MOSELEY AND SON'S display. On this stand, too, is the Seddon red tubeless motor tyre which can be fitted to existing wheels by simply removing the rims and bolting the flanges to the felloes. There are no inner tubes.

Messrs. JESSE ELLIS AND COMPANY, LIMITED, exhibit one of their steam sanitary tip wagons and a lorry to carry four tons. The latter is one of the firm's latest design; it is driven by steel gear wheels, and is fitted with a special spring arrangement which adds greatly to the efficiency of the vehicle. Messrs. Ellis also display one of their steam vehicles fitted with an omnibus body. Messrs. WALLIS AND STEEVENS, LIMITED, show a couple of their useful miniature traction engines which come under the provisions of the Motor Car Act, and also a trolley designed to carry a load of four tons and provided with a special backing gear.

An interesting display of the latest type of Peugeot cars is made by Messrs. FRISWELL, LIMITED, ranging from the popular 5-h.p. Baby Peugeot to the *chassis* of a 28-32-h.p. car intended for Princess Said Toussoun. The 6½-h.p. car, which has been improved in many respects, has a frame of tubular construction. The engine is now provided with mechanically-operated valves, a single cam actuating the inlet as well as the exhaust valve by means of a series of componnd levers. No governor is provided, but the clutch pedal is so connected up to the throttle valve that when the clutch is withdrawn the speed of the engine is automatically decreased. The water circulation is maintained by a friction-driven pump in conjunction with a honeycomb radiator with fan. Three speeds forward and a reverse are provided, the top speed being direct on to the live axle. Quite a new model is to be seen in a 7-9-h.p. double-cylinder car with magneto ignition. Three forward speeds and a reverse are controlled by a single lever, the transmission being by bevel gear to a live axle. The clutch and brake pedals are of the push type, the accelerator, on the other hand, having to be pressed down. As an example of modern automobile construction the *chassis* of the 10-12-h.p. double-cylinder car is well worthy of inspection, a noticeable feature being the provision of separate exhaust pipes extending right to the silencer, for each cylinder. Of the four-cylinder cars, in addition to the 28-32-h.p. *chassis* already referred to, a 12-16-h.p. side entrance double phaeton, and a 12-16-h.p. five-seated landaulet built for Lady Beatrice Rawson are to be seen on the stand. The frames of these vehicles are of pressed steel. The motors have the four cylinders cast in two pairs, and all the valves mechanically actuated, the inlets being on one side and the exhausts on the other. Magneto-ignition is fitted. The largest type has also the high-tension system by coil and accumulator as a reserve. One of the most novel features in the new four-cylinder cars is the automatic carburettor, an illustrated description of which was given in a recent issue of the *Journal*. The arrangement is most ingenious, the air admission being not only automatically regulated but also the feed of petrol through the spraying nozzle. The change-speed gear-box is adapted to give four speeds and a reverse, and a noteworthy feature is the provision of a groove extending right round the edge of the lower half of the gear box. Oil is fed to this groove and is conveyed to the bearings by means of chain-ring lubricators. The brakes are of the metal-to-metal expanding type. Attention may also be drawn to the fact that the magneto, which is gear driven, is so arranged that it may instantly be removed from its place whenever necessary. Altogether Messrs. FRISWELL have a most interesting display, and with such a wide range of cars, appealing to motorists of all classes, there can be no doubt of these vehicles being as popular as ever in the coming season.

Messrs. H. E. HALL AND CO. have two stands, on one of which is shown a range of the latest models of Darracq cars, ranging from 8 to 15 h-p., the new features of which have already been dealt with in our pages. On a separate stand are a number of the Bergmann Lilliput two-seated cars, for which Messrs. Hall have secured the sole agency, and which, by reason of their moderate price, are likely to become very popular. The car is fitted with a 5-b-h-p. single-cylinder engine (80 mm. dia. by 100 mm. stroke), running at a speed of 1,200 revolutions per minute. High-tension magneto ignition is fitted, and the engine is controlled by throttle and advance spark levers, and the mixture can be varied by an air-pipe on the dashboard. The novel feature of the car is in the transmission, which is by patented friction drive, consisting of one power-giving and one power-transmitting disc, by means of which any desired rate of speed can be obtained, as also a reverse motion. The fly-wheel is made to serve as the power-giving disc; the receiving disc is mounted at right angles thereto on a shaft along which it can be moved so as to vary the point of contact. The gear is operated similarly to the ordinary petrol car, a pedal having to be depressed ere the disc can be moved by the usual change gear lever. From the disc shaft a single chain transmits the power to the rear live axle. The car can attain a speed of twenty miles per hour, and is stated to be capable of climbing gradients of 1 in 4 with two persons up.

Among the non-skidding and similar devices on view are the "Grose" puncture proof bands of Messrs. GROSE, LIMITED. The band is fitted with a steel-studded strip on the tread, a special point of the manufacture being that the leather is formed into the exact curve of the tyre for which it is intended, so that there is no detraction from the appearance of the tyre. Between the rubber tread of the tyre and the band is an intermediate strip of leather to protect the former from damage from the ends of the rivets.

Messrs. BOTIAUX AND COMPANY have a fine show of car bodies, including a side entrance double phaeton and a Berline touring car on a 20-h.p. *chassis*.

Messrs. CLEMENT-TALBOT, Limited, have a large stand, on which are shown a number of cars bearing their names, and ranging in power from 7-8-h.p. to 35-50-h.p. Principal interest is centred on the chassis of the latest type of 12-16-h.p. four-cylinder car. The engine has separate cylinders with the valves arranged on either sides; the latter are interchangeable, and the fittings are now so made that, if necessary, the cylinder can be turned round and the inlet valve side made the exhaust side, to equalise the wear, which is said to take place on the side on which the thrust of the piston falls when the explosion takes place. The point raised is a new one, and in view of the excellent results obtained from the usual type we are not inclined to think there is much in it. Other new departures in the car are the placing of the steering bar behind the front axle, a new compensating device for the rear brakes, and the raising of the frame at the rear end.

Messrs. T. J. HARMAN AND COMPANY, a new firm which has secured the British agency for the Vinot-Deguingand cars, exhibit several of these vehicles which enjoy an enviable reputation in France. The cars are

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made in four sizes, 10-h.p., 14-h.p., 20-h.p., and 30-h.p., all with four-cylinder engines. Mechanically-operated inlet valves, on the opposite side to the exhaust, are adopted. The frames are of wood and steel or of pressed steel construction. The change-speed gear, which is of the *train balladeur* type, has been altered, and is now of the Mercedes type, the sliding sleeves, however, working on a hexagon shaft in place of the usual square type. The change-speed lever is on novel lines. By pressing a spring it operates at three different heights; in the highest position it gives two forward speeds, in the middle two more, whilst in the lowest it puts in the reverse gear. The transmission is by side chains from the differential shaft to the rear road wheels. The leather-faced cone clutch is of special construction; it is mounted on a spherical bearing, and is also provided with cushioning studs, which permit it to centre itself in the flywheel, even if, by reason of the frame being twisted, the clutch and crank shafts are not exactly in line. Another feature of the car is found in the special arrangement of friction control on the steering wheel. The 20-h.p. cars are provided with both accumulator and chain driven high tension magneto ignition, both being controlled by one switch and a single advance lever. The 10-h.p. car is on similar lines, but is fitted with accumulator ignition only. It may be added that the *chassis* are sufficiently long to receive side-entrance bodies.

At the stand of PRICE'S PATENT CANDLE COMPANY, LIMITED, will be found some novelties, including Belgraphine, a homogeneous mixture of Belmoline and graphite for restoring the surface of bearings in which "pitting" has occurred, and Cirogene for the internal lubrication of chains. Soaps for cleaning motor-car bodies are also brought to public notice.

Messrs. PETO AND RADFORD, LTD., have their usual good range of accumulators, sparking plugs, voltmeters, and electrical fittings for cars. An electrical rear lamp on this stand is worthy of particular attention from owners of automobiles.

The "OTTO BENNET" MOTOR COMPANY exhibit a number of the cars made by the Avon Motor Company. The three-wheel two-seated vehicle known as the Avon Trimobile has been considerably improved since we last inspected it, notably in the provision of compensating springs to the steering head. The 5-h.p. engine is arranged below the driver's seat, and is connected to a gear-box, giving three forward speeds, and a reverse, through a leather-faced clutch. From the gear-box a single chain transmits the power to the rear live axle. The engine is governed and is water cooled, a centrifugal pump being employed for the circulation. One of the Trimobiles is shown fitted with a van body capable of carrying a load of 5 cwt., and represents a type which has recently been successfully used in the Bristol postal service. The first of a new Avon four-wheel two-seated car is also exhibited, the vehicle having been introduced to meet the growing demand for a two-seater at a popular price. The frame is of tubular construction and the motive power is supplied by a 5-h.p. engine. The transmission is through a leather-faced clutch, gear-box giving three speeds and a reverse controlled from the steering column, cardan shaft and live axle. The pedals are of the push type, and, with a square bonnet and framed radiator, the little vehicle has altogether an attractive appearance.

Messrs. BITTON AND HARLEY give prominence to the Bi-car, a motor-bicycle fitted with a 3-h.p. Fafnir engine, transmission being by a V belt. The rider sits in a bucket seat, and the machine is started as though it were a car, footboards taking the place of pedals. It is claimed that the Bi-car, which has a free engine, absorbs all vibration, and that owing to the low centre of gravity sideslip is impossible. The appearance of the car is novel, and we await its performance on the road with some interest.

Autosternol, Occentoline, Sternoline lubricant, and similar specialities are to be found on the stand of the STERN-SONNEBORN OIL COMPANY, whose study of the requirements of motorists has given them a very satisfactory prominence in the trade. Purity is a characteristic feature of their productions, each of which has been prepared with proper regard to its use.

Clincher motor pneumatic tyres and motor clothing are exhibited by the NORTH BRITISH RUBBER COMPANY, LTD., and the CONTINENTAL CAOUTCHOUC AND GUTTAPERCHA COMPANY have a large selection of the various sizes of their motor tyres, including the square tread tyres.

LEE'S patent spiral non-slip tread is shown by Messrs. WRIGHT, METHUEN AND CO. This is a beaded tread in the form of a spiral working inwards so as to secure a thorough grip of the road when the car is running. It can be fitted to any make of tyre, and not only does it prevent side-slip, but is also claimed to prolong the life of the tyre.

Messrs. BENZ AND CO., Mannheim, have a large stand, but the cars had not arrived at the time of our visit.

A RUMOUR is current in the Midlands that the Wolseley Company are about to introduce a 5-h.p. car, to meet the demand for a popular-priced vehicle.

DR. W. E. ST. LAWRENCE FINNY, an ex-mayor of Kingston-upon-Thames, who gave evidence at the Local Government Board inquiry against the proposal to introduce the ten-mile limit into that borough, has been made a Borough Justice of the Peace by the Lord Chancellor.

CORRESPONDENCE.

[*Letters to the Editor should be addressed to the offices, 27-33, Charing Cross Road, London, W.C.*]

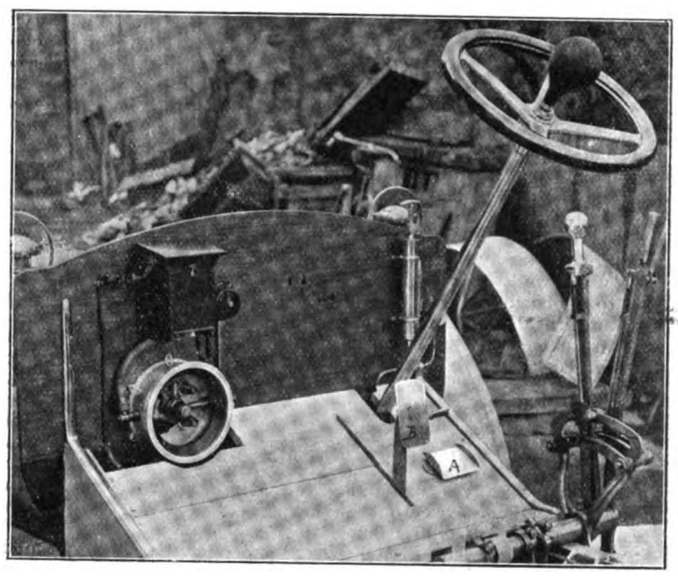
THE USE OF THE ACCELERATOR—HAND v. FOOT CONTROL.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—In reply to the various criticisms on my article that appeared in your issue of December 10th last, I feel that the title you designated to this subject is hardly correct, as, if some of the correspondents had more carefully perused the same, I think they would have seen that my opinions and contentions were based upon a comparison between the new "Brotherhood" improved type of foot control, versus the existing popular types of control, whether they be hand or foot, or a combination of both. I was very pleased to note that evidently the majority of private motorists of experience were in accordance with my ideas, and at the same time was interested to read the criticisms of those who did not agree with me, and of course it is to the latter I feel the necessity more particularly of replying, while I thank the former for their kind support.

Taking the adverse criticisms generally, it can be summed up that the control they most favoured was a combination hand and foot control, arranged in the following manner:—

Two hand levers, fitted somewhere about the steering wheel or pillar, one for the advance or retard of the ignition, the other for varying the engine



View Showing Control Levers of "Brotherhood" Car.
A. Pedal Controlling Engine. B. Pedal Actuating Clutch and Brake.

speed in a gradual manner, or fixing it at a set required speed by means of controlling a governor on the engine, or a plain throttle, etc.

Three foot levers, actuated by either a push or downward movement; one for a coarse adjustment of engine speed, or, as it is commonly known, accelerating; the second for disconnecting the clutch; and the third for applying the foot brake.

As will be seen from the above, there are five levers in all without the addition of the steering wheel, change speed lever, brake lever and signal horn, making a total of nine appliances to be utilised in driving a motor-car with one pair of hands and one pair of feet. As the control of the "Brotherhood" car also comprises a steering wheel, change speed lever, hand brake lever and signal horn, the comparison lies between the first five attachments, which are the functions that are chiefly used in controlling a car when travelling, with, of course, the addition of the signal horn. Now as regards the control of the engine itself, the advocates of the combined hand and foot control admit the necessity of using these two methods to obtain the varying engine speeds required when driving a car, and consequently I think they will agree that, if a foot-control is so arranged to carry out the combined functions of both hand and foot-levers, it would be more convenient than the present system they advocate, as it would do away with the one hand lever for governor or throttle without increasing the number of foot levers. If, at the same time, the remaining hand lever for the advance and retard of the ignition could be done entirely away with, and the remaining two pedals replaced by one pedal only that could efficiently carry out all the functions required by throwing out the clutch and applying the foot-brakes, this would be still a further advantage, as in driving a car it would mean that when the engine was once running and the car in gear it could be started, the speed varied to any desired extent

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and also the foot brakes applied by the simple means of two foot levers only. This would leave the hands perfectly free for steering, blowing the horn, changing gears, or applying the hand brake, which I contend is quite enough for one pair of hands to do.

This is exactly what I have carried out in the "Brotherhood" car in the following manner:—1st. The advance and retard of the ignition is automatic, being mechanically controlled by the motor itself in such a very fine degree that the ignition advances and retards as is necessary to obtain the finest running results from the engine at all speeds. The arrangement enables the period of firing to be varied to a much more constant and accurate degree than can ever be done by hand, and disposes of the ignition lever. 2nd. The engine on the "Brotherhood" car is not fitted with a governor, and is controlled entirely by varying the opening of the inlet valves. A foot lever working in a nearly horizontal plane with a sliding side movement operates this variable inlet gear, thus controlling the engine speeds to a very fine and constantly varying degree as may be desired or necessary. 3rd. The second foot lever undertakes the function of the usual two foot levers fitted for throwing out the clutch and applying the foot brakes. This is a push lever of the modern type as fitted to Mercedes cars, the first travel of which throws out the clutch, whilst the remainder of the travel applies the foot brakes. Only very slight movement is necessary for operating the first function, and at the end of this, by means of a simple cam connected to this lever, the resistance of the clutch spring against the same is released, so that the driver can feel immediately the clutch is out, so obviating any likelihood of partially putting on the foot brakes unless it is desired to do so.

As will be seen from the description of the foot lever controlling the engine, the method in which it works enables the finest graduation of motor speed to be obtained, and as it is actuated by a side movement of the foot, no amount of downward pressure will affect it; in consequence, the foot can lie naturally on this pedal, and can move it either way without any inconvenience, according to the desires of the driver.

I send you a photograph of the actual control itself, which is practically self-explanatory. It will also be noticed from the picture that yet another point has been improved in the "Brotherhood" control gear, and though only a small matter, is one that adds considerable convenience to the driving of a car. I refer to the bulb of the signal horn, which is fitted in the centre of the steering wheel, so that this always remains constantly in one position, and that the most convenient; the central steering tube is utilised to do away with the usual inconvenient length of flexible tube that is used, whilst the horn is carried in the front of the car, and connected to the bottom of the steering tube by flexible tubing which is out of sight underneath the bonnet.

With further reference to the contentions in my article that the new system of control enables the inexperienced driver to get the most efficient results, this is explained by the fact that all the important functions governing the perfect running of the motor (all of which in some cases, and only some in others, are usually left as part of the hand control, and require fairly constant adjustment to assure the best results), viz., the mixture, the timing of the ignition and lubrication, are mechanically and automatically regulated, and whilst the motor is running will always adjust themselves to the varying engine speeds without the necessity of attention from the driver.

Summing up the whole matter, what I claim for the "Brotherhood" is that: 1. It is considerably simpler than any other form; 2. There are no more control levers or attachments to manipulate at any one moment than can be conveniently done by one pair of hands and one pair of feet, without necessitating the changing of either over from one to another, thus minimising the possible risk of doing the wrong thing in cases of emergency or at any other time, and so reducing risk of accident, and assuring the control being more positive and perfect. 3. The convenience and simplicity of the system enables the flexibility of the engine to be taken advantage of more fully at all times, and under all circumstances. 4. The functions of the engine which require experience and fine adjustment to assure the efficient running of the motor being automatically controlled by the motor itself to a much finer and more constantly varying degree than can be carried out by hand, coupled with the simplicity and convenience of the control, enables the inexperienced as well as the experienced to get perfectly efficient running results from the engine.

In conclusion, I may say that perhaps it is well known I have been a practical automobilist since the inception of the industry in this country, during which period I have been constantly driving under all conditions, and leaving my own personal interest in the new system of control out of the question entirely, I can honestly say as a practical automobilist that the new method has only once to be tried to be appreciated, and I hope to be able at a very early date to give anyone interested an opportunity of testing it for themselves.

Thanking you for your courtesy in allowing me to publish my reply on this matter.—Yours truly,

PERCY RICHARDSON.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—This correspondence has been most interesting. As "an old hand" I entirely agree with Mr. S. F. Edge. A suitable governor ought to be fitted to every car, and the ignition made so that it could not be hastened beyond a certain point. This point to be fixed by maker of car and determined after a full test by expert. The governor to be set to give from one half to two-thirds of full power of engine. The accelerator pedal to be used for maximum. Hand control in addition, to be fitted to be used to slow engine when car is stationary, or, if powerful car, to set so that car can be run at any speed desired.

It is funny to read of an expert driver mistaking accelerator pedal for either his clutch or brake pedal. I have not met an individual of this type yet, else would strongly advise to give up driving. A good combination is that of clutch and brake pedal. A still better, to my thinking, would be that of clutch, governor or accelerator, and brake; withdrawing clutch would bring governor into play, and, pressing home, would apply brake. It would not be difficult to devise such an arrangement.—Yours truly,

G. G.

PRIMARY BATTERIES FOR CHARGING ACCUMULATORS.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—The two letters on this subject in the *Journal* of January 21st only confirm the opinions and experience of every qualified electrician. No known form of primary battery can be satisfactorily used to charge accumulators. The cost of the charge for the primary batteries of the best design and construction, and specially made for the best possible economy of material, is such that the unit of electricity they supply is ten times the cost of a unit supplied by electricity supply works. The volts rapidly fall off when charging accumulators over any length of time. The labour of cleaning out and re-charging a primary battery is considerable, and a messy job at the best. If motorists would consult any reputable electrical engineer, they would be warned against the attempts to use primary cells for the purpose of charging accumulators for motor-cars or motor-boats. If accumulators cannot be sent out to be charged properly from an electricity supply, or dynamo, they should not be used at all. A small magneto driven off the engine will do the work of the accumulator, and requires no attention, and will work with the common trembler coil and sparking plug. We exchanged an accumulator for a magneto in a motor-boat and have had no trouble since, and neither the wipe contact nor the coil, nor the plug required any alteration whatever when the change was made.—Yours truly,

ELECTRICAL ENGINEER.

THE GRAPHITIC LUBRICATION OF PETROL MOTORS.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—In further supplement to my previous letter, and in reply to the Glasgow Motor Tyre Company, it is evident this company did not read the article to which my letter was a reply. In this the writer advocated the injection of graphite by means of sparking plug holes, and that, too, in fair quantity. Now, as graphite is a high conductor of electricity, and seeing oil, and even graphite, although only introduced by way of the base chamber, will work up into combustion head and so foul the plugs, it is only "asking for trouble" to use it. I therefore deny that it can be satisfactorily used for lubrication of motors using electric ignition. But, as advocated in my letter, it is an excellent addition to the usual lubricants used in gear cases and other parts. But pure graphite must be used.

It was a hardened combination of oil and graphite which destroyed my plugs. I am fully aware of the almost indestructibility of graphite by heat. The graphite I used was Dixon's, which is beyond reproach. I am not interested in the sale of any lubricant. It would be interesting to know the ignition systems and plugs used by the Glasgow Tyre Company and by "Old Subscriber."—Yours truly,

GEORGE GIBSON.

A CHEAP MOTOR FUEL WANTED.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—It is remarkable that, despite the many attempts to popularise alcohol as a motive power, and the many strong points which have been recorded in its favour, so little success has attended the movement. Every motorist would welcome a fluid which promised to be cheaper, safer, and as effective as petrol, and these claims have been advanced for alcohol. Moreover, the latter is an artificial substance easily manufactured in almost every clime, whilst our petrol supplies are drawn from a few natural sources and are so limited that a "corner" could be worked in it without much difficulty.

This is a condition of things which is certainly not desirable. A growing industry like automobilism should not be wholly dependent on what may be described as a rare product. A new and cheap fuel with all the good qualities of petrol would advance motoring considerably. Alcohol, though so far an apparent failure, has many points of recommendation for experimenters. It can be cheaply manufactured in our own country from many forms of agricultural produce. If the British farmer found a demand for such stuff he would take a kindlier interest in automobilism. Alcohol distilleries would spring up all over the country, and considerable employment be given in growing, collecting, preparing, and extracting spirit from the various field stuffs, etc., adapted for that purpose. The complete applicability of alcohol to motoring may be chimerical, and consequently all our fond dreams of new home industries created by

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motoring may have to be abandoned. But, failing alcohol, perhaps some clever chemist may devise a new hydro-carbon which will be cheap, easy to produce, and powerful in use. Should such not be forthcoming immediately, it may at least be hoped that more attention will be given to the heavy oils. A few firms have enterprisingly studied the matter, and with no inconsiderable success. The ideal has, however, not yet been reached. When motorists can command a cheap, universally distributed, compact, and safe fuel, many of the woes which befall us at present will have disappeared.—Yours truly,

T. W. DEWHURST.

COLD WEATHER PRECAUTIONS.

TO THE EDITOR OF *The Motor-Car Journal.*

SIR,—I read "C. D.'s" letter in the last issue of the *Journal*, and, thinking they may be of interest, I send you my experiences of anti-freezing preparations. First of all I tried glycerine, but it did not satisfy me. In the first place it is expensive, for while it does not evaporate very quickly, it deteriorates, and in a short time you must clean out your tanks and pipes and put in a new supply of both water and glycerine. For this reason I have given the preference to calcium chloride, and got good results from it until this year, when I met with a very peculiar experience. It is my custom to buy the necessary ingredients and prepare the mixture myself. I put four pounds of the salts to each gallon of water, and as the tank of my car holds four gallons, there were sixteen pounds of the salts in the cooling apparatus. Everything went well until one day my pump got out of order and the liquid ceased to circulate. Consequently the water got hot, boiled, and finally evaporated—all without my noticing that anything was wrong until it was all gone. Unfortunately, as I discovered shortly, only the water had evaporated. The salts were still there. They had caked in the bottom of the pipes and were as hard as rock. Nothing I could do would get the deposit out, short of taking a cold chisel and hammer and cutting it out. That is what we had to do, and it took many long hours. I am now looking out for a better anti-freezing medium and should be glad to know if any motorist has tested the wood alcohol referred to in a recent issue of the *Journal*.—Yours truly,

R. L. S.

AN INTERESTING MOTOR QUERY.

TO THE EDITOR OF *The Motor-Car Journal.*

SIR,—As no one has offered to answer the query raised by Mr. Fortune and other gentlemen *re* the increase of power devoloped by their motors whilst being driven in the evening, I shall be obliged if you will kindly allow me space in your valuable columns to attempt to clear up the mystery.

It is fashionable at the present time for motor manufacturers to use some method or process by which they heat up the air before being drawn through the carburettor into the engine. Their intention is doubtless to prevent the carburettor from freezing up, etc. This to my mind is more fashionable than correct. In the first place the gas or explosive mixture is admitted into the engine in a more or less expanded condition, and naturally one cannot expect that charge to be as large or cause as much compression on the upstroke of the piston as could be derived from a charge that is drawn in perfectly cold. To my mind a charge that is drawn into the engine in a perfectly cold state is not only much larger, but as the valve closes the instant the charge is in, it is expanded inside the cylinder instead of outside, and to a certain extent it is compressed by the heat extracted from the cylinder walls and without the aid of the piston on the compression stroke.

If Mr. Fortune will connect another pipe to the carburettor or fit a cut out, similar to an exhaust cut out, with a suitable regulating apparatus (twin tap, slide or trap door) to the pipe on his carburettor he will discover that the more cold and the less hot air he permits to be admitted into his engine, the more power will the engine develop and the cooler it will keep. He will also find that his car travels as fast in the daytime as at night. Let Mr. Fortune heat up his petrol if he likes, but he should keep the air that he supplies to his engine cold.—Yours truly,

RICHARD HODGSON.

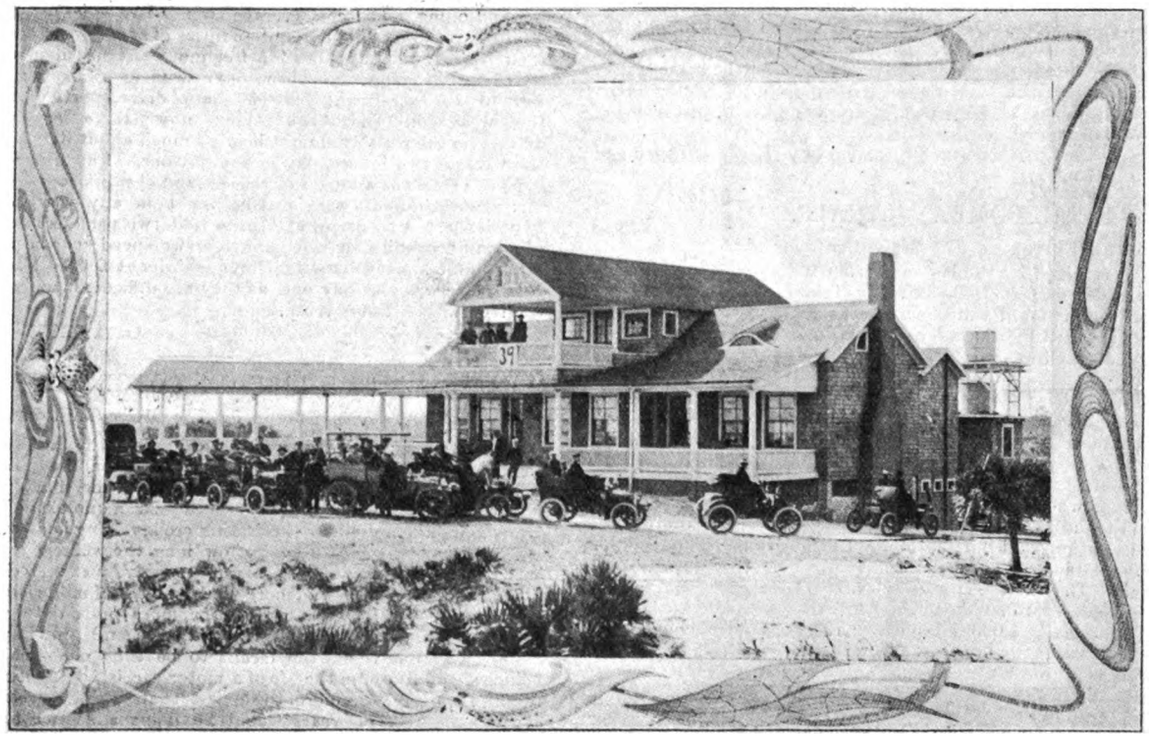
LUBRICATION OF MOTORS.

TO THE EDITOR OF *The Motor-Car Journal.*

SIR,—In reply to queries from other readers as to the use of graphite in car engines, I have been using Dixon's No. 635 special graphite for the past nine months in the axles, differential, gear-box and engine of a 10-h.p. Argyll car with satisfactory results. For axle bearings and differential I mix it with Price's Belmoline C. and Motorine C. in the proportion of 2 lbs. of graphite, 5 lbs. of Belmoline, and 1 pint of Moterine.

For the gear-box I generally put two heaped tablespoonfuls into the box after cleaning it and filling with gear oil (about every 300 miles). I wash engine out with paraffin every 100 or 120 miles and put a tablespoonful of graphite into the crank case with the lubricating oil. I have no trouble with the graphite in the cylinders.—Yours truly,

M. A. ROBINSON.



The Automobile Club House on the Ormond-Daytona Beach, Florida.

AN ENQUIRY FROM SOUTH AFRICA.

TO THE EDITOR OF *The Motor-Car Journal.*

SIR,—I should feel greatly obliged if you would allow me to draw the attention of manufacturers and agents of motor-vehicles and accessories to the fact that I should like to be supplied with their new catalogues. It is almost impossible to write to them all from here, and there are so many new makers putting goods on the market now.

I am particularly in want of a good strong make of car able to carry about eight persons and ten or fifteen hundredweight of luggage, and able to average a speed of about fifteen miles per hour on roads, a good portion of which have two or three inches of sand and some fairly stiff gradients. The top speed on the flat does not require to be high, but the gearing

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should be such that the car would be capable of climbing a decent hill at a fairly decent pace; it should also have from fifteen to eighteen inch clearance underneath, the roads out here being very indifferent.—Yours truly,

J. ALLANSON.

Stamford Hill Road, Durban, South Africa.

BOX SPANNERS.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—The letter from Mr. Kennard reminds me of what I saw the other day. It was a small box containing about two dozen wrought iron sockets to fit exactly any nut from ¼ inch upwards. In addition there was a ratchet arrangement, so that in difficult places where it was not possible to get a complete turn, the ratchet could be used. There was also a swivel joint, by which nuts in the most inaccessible hole or corner could be adjusted by working the spanner on the skew.—Yours truly,

R. C.

THE WAGES OF DRIVERS.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—With reference to "J. B.'s" letter in the 28th inst. issue of your *Journal*, I should advise J. B. to keep the situation he has now got, as there is no demand for tuition-drivers unless they care to work from six o'clock in the morning until twelve o'clock at night, and do all the house work, gardening, and look after the horses, and work for about £1 per week and keep themselves. When a man has tuition he is taught to drive on a very old type car generally with tube ignition. A man cannot expect to learn a trade in one month and go out and claim the same wage as a mechanic. At the present time there are hundreds of young men who have left good berths to be motor drivers and are in just such a state as "J. B."—Yours truly,

SYDNEY R. HARBERT.

DELHI-BOMBAY TRIALS.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—We have received by the last mail from India several communications dealing with the recent Delhi-Bombay Trials, and enclose some extracts herewith, from which it will be noted that a great deal of dissatisfaction has been caused by the judges' awards and a protest signed by the majority of competitors has been made to the Western Union. Fortunately this dissatisfaction has found public expression in the Indian Press, and those cars which were conspicuous for good performances have thus received in some measure their due rewards. At the same time it cannot be too strongly urged on the promoters of these competitions that the bare suggestion of prejudice in the matter of awards will effectually prevent the possibility of holding future trials.

One of our friends who took an active part in the run writes us from Bombay. "When the judges' decision and awards were published there was the most intense irritation and indignation. I had a consultation with Mr. —— and Mr. —— and told them straight to refuse the consolation prize offered them." They acted on my advice, and I feel sure your company would not be pleased to have one of their cars given a consolation prize when it had run nearly 1,000 miles under the most strenuous conditions and come in without loss of any marks. Some particulars as to the team running of the three Wolseleys may interest you.

Mr. Vakil's	.. ..	8 non-stops.
Capt. Muter's	.. ..	4 ,, ,,
Lieut. Skelton's	.. ..	5 ,, ,,
Total	.. ..	17 out of a possible 24.

A far higher average than any other team obtained. Now please bear in mind that in England you have never had trials like these over all sorts and conditions of roads, good, bad, and very bad. The test was most severe, as is shown by the fact that only twenty cars out of thirty-eight finished at all."

The owner of the Wolseley car which made the eight non-stop runs sends a number of press cuttings expressing in very high terms the qualities of the car and the manner in which it performed the journey. Another letter says, "There is unanimity of opinion that we have been hardly dealt with by the judges," the judges having awarded us a consolation prize which we did not deserve.

We think that the foregoing extracts are sufficient to prove that the officials responsible for the awards in these trials were not selected with a due regard to their knowledge in motor matters, and we think you will agree that this is to be very much regretted, especially in view of the excellent arrangement which appears to have been made for the conduct of the trials.—Yours truly,

THE WOLSELEY TOOL AND MOTOR-CAR COMPANY, LTD.

TRI-CARS.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—Replying to "Beginner," a recital of my experience with a tri-car, which has extended to 14,000 miles, on a belt-driven, single-geared, air-cooled machine, and 16,000 odd miles on last year's pattern Rexette, two speeds, water-cooled and chain drive, may be of interest. Speaking in general terms, I have found this type to be reliable, handy, economical, and easy and safe to ride. I say this even in spite of a misleading article that has recently appeared in a contemporary journal. The statement of the author of the article in question that a tri-car is difficult to steer must come as a surprise to the practical user, and can only be accounted for by a singular want of skill on his part, or that the particular machine he rode was out of order. During my tri-car days I have never had an accident of any sort, and most of my time is spent in threading my way through the crowded streets of a large Midland city in the pursuit of my professional duties—under all conditions of traffic and of weather.

I consider the belt-driven, air-cooled, single-geared, and cycle-seated machine a mere makeshift, and only suitable for a young enthusiast who would be prepared to put up with a great deal of inconvenience, such as belt repairs and cost of renewals, pushing off to start (pedalling quite impossible), violent pedalling on hills when a passenger is carried (this is usually described as light exercise, conducive to health, etc., by the vendor), minor troubles, as being covered from head to foot with mud thrown from the belt, which always has to be placed near the ground. These, and other troubles of a lesser nature, made me part with my machine with the proverbial sigh of relief.

My next venture was last year's pattern Rexette, free engine, chain-driven, water-cooled, two speeds and bucket seats. This combination seemed to end all my difficulties. The chain has never given any trouble, except coming off occasionally from want of proper attention. The clutch and gear-box and engine I look upon as never requiring any special attention except cleaning and oiling, and I can average twenty-five miles per hour on our Midland roads. The hill-climbing qualities of two-speed tri-cars seem all that are required, and the vibration I cannot specialise upon as I do not notice it; the water cooling has been above suspicion. Last year the Press was full of the disadvantages of chain drive, particularly in relation to the wear on the back tyre; now there are plenty of chain drivers on the road we do not hear so much about it. My tri-car now does the work of two horses, day in and day out. I am quite satisfied with this type of vehicle as a means of reliable and cheap locomotion. The letter of Mr. Saunders in last week's issue is not in any way consistent with my experience. A tri-car of 3½-h.p. to take two persons must be geared very low and consequently slow, unless a two-speed gear be used. What does Mr. Saunders mean by a light four-wheeler at £80? If a quad, it will be hardly necessary to buy one, as they are difficult machines at present even to give away.—Yours truly,

G. PERCEVAL ADAMSON.

THE LIFE OF MOTOR-CARS.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—It is now just over eight years since the Act of 1896, by which the red flag was abolished, came into operation, and as the number of cars in use has been steadily increasing since that time, much information must now be available as to the life of a motor-car, a question of great interest to many who, like myself, are hesitating ere investing in an automobile until it is possible to get some idea as to how long the vehicle is likely to last in actual service, or how long it may reasonably be expected to be capable of doing efficient work. The more wealthy class of motorists are able to dispose of their cars in order to go in for more up-to date vehicles, as these make their appearance; but there is a large and growing section of automobilists who have not the means to be thus continually changing their vehicles, and to whom the life of a motor-car is consequently a vital question. I venture, therefore, to suggest that any motorist who has had his car for a number of years would be doing a service to many would-be owners by sending an account of his experience in the way of cost of upkeep, etc.—Yours truly,

F. D. P.

A DOCTOR'S EXPERIENCE OF MOTORING.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—I have been motoring now for nearly five years in my professional work, and greatly prefer motors to horseflesh. I started with a 3½-h.p. Benz, which served me well for eighteen months. I then became more ambitious and went in for an 8-h.p. M.M.C. which gave me another eighteen months' complete satisfaction. I am now in possession of a Vulcan 10-h.p. two-cylinder car, which has given me unqualified satisfaction, and I can genuinely recommend a car of this type to any of my brother medicos. It is not too big a car and is a grand hill-climber. I received my car last June, and have been running daily ever since without a single visit to the repair shed. I have worn out two pairs of outer covers (Michelin) in the time, which fact alone, I think, speaks volumes for the running of the vehicle. I find my car far cheaper than horses, and now that motor landaulets and broughams are coming so much to the front, I can see no advantage at all for the horse-drawn vehicle even in bad weather.—Yours truly,

EDWARD JAMES DECK.

WAGES OF DRIVERS.—Several correspondents have written in reply to "J. B.'s" letter of last week confirming his reference to the low rates of pay offered to drivers of motor-cars.

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CLUBS AND ASSOCIATIONS.

LIVERPOOL UNIVERSITY.

At a well-attended meeting in the engineering department of the University, it has been decided to form a University of Liverpool Motor Club. Ordinary membership is open to present and past students, two classes being formed—for riding and non-riding members. Other persons interested may join the club as honorary members. Rules were drawn up and the following officers elected:—President, Mr. J. A. Brodie; vice-presidents, Mr. E. Brown, Dr. Grindley, and Mr. G. Worrall; treasurer, Mr. J. Okill; secretaries, Mr. H. L. Burd and Mr. J. A. Mackie; captain, Mr. J. C. Hall; sub-captain, Mr. Stillman.

HERTFORDSHIRE.

The Hertfordshire Automobile Club held its first general meeting at the Café Monico, London, on Saturday. Mr. N. B. Kenealy presided. The hon. sec. (Mr. W. Whittall), in submitting the annual report, referred to the meets held by the Club, and to the two hill-climbing events. The Aston Hill climb marked a new departure in contests of this description, inasmuch as it originated the rule whereby steam cars were permitted to run at the foot of the hill and so "warm up," thus approaching ordinary touring conditions. The gentlemen who held office during the preceding year were re-elected. The Committee is as follows:—Dr. Gruggen, Messrs. A. Hunt, W. G. James, C. Wood, E. Kenealy, E. T. Pryor. The offices of hon. treasurer and hon. secretary have been combined, and Mr. W. Whittall was elected to the joint post. The accounts showed a balance in favour of the club of £26. A dinner was held after the meeting, at which the prizes were presented to the winners of the hill-climbing events, Mr. A. Hunt receiving a silver cigarette case as the winner of the motor-cycle hill-climb, and Mr. F. Coleman received a silver-gilt claret jug for winning the Aston Open hill-climb on a 10-h.p. White steam car.

SUSSEX.

At the Old Ship Hotel, Brighton, a largely attended meeting of Sussex motorists was held on Saturday with a view to the formation of an automobile club for Sussex. Colonel Holden presided at the commencement of the proceedings, and, having spoken encouragingly of the idea, vacated the chair in favour of Mr. W. James, of West Dean Park, Chichester.

Earl Russell moved that, in the opinion of this meeting of Sussex automobilists, a strong County Automobile Club should be formed for Sussex for the purpose of the encouragement, protection, and development of the automobile movement within the county, and to act in conjunction with clubs and organisations having similar objects. The motion was seconded and carried unanimously, the Committee being elected as follows:—Messrs. J. Amps (Uckfield), B. Y. Bevan (Brighton), C. E. Collins (East Grinstead), J. P. Cockerell, J.P. (Eastbourne), Sir James Duke (Laughton), Messrs. A. Scruse Dickens (Horsham), H. S. W. Eyre (St. Leonards), C. F. Frowd (Hastings), Sidney Farrer (Brighton), Captain J. G. R. Homfray (Hove), Messrs. W. James, J.P. (Chichester), J. Godwin King (East Grinstead), Captain F. D. Lyon (Brighton), Messrs. Boyle Lawrence (Bognor), C. J. Lucas, J.P. (Warnham Court, Horsham), E. G. Miller (Brighton), M. F. Mieville (Chichester), G. W. Osborn, J.P. (Heathfield), Major Pierson, J.P. (Worthing), Earl Russell (Chichester), Captain Gerald Spencer (Ringmer), Mr. A. M. Singer (Hove), Major R. C. Turner (Brighton), and Mr. W. L. Wallis (Eastbourne).

On the motion of Mr. Wallis, seconded by Earl Russell, it was agreed that the committee elect members, appoint officers, and take all necessary steps to complete the formation of the club, and it was further resolved that the club apply for affiliation with the A.C.G.B.I., including membership of the Motor Union.

Mr. C. F. Frowd moved that the annual subscription be two guineas per member per annum, and this was agreed to. Mr. Frowd also proposed that an entrance fee be charged after a certain date, and it was decided, on the suggestion of Earl Russell, that it be an instruction to the committee to fix an entrance fee for all joining after May 1st. Replying to questions the Chairman said it was not proposed to limit the membership to motor owners; that the idea was to have Brighton as the working centre of the Club, with sub-centres all over the county; details would be worked out by the committee; that the question of including lady members had better be left to the committee; and that, pending the appointment of a secretary, communications could be addressed to the committee at the Old Ship Hotel, Brighton.

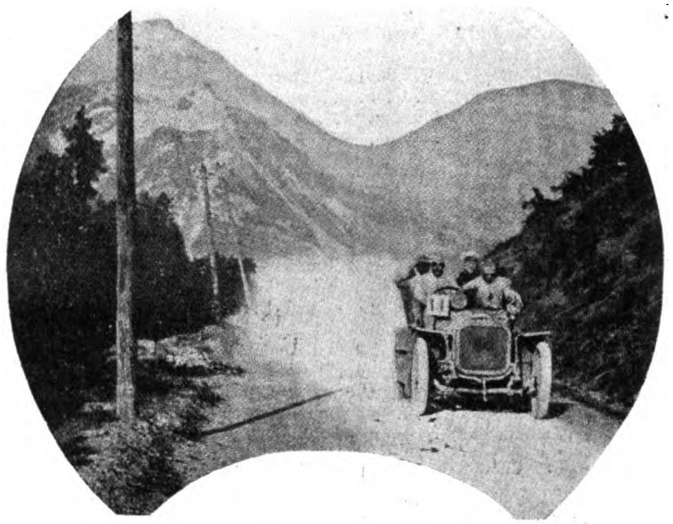
In moving that "this meeting of Sussex automobilists is of opinion that the proposal of the West Sussex County Council to close Middle Street, Horsham, to motor-cars is not required in the interests of the safety of the public, but that the closing of such a street might lead to accidents," the Chairman said that in order to avoid this street, motor-cars would have to make three or four right-angled turns, which was much more dangerous than going through the street in question. Furthermore, if they agreed to the closing of this street it would seem to indicate that motors were more dangerous than other vehicles, whereas they contended that they were much safer, being under much better control. He did not believe the Local Government Board were at all anxious to close any roads; and he thought a strong representation would achieve their object.

Earl Russell thought it would be a very good idea to have some good bold signs calling attention to the place, and remarked that there seemed to be an almost total absence of guide-posts and signs in towns, so that strangers had to find their way as best they could. The motion was carried unanimously, and it was further decided that a copy of the resolution and a formal notice of objection be sent to the Local Government Board and to the County Council.

On the motion of the chairman, a hearty vote of thanks was accorded the proprietors of the Old Ship Hotel for their courtesy in placing rooms and garage accommodation at the disposal of the Union for the meeting. Mr. Moore then moved a vote of thanks to the Committee of the Motor Union for the trouble they had taken in forming the Club. This was carried unanimously, and in returning thanks Colonel Holden pointed out that one of the objects of automobilists must be to fight against the introduction into Parliament of any measures likely to impose any further restrictions upon them. A hearty vote of thanks to the Chairman concluded the meeting.

THE SOUTHERN CLUB.

A most successful opening of the new headquarters of the Southern Motor Club took place on Thursday of last week. Members and friends filled the big room of the premises to hear a lantern lecture on Marine Motoring by Mr. A. F. Evans, A.M.I.E.E. The concert following Mr. Evans' lecture was a thorough success. Excellent songs were sung by, amongst others, Messrs. H. Church, A. Vickers, H. Billing, W. Dent, C. E. Bygrave, and A. E. Edwards. The lantern, which was lent and operated by Mr. Allen Vickers, was also called in to vary the proceedings, some fine slides of club members and others of general interest, lent by Messrs. H. Jones, C. E. Bygrave, F. C. Patterson, Shapnell Smith, and Rees Jefferys, causing much applause. In acknowleging the vote of thanks proposed by Mr. F. Catling, and rendered with musical honours, the Chairman said he thought the new headquarters were a great improvement. Such pleasant and instructive evenings as the one they had enjoyed would certainly induce a large number of motorists to join the Southern Motor Club.



Touring in the Alps.

MANCHESTER.

The annual general meeting of the Manchester Automobile Club was held at the Midland Hotel, Manchester, last week. The hon. secretary, Mr. J. Hoyle Smith, in submitting his report, said that the club now numbered just under 200 members. During the year protests had been sent to the Local Government Board against granting a ten mile limit to Blackpool, Mossley, Stockport, Todmorden, and Leigh, and members of the club had attended as witnesses at the enquiries held at Todmorden, Leigh, and Bury. In two cases only had members of the Club been summoned for infringement of the Motor Car Act.

A good deal of correspondence had taken place during the past year with the Cheshire and Lancashire County Councils respecting their bye-laws on the lighting of vehicles at night, asking if these could not be altered, so that the carrying of a rear light should be universal, and not confined simply to motor-cars and those vehicles carrying loads which projected six feet or more behind the car.

The hon. treasurer, Mr. S. Okell, proved by his report that the finances of the Club were in a thoroughly satisfactory state.

Mr. Frederic Smith, who has occupied the chair for the last two years, proposed that the President for 1905 should be Mr. T. W. Grace, and this proposal was unanimously assented to by the members present. Mr. F. Smith was elected a Vice-President, as was also Mr. S. Okell, who had to

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give up his treasurership owing to his intention to go abroad this year. The Committee were then elected, the other officers for the year being as follows:—Hon. Treasurer, Mr. F. R. Hesse; Hon. Secretary, Mr. J. Hoyle Smith; Committee:—Messrs. T. W. Grace, F. R. Hesse, G. Higginbotham, A. E. Jones, N. Kilvert, H. W. Lee, J. A. Morris, D. Moseley, V. F. O'Neill, L. G. Schwabe, F. Smith, and J. Whitehead.

Mr. T. W. Grace, the new President, said that it was the intention of the committee to approach the Cheshire and Lancashire County Councils to see if some arrangements could be come to between them and the club re the placing of notice boards at sharp corners and dangerous places on the road, as they think this matter is one of great importance and that the practical experience of motorists would be of great service to the County Councils in the selection of corners which really were dangerous.

The proceedings terminated after a vote of thanks to the retiring officials. The annual dinner will be held at the Midland Hotel, Manchester, on the 8th inst.

BLACKHEATH.

The Blackheath Automobile Club gave its first annual dance at the Concert Hall, Blackheath, on Saturday last. It proved most successful, nearly 180 members and friends being present. A large increase to the ranks of membership is anticipated this year, and local motorists who propose joining should forward their names at an early date to the hon. sec., Mr. Alfred Roberts, of Madgelands, Beaconsfield Road, Blackheath, S.E.

YORKSHIRE.

The annual general meeting of the members of the Yorkshire Automobile Club was held last week at the Great Northern Hotel, Leeds, Mr. E. H. Hepper presiding. The balance-sheet showed a balance in hand of £115 12s. 11½d.

In giving an outline of the programme that would probably be arranged by the committee during the forthcoming season, the Chairman said that a valuable trophy had been given by Mr. Leng, of Sheffield, for speed, and it was proposed that the contest should take place on Filey Sands, on a date yet to be decided upon. They also intended to hold another hill-climbing contest at Pot Bank, near Harrogate, or some other hill suitable for the purpose. It was also intended, if they could obtain the permission of Earl Fitzwilliam, to have a speed trial at Wentworth Woodhouse.

The following officers were elected:—President, Earl Fitzwilliam; vice-presidents, Messrs. A. M. Bosville (Bridlington), W. H. Thornton (Birkenshaw), B. Bagshaw (Leeds), W. Penrose (Leeds), and H. R. Kirk (Leeds); hon. secretary, Mr. C. P. Wilson (Leeds); hon. treasurer, Mr. L. Hey (Leeds); hon. solicitor, Mr. A. Masser (Leeds); committee, Messrs. A. H. Marriner (Keighley), A. W, Roslington (Leeds), T. Whitaker (Horsforth) A. W. Dougill (Leeds), E. Faiers (Bradford), H. A. Jones (Bradford), R. Winn (Leeds), E. H. Hepper (Leeds), W. Jackson (Bradford), H. A. Johnson (Harrogate), W. Tempest (Leeds), A. Exley (Leeds), and Dr. S. Rumboll (Leeds).

During a general discussion that followed, Mr. Jones suggested that a camp should be held at Filey at Whitsuntide, from Friday to Tuesday. Then the trials could take place on the Saturday and Monday. The camp should be self-supporting, and not come out of the club funds. The speaker also incidentally stated that the three hundred cars owned by members of the club represented the value of £60,000.

Six new members were elected, including Mr. R. E. Fox (the Town Clerk of Leeds), who conducted the Corporation's case at the recent speed limit inquiry, and Alderman A. Currer Briggs. The Lord Mayor of Leeds (Mr. R. Armitage) was also appointed a member.

NOTTINGHAM.

Members of the Nottinghamshire Automobile Club mustered numerically strong at the fifth annual meeting at the Black Boy Hotel, Nottingham. The report described the work done in the past year, and from a sporting point of view characterised the competitions as having been most successful, and looked forward to future events with pleasurable anticipation, another challenge trophy having been offered by Mr. Wilson. During the season the club had been invaded for the first time by the admission of lady members, Miss Starkey, of Southwell, having been elected, and since then another had followed suit. Automobilists were pre-eminently a law-abiding body. There had been no prosecutions for any infringements of the law either in the city or county in which the club had been called upon to defend. A case taken up by the Motor Union was an appeal by Mr. R. S. Clifford, jun., of Loughborough. The appeal was fortunately successful, and, although it cost the Motor Union a large amount of money, the Automobile Club in London and the Motor Union thought that the importance of the matter fully justified the expenditure. Another case was that in which one of their members, Dr. Gass, brought an action against the Burton Corporation. The action was successful, the claim and all costs being allowed. Another case was that of Mr. Belcher, which occurred in another part of the country where the police methods were not so sound and good as in their own district. The club had placed a signboard at each end of the village of East Stoke on the way to Newark, owing to representations made as to fast driving through the village, warning motorists that it was necessary to observe caution. The statement of accounts showed that in 1904 the receipts amounted to £212 18s. 6d., and the expenditure to £152 9s. 11d. At the present time there was a balance of £121 11s. 6d. The report and balance-sheet having been adopted, Mr. Charles Hardy was re-elected president and Messrs. Wells, Kirk, and Cowen vice-presidents. Mr. Booth Granger was elected hon. secretary and treasurer. Messrs. C. Hardy, A. R. Atkey, and B. Granger were appointed to represent the club on the Motor Union, and Messrs. Stevens and Bircumshaw were elected auditors. Mr. J. J. Spencer was made a member of the club. Messrs. R. Harbidge, H. Belcher, R. Cripps, S. Harvey, B. W. Winter, W. D. Wells, M. R. Browne, D. Foster, W. Foster, and H. Rimington were elected as the committee for the ensuing year.

THE MOTOR REGULATIONS IN ROYAL PARKS.

At the Marlborough Street Police Court on Friday of last week, Augustus Locke, of College Street, Chelsea, was summoned, before Mr. Kennedy, for driving a motor-car at a greater speed than ten miles an hour in Hyde Park on January 6th.

Mr. Staplee Firth, solicitor, who appeared for the defence, said he did not dispute that the defendant was going more than ten miles an hour, but raised the point that the fixing of a ten-mile speed limit in the park rules was illegal.

Inspector Hayes produced a copy of the park rules, which, Mr. Firth declared, possessed no more authority than if he himself had had them printed. Section 9 of the Royal Parks Act, added Mr. Firth, required that park rules to be legal and authoritative should be first laid before both Houses of Parliament. But he could produce evidence to show that those rules had not been before Parliament, and that the rules that had been submitted to the House contained no mention of a ten-mile limit.

Eventually the further hearing of the summons was adjourned for the solicitor to produce official witnesses in support of his contention.

CASES AGAINST MOTORISTS.

Place.	Summoned for	Fine.
Barnet	Exceeding legal limit	£5, etc.
Greenwich	Not making use of all means provided for the prevention of noise by the action of the machinery of the car	20s., etc.
Chichester	No rear number	Dismissed on payment of costs to avoid endorsement of licence.
Chelmsford	Driving an unregistered car	£2, etc.
Edinburgh	Reckless driving	£2, etc.

The Consolidated Engineering Company, of Slough, have sent us a sample of a patent foot-warmer they are introducing for use on motor-cars. It is externally a reduced facsimile of the familiar railway carriage foot-warmer; it is, however, filled with acetate of soda, and when boiled for a period of fifty minutes will, it is claimed, retain its heat for seven hours. Those who have done much motoring in cold weather will find the foot-warmer a useful adjunct to the equipment of the car.

TO CORRESPONDENTS.

All communications intended for insertion in this Journal or relating to Editorial matters should be addressed to The Editorial Department, Motor-Car Journal, 27-33, *Charing Cross Road, London, W.C., and must be written on one side of the paper only. Letters must in all cases be accompanied by the name and address of the writer, as no notice will be taken of anonymous communications.*

The Editors cannot undertake to return MSS. or drawings, although every effort will be made to do so in the case of rejected communications. Where such are regarded as of value, correspondents are requested to retain copies.

To insure insertion communications and contributions must be in the Editor's hands by Tuesday forenoon of the week in which the same are intended to appear. Disappointment may be caused by non-compliance with this rule, and to avoid this earlier receipt, if possible, is necessary.

The Editors do not hold themselves responsible for the opinions expressed by their correspondents, or for statements and facts which do not appear in the editorial columns.

The Editors and Publishers beg also to state that they will accept no responsibility for unsolicited contributions, even if used, unless payment for same is directly specified in forwarding, and the terms arranged before publication.

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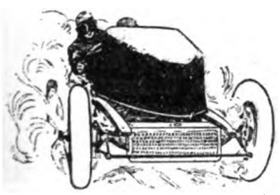
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COMMENTS.



WE are glad to learn that the committee of the A.C.G.B.I. are about to take joint action with other national automobile organisations with a view to convincing the French Club of the injury they are doing a great international event. Surely our confreres across the Channel, who have done so much in the past to bring about international amity amongst motorists, must now recognise how they are alienating the sympathy of the world by maintaining their decision to run a joint race. In face of the universal dissatisfaction it is to be hoped they will revert to the conditions of the last few years and run their Grand Prix contest as a separate event. It is not too late for them to rehabilitate the French Club to its position as leader of the sport, and the sooner that is done the better will it be for everybody interested.

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A Motorists' Defence Fund.

DURING the past year the Motor Union has been doing a maximum of work with a minimum of income, and, at length, an appeal is being made to all interested in the movement for an effective defence fund to be raised without delay. Hitherto it has rendered help in some cases of obvious injustice, but its means of usefulness have been hampered by the want of funds, and without a strong financial backing from motorists throughout the country it is impossible for the organisation to act up to the anticipations which were formed at its inception. The formation of the proposed Legal and Legislative Defence Fund comes at an opportune moment, in view of the election that is anticipated, prior to which the systematic education of aspiring Parliamentarians should be undertaken in a way never before attempted. "He gives twice who gives quickly" is a saying with which we would emphasise Colonel Holden's appeal to motorists to place their movement beyond the reach of the village constable and the bucolic J.P.

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The Agricultural Hall Exhibition.

NEXT month Cordingley's Tenth Annual Exhibition of Motor-cars at the Agricultural Hall, London, will be held under the auspices of the Automobile Mutual Protection Association, of which the Earl of Shrewsbury is the president. This event is always regarded as the opening of the season's trade, and many makers are reserving their latest models for public introduction at this display. The list of exhibitors is thoroughly representative of every section of the industry, and great preparations are being made not only to secure a comprehensive show of automobiles, but also a record attendance of the public, or, at least, those members thereof likely to become owners of motor vehicles. And, after all, those are the people with whom the maker or agent is desirous of coming into contact. We have previously dwelt upon the fact that the Minor Hall is already assured of an imposing array of commercial vehicles, and the arrangements made for the reception of heavy wagons elsewhere in the Great Hall have already been called into requisition. The Agricultural Hall has a larger exhibition area than any other building in London, and the Show that will be held there from March 18th to the 25th will be the greatest automobile display of the year, with the single exception of the premier show at Paris.

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An Aeronautical Display.

IN addition to the selection of automobiles of every kind, there will be an important section wholly devoted to exhibits of aeronautical interest and value. This is being organised by the Aero Club of the United Kingdom, and will include illustrations of the various systems of aerial navigation that have been tried from time, to time; balloons, cars, and various scientific instruments forming the equipment of the modern aeronaut. Models of the airships that have been famous during the last decade, propellers, recording apparatus, kites, etc., will be on view, and the collection of photographs will be the most comprehensive yet brought together in this country.

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Motor Ambulances.

AT the time of the last motor-car exhibition at the Agricultural Hall much interest was aroused on the subject of motor ambulances for the Metropolitan Asylums Board, and two members of that body visited the Exhibition, making inquiries of several leading makers of motor vehicles. Little has come of the matter, until at Saturday's meeting the Board considered a report brought forward by Lord Donoraile on behalf of the Ambulance Committee suggesting advertisements for tenders for the supply of a motor-propelled ambulance. The cost was not to exceed £500, and the vehicle was to be subject to experimental use before purchase. Mr. White moved as an amendment that the discussion of the motion be deferred for six months. He urged that a suitable vehicle had not been discovered, and that experiments ought not to be made with the ratepayers' money. The amendment was defeated by 26 votes to 23, and the recommendation was adopted by 28 votes to 16. We trust that manufacturers will assist those members of the Board who have advocated the use of motor ambulances by doing all they can to produce satisfactory and vibrationless vehicles.

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Steam and Electric Vehicles.

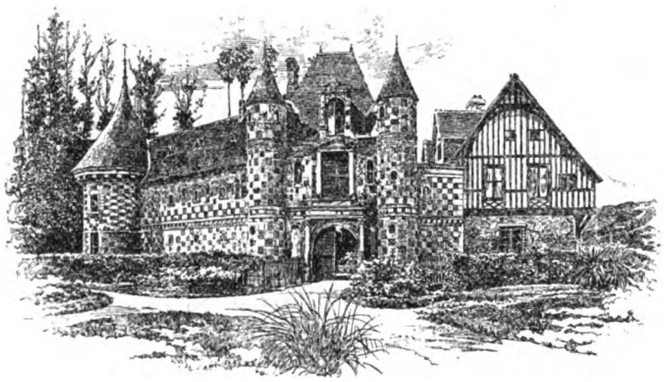
ANOTHER series of demonstrations on the internal combustion engine has been arranged by the Ladies' Automobile Club, and should attract widespread attention in view of the number of ladies who now drive their own cars. We are glad to see that the suggestion thrown out in these columns some time ago as to one lesson being devoted to describing the working of steam and electric vehicles has been adopted so far as the former are concerned. There is no doubt that the steam and electric automobiles now running in this country are giving much satisfaction to owners; hence the wisdom of catering for the users of all types of vehicles.

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Motor Mountaineering.

Some interesting experiences of motor mountaineering in the Alps were given by Captain H. H. P. Deasy in the course of a lecture delivered on Tuesday afternoon at the Ladies' Automobile Club. In some of the more remote mountain villages included in a 3,000 kilometre trip it had been scarcely possible for the car to scrape between the two rows of houses in which the little community dwelt; while on more than one pass the track was deliberately made so that it sloped towards the unguarded verge of the precipice. Unseen dangers often lurked behind corners and bends. Reins were not used in some parts, while in others the drivers encountered almost invariably proved to be asleep; hence on one occasion a three-horse diligence had all but driven them backwards over a precipitous mountain side; while another time a mule that had taken fright at the sound of their unseen coming dashed across the front of the car as it was rounding a bend, but, with the cunning of its kind, the animal pulled up dead on the extreme edge of the track. There were parts where the car had to be pushed by the passengers because the track was so frail that it would have given way had the driving effort of the motor been communicated to the ground wheels. On coming down the mountain railway on the Rochers de Naye, too, one of his wheels broke through a rotten plank that formed part of a span across mere space; while in negotiating the formidable Forclaz, between Martigny and Chamonix, the track doubled on itself so abruptly at intervals varying between 50 and 100 yards that the car had to be backed and advanced as many as four and five times before they could proceed.

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The Chateau de Livet, near Lisieux, France.

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Trains, Trams, and 'Buses.

Recent meetings of the shareholders in the leading railway companies of the south and east of England have found the chairmen in a dolorous mood, owing to the growing competition of electric trams in the suburbs of large towns. Both the London, Brighton, and South Coast and the Great Eastern railways have been particularly hard hit by recent developments in electric trams. These latter, however, are not to have it all their own way, for they, in their turn, are complaining of the rapid and apparently permanent institution of the motor-'bus as a means of London's locomotion. The public, however, who are anxious only to get from place to place in the shortest possible time, with some guarantee as to safety, are not likely to pay heed to the complaints of either railway or tramway companies. Requiring no special track, the motor-'bus can be diverted in any direction to meet the changing needs of different localities. The economy of installation, too, is a matter likely to reduce the charges of working, and, altogether, now that motor-'buses are showing their reliability, their future is quite safe, especially so far as the metropolis is concerned.

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Increased Speed of Tram-Cars.

The Council of the Tramways and Light Railways Association have, in part, recognised the growing competition of motor-'buses, and its memorial to the Board of Trade asking for powers to run tramways at a greater speed than has hitherto been allowed is an interesting sign of the acceleration of pace that has come about since the man with the red flag was removed from in front of the motor-car. In their petition the association give an instance of a motor-'bus travelling from Piccadilly Circus to Kensington Church at a speed of twelve miles an hour, including stops. Allowing for the various halts consequent on traffic, and the alighting of passengers, more than fourteen miles an hour was attained at times, and the council of the Association goes on to say that this was maintained with perfect safety at a great convenience to the public. This testimony from a body of men whose interests have been thrown into jeopardy in more districts than one by the advent of the motor-'bus is important in view of the outcry that is likely to be raised when three or four hundred motor-'buses are placed upon the streets in the spring.

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What is a Reasonable Time for Trial?

James Blackmore, a driver of a motor-wagon, giving an address at Southwark, was summoned before Mr. Baggallay, at Woolwich, on Tuesday, for driving an unregistered car in Woolwich Common Road, and for failing to produce his licence. Mr. Thomas H. Pickett, of Park Street, Southwark, was summoned for aiding and abetting the commission of the offence. Mr. F. J. Poole, solicitor, defended, and contended that as the car, which had been registered at Chester, was only being used on trial prior to purchase by Messrs. Barclay, Perkins and Co., brewers, it was exempt from registration under a sub-section of the Motor Car Act. It was stated that the car had been sent for a week on trial, and that a further month's trial was asked for and allowed. Mr. Baggallay said the only point was what was a reasonable time for a trial; a man might wish to try if a car would last a year. Mr. Poole said the point had never been decided. In the result Mr. Baggallay adjourned the summonses in respect to the registration. On the summons for failing to produce his licence Blackmore was fined 5s. and 2s. costs, Mr. Poole stating that he had inadvertently left it behind.

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The 5,000 Miles Motor Trial.

The 5,000 miles trial of the 12-h.p. Siddeley car, held under the supervision of the Automobile Club, began on January 2nd, since which date daily runs have been made of about 150 miles on almost every main road out of London. Four persons have been carried throughout, or the equivalent weight, and every involuntary stoppage has been recorded by an official observer appointed by the Automobile Club. At night the car has been locked up in the Automobile Club's motor house, and no adjustments have been made except in the presence of the observer who has recorded them. The result of the trial is most remarkable and a great triumph for an all-British car. For over 4,500 miles the car ran without any involuntary stop from mechanical troubles. There were a few stops for tyre troubles and one due to a short supply of petrol. This is a record which will be hard to beat. The driving has been in the hands of Mr. Sidney Girling, who last year was one of England's representatives in the Gordon Bennett race, and he was assisted by Mr. A. E. Sutcliffe. In all there were thirty-three daily runs over all sorts of roads and in all kinds of weather, and the genuineness of the trial, guaranteed by the Automobile Club, is beyond dispute. With regard to the

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tyres it may be mentioned that Continentals were employed, and that their behaviour over every kind of road, and in all weathers, was as good as that of the car whereon they were used.

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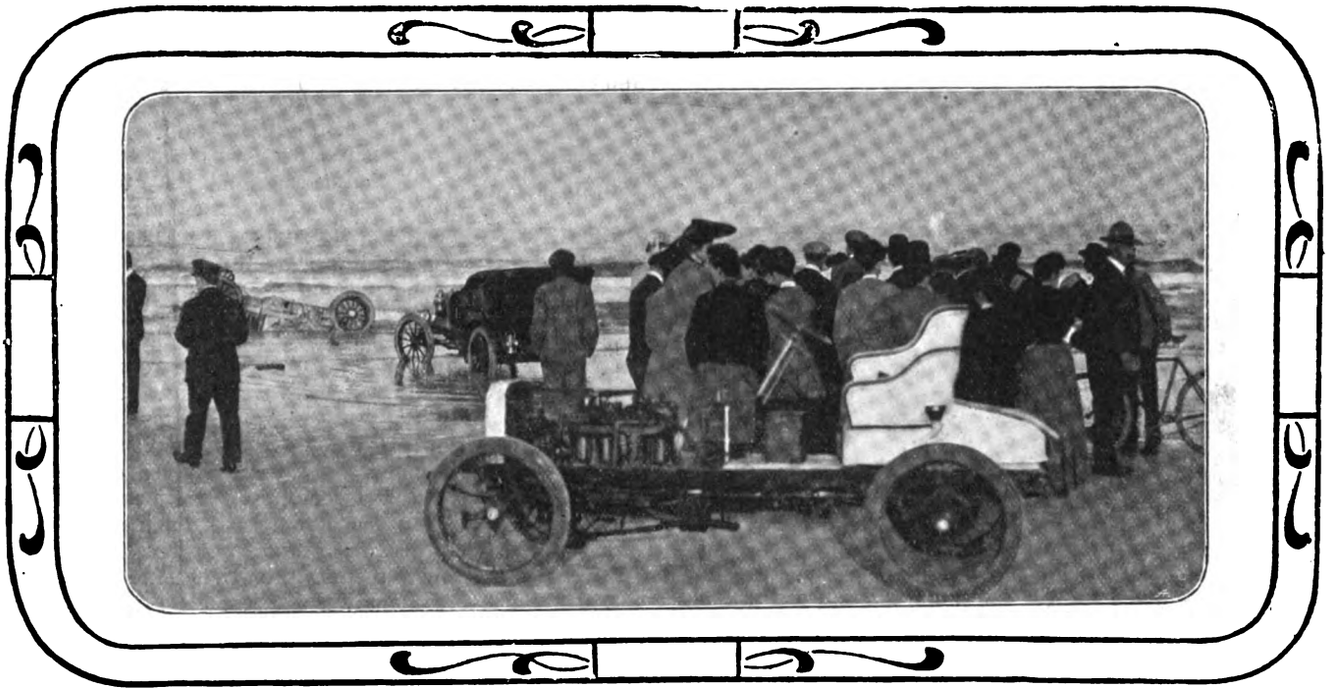
Widening Roads.

THE state of the Hanwell-Uxbridge road has been a cause of grave complaint for some time by motorists and cyclists. The Roads Improvement Association have recently made representations to the Middlesex County Council upon the matter, and the Council are now proceeding to widen the Uxbridge main road between Southall and Uxbridge at the very narrow places to which attention has been called, pending a larger scheme for the improvement of the road, arrangements for which are under consideration. Both the Roads Improvement Association and the Middlesex County Council are to be congratulated on this result. The county authorities will have to recognise their duty in such circumstances, for, after all, they are the custodians of the public convenience, and do not exist merely to retain ancient highways in the form in which they were known to our grandfathers.

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Two Horses v. One Motor-Car.

REALLY something will have to be done to protect motorists from the attacks of horses. The other day a hunter was being exercised at Market Harborough, when it suddenly reared and capered about in quite a wayward fashion. It alighted with its fore feet on a passing gig, frightening the animal between the shafts to such a degree that the latter bolted at a furious pace, ultimately dashing into Sir Humphrey de Trafford's motor-car, which was coming from the High Street towards the station. The force of the collision was terrific. The horse turned a somersault, but, to the surprise of those who saw it, got upon its feet again, and, though evidently stunned, apparently escaped without serious injury. The motor-car was considerably damaged, the mudguards being buckled up, and the side of the car smashed. Sir Humphrey de Trafford and his chauffeur were in the car, the latter driving. Fortunately, neither of them was hurt. The groom, who was thrown violently out of the gig, had a nasty shaking, and also sustained some cuts about the face, one of the hoofs of the hunter grazing him when the animal came down on the gig; and all because of the unreliable temper of the horse.



The Automobile Meeting on the Ormond-Daytona Beach, Florida, was unfortunately attended by a fatal accident. Mr. Frank Croker, driving his Simplex Car, had to make a sudden swerve in order to avoid a cyclist. It is stated that as a result one of the tyres left the wheel, causing the car to overturn, as depicted above, the accident resulting in the death of both Mr. Croker and his mechanician.

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In the Lake District.

THE experiment made last season in the adoption of a motor-car service between Windermere and Keswick proved so successful as to encourage those who undertook the enterprise to place orders for a considerable number of motor-cars to be employed during the coming season on the popular Lake District route, and possibly in other directions as well. Those who have identified themselves with this new departure in the Lake District are mainly those gentlemen who hitherto have run the coaches. It was felt that tourists and the public generally would not readily take to this form of locomotion, and certainly there is still some lingering favour shown to the old and picturesque stage coach, which has been employed in this hilly country from time immemorial, but the speed and ease with which motor-cars cover the distances, and their greater hill-climbing capacity, have worked very materially in increasing their popularity. The combination of motor-car trips with motor-boat excursions on the Lakes would be an even more attractive feature of this year.

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British Motor Trades Alliance.

DURING the last few days the British Empire Motor Trades Alliance has been formed in order that those particularly interested in the manufacture of motor-vehicles and motor-boats in the British Empire should have an opportunity of conferring as to how the best interests of motor manufacture in the Empire may be served. Endeavours are to be made to influence the A.C.G.B.I. and other automobile clubs and societies to encourage the use in the United Kingdom, the Colonies, and India, of cars built within the Empire. Membership is confined to directors, principals, secretaries, or managers of firms manufacturing motor-vehicles or motors within the British Empire,

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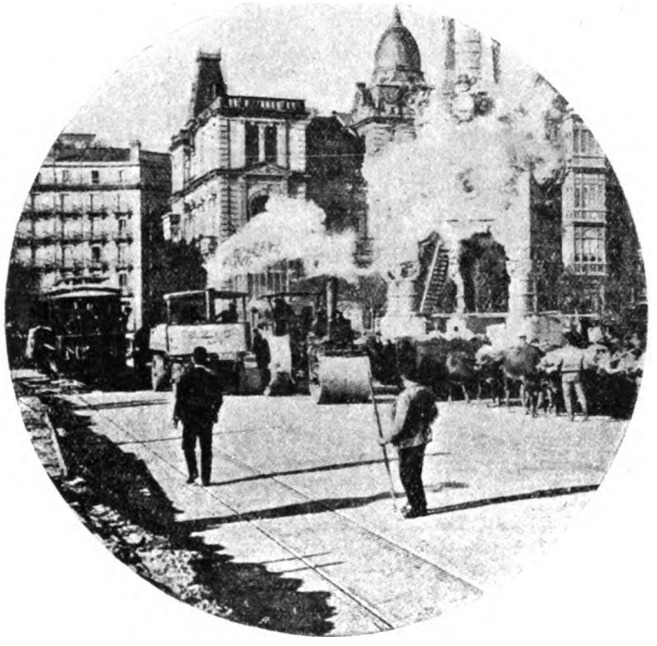
and also sole agents for such vehicles and motors. Associate and honorary members will be admitted, and the provisional committee, with Mr. Claude Johnson as hon. secretary, is now approaching suitable persons with a view to their becoming members of the Alliance. We wish the society every success.

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Small Stones on Public Roadways.

THE practice of throwing gravel upon the roadways during greasy or frosty weather is a very general, and, from the motorist's point of view, a very undesirable one. As a rule the gravel consists of sharp edged pieces of flint, which have no regard for the tyres of motor-cars. Of course there is no desire to thwart the authorities in their laudable efforts to secure the safety of horses on the public streets, but protest must be made against precautions being taken which, from the nature of the material used, must be inimical to the interests of another section of the public. And in view of the large number of small flints that are daily distributed over our roadways it may well be suggested to borough surveyors that they should give the matter their attention. It need not be associated with a selfish view of things, for the mechanically-propelled vehicle is making for universal helpfulness.

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Testing a New Bridge at San Sebastian, Spain, by Electric Tramcar, Steam Wagon and Traction Engine.

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Why not Shoot?

THERE is a humorist in Warwickshire who has just delighted some of the members of the County Chamber with a letter in which he offers to shoot motorists at a very cheap rate. The chairman of the Chamber recently told his fellow members that he should instruct his wagoners to drive across the road when motor-cars approached at what they regarded as a furious rate. The idea seems to have attracted at least one person, who thereupon wrote to a Warwickshire agriculturist as follows:—"As I doubt the power of the average farm labourer to distinguish between the innocent and guilty, I offer my services. I hold a discharge as a sergeant from the army, and am a trained shot. At least fifty motors pass my house every day. With an ordinary magazine rifle I could get about thirty daily, and I offer my trained services to the Chamber at a charge of sixpence per head. I should like to hear to whom to forward the heads. I could use explosive or poisoned bullets, if so desired." Such procedure would, doubtless, appeal to many anti-motorists, as being more expeditious than the ordinary legal way of dealing with those who drive mechanical vehicles on the roadway; but where is the insurance company that would take the risks?

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The Reduced Speed Limit.

ALTHOUGH no fewer than 266 local authorities in England and Wales were entitled by the Motor Car Act to make applications to the Local Government Board for the reduction of the lega limit to 10 miles an hour in their areas, only thirty-two saw fit to make the request. Of these fourteen came to the conclusion that second thoughts were best, and withdrew their applications. With regard to the remainder, eleven inquiries have already been heard, and in no single case has the Board seen its way to yield to local prejudice. We announced last week that the Dover application had been refused. It is freely rumoured in Surrey that the Kingston request will be similarly treated, and altogether it would appear that the Local Government Board is proving very friendly to motorists, and recognising that the vested interests of small towns are in the main the instigators of the movement against automobilism.

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Inland Revenue.

REMEMBRANCE of the Inland Revenue has been made officially to all who own motor-cars, and the authorities are displaying unwonted alacrity in gathering in the shekels. Those who possess motor-cars, the weight of which does not exceed one ton or is upwards of three tons, have to pay two guineas for the licence. Should the weight of the vehicle exceed one ton, but not exceed two tons, the licence costs four guineas; five guineas is charged in the case of motor-cars exceeding two tons unladen, and three tons. Thus it seems as though motor-vehicles of three tons or upwards, such as are permitted in the new Order just issued, ought to be allowed the licence fee of two guineas. Hitherto such vehicles have not been regarded as "light locomotives," and users will doubtless attempt to secure registration on the two-guinea scale defined as for vehicles "not exceeding one ton, or of three tons or upwards." It will be interesting to see how soon the Inland Revenue authorities deal with the anomaly thus created.

AN action is pending between Messrs. Milnes-Daimler, Limited, and the Daimler Motoren-Gesellschaft against the Motor Traction Company, Limited, for slander of title.

THE Automobile Club has withdrawn its appeal case against the British Automobile Commercial Syndicate, and has agreed to pay the costs.

MR. BASIL JOY, the head of the technical department of the A.C.G.B.I., has, to the great regret of the members, given notice to terminate his engagement with the Club in August.

AT the non-skid trials, at the Crystal Palace Exhibition, ten marks were awarded for capacity in turning, braking, and starting. The Samson device secured the first award, having the maximum of marks for each point, as did the Grose for turning, and the Sawyer, Watkins, and Empire for braking. The Grose was awarded second place.

ON visiting the Crystal Palace Show towards the end of last week we noticed that the Star Engineering Company had on view no less than eight vehicles, including *chassis* of the 7-h.p., 10-h.p., and 20-h.p. Star cars. An interesting example of the 7-h.p. two-cylinder Little Star was to be seen in one fitted with a Limousine body. The 10-h.p. four-cylinder car, which was described in these columns in the early part of December, is now provided with ball bearing to the gear-box shafts, the differential shaft, and the road wheels.

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Mr. and Mrs Chas. Jarrott on their Crossley Car.

TO COBHAM ON A CROSSLEY.

IT was a fine morning, with something more than a suggestion of Jack Frost in the air, when Mr. Charles Jarrott and the writer set forth from the London depôt of Messrs. Jarrott and Letts, Limited, in Great Marlborough Street, for a run to Cobham on a Crossley car. Steering cautiously through the traffic, we were soon crawling at the snail-like pace allowed in the Royal Parks, scanning the trees meanwhile to catch a glimpse of any lurking policemen that might be lying in ambush watchful for acceleration of pace on the part of guileless motorists.

And then by the route known to every southern motorist, and many an one from the north, we sped across common and park to Kingston, negotiating corners, dodging passing vehicles, and going on our way with an ease that was appalling to the man on the look-out for incidents for the entertainment of readers.

At Cobham we lunched, and then set out at a rattling rate to the Hut, at Wisley—just to see if something would happen. No; everything was well, and back again to town with an absence of happenings that, but for the motoring reminiscences of the man at the wheel, would have proved monotonous.

The driver on the Crossley car has really nothing to do. On fourth speed practically all the way, the flexibility of the four-cylinder engine and the ease of control were amply demonstrated. To slow down to keep behind a crawling 'bus and then shoot forward of a tramcar is a silent operation, involving no strain on the parts, nor no jarring on the nerves of the passenger.

Nowadays the automobile, to be appreciated, has to be a silent wayfarer of both town and country. Electric vehicles have their limitations; petrol cars their rumblings and purrings —fortunately growing less distinctive as cars improve. The Crossley has improved. Its behaviour in traffic is perfect, and even when slowed down at the bidding of the Bobby it stands at rest apparently as motionless and certainly as quiet as a thoroughbred. Keeping pace with some electric broughams one was forced to the conclusion that the Crossley is quite as serviceable for Society ladies as for touring purposes. Its silent, vibrationless running is a notable feature of a notable car.

The motor is of 22-28-h.p., developing about 30-b.h.p. at a normal speed of 900 revolutions per minute, and it is the intention of the constructors to keep to the one size, standardising every part to facilitate the supply of anything that may be wanted in an emergency, and to prevent that depreciation of value which frequently follows the changing styles from one season to another. With its stylish bonnet, long wheelbase, and generally bold outline, the Crossley is becoming familiar among the motor-cars met with in the West End of the town.

At West Ham 278 automobiles were registered last year, of which only 62 were motor-cars.

A sequel to the terrible accident at Cudworth is, the General Accident Assurance Corporation report, to be found in the unprecedented sale of Charles Letts' diaries, containing an accident insurance policy for £1,000. Since January 1st, nearly 250,000 persons have insured against the risk of travel by means of these coupons.

The 1905 models are beginning to make their appearance at the West End depôts. At Messrs. Lamb Bros. and Garnett, on Tuesday, we inspected one of the latest National 20-h.p. three-cylinder cars, and, among the improvements, note that the cylinder dimensions have been increased to 4¼ in. bore by 5¼ in. stroke. The carburettor is now of the automatic air regulating variety, and another feature is the variable lift device connected with the inlet valves. The wheel base has been extended to 8 ft. 4 in. to allow of side entrance bodies being fitted. On the same day we called at the depot of Mr. H. C. Dignasse in Marshall Street, W., where one of the latest Sunbeam 12-h.p. pair-cylinder cars had just arrived. The most noteworthy change in this well-known car is the adoption of mechanically-operated inlet valves and a variable lift device, controlled by hand and foot. The variable lift is obtained by means of tapered cams on the cam shaft, the latter being so arranged that it can be bodily moved to and fro. Like the National, the Sunbeam car is now made of such a length as to permit side entrance bodies to be fitted.

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THE "HALLEY" STEAM WAGON.

AMONG the latest additions to the ranks of British steam wagon builders is the Glasgow Motor Lorry Co., Ltd., of Crownpoint Road, Glasgow, whose vehicle we are this week able to describe. The wagon, of which we give a general view in Fig 2, is built under Halley's patents, and is designed to carry a load of five tons and to haul a further two to four tons on a trailer. The main frame is of channel steel, well gusseted and stayed, and is riveted throughout, no bolts being used.

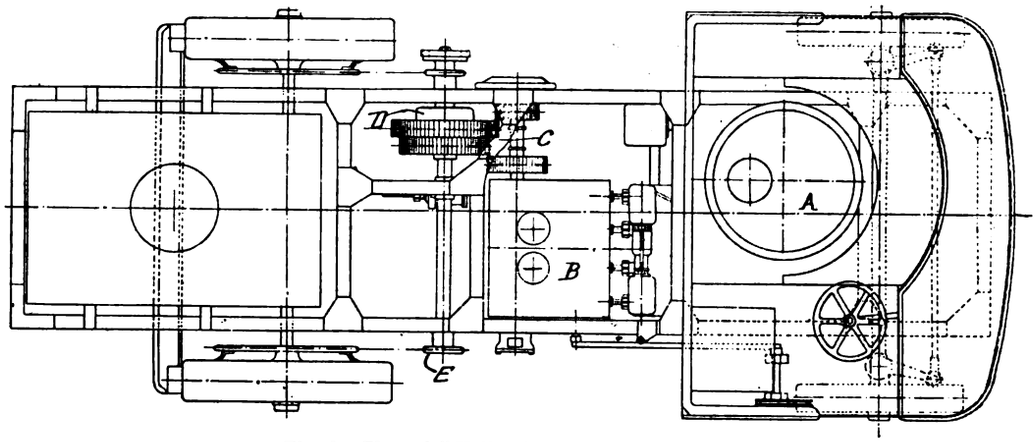


Fig. 1.—Plan of "Halley" 5-ton Steam Wagon.
A. Boiler. B. Engine. C. Change Speed Gear. D. Differential.

The boiler is of a patent combined water and fire tube, centrally-fired type, and is constructed wholly of mild steel. It is designed with a view to permitting ready internal inspection and cleaning, and is not easily damaged through incompetent handling. A steam drier is incorporated in the top of the steam space, preventing priming and ensuring a supply of dry steam to the engine. The boiler contains 86 square feet of heating surface, and 3·1 square feet of grate area; it works at a pressure of 200 lbs. to the square inch, and is hydraulically tested to 400 lbs.

The engine, which is suspended at three points, is of the horizontal compound type, having cylinders 4½ in. and 7 in. diameter by 6 in. stroke, and works normally at a speed of 450 revolutions per minute. It is fitted with link motion, and all the working parts are completely enclosed in a dust and oil proof casing. The engine may safely be run at a higher revolution than the normal, thereby enabling a high road speed to be maintained on good roads or when running light. A special starting and power-increasing device is fixed between the low and high pressure cylinders, enabling the driver, through simply moving the reversing and linking-up lever further out or in, as the case may be, to convert the engine into a double high-pressure engine, exhausting to the atmosphere; ensuring a start on the steepes, gradients, and allowing the wagon to climb very stiff grades, and of readily getting out of bad places.

The gearing gives two ratios, one for level and easy grades, and one for heavy gradients. It is of steel throughout, with machine-cut teeth. The gear wheels are securely bolted to the differential box. From the countershaft the power is conveyed to the rear road wheels by Renold roller chains. The pump is of an improved dust and oil-proof encased automatic type, and is self-lubricating; it is worked, geared down, direct from the engine crankshaft, and can be used to feed the boiler whilst standing when raising steam. A compact high-duty injector is bolted direct to the boiler-shell, and may be used to feed the boiler whilst standing or running. The water-lifter, which is capable of filling the water-tank in six minutes, is bolted direct to the side of the tank, and is controlled from the driver's seat. The steering gear is of the Ackerman type, swivelling on hardened steel parts; the axles are of nickel steel, capable of withstanding very rough usage; the road wheels are of the artillery type, with oak spokes, ash felloes, and malleable steel hubs, fitted with gun-metal bushes, and shod with steel tyres 10 in. wide on the driving wheels, and 6 in. on the steering wheels. A special form of instantaneous steam brake acting direct on the driving wheels is provided, this is of great power, and is operated by a turn of the driver's wrist. The engine forms the second brake, and will hold the vehicle on all reasonable hills. The water tank has a capacity of 135 gallons, sufficient for twenty miles running, while the bunkers contain sufficient fuel (coke) for one day's run. Any type of body can, of course, be fitted to the *chassis*, which has a wheel base of 9 ft. 9 in., and a track of 5 ft. 6 in. Throughout, the vehicle bears evidence of careful design and construction, and that the makers have faith in its practical working is evidenced by the fact that they are willing to undertake to keep any of their wagons in service in the Glasgow district in complete repair for a moderate fixed annual charge, a facility which will no doubt be taken advantage of.

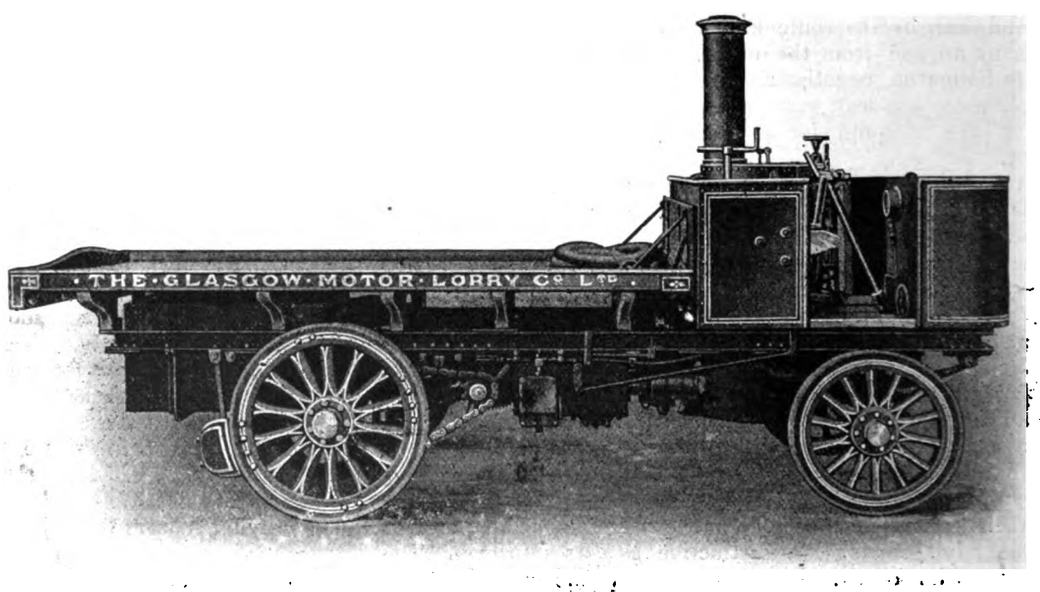


Fig. 2.—General View of "Halley" 5-ton Steam Wagon.

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CONTINENTAL NOTES.

The Gordon Bennett Deadlock.

The position with regard to the decision of the A.C.F. to run this year's Gordon Bennett race in conjunction with the Grand Prix has undergone no important change during the past week. The Austrian and Italian Clubs have now followed the example of the British, German, and Swiss Clubs in sending a formal protest against the joint race to the A.C.F. Baron de Zuylen, the president of the last named body, has this week been to Berlin to confer with the German Club, and everyone is anxiously waiting to see what the committee of the French Club will do in the matter. "Le Journal de l'Automobile" gives publicity to a rumour that the question of postponing the Grand Prix to 1906 and of running the Gordon Bennett race alone this year for the last time is under consideration. M. Paul Meyan, of "La France Automobile," views with alarm the opposition in foreign countries which the decision to hold a joint race has engendered, and expresses the hope that the Committee of the A.C.F. will find a way out of the deadlock which will give satisfaction to all countries, otherwise the latter will become closed markets to the products of French motor-car works.

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The French Eliminating Trials.

Altogether twenty-six cars have been entered for the French eliminating trials—viz., three Panhards, three De Dietrichs, three Darracqs, three Renaults, three Mors, three Clement-Bayards, three Hotchkiss, three Richard-Brasier, one C.G.V., and one Gobron. This is a decrease as compared with last year's eliminating trials, for which there were twenty-nine entries. A noticeable absentee is the Gardner-Serpollet Company, whose abstention is due to the fact that M. Serpollet considers the entry fee of £400 per car much too high. It is understood that although the Serpollet steam car will not participate in the Gordon Bennett-Grand Prix joint race, it will still take part in the many other competitive events to be held in France during the coming season.

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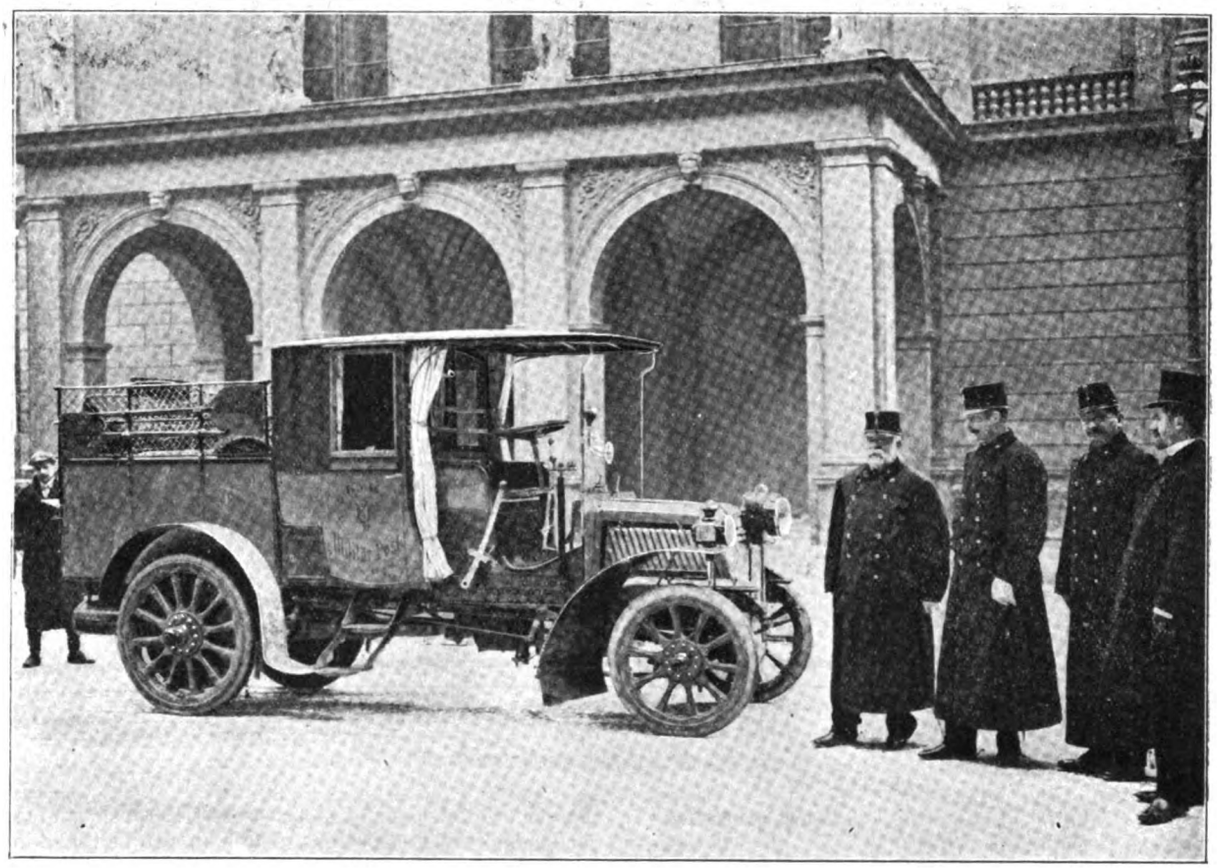
Educating the Youngsters.

The French Automobile Club is setting an example which might well be followed in this country; it has decided to issue a wall chart for school use, depicting a modern motor-car, and giving a brief explanation of the vehicle, and also instructions how to avoid accidents owing to motor traffic.

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A Swedish Motor Exhibition.

An international exhibition of automobiles and motor-boats is to be held at Stockholm, from April 19th to April 30th next. The show, which is being organised by the Swedish Automobile Club, under the patronage of H.R.H. the Crown Prince of Sweden and Norway, will comprise: (1) passenger automobiles; (2) goods transport automobiles; (3) automobiles for sanitary and fire appliances and military purposes; (4) motor-cycles; (5) motor-boats; (6) motors for automobiles, cycles, and boats; and (7) accessories and separate parts for the above.



An Austrian Daimler Military Post Car built for the Austrian War Office.
[*Allgemeine Automobil Zeitung.*

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The Berlin Salon.

An international automobile exhibition, organised under the auspices of the German Automobile Club, was opened in Berlin on Saturday last by the Kaiser, who was accompanied by Prince Henry of Prussia and a numerous suite. The show, which is the most important so far held in Germany—there being about 300 stands—will remain open until the 19th inst.

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An Automobile Week at Cannes.

The automobile week at Cannes will commence on Sunday next, the 12th inst., by an elegance competition; on the 14th

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and the 15th the touring-car contest for the cup of the Cannes Automobile Club will be held, the first day being devoted to brake and consumption tests, and the second day to a kilometre speed trial and a hill climb; on the 17th there will be a 25-mile paper-chase, and on the 19th a gymkhana; while on the 22nd there will be a parade of decorated cars.

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A New Accumulator.

According to "Les Sports," M. Jeantaud, the well-known manufacturer of electric carriages, has invented a new accumulator, in which a special oxide of lead is employed, resulting in a battery not only light in weight but of high capacity. A certificate issued by the Central Laboratory of Electricity in Paris is to the effect that two accumulators were tested, one of the new type, which is known as the E.I.T., and another unnamed. The E.I.T. had fifteen plates (eight negatives and seven positives), weighing 9·27 kilogrammes. The other accumulator had nineteen plates (ten negatives and nine positives), and weighed 11·7 kilogrammes. The tests resulted in the new cell showing a capacity of 382 watt-hours, equal to 41·2 watt-hours per kilogramme, while the unnamed accumulator gave only 40·2 watt-hours per kilogramme. The inventor offers to take any electric carriage at present capable of going 37½ miles on one charge, and by putting in one of his batteries, consisting of 44 cells, of a total weight of 770 lbs., cover a distance of 62½ miles on a single charge.

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Public Services in Germany.

The Scheibler Automobile Company, of Aix-la-Chapelle, is building a number of motor-omnibuses for a public service between Bad Rippoldsau, Wolfach, and Feudenstadt, in the Black Forest. It is also proposed to start a service between Schopfheim and Neuenweg, in the same district.

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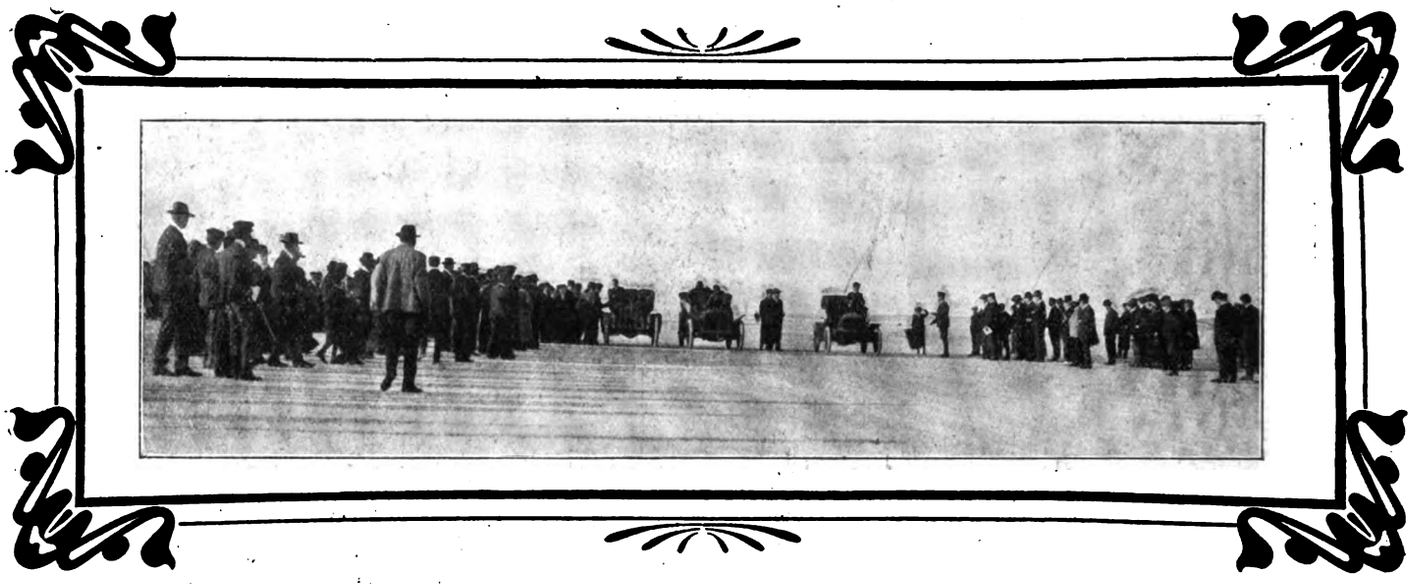
A Speed Indicator Competition.

The Mid-European Motor-Car Union has now issued the conditions relating to a prize competition for the best speed indicator for motor-cars. The device must show the speed of the vehicle in kilometres per hour in such a way that it can be read not only by the driver and the occupants of the car, but also by others on the road; it must also be capable of being read at night. The mechanism must be such that it cannot be tampered with, and must absorb as little power as possible; it must also be applicable to all types of cars, and be unaffected by dust or dirt. An important committee has been appointed to make the necessary tests of the apparatus sent in, and which are expected to occupy a period of nine months. A prize of £300 will be awarded to the designer of the apparatus deemed to be the best. A fee of £1 is charged for each entry. Full particulars of the competition, which closes on October 1st next, can be obtained from the Geschaftsstelle des Mitteleuropaischen Motorwagen-Vereins, 24, Linkstrasse, Berlin, W.

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Trials of Public Service and Commercial Vehicles.

The Competition Committee of the French Automobile Club has decided to hold a series of trials of public service and commercial vehicles in August next. The tests of vehicles propelled by electricity will be held on the Paris-Evreaux-Trouville road and will extend over two days. The trials of vehicles propelled by other means will take place in the north-west district of France and will last over eleven days, seven of which will be devoted to daily runs of from 50 to 200 kilometres, and four to exhibitions. The trials will be divided into a number of classes, viz.:—(1) cars carrying more than six persons; (2) vehicles carrying from twelve to twenty-four persons; (3) vehicles accommodating over twenty-four passengers; (4) road trains; (5) cars carrying a load of at least 110 lbs.; (6) vehicles for loads of 440 to 1,100 lbs.; (7) vehicles for loads of 1,100 lbs. to 2,200 lbs.; (8) vehicles for loads of 2,200 lbs. to 3,300 lbs.; (9) vehicles for loads of 3,300 lbs. to 4,400 lbs.; and (10) vehicles for loads of over 4,400 lbs. The points to be taken into account are behaviour on the level and on hills, reliability in operation and fuel consumption.



The Automobile Meeting on the Ormond-Daytona Beach, Florida—On the Starting Line.

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The Cooling of Petrol Motors.

According to the statistics drawn up by M. Lucien Perisse, 14 per cent. of the petrol cars shown at the Paris *Salon* were cooled on the natural thermo-syphon system, the remaining 86 per cent. having pump circulation. Only 8 per cent. of the pumps were driven by friction off the fly-wheel. As regards radiators, 53 per cent. were of the honeycomb type, and 47 per cent. of the ribbed tube variety. Four-fifths of the cars on view were provided with fans to draw a current of air through the radiators, the proportion of fans being—70 per cent. behind the radiator, 20 per cent. fly-wheel fans, and 10 per cent. both systems combined.

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The Glare of Acetylene Head Lights.

The Automobile Club de France is issuing a circular to its members urging them not to use powerful acetylene head lights in towns, in order not to dazzle the eyes of pedestrians and the drivers of other vehicles.

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The "Brotherhood" Car.

(*Continued from page* 1009.)

FIG. 14 is a longitudinal section through the casing containing the contact breaker and commutator mounted on the same shaft. Figs. 12 and 13 are end views looking to the right and left of Fig. 1 respectively. The casing g, which is closed by a removable transparent cover g^1, carries a bearing g^2, in which revolves the hollow shaft e. The latter forms a bearing for the shaft a of the contact breaker and distributor, which comprises a metal disc b^1, having a central hollow boss keyed on to the shaft a, and four arms b^2 projecting at right angles to it. To the metal disc is fastened a disc b of insulating material having recesses into which the arms b^2 fit. Thus when the spring plunger h bears upon the periphery of the rotating contact breaker it is successively in contact with the insulating material b and a conductor b^3, which connects it electrically through the shaft a with the primary circuit. The metal casing of the spring plunger h is fixed to the casing g, but is insulated therefrom and is made a part of the primary circuit. The moving part of the commutator consists of an arm c of insulating material carrying at its outer end a metal pin x which is screwed into a plug x^1 fitted in the rear face of the arm. The length of the arm c is such that the end of the pin x travels close to a metal ring k mounted to correspond with the path described by the pin, in an insulating ring g^3 fixed in the casing g. The fixed part of the commutator consists of four metal pins l mounted in insulating plugs l^1 in the casing g. Each pin is connected with a lead l^2 passing to the plug in one of the cylinders. The pins l

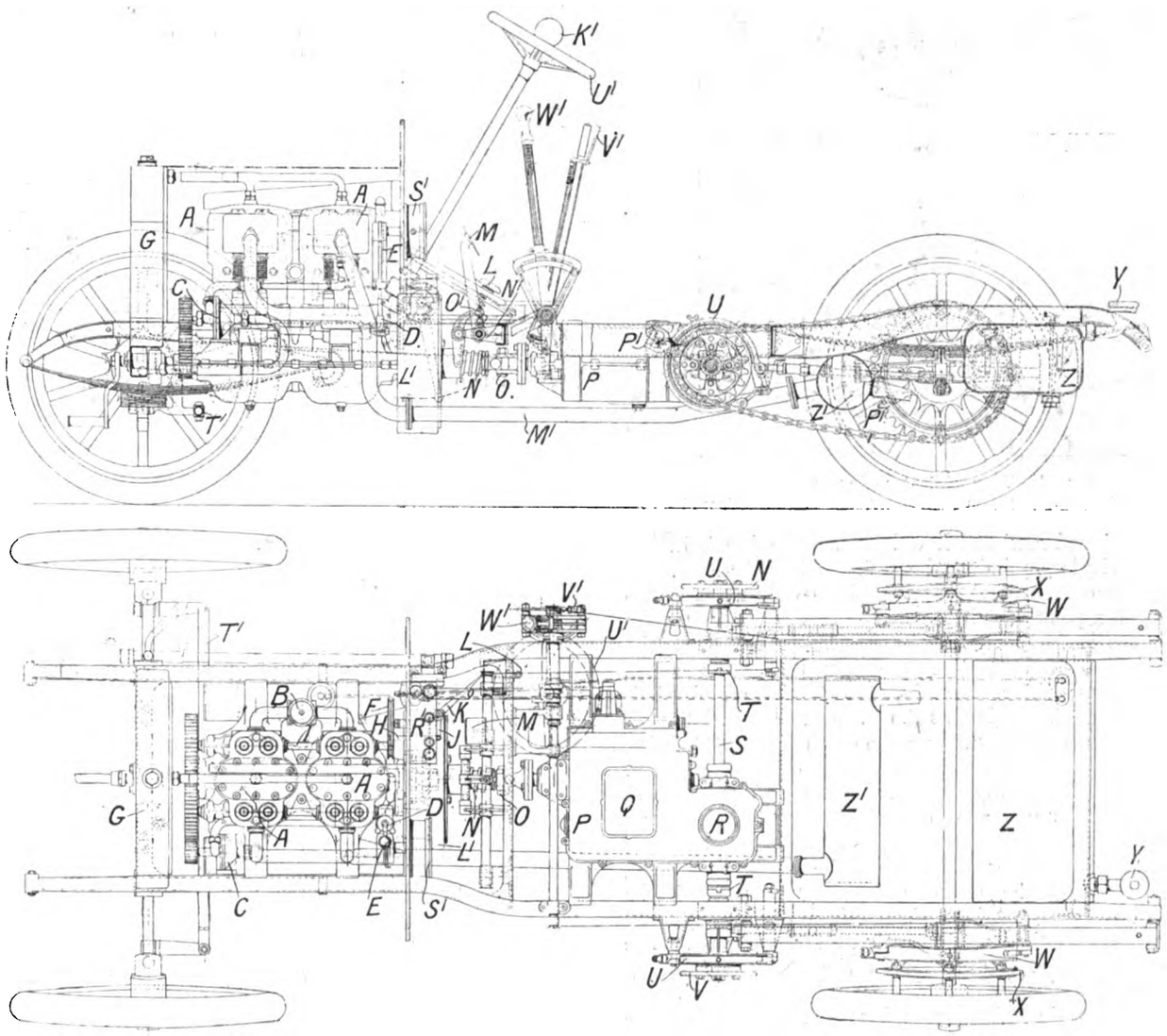


Fig. 9 and 10.—Elevation and Plan of Chassis of "Brotherhood" Car.

A. Motor.
B. Carburettor.
C. Pump.
D. Worm drive for commutator.
E. Automatic control of commutator.
F. Belt for lubricator.
G. Radiator.
H. Rack shaft for varying lift of inlet valves.
I. Inlet valve cam shaft.
J K. Levers connecting shaft H to pedal
K'. Bulb of horn.
L. Foot control pedal.
L'. Fly-wheel.
M. Clutch and brake pedal.
M'. Exhaust pipe.
N. Clutch spring.
N'. Cam operating clutch.
O. Joint between clutch and gear-box.
O'. Roller of clutch-operating mechanism.
P. Change speed gear-box.
P'. Scissor motion to brakes.
Q. Hand hole to gear box.
R. Hand hole to differential gear.
R'. Lubricator.
S. Differential shaft.
S'. Commutator.
T. Joints on differential shaft.
T'. Steering bar.
U. Differential shaft brakes.
U'. Steering wheel.
V. Sprockets on differential shaft.
V'. Hand brake lever.
W. Rear brakes.
W'. Change speed lever.
X. Rear chain wheels.
Y. Filler for petrol tank.
Z. Petrol tank. Z'. Silencer.

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are of such length that the plug x^1 passes very close to them as the arm c revolves. As will be seen from Figs. 12 and 14, the angular position of the arm c on the shaft a and the position of the pins l around the axis of the shaft are such that while the primary circuit is completed through the plug h, the plug x^1 is passing a pin l. When this is the case, the ring k being connected with the secondary circuit through the lead k^1, a spark

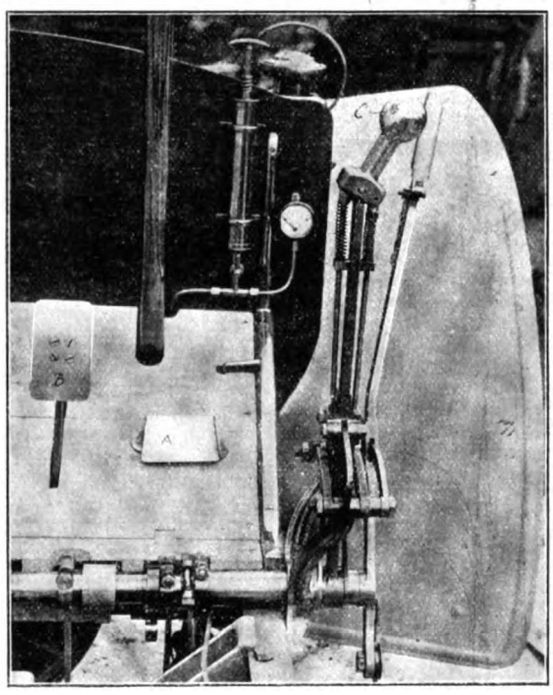


Fig. 11.—View of Control Levers.
A. Pedal Controlling Engine. B. Clutch and Brake Pedal. C. Change Speed Lever.

occurs between k and x, x^1 and l, and across the break in the plug in the particular cylinder whose charge is to be fired. In order to advance or retard the ignition it is only necessary to shift the angular position of the shaft a relatively to the gear that drives it from the engine shaft, because both the contact breaker b and arm c are keyed to this shaft. The commutator is driven through worm gearing off the half time of the shaft of the engine, as shown to the right of Fig. 2. The spindle is in two parts, the upper portion I (Fig. 13), being at its lower end of a square section, fitting into a square hole in the lower part in such a way that while the two parts must rotate together the upper part can rise and fall in the lower half. A centrifugal governor G (Fig 13), is mounted on the upper portion of the commutator driving spindle, its object being that as the speed of the motor increases the arms of the governor will fly out against the action of springs, and so alter the position of the part relatively to the lower part. The top worm gear, which is enclosed in the casing E (Fig. 2), is not only employed to drive the commutator, but also to furnish the automatic advance and retard by shifting the angular position of the shaft a carrying the contact maker b and arm c relatively to the gear which causes it to rotate. In other words, not only is the worm gear used for driving purposes, but it also acts as a sort of rack and pinion, for as the worm rises it alters its position correspondingly to the worm wheel while still continuing to drive the latter. The governor in its action has to overcome the resistance of two springs, one light and the other strong, these being made of a strength proportionate to the resistance to be offered, and provided with nuts by means of which any adjustment, should it become necessary, may be made. The nuts and springs are enclosed by the screw cap marked 2 in Fig. 14. By removing this cap, not only can the tension of the springs be adjusted, but facility is afforded for ascertaining whether the governor is functioning correctly. Automatically-controlled ignition being a somewhat new departure, particular attention has been devoted to the device, which, so far as we were able to gauge from our inspection, works exceedingly well. It has the advantage that when starting up the engine there is no fear of broken wrists or arms owing to back kicks of the engine, the ignition being always in a retarded position when the motor is stopped. As soon as it is running the governor comes into action and instantly advances the sparking, the position of the governor arms fluctuating in unison with the speed of the motor as the latter is varied by the foot control of the inlet valve lift. As will be seen from the description of the ignition system, every care has been taken to assure the reliable and proper working of the same with the minimum amount of attention, whilst means have been provided to enable the most inexperienced to make any necessary adjustments from time to time, or to immediately be able to trace and remedy any defective working that may occur. The general working of the ignition can be observed by the spark gap between the arm C and the ring K of the distributor, which, if working properly, will show eight or nine distinct sparks when the engine is running slowly. As the speed increases, the duration of contact being less, the sparks will reduce in number until at maximum speed only one or two remain. Should the jump sparks not appear in this regular manner, it will show there is a defect in the electrical circuit between the accumulators and the high-tension distributor, but should the sparking be in order on the distributor, but not in the cylinders, the defect will be found to lie in the sparking plug or high tension wire. This can instantly be detected by raising the handle terminal to the sparking plug sufficient to cause a spark gap,

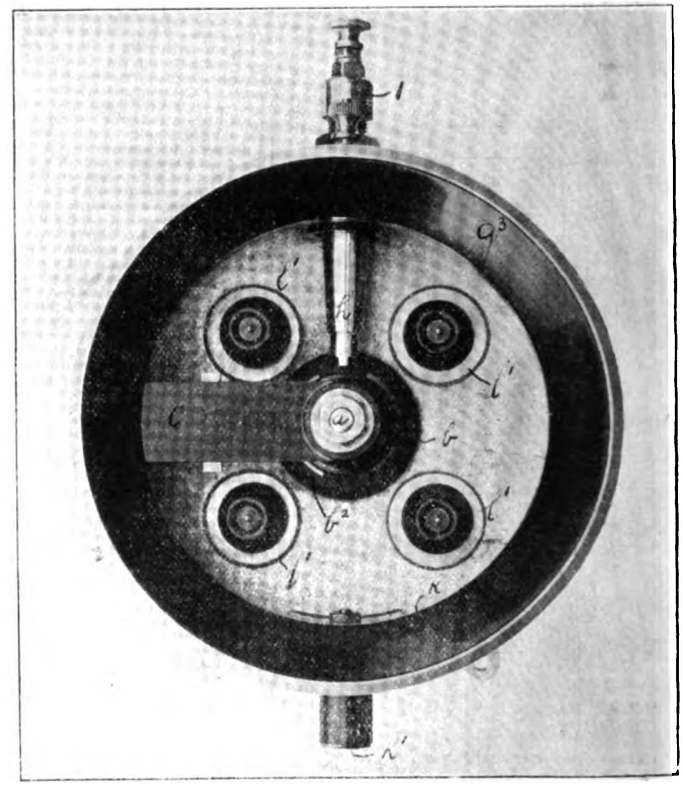


Fig. 12.—Front View of Commutator and High Tension Distributor.

when, if the spark is flowing regularly to the plug, and the cylinder is still missing fire, the plug must be at fault.

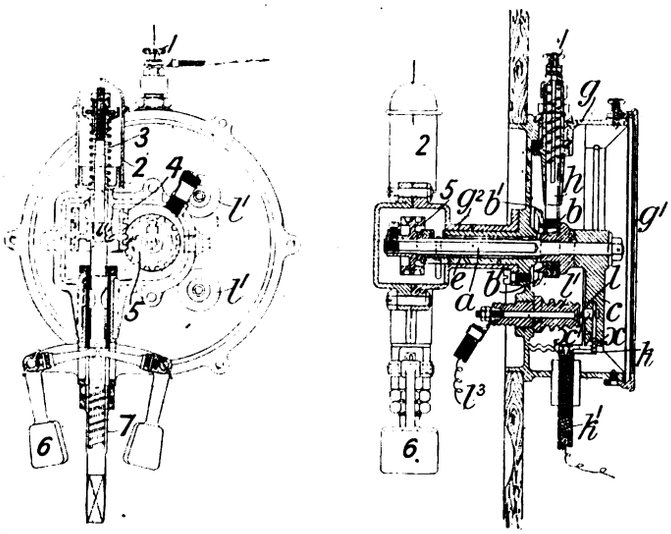
Should the coil or trembler be doubtful in working, or defective at any time, as all working parts are easily detachable and interchangeable, it is a simple matter to change them over with spare ones to either decide or remedy the defect.

It may here be mentioned that the explosion takes place

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in the four cylinders in the order of 1, 2, 3, 4, and that all the various terminals are marked so that no trouble may be experienced in attaching the different wires to their proper terminals.

It is in the method of controlling the speed of the motor that one of the most radical departures inaugurated with the Brotherhood car is found; it is effected by varying the lift of the inlet valves by means of a sliding rack and pinions, actuated by a pedal conveniently located so that it may be operated by the right foot of the driver. The shaft on which the rack is



Figs. 13 and 14.—Rear and Sectional Elevations of Commutator and High Tension Distributor.

formed is shown at *H* in Fig. 10. The upper ends of the valve stem push rods are screw threaded to receive small pinions *B* (Fig. 7), which mesh with the rack; the latter is adapted to slide to and fro in a casing, motion being imparted to it through the bell crank levers *J K* (seen in Fig. 10), by the pedal *A* (Fig. 11). The action of the latter is interesting; it is neither a push nor a press-down pedal, but is arranged to move in a horizontal plane through a small segment of a large circle, the driver using the heel of his foot as a pivot. The pedal has a range of movement between its two limits of just under three inches, and by its means the speed of the engine can be controlled to a very fine degree. As the pedal is moved sideways in one or other direction, the rack is moved to and fro and raises or lowers by a rotary motion the pinions on the push rods, correspondingly reducing or increasing the distance between the top of the pinions and the valve stems, and consequently the lift of the valve. From actual experience we can state that the position and method of action of the control pedal, though new, is exceedingly convenient, and that it can be operated with the greatest ease. Within the range of travel of the pedal all engine speeds can be obtained, from the maximum down to the minimum point at which the motor will continue to run. The pedal is so arranged that at whatever position it occupies it will remain at that point, being unaffected by any downward pressure of the foot as may be unavoidably caused when travelling over rough roads. No automatic governor to control the speed of the engine is employed, this being considered unnecessary, as after a little practice the driver, when declutching by the left pedal, naturally brings over the right pedal to the point at which the engine is bound to run slowly. All the proportions of the engine have been carefully calculated, with the consequence that the motors are easy to start, regular and reliable in working, and so well balanced that they do not impart any perceptible vibration.

The carburettor, which is of the automatic regulation variety, is also of special design, assuring a constant quality mixture at all engine speeds by positively and simultaneously controlling both the petrol and air supplies, and at the same time keeping a nearly constant suction on the petrol nozzle. As will be seen from the sectional illustration of the carburettor (Fig. 15) the parts of the mixing chamber are so arranged that the functions of varying the petrol jet, the main air supply and the auxiliary air inlet are automatically and synchronously controlled by the suction of the engine, this being effected by mounting the petrol needle valve *E*, the air cone *G* and the auxiliary air piston valve *H* on a common stem, so that they cannot get out of adjustment with each other. The spray nozzle takes the form of a long tapered jet *F* into which the needle valve is inserted. The latter is merely a turned stem, tapered and flattened on two sides. A little above the jet is the cone against which the air is deflected on its passage through the carburettor. A little higher up is fitted what may be described as a piston valve *H* having a port which registers with a similar one formed in a chamber and attached to the wall of the mixing chamber. The piston valve is surmounted by a diaphragm piston *A* having a number of annular grooves, and between it and the cover plate is inserted a light spiral spring *B*. The ingress of air, both main and auxiliary, is from the opening at the base of the chamber. In its normal position the petrol orifice is nearly closed by the needle valve, and the auxiliary air piston valve closed. On operating the motor the vacuum induced slightly lifts the needle valve, and with it the air or spraying cone; the petrol is sucked past the flattened sides of the needle, and is sprayed against the cone, where it is mixed with the air drawn through the inlet pipe at the bottom. As the suction effect increases, the upper or piston valve uncovers its port, and an increased amount of air is admitted to the mixture. The action of the increased suction being a simultaneous one, the result has a triple effect; it induces, firstly, a greater flow of petrol as the auxiliary valve rises higher; secondly, the velocity of the air passing the nozzle is kept proportionate to

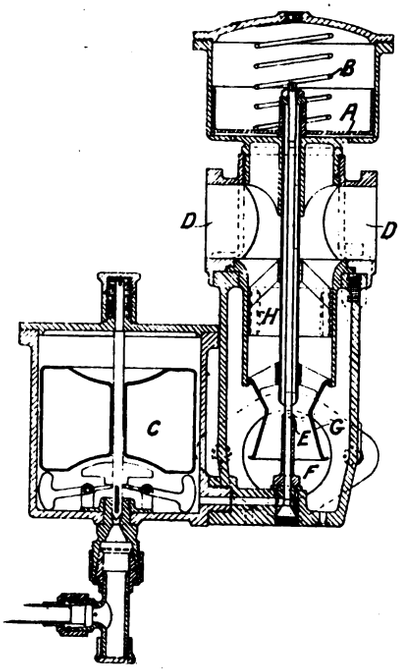


Fig. 15.—Section of Automatic Carburettor.

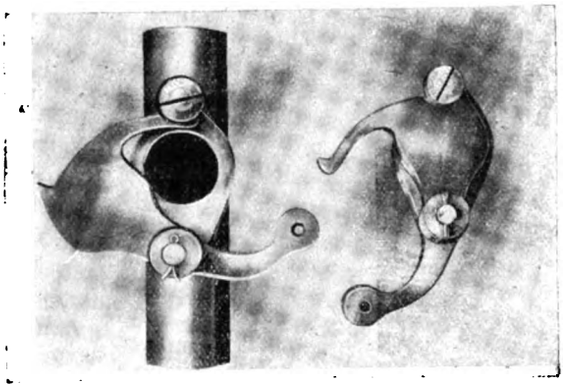
the flow of liquid; and, thirdly, the auxiliary admission of air is automatically regulated in accordance with the engine speed. The petrol, which is fed under pressure to the carburettor, is contained in a corrugated brass tank of a capacity sufficient for 200 miles, securely attached to the back of the frame, with sump and strainer in convenient position for either emptying or cleaning out the tank. The corrugated tank, which is considerably stronger and lighter than the usual plain type, is provided with a combined funnel and filler *Y* (Fig. 10).

(To be concluded).

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MOTOR CYCLING NEWS.

We illustrate herewith a useful attachment for the exhaust pipes of motor-cycles, to enable the burnt gases to exhaust directly into the air, which has been put on the market by Mr. P. A. Holder, of the Whipp's Cross Garage, Walthamstow. It is known as the exhaust cut-out valve. The body is arranged to be either brazed on the exhaust pipe or to clip thereon by a band and screws. The sliding cover, which is pivoted on a stud, is opened or closed by means of the projecting lever forming part of it, which, in its turn, is connected by a rod to a suitable lever on the top bar of the machine. In the illustration the valve is shown open at the left, and closed at the right. As will be noticed, stops are provided which prevent the cover from being opened or closed too far, while the pivot on which it is mounted is provided with a spring washer, which keeps the slide close down against the face of the port, but yet allowing



for the expansion of the parts, so that it is impossible for the valve to bind. It is claimed for the device that as contraction or expansion cannot bind it, it can be placed close up against the combustion head, therefore liberating the exhaust before it is choked by passing through the exhaust pipe. An important advantage claimed is that after a hill climb, when the engine is over-heated, if the exhaust lift and the exhaust cut-out valve are opened, to run down hill, cold air is drawn straight into the cylinder without passing through a hot exhaust box and pipe, the engine being cooled much more quickly, which, of course, means greater efficiency. Also under the same condition the valve allows of a much freer running down hill, as there is no drag of the suction through the exhaust pipe and box. The valve is made in various sizes, to suit pipes up to 1¼ in. diameter.

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In our "Correspondence" columns we publish a letter which Colonel Holden, the President of the Auto-Cycle Club, has issued to makers of motor-cycles in this country, asking for the creation of a fund to defray the expenses of the British team in the contest for the International Motor-cycle Cup. It is to be hoped that the fund will enable such prizes to be given as will make the eliminating trials attractive throughout the country. Apparently the leaders of the motor-cycle movement are growing hopeful as to the prospects of England winning distinction in the international event, and it is to be hoped that their efforts will not be hampered for any lack of financial assistance from firms who will ultimately benefit from the prestige that this country will obtain should it be able to win this sporting event.

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The new committee of the Motor Cycling Club have already arranged some of the fixtures of the season. The opening run will take place on Saturday, March 25th, to Brighton, followed by the usual dinner and social evening. The all day ride from London to Edinburgh, which was such a brilliant success last year, has been fixed for the second Saturday in June. All who accomplish this great test will receive the Club's special London-Edinburgh badge, as well as a gold medal. About the middle of July there will be a twenty-four hours' ride, with valuable cup for the winner. Other important events already agreed upon are, 200 miles reliability trial, about May 20th, and 100 miles passenger trial, probably June 24th. Inter-team trials for the Motor-cycle Challenge Cup, August 26th. Brown Cup, September 9th. Competition for private members only—that is, these not connected with the motor-cycle trade—early in the summer, exact date and particulars to be arranged later. In addition to its numerous competitions for valuable prizes the Club holds weekly runs. The hon. sec. is Mr. Arthur Candler, 1, Lime Grove, Shepherd's Bush, W.

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Three countries—England, Germany and Austria—have sent in challenges to the Moto-cycle Club de France in respect of the International Motor-cycle Cup. The race is to be held on June 18th, the eliminating contest for the French team being fixed for the 4th of the same month.

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The question of trials of motor-cycles has been engaging the attention of the committee of the Auto-Cycle Club at its recent meetings, and the Club has now decided to hold the main reliability trials, open to all classes and kinds of motor-cycles, in the autumn of this year. The committee feels, however, that the importance of demonstrating the capabilities of a motor-bicycle weighing not more than 100 lbs. is such that it should not be delayed any longer. Practically all the motor-cycling experts and authorities are of the opinion that a light and efficient motor-cycle, of course in an improved form as compared with the old heavy 2-h.p. machines, is what is desired by a large section of the motor-cycling public. The committee has therefore decided to proceed with the holding of the special 1,000 miles trial for motor-bicycles weighing not more than 100 lbs. in the first week in April next (April 3rd to 10th), and Mr. F. Straight, the secretary, is issuing the prospectus setting forth the principal rules and regulations. The reasons in favour of the trials appear to the committee to be as follows:—1. If successful, the trial would give a much-needed and immediate fillip to the motor-cycle trade. 2. The performances of the lighter and handier machines would not be overshadowed by the heavier and more powerful ones. The same effect on the minds of the public has been appreciated by the A.C.G.B.I. in the holding of separate trials for the light and heavy motor-cars. 3. The trial would serve to create an interest in motor-cycles amongst those who have been deterred from taking part in the pastime because of the heavy weights of motor-cycles hitherto on the market, and it must be remembered that this interest would be created at the time of year when it will do most good—at the commencement of the active riding season.

A further course of lessons on the motor-car is to be given at the Ladies' Automobile Club by Mr. R. S. Currie.

The Artillery Wheel Works, Limited, have appointed the Coventry depot of the United Motor Industries as their Midland headquarters, where samples of the wheels will be on view.

Mr. Harry Maddox, a well-known Melbourne motorist and member of the Automobile Club of Victoria, met with a rather severe accident a few weeks ago. Whilst driving his motor-car in a country road near Dandenong a heavy draught horse following behind a dray suddenly ran off the road full force into the front of the car, which was just about to pass between the dray and a strong post and rail fence; it caught the front of the car with terrific force, causing it to overturn. The two lady passengers were thrown clear, but Mr. Maddox was pinned beneath the car, cutting his head badly and injuring three ribs. After the car was lifted he was taken to the nearest hotel and a doctor sent for. After about six days he was well enough to be removed to his own residence, but it is expected that it will be some weeks before he fully recovers from the bad bruising and crushing.

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HERE AND THERE.

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During last year 204 motor-cycles and 109 motor-cars were registered at Coventry.

A motor-car service will shortly be inaugurated between Herne Bay and Canterbury.

The Great Eastern Railway Co. are making motor vehicles at their works at Stratford.

An electric motor fire-engine has just been put in service by the fire brigade at Schwerin. Germany.

A collection of lantern slides relating to the automobile movement has been formed by the Motor Union.

"Motor-Car Sports" is the title of one of the most interesting articles in the current issue of "Cassell's Magazine."

An electric traction section has been formed in connection with the French Automobile Club, with M. Krieger as first president.

Mr. Holroyd Smith is now giving a course of lectures on automobile construction at the Northampton Institute, Clerkenwell, E.C.

Application for the prohibition of motor-car traffic along Middle Street, Horsham, is being made by the County Council of West Sussex.

Several passenger motor services are being established in Auckland, New Zealand.

Hall's Transmission Gear Syndicate, Limited, has been formed with a capital of £50,000.

Messrs. B. and J. Searle, motor agents, have established themselves in business at Handcross, Sussex.

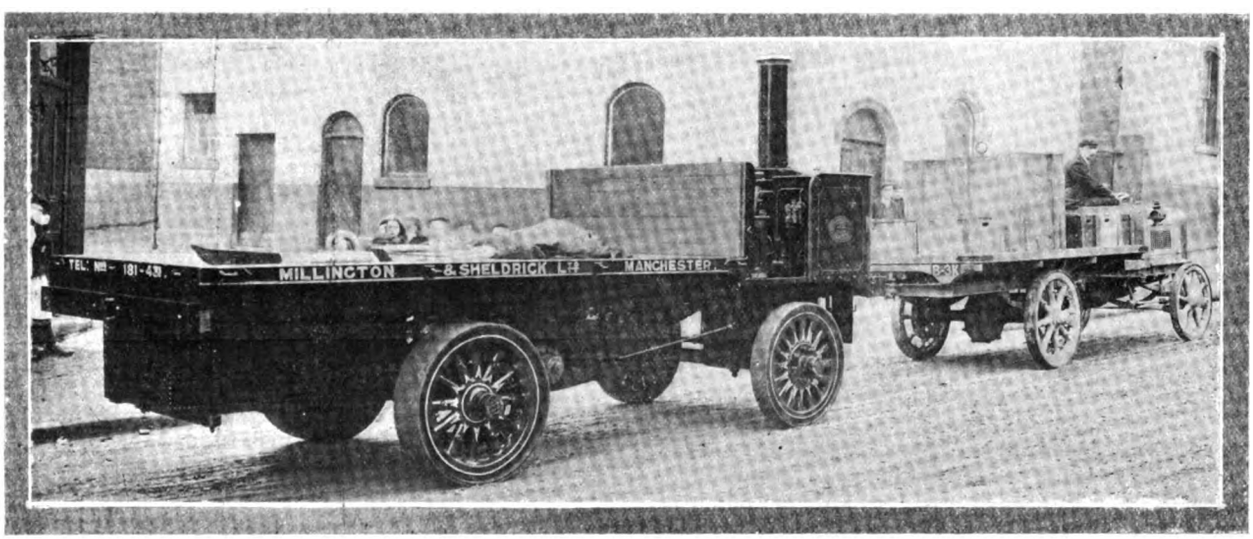
The Associated Omnibus Company, Limited, of London, intend replacing some of their horse-drawn 'buses by motor-'buses at an early date.

The Continental Caoutchouc and Guttapercha Co. propose to hold a prize competition for the removal and refitting of Continental motor tyres.

Messrs. R. L. Jepson, Limited, has been registered with a capital of £2,000, to acquire any land and buildings in Blackburn or elsewhere, to manufacture and deal in motor-cars, etc.

The Parsons Non-Skid Company have come to an arrangement with United Motor Industries, Limited, to make their Coventry house the Midland fitting depot for their non-skids.

The Watkins Patents Syndicate, 157, Fenchurch Street, London, E.C., inform us that they have been appointed British agents for the Caron low-tension ignition device illustrated in our issue of the 28th ult.



One of the New Two-ton Petrol Lorries built by the Lancashire Steam Motor Company, Limited, and loaded with 30 cwt. on its Platform, drawing one of the Leyland 4-5-ton Steam Wagons, having a tare of 4 tons 12 cwt. 3 qrs., up a gradient of 1 in 12.

The Belgrave Garage, Limited, have opened a branch depot in the High Road, Chiswick, where attendance will be given to motorists by night as well as day.

The exhibition at Turin, Italy, was closed on Sunday last. There were about eighty exhibitors, and a notable feature was the rapidly-increasing number of Italian motor-car builders.

A public service for the transport of both passengers and goods is about to be established between Oloron and Jaca, Spain. A number of Turgan steam vehicles have been ordered for the service.

At a meeting of the Glasgow University Engineering Society, held at the James Watt Laboratories, Mr. T. Murray Blackwood has been reading a paper entitled "Some Details of Albion Motor-cars."

Messrs. Atkinson and Griffin, of the Westmorland Garage, Kendal, have been appointed sole agents for the county of Westmorland by Messrs. Darracq and Messrs. Clement-Talbot.

At the annual general meeting of Friswell, Limited, held last week, a dividend of 10 per cent. was declared on the ordinary shares and 6 per cent. on the preference. £3,733 4s. 6d. was written off the goodwill account, and a large sum was carried forward.

An interesting staff ride, conducted by Brigadier-General P. Campbell, has been carried out in the neighbourhood of Brighton, at which Captain A. Booth Hearn and Messrs. F. J. Frost and A. R. Garnett, of the Motor Volunteer Corps, were engaged.

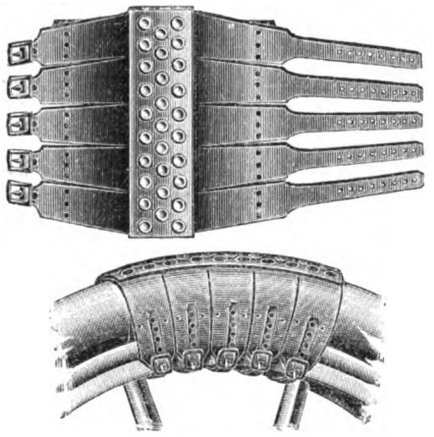
Hitherto the Welsh daily papers have been unobtainable at Brecon until noon; now, however, through the agency of the Cardiff Automobile Company, they are delivered in the town at 6 a.m. The distance between Cardiff and Brecon is 44 miles, and the car employed on the work is one of 9-h.p.

As a heavily-laden motor-wagon belonging to Messrs. Evans and Evans, Erith, was proceeding up a steep incline in High Street, Erith, the other afternoon, the brake failed and the machine became unmanageable. The wagon immediately rushed backwards down hill and ran into an old disused building.

From the Albon Motor-Car Company, Limited, comes a copy of the 1905 catalogue of Albion cars, which is one of the most interesting productions of its kind we have so far this year received. Not only are various forms of pleasure cars and public-service wagonettes depicted, but a very complete description of the Albion 16-h.p. *chassis* is given, accompanied by illustrations of the many Albion features, such as the Murray governor, magneto, carburettor, change-speed gear, etc.

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Mr. Ernest H. Hill, of the Beta Works, Sheffield, has sent us a sample of a new gaiter and non-skid attachment he has lately introduced for use in connection with motor pneumatic tyres. The Coupe motor tyre shoe, as the attachment is known, is destined to fit over a weak or burst place in a tyre, and so enable the latter to be run after it would otherwise be useless. It is also arranged for use as an anti-skid attachment, so that by carrying three or four of the shoes a motorist may be



prepared for either bad weather or a burst. The gaiter is made of best chrome leather, the tread being fitted with steel studs. It will also be noticed from the illustration that a triangular indiarubber piece is fitted to each strap, the purpose of this being to keep the tread in position, also to keep the tyre in place in the event of the bead becoming detached. The gaiter is made in a range of sizes suitable for tyres of from 65 to 120 mm. We may add that the gaiter has been subjected to a lengthy practical trial ere being put on the market.

Mr. Frank Little has read a paper on "Petrol Motor-Cars" to the members of the North-East Coast Institute of Engineers and Shipbuilders at Newcastle.

Mr. J. Johnson is establishing a plant for the repair of motor-cars at Priestpopple, Hexham, Northumberland. Garage accommodation for a number of cars will also be available.

Messrs. R. Reynold Jackson and Co. are making a clearance of their 1904 cars by auction at the Motor House, Euston Road, N., in order to make room for large stock of 1905 cars. Spare parts for last season's cars can still be obtained from Messrs. Jackson.

The new firm, Mors Limited, are just opening their new premises at 55, 57, and 59, Shaftesbury Avenue, London, W., for the sale and repair of Mors cars and accessories. They have also taken up the agency for the electrical vehicles of the Compagnie Francaise des Voitures Electromobiles.

We learn that Messrs. Cooke and Wade, of Cutlers' Hall, Sheffield, are putting on the market two types of "Norfolk" cars with two and four cylinders, and two systems of transmission, viz., live axle and chain. We understand that the cars comprise a number of special features which have been subjected to practical tests during the past few months.

Messrs. Thornycroft have instituted a motor service between Farnham and Haslemere. Two trips each way will be made in the course of the day, the journey occupying nearly two hours. The 'bus will call at several villages, and will pass over Hindhead, thus tapping a large residential district which is entirely untouched by any railway system.

The Continental Caoutchouc and Guttapercha Company are bringing out a solid tyre on the cross-wire principle, which construction has proved so eminently satisfactory in the United States, as well as on the Continent. The tyres are made in sections of 2½ in., 3 in., 3½ in., 4 in., 5 in., 6 in., and 7 in. The 7 in. tyre is suitable to carry 8,000 lbs. per axle. Up to the present the tyres have had to be fitted at the works in Hanover, but arrangements are being made to have them fitted in London in future.

The Earl of Shrewsbury and Talbot has notified Mr. John Newton of his intention to open the forthcoming Manchester Motor Exhibition on February 24th.

At a meeting of the Manchester section of the Institution of Electrical Engineers last week Mr. V. H. Mahler read a paper on the "Electrical Equipment of Automobiles."

A luncheon to commemorate the issue of the Heavy Motor Car Order by the Local Government Board will be held by the Motor Van and Wagon Users' Association at the Hotel Cecil, Strand, W.C., on Tuesday, March 21st, 1905, during the week of the Motor-Car Exhibition at the Agricultural Hall, N.

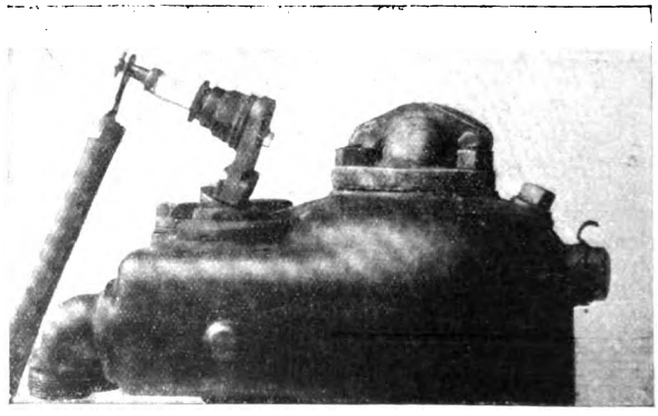
The London and Parisian Motor Company, Limited, has been registered with a capital of £16,000, to take over the business of agents for and dealers in motor-cars carried on by Captain B. D. Corbet, and the premises recently acquired by him at 58A, South Molton Street, W., and to adopt an agreement with the said vendor.

Motor-rail-cars commenced running on the Calne branch of the Great Western Railway on Wednesday. A rail-motor-car will run a daily trip from Chippenham to Bath and back. There is a motor-'bus service between Calne and Marlborough, so that it will be possible to accomplish the journey from Bath to Marlborough and back by motor vehicles.

The Paddington Borough Council is organising a deputation of representatives of the City Corporation and Borough Councils to wait upon Mr. Walter Long for the purpose of pointing out the serious effect which the new regulations for heavy motor traffic will have upon the roads and traffic throughout London, and to ask for an amendment of the same.

The Clyde Cycle and Motor-Car Company, Limited, Leicester, have sent us a copy of the new catalogue they have just issued. It gives full particulars of the Clyde 7-h.p., 8-h.p., 10-12-h.p., and 12-13-h.p. cars, the Clyde 6-h.p. Tri-carette, and 3-h.p. and 3¼-h.p. motor-bicycles, illustrations of each type being also included. An interesting page is that which depicts the evolution of the Clyde light car, the 3-h.p. air-cooled vehicle of 1899 contrasting strangely with the modern vehicle.

From Messrs. Williamson and Co., of Clonmel, Ireland, we have received a sample of a sparking plug inspector which they have just introduced, and of which we give an illustration herewith. This useful device, which is due to Mr. W. P. Burke, of Fethard, is so simple that one wonders no one has thought of it before. To test a sparking plug the usual way is to lay it on some part of the engine, so that the "earth" circuit may be completed, and the general experience is that the plug falls



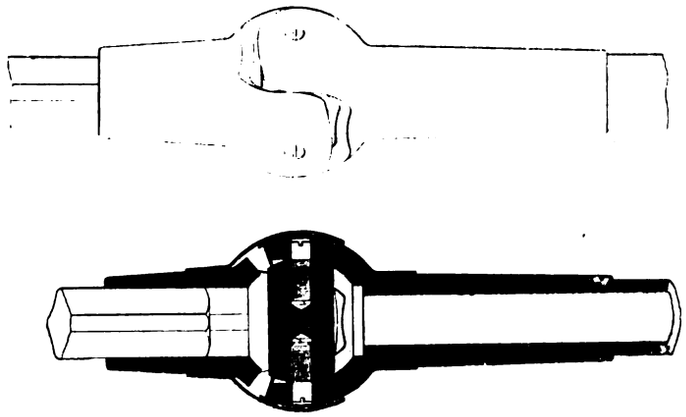
down, frequently damaging the porcelain. This is obviated by the inspector, which consists of a small brass piece, threaded at one end, so that it may be screwed into the plug hole in the cylinder head; the upper end having a threaded hole into which the plug can be fixed and its operation tested without any danger of its falling, or of the motorist receiving a shock. The inspector, which is sold at a moderate price, will be found a most useful addition to the tool-box.

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THE OLYMPIA MOTOR-CAR SHOW.

BELOW we commence our report of the motor-car exhibition now in progress at Olympia, London. This will be continued in our next few issues, and will deal with all the main features of interest and novelty in the display.

The HOZIER ENGINEERING COMPANY'S stand consists of a granite arch supported by pillars, set off with stags' heads and claymores and also decorated with flags. The exhibit itself consists of five cars and a *chassis*. One of the former is a 10-12-h.p. two-cylinder vehicle fitted with an Aster engine and a handsome side entrance body painted and



Figs. 1 and 2.—Elevation and Sectional Views of Argyll New Universal Joint.

trimmed in carmine, built of pressed sheet metal. We learn that the engine has been re-designed by the Aster Company in consultation with the Hozier Company in order to better fit it to the requirements of this popular type of car. The most striking alteration is in the arrangement of the cylinders and valves: separate castings are employed and the inlet and exhaust valves are arranged on opposite sides. A central bearing has been introduced between the cranks and longer and larger bearing surfaces provided. A new method of bolting the crank shaft journals is also employed,

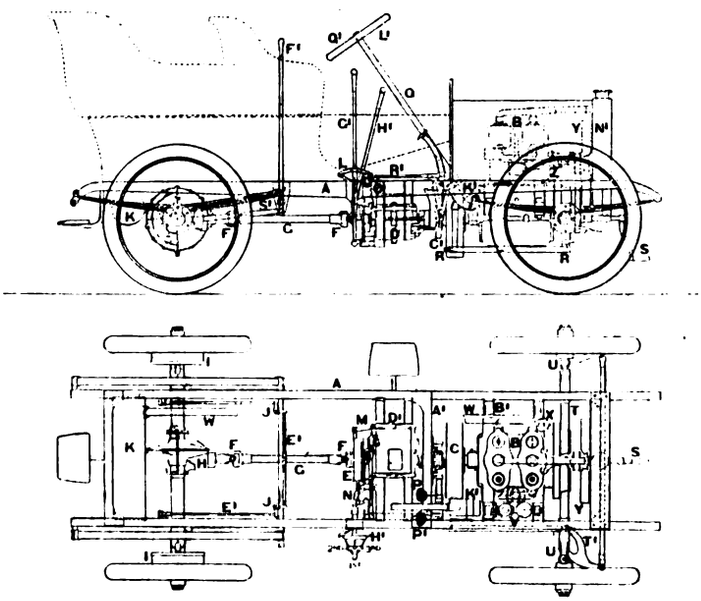


Fig. 3.—Elevation and Plan of Chassis of Argyll 10-12-h.p. Car.

rendering the whole engine much stiffer and even more silent running than previously. The water spaces around the cylinders are greatly increased, and the diameter of the valves is much larger than before. The commutator is no longer on the end of the cam shaft but is in a much more accessible position, being driven by a small shaft lying at about 45 degrees to the vertical, and bevel gear.

The thermo-syphon system of cooling is still a feature of this car, but the type of radiator has been changed. Not being altogether satisfied with last year's cooler, the Hozier Company have been experimenting with a number of novel arrangements, and as a result they have adopted an entirely new form of honeycomb, the feature of which is the section of the tube used; this is hexagonal at the ends and like a cross in the middle, a large cooling surface being in consequence obtained, combined with free circulation for the water. The radiator can be employed either for natural or pump circulation as desired. In order to obviate any chance of leakage due to springing of the joints as a result of road shocks, the radiator is carried in a cradle between the frames and is supported on a bed of soft material which deadens the shocks and prevents the radiator being strained.

To faciliate the cooling of the water a fan is placed behind the radiator, built up of six aluminium blades set on a brass centre; it is driven by a belt working on pulleys of large diameter. The spindle on which the fan is mounted is carried eccentrically and so arranged that the belt can be tightened by simply turning the spindle round and clamping it.

The well-known Govan change-speed gear, which is still fitted, has been improved in certain details. The change-speed levers have now a serviceable looking knob in place of the button which used to be fitted, and a ball bearing has been introduced into the gear-box to lessen the friction when running on the low gears. We note that the common form of pin joint for the control levers leading to the carburettor, commutator, etc., have been discarded and a neat form of ball and socket joint substituted; this greatly simplifies the arrangement of the levers and reduces their number to a minimum. The steering of the car is effected by a triple threaded screw turning in a phosphor bronze nut, the whole being encased and working in thick oil or grease. The front axle has been redesigned, the swivels being now carried between the jaws of a cast steel fork at either end of the curved and braced tube which forms the axle. A ball bearing is introduced in the swivels to allow of easy steering. The rear axle, which is substantially the same design as in last year's cars, runs on roller bearings. The road wheels are built on a new principle, which has already been illustrated in the *Journal*, the point aimed at being great lateral strength, so as to be capable of resisting the strain caused by side slips, etc. To achieve this the spokes

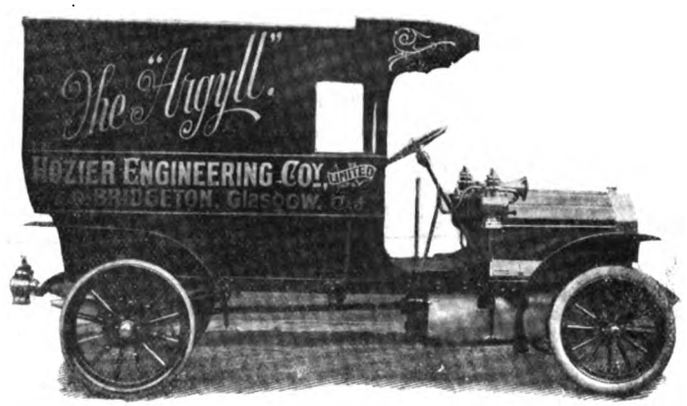


Fig. 4.—The Argyll Delivery Van.

are "staggered" in the vertical plane, alternate spokes passing to the right and left sides of the iron hub. Besides the brake on the main speed shaft operated by a pedal, hand actuated brakes are fitted to the driving wheels; these consist of large drums, forming part of the wheel hubs and containing an expanding bronze shell. The brake is operated by the hand lever acting through a compensating gear on a powerful toggle, arranged so as to give a long travel and consequent large clearance when off, and yet a very powerful grip at the point of application. The front road wheels run on ball bearings, of the now well-known D.W.F. type. A two-cylinder landaulet, painted and trimmed dark blue and gold lines, is also shown; this is a handsome and comfortable carriage well suited for the use of medical and City men. The three-cylinder car shown is of 12-14-h.p. The engine, an "Argyll," has vertical cylinders 90 mm. bore 120 mm. stroke, and runs at a speed of 1,100 revs. per minute. The car itself is a detachable Roi des Belges tonneau. The wheel base is 7 ft. and the track 4 ft, 1¼ in. The engine, which is of compact design, is provided with a centrifugal governor acting on a delicately-balanced double-beat throttle valve. The water circulating pump is of the centrifugal type, driven through gear at the same speed as the crank shaft, and is so placed as to be easily detached if required. The engine is hung direct from the pressed steel frame by brackets cast on the crank case. Probably the most popular improvement made in these cars is the clutch; the metal and leather type has been abandoned for the three and four cylinder Argyll cars and a new metal-to-metal clutch adopted. This clutch, which is encased in the flywheel and runs in an oil bath, consists of a series of discs of steel. The alternate discs are notched along the outer and inner circumferences. The one set of discs engage with projections within the flywheel, while the alternate set mesh with ribs or keys on a boss on the gear shaft. The plates are kept in contact by a coil spring. The action of the push pedal in disengaging the clutch is to overcome the pressure of this spring and allow a set of small springs between the steel discs to free the plates from each other. The advantages

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claimed for the arrangement are:—(1) Great gripping power; (2) large wearing surfaces, kept well lubricated; (3) the motion is imparted to the car without any shock; (4) the clutch can be allowed to slip any amount that may be wished, a valuable feature, as it allows of the car being driven quite slowly with the engine running at its normal and the top gear in. This is especially convenient in traffic, for as low a speed as a mile an hour can, it is claimed, be got if required without changing gear. The general features of this car are the same as those described on the two-cylinder vehicles.

A 16-20-h.p. side-entrance car painted and trimmed dark green, lined primrose, is also to be seen. This is a very quiet running and fast car and also an excellent hill climber; it has a new pattern back axle, allowing of half the aluminium case being taken off for inspection without taking out the whole back axle. A new and much heavier front axle has also been fitted, a metal-to-metal patent clutch as previously described is provided; the operating levers are provided with ball and socket joints throughout. The engine has four-cylinders, 88 mm. dia. by 130 mm. stroke, with mechanically-operated valves. The steering gear is of the same design as in the other cars already described.

During the coming season the Hozier Company are to manufacture a four-cylinder touring car of 20 24-h.p. fitted with an Argyll engine having cylinders 95 mm. bore and 130 mm. stroke. The wheel base of the vehicle is 9 ft. 3 in. by 4 ft. 6 in. track, which allows of a very roomy side entrance body being fitted. A splendidly finished *chassis* is shown on the stand. All the best points in the design of their other cars have been incorporated as well as some features peculiar to this type. The pressed steel frame follows the design peculiar to Argylls. It is of an inverted U section, deep in the middle and tapering towards the ends. It is stiffly braced by heavy-shaped cross bars, the ends of which are carried out so as to give a substantial fastening and prevent any twisting action. On this *chassis* is shown a new cardan shaft joint, Figs. 1 and 2. This consists of two steel sleeves, one keyed to the driving and the other to the driven shaft; each sleeve ends in a double prong, the edges of which take the form of epicycloidal teeth, the teeth being parallel to (instead of, as in a gear wheel, at right angles) the axles of the shaft. These teeth, when meshed together, form a hollow sphere; inside this is placed a ball to keep the teeth in proper relative positions, while the whole is covered by a dust cap. The action of these is stated to be very sweet, the teeth rolling on each other when the cardan shaft revolves.

The back axle has the same general appearance as that fitted to the 1904 Argylls, but it is so arranged as to permit of its being opened out without removing it from the car. This is obtained by dividing the case containing the bevel gear and differential on a horizontal plane through the centre. A large inspection door is in addition provided to allow of the condition of the gear being readily ascertained at any time.

Besides the pleasure cars the Hozier Company show a 10-h.p. two cylinder light delivery van fitted with an Argyll-Aster engine. It is designed to carry a load of 15 cwt. at a speed of fifteen miles per hour.

On the stand are also to be seen Smith's carburettor as fitted to Argyll cars and a model of the Simplex ignition, both of which have already been illustrated in the *Journal*. Altogether, the Hozier Company are to be congratulated not only on their stand but also on the excellent cars they are now turning out, the 1905 models showing marked advance on last year's types.

In addition to a couple of their 12-h.p. double-cylinder cars, the PHŒNIX MOTOR COMPANY, of Southport, are exhibiting a new vehicle which they have named the "Barcar," and which comprises a number of special features, particularly as regards the motor. The side members of the frame are built of square section steel tubing, with rear cross stay of channel steel. The engine, which at a speed of 1,000 revolutions is stated to develop 10-h.p., has three cylinders in line, cast together. The first and third cylinders are 3½ in. diameter by 3¾ in. stroke, and work in the usual manner. The central cylinder is 4½ in. bore by 3¾ in. stroke, and is actuated by the exhaust gases from the other cylinders, its crank being set 90 degrees in front of the others. When the first cylinder has finished its firing stroke its exhaust valve admits the burnt gases, which still have some pressure, into the middle cylinder, the piston of which is then at the top of its stroke. This piston is thus driven down, and on returning sweeps the gases out into a long tube which passes to the rear of the car. The central cylinder next receives the exhaust gases from the third one, and descends as before, sweeping the charge into the air on its return stroke. Thus the middle cylinder receives an impulse every revolution, and the three cylinders act like a four-cylinder motor. Owing to the relatively large size of the central (or low pressure) cylinder, the exhaust gases expand and lose their velocity before passing into the air, and it is found that there is no need for a silencer to be fitted. The two outer cylinders have mechanically operated inlet valves worked by a separate cam shaft, and are on the opposite sides of the cylinders to the exhaust valves, which themselves serve as inlet valves for the middle cylinder. The mixture is furnished by a Brown and Barlow carburettor, and the ignition is by accumulator and coil, the commutator being mounted on the dashboard and chain driven. The water-cooling is effected by a gear driven pump and straight tube radiator with forced fan draft. The engine is controlled by a throttle on the admission, the lever for this, as also the ignition lever, being conveniently placed on the steering wheel. The clutch is of the all-metal external-contracting type with automatic adjustment. The gears, which are controlled by one lever, give three forward speeds and a reverse with direct drive on the top speed. From the differential shaft the power is transmitted to the rear road wheels by side chains. The foot brake, which, like the clutch, is worked by a push pedal, is of a special disc type. The hand-applied band brakes on the rear road wheels are of the ordinary type with two to one lever; both brakes work equally well either forwards or backwards. A novel feature of the vehicle is found in the fact that under the motor, clutch, and gear-box extends a large aluminum casing, cast in one piece. This is accurately fitted to the frame, so that when the bonnet and a cover plate of special material are in position, the whole is cased in and protected from dust and dirt. There being no other closed boxes inside this case, everything is readily accessible for examination or adjustment. All the bearings are ring lubricated, except those on the differential shaft, which is fitted with roller bearings, these carrying sufficient grease for twelve months' running. The car, which is a most interesting production, has a wheel base of 7 ft. and a track of 4 ft.

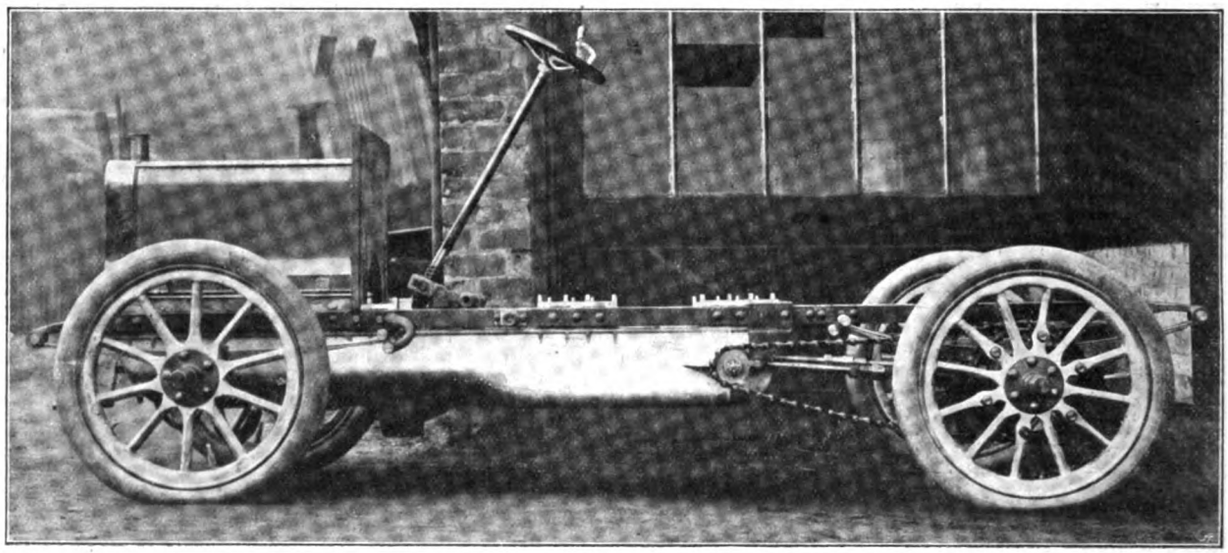


Fig. 5.—The Chassis of the Phœnix Motor Company's "Barcar."

Messrs. J. I. THORNYCROFT AND COMPANY, LIMITED, have two separate stands devoted to motor vehicles. One comprises a display of the Thornycroft pleasure cars, which we shall deal with in a subsequent issue; on the other are to be found examples of the latest types of steam and petrol commercial vehicles. One of the former is a five-ton steam wagon. In general this is similar to the Thornycroft four-ton vehicle, which is now so well known as hardly to need description, but differs from it in that it is fitted with a locomotive type of boiler of special design, and arranged to be fired through a hole in the crown. The engine also is about 50 per cent. more powerful, and will develop, we are informed, nearly 30-h.p. on the brake. The vehicle itself is of course strengthened, as requisite, for the greater load it is designed to carry, but nevertheless is built to comply with the new

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Local Government Board regulations as to weight. This vehicle is also capable of drawing a further two and a half tons on a trailer, making a total paying load of seven and a half tons.

The double-deck omnibus exhibited is one of twenty-five which the company have on order for different omnibus companies. It is propelled by an internal combustion engine of the Thornycroft Company's own design and construction, and developing 24-h.p. on the brake. Between the engine and the gear-box is a fly-wheel the arms of which are formed so as to act as an air-inducing fan, combined with a lubricated multiple-disc clutch. The gear-box provides four speeds ahead and one reverse, all operated by one lever, and giving a through drive on the top gear. The motion is communicated to the road wheels by chain transmission with spring drive. The top speed with the engine running at its normal rate is ten miles per hour, and seating accommodation is provided for sixteen people inside and twenty out. A petrol wagon intended for two-ton loads is also to be seen, the body provided being suitable for mineral water or bottled beer delivery work. The four-cylinder engine is of 20-h.p., and is of the type similar to that fitted in the Thornycroft pleasure cars. The clutch and gear-box are also similar to those fitted in the latter. The four speeds forward and reverse are all operated by one handle at the driver's seat. The transmission of power to the back axle is by means of a Renold roller chain. There is also exhibited on this stand a special petrol-driven "Vanette," built to the order of the British Vacuum Cleaner Company, Limited. This vehicle is propelled by one of the Thornycroft standard petrol engines of 20-h.p., and carries another petrol engine, used for driving the pumps necessary for working the vacuum cleaner apparatus. The whole vehicle is self-contained, and forms a neat and handy machine for the purpose for which it is intended.



On the stand of M. Andre A. Godin is the Dinin plug, to which we referred a few weeks ago. Its feature, which will be apparent from the accompanying illustration of the porcelain sparking plug, is the curved shape of the top, on which the word Dinin is printed in a hollow bell. Being supported from the hexagon nut, the insulation is practically perfect. This plug has also the advantage of firing under any compression, and cannot be affected by the oil or any dirt in the cylinder. If any soot was intercepted between the two terminals, the spark would jump from the rounded head to any other part of the curved wire. Under these conditions, oil or soot never affect the perfect working of this plug, which is delivered to the trade in a wooden box with a lead seal, so that the buyer is always certain of getting a plug which has not been used before.

The Mobile Motor and Engineering Company, Limited, have an interesting range of "Mobile" cars extending from the popular 6-h.p. to a powerful 24-30-h.p. four-cylinder car. The latter is fitted with a four-cylinder "Aster" engine with mechanically-operated valves, Longuemare carburettor, pressed steel frame, three speeds forward and reverse, and chain drive. It is equipped with a handsome body with side door entrance and Cape hood. The body is finished in a new colour, styled in France as "dead leaf."

Of the 10-12-h.p. "Mobile" a *chassis* is exhibited; this is fitted with a 10-12-h.p. Aster engine, 88 mm. bore by 140 mm. stroke, being mechanically actuated. The *chassis* is of steel, strengthened with ash, and the radiator is placed very low in order to allow the maximum of cooling. The change-speed gear is of the Panhard type, giving three speeds forward and a reverse, the transmission being by cardan shaft and bevel gear to a live axle. The differential is specially strengthened by two side stays and a new spring stay, connecting the differential with a cross bar on the frame, the latter considerably reducing the vibration due to uneven roads. The lubrication is effected from the dashboard; the bearings on the differential and gear-box are supplied with grease through a grease pump, while the oil lubrication to the differential gear-box and crank chamber, as well as the two to one gear, is effected automatically by exhaust pressure. The band brakes on the rear wheels are of a powerful type, and are so arranged that they may be easily detached. The clutch is of the metal-to-metal type operated by push pedal, and the throttle and advance spark levers are arranged on the top of the steering wheel.

The next car is a 8-10-h.p. double-cylinder car with Aster engine, 88 mm. bore by 120 mm. stroke, built exactly on the same lines as the 10-12-h.p. car. One of the 8-h.p. cars with four-seated tonneau body and De Dion engine, which attracted so much attention at the Reliability Trials at Hereford last year, is also on view. The *chassis* is exactly the same as the 8-10-h.p. car, and is, in fact, a reproduction of the latter with the exception that it has a single-cylinder De Dion engine. The tonneau is very roomy, painted in green, and upholstered in real green padded leather.

The cheapest car on the stand is the new 6-h.p. "Mobile" car with side door entrance and genuine De Dion engine. The vehicle is provided with automatic lubrication and forced grease pump. The *chassis* is of armoured wood and will undoubtedly attract attention on account of the neat design, the general appearance of the vehicle being that of a small racing car.

The exhibits of the United Motor Industries, Limited, include several new models of the "Castle" accumulators which did so well in 1904, and some new models of the "Castle" acetyloid lamps, including the motor-launch set with head light and port and starboard lights. They also show Alpha lamps, an apparatus for preventing injury from back firing, Century belting for motor-cycles and chrome leather for making non-slipping bands, the 1905 Cremorne paraffin carburettors, "Castle" high tension magneto without coil, a new lubricating oil known as "Castle" Monogram, new pattern "Castle Mulliner" hand shield, invented by Mr. H. J. Mulliner, and a general selection of automobile accessories.

The well-known "Salsbury-Flare" lamps, together with the "Salsbury-Searchlight," "Salsbury-Ovalite" and "Salsbury-Dietz" lamps are exhibited by Messrs. Salsbury and Son, Limited. Lamps with separate generators seem now to be a fashionable design, and in these a number of patterns are shown together with the new compound Duplex Lens, which, although only introduced about three months ago, has already become popular with the motoring public. Salsbury-Barrett jacks, Salsbury horns, sparking-plugs, accumulators, Dazlit Metal Polish, and Gre-Solvent all find a place on this stand. Messrs. Salsbury have also introduced a special "one-piece" dioptric lens which gives results almost equal to the well-known lenticular dioptric lens in three elements. It has the great advantage of being less liable to breakage and very cheap to replace in the event of becoming damaged. As agents for the Simplex ignition plug Messrs. Salsbury are exhibiting this plug in working order, and motorists will be well advised to inspect this excellent device.

Messrs. Weldhen and Bleriot have a fine show of motor lamps and horns. Besides their Bleriot projectors, "Eclaireur Elliptique" head lights and other equally popular patterns, they are exhibiting catadioptrique projectors for motor-cars, motor-boats, and yachts, as well as their 1905 patterns of self-contained head lights and projectors or faces for separate generators. These new Bleriot lamps act as head-lights and projectors, illuminating the road right in front of the car, and also far ahead, making driving at night as safe as in daylight. The "combined spherique and parabolique" reflectors are made of solid rolled silver on copper, completely isolated from the flame by a patented unbreakable glass chimney maintained in position by light springs, and will therefore never require any polishing, all the fumes being carried right away. Each lamp is fitted with an improved filter and expansion gas chamber. The new "auto-generator" which is used with these lamps is a simple acetylene gas generator, and is absolutely clean at all times.

The Sirdar Rubber Company, Limited, are exhibiting their specialities in tyres and wheels made of cleft-oak, with hickory half rims, for all vehicles from the lightest voiturettes up to 6½ ton motor-omnibuses. On the latter they fit their new large twin 5 in. Endless Royal Sirdar-Buffer tyres to the driving wheels, and single 5 in. tyres to the steering wheels. They also exhibit the 2½ in. voiturette tyres, and 3 in. and 5 in. high-speed section for heavy large touring cars, in addition to the carriage wheels. The Sirdar Rubber Company, Limited, have converted the tyres of over 1,500 cars, and are doing much to popularise solid tyres with all classes of users.

Messrs. S. Stevenson and Co., Glasgow, who make a speciality of artillery wheels for motor-cars and heavy steam wagons, as well as mahogany and walnut covered steering wheels in gunmetal and aluminium, show a good selection of such specialities. The firm have contracts running with several of the leading motor-car manufacturers for their whole supply during 1905.

(To be continued.)

From "Le Carbone" comes a list of the "Steady" re-chargeable ignition cells, in the design of which the object has been to combine the maximum output with small dimensions. The E.M.F. of the cell is from 1·55 to 1·6 volts and the output of the voiturette type on short circuit is from 22 to 25 amperes.

Messrs. J. Liversidge and Son, Limited, have issued an artistic and useful price list of the De Nevers patent grooved solid tyre, which, it is claimed, secures a maximum of resiliency without the risks that pneumatic tyres have to encounter on the roads. The principle of construction is to cut a number of grooves in a solid tyre, which thus becomes, in effect, a series of rubber balls on the rim of the wheel. The grooves secure a good grip of the road without the danger of side-slip, and also take up all elongation, a fact which should make them a matter of interest to owners of all types of cars.

The Alden Speare's Sons Company, of East Cambridge, Mass., U.S.A., have sent us samples of a new non-freezing mixture they have lately introduced. The mixture, which has an oil base, is intended to be used instead of water for cooling water-cooled motors during the winter months. It is stated to have remained liquid at the extreme temperature of 18 degrees below zero, and is practically non-freezable. It cannot, it is claimed, injure the tank or the cylinders, and is about as thin as water, so will circulate very readily. The same firm also manufacture a liquid polish for cleaning the bright parts of motor-cars.

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CORRESPONDENCE.

[*Letters to the Editor should be addressed to the offices, 27-31, Charing Cross Road, London, W.C.*]

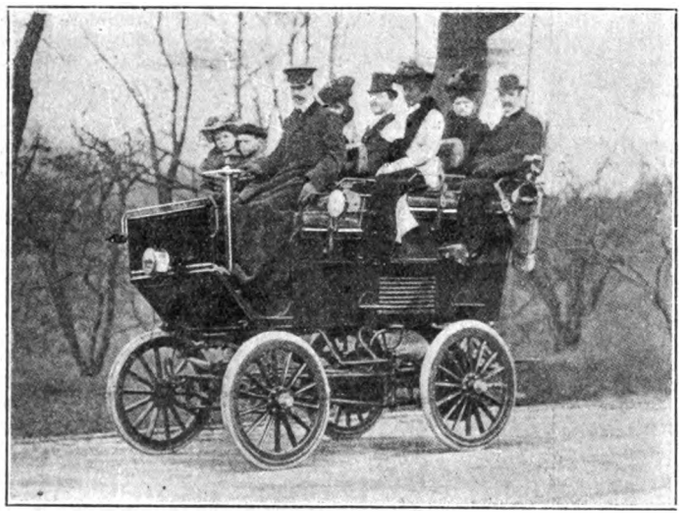
TO MOTOR-CYCLE MAKERS.

To the Editor of *The Motor-Car Journal.*

Sir,—In connection with the second International Cup race for auto-cycles, to be held in France in June next, it is suggested that a special fund be opened, within the limits of which the Auto-Cycle Club will offer to defray, year by year, the expenses incurred in connection with the contest by the makers of the English machines, and by the representatives of England, so that when a maker has built his machine and has successfully gone through the eliminating trials, he may be relieved of further expense.

One eminent manufacturer has kindly given a sum of one hundred guineas to the fund, and he suggests that the matter be laid by the Club before the motor-car manufacturers and others interested in this country, and that they be asked to give their support to the fund on the ground that it would be to the advantage of the whole of the industry in this country if England should win an International automobile event. It may fairly be argued that English motor-car manufacturers should help in the endeavour to win the International Cup, as the fund will effectively be the basis of substantial prizes, which will make the selection trials a matter of wide-spread interest and will turn public attention to, and enlist sporting interest in motor-cycles in a manner better calculated to advertise the movement than perhaps any other steps which could be taken.

It will generally be agreed that England at least stands a very good chance of winning the trophy, because, without question, the British made motor-bicycle is second to none, and with the preliminary long distance race (to be held in all probability in the Isle of Man in May), the riders will secure the practice in manipulation and in travelling at speed which are so essential to success.



A Novel American Electrical Coach.

For the club to undertake this most desirable task of defraying the whole of the expenses (and thereby encouraging motor-cycle makers to build machines specially for the event), responsibility for a heavy expenditure will be incurred and some hundreds of pounds will be needed. The Committee of the Club has decided to vote the sum of twenty-five guineas to the fund, and we shall be glad to be favoured with contributions.—Yours truly,

H. C. L. Holden, President Auto-Cycle Club.

DELHI-BOMBAY TRIALS.

To the Editor of *The Motor-Car Journal.*

Sir,—In view of the various statements which have appeared in connection with the above trials, and particularly in regard to the awards of the judges, the extracts set out below from a letter received from Mr. W. Sorel, the owner of the De Dietrich car which won the trial and the Gaikwar's Cup for reliability, will be of interest. "After the results were given out a protest was signed and sent to the judges against the De Dietrich car, as she had actually lost a few marks. The matter was again reconsidered but the award maintained, as no repairs or readjustments had been made on my De Dietrich car after leaving Delhi until arrival in Bombay, whereas all the other cars had been worked on, and the engines and other parts readjusted beyond the two hours allowed for cleaning and lubricating. The De Dietrich was consequently considered by the judge to have been the most reliable throughout the run. The only troubles I had during the 880 miles were, first day, the little pipe leading from pump to water manometer broke and I lost all the water and had to wait twenty-one minutes for coolies to bring water to replace. In the same afternoon an ignition tappet spring broke and was replaced in four minutes. Fifth day, bad tyre troubles, otherwise non-stops the whole of the time. The running of the car was greatly admired."

In the view of the fact that it was suggested that some special favour had been shown to the De Dietrich in the awarding to it of the prize, it will be observed that all the points raised in the other competitors' letters were carefully reconsidered by the judges and the award was made to the De Dietrich beyond all question on absolute merit, and after having proved itself the most reliable car.—Yours truly,

Charles Jarrott and Letts, Limited.

PRIMARY BATTERIES FOR CHARGING ACCUMULATORS.

To the Editor of *The Motor-Car Journal.*

Sir,—From "Electrical Engineer's" remarks in the last issue of the *Journal*, it is perfectly evident that he is in favour of magneto ignition, and consequently condemns every other method. I have two cars fitted with the best magneto device obtainable, but would be sorry to go a hundred miles without my accumulators, as my magneto ignition has several times left me stranded. This has been confirmed by many of my motor friends who have also both forms. Of the two, the electrical ignition is by far the most reliable, although the magneto may in some cases be all right if the owner understands a constant repair of the parts when necessary. As regards the charging with primary cells, I am a very old user of these, having obtained a set of Boron cells as far back as five years. I have a dynamo running on the premises, but get far superior results from my cells. I can easily charge a 4-volt accumulator perfectly in eight hours, and of 35 amp.-hr. capacity, for the small outlay of 2d., or a 40 amp.-hr. one for 3d., which, when sent out to be charged by supposed qualified electricians, often came back only partially charged, or not unfrequently with the plates ruined and in addition a charge of three times the previous outlay. In conclusion, I would state that I have found the Boron cells perform in a trustworthy manner all that is claimed for them, and, if used in accordance with the instructions, give far more economical results than any other method.—Yours truly,

H. C. Townson.

CLEAN HANDS.

To the Editor of *The Motor-Car Journal.*

Sir,—I notice occasional inquiries as to the best method of removing grease from the hands, and that several motorists have recommended oil, soaps, etc. The method I employ may therefore be of interest. I use oil and clean waste to take off the thickest of the grease, then soap the hands well and put on a teaspoonful of granulated sugar. This makes a fine lather which will start almost anything and will not hurt your hands. If your grocer mixes much "sand" with his sugar, this will scratch off the rest of the dirt and grease, so they will be clean. The method I believe worthy of a trial, for I find it is as effective as the various preparations on the market.—Yours truly,

Sticktite.

THE CARE OF MOTOR-CARS.

To the Editor of *The Motor-Car Journal.*

Sir,—In a lengthy and varied experience with motor-cars I cannot recall anything in which users of motor vehicles are so unanimous as they are in the variety of their opinions about the same make of vehicles. Take ten owners of any given make of car and ask each one of them what he thinks of the vehicle he uses, and you will probably get ten different opinions. Granting that each of the ten is honest, and there exists no reason for him to be biased, there can be only two explanations why this wide divergence of opinion exists. Either cars of the same make and identically the same model vary greatly in their performances, or some of their owners handle them more intelligently, hence less injuriously, than others.

In nine cases out of ten neglect and ignorance—not wilful—are the causes of almost every difficulty the man possessed of ordinary common sense experiences with the car he owns, and, although they may appear at the time of their occurrence very annoying to the novice responsible for their happening, a better acquaintance with the vehicle and its construction causes later on only a laugh when the misfortunes of the owner's first experiences are brought to mind.

In all this makers should not forget that not one novice out of a hundred really knows anything about the vehicle he buys, the acquiring of an education being left to his early matriculation at the University of Experience. The seller cannot afford to supply a teacher free for any very extended period of time, nor will the buyer pay for an instructor a moment longer than it is necessary for him to acquire the merest smattering of information about the car. The results are unfortunate for all concerned; but they could not be different from what they are. Of course, before the owner cuts loose from the instructor he has been told by him perhaps a hundred things which are nothing in themselves—and attention

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to which soon becomes absolutely automatic—but which become so jumbled up in the mind of the new owner that they mean absolutely nothing to him when the occasion for their remembrance eventually arrives.

Generally, all goes well with the novice, and by the time any adjustments to the car are required the tyro is fairly well up in his subject. But there are exceptions, and notable ones. I have known cases where an expert has travelled 150 miles to see what was the matter with a new vehicle, only to find that the petrol tank was empty!

I believe that, given a good car, most of the difficulties experienced by beginners are due to over-driving, unduly violent starting and stopping, neglect of adjustment, and lack of lubrication. I have seen many automobiles disassembled after various periods of running, and I believe all who have had practical experience will agree with me that the most common cause of excessive wear is neglect of lubrication. The motor itself may be perfectly well lubricated—in fact, it is too often decidedly over-lubricated—but every other part of the car is left alone. I have seen change-speed gears ruined for lack of oil, combined with violent changing, and axle-bearings seized simply because they had been run dry for long periods.—Yours truly,

AN OLD HAND.

TYRE AND NON-SKID BAND TROUBLES.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—I have motored for twelve months and wish to ask you or your readers' advice. The benefits of this delightful pastime have reduced the cost of medical attendance in my household very considerably, but the upkeep of tyres is a terrible drain upon my bank account. I have had non-puncturing, non-skidding tyres for some nine months, but in no instance have they run 1,000 miles. In every case the leather covering has become detached, not through the tread being worn, but seemingly through bad work in vulcanizing the leather cover to the canvas. It may be asserted that this only occurs through the tyre becoming deflated. I stop at once when this is detected, but already the mischief has begun, and a non-puncturing, non-skidding tyre, once deflated in running, is practically useless, and may be thrown to one side. My last experience showed that the canvas lining had burst, showing a crack of ½ in., and before I observed the position—not having run 200 or 300 yards—the leather had already begun to be detached. I am a most careful driver, seldom using brakes, tyres well inflated, best tubes, and I try to get hold of covers to run 5,000 miles, as so largely advertised.—Yours truly,

A SEEKER FOR GOOD TYRES.

NON-SKID BANDS AND SILENCERS.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—I shall be glad of any information from you or any of your readers who have had experience with the Pullman improved non-skid band with hob-nail studs, which appears to me to be a very practical one and puncture preventer. I understand, however, that the trouble with steel studded covers is that the studs come out and are of course difficult to replace when the cover is vulcanised on. I should like to know the action of water on the specially prepared leather, and also if the cover by its weight would absorb much of the engine-power, as I cannot spare any of my 8-h.p. in our hilly district. I should think they will lift a large quantity of mud. If any of your readers can recommend really satisfactory non-skids which are puncture proof besides I have no doubt others will be glad to have the information besides myself, especially if, with freedom from the above-mentioned faults, they combine a reasonable price and durability.

I should also be glad of the experience of those who have made the change, whether any improvement can be effected in an 8-h.p. De Dion, 1903 pattern, as regards silence and power, by adopting one of the advertised silencers.—Yours truly,

W. A. D.

THE EFFECT OF NON-SKIDS ON ROADS.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—One of the interesting features of present-day motoring is the increased use of non-skids and tyre protectors. If proof of this be needed, it is only necessary to notice the number of cars equipped with some one of the many devices of the kind. As a temporary expedient—as, for example, where a tyre is in bad condition, or when a trip is to be taken over vile roads, or when heavy rains have made quagmires of the highways—tyre protectors do not seem illogical. But as a permanent adjunct, to be used always, on all sorts of roads and in all weathers, they have, at least to my mind, an appearance of incongruousness. The ordinary pneumatic tyre is turned out in what is supposed to be a complete form. A thick covering of rubber is provided to take the road contact and to protect the delicate and highly important air-containing inner tube. Tough and strong fabric also surrounds this tube and checks any tendency to burst or give way under the tremendous air pressure. Why, then, is it necessary to envelop this complete tyre in a crude and unsightly covering that does not properly form a part of it and is palpably an excrescence?

The usual answer is, of course, that the chief purpose served by a tyre protector is to prevent side slip. Almost without exception it is made with some device on the tread that bites into the road and hinders, if it does not prevent, lateral movement of the wheels. Metal in some one of a variety of forms is usually employed for this purpose, and with considerable success. The users of such appliances, however, seldom stop to think that they are doing great harm to the surface of the roads over which they drive their cars; or, if they notice it, are entirely indifferent to the fact. They do not bear in mind that the hard, smooth surface has cost a lot of time and money in the attainment, and that great injury can be done by one car; while a number of them can and will leave a road in such a condition that a new covering will quickly become absolutely necessary.

The matter is certain to attract attention before long from the authorities in charge of the maintenance of roads, and if the use of protectors becomes at all general, a crisis will be reached, and some modification of the existing non-slip devices imperatively demanded.—Yours truly,

F. L. FRANCIS.

UNIVERSAL LIGHTING IN SCOTLAND.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—I attended a meeting of the East of Fife Agricultural Society, of which I am a member, and after other business the question of universal lights was brought up by Mr. Ramage, of Ashgrove. He moved that the meeting should send a representation to the M.P. for the division, or to the Home Secretary, opposing the Bill. He brought up the old hackneyed objections, and got literally no support.

Captain Scott Davidson, of Cairnie, spoke against Mr. Ramage's motion, as he did not see how one should be compelled to carry a light, and not another. Sir Ralph Anstruther said that the meeting was called to discuss the affairs of the Society, and a question of this kind was quite outside of it. Due notice ought to have been given of its being brought up. Had this been done he was quite prepared to argue the matter, but, at the same time, he did not see why universal lights should not become general. I went myself principally to oppose any motion raised against the Bill, but, of course, did not need to say anything, seeing Mr. Ramage got no support.—Yours truly,

T. G. WISHART.

TRI-CARS.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—In further reply to "Beginner," I am sure he will be best pleased, if he has a Tri-car at all, to have one on the lines I mentioned. A machine lightly built, with 3½-h.p. engine, about 3½ in. by 3½ in., will do, air-cooled and chain drive; £40 should be ample for this. If he wants to pay more he can get a light four-wheeled car, with wire wheels, two seats side by side, 4 in. by 4 in. water-cooled engine, three speeds and reverse, for £80; something similar to this but with rather smaller engine has been done at £75. The above will also explain to Mr. Adamson what I mean. His experience has certainly been exceptionally good. To do 14,000 miles on a belt-driven Tri-car is not bad, but his last year's performance of 16,000 miles, which averages over 300 miles a week, mostly through crowded streets, and professional duties as well, is marvellous.—Yours truly,

A. SAUNDERS.

WATER CIRCULATING PUMPS.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—In the Correspondence columns in the *Journal* of the 28th ult. I notice an inquiry as to the makers and patentees of a small rotary circulating pump, and by the description I think they must mean one that is manufactured by the Albany Engineering Company, Goschen Street, Camberwell, S.E. Some short time back I had considerable difficulty with the water circulation on a number of small cars, and after trying several pumps I eventually fitted that manufactured by the above-mentioned firm, and was considerably surprised at the results. It entirely overcame the trouble I had with the circulation, although in size the pump was no larger, in fact, in several instances smaller than others I had tried. Its extraordinary efficiency seems to be the result of the small grooves in the teeth and the face of the wheels, which evidently forms a perfect water seal.—Yours truly,

G. J. S.

FORTY SHILLINGS COSTS.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—I notice in your last issue, under the list of convictions, one for driving without rear number, which was dismissed. Ten days ago I was driving up to town at 12 o'clock at night, when the commutator seized; I had to take the front number board down to repair same; this occurred again, so to avoid waste of time I left it off.

I pulled up in Wigmore Street, and was immediately charged by two policemen with driving without the identification plate in front; I explained the matter to them and replaced it in front of them and called their attention to the back number, which was well illuminated. In spite of this I was summoned to Marylebone Police Court, where Mr. Paul Taylor fined me 40s., and, of course, endorsed my licence. I had a big Alpha lamp burning in front, so it was absolutely impossible to see the number when the car was going along.

Hoping this will be of interest to some motorists.—Yours truly,

REGINALD JOSEPH.

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THE A.C.F.'s PROJECTED JOINT RACE.

To the Editor of *The Motor-Car Journal.*

Sir,—I am glad to see the firm stand which the A.C.G.B.I., in conjunction with the German, Belgian, Austrian and Swiss clubs, are taking with regard to the proposal, or I should say decision, of the French Automobile Club to run the Gordon Bennett race in conjunction with its newly-projected Grand Prix event. The French claim that, owing to the larger extent of their industry, they ought to be entitled to a more numerous representation in the Cup race, can hardly be taken seriously. The object of this annual event is certainly not to give a demonstration of the magnitude of the automobile industry in the various countries, but rather to determine the quality of the automobile products of the different nations.

The decision of the French Club to hold a joint race without having consulted the other national clubs appears to me to be a most indelicate action on its part, for, large as the automobile industry of France is, it can hardly presume to dictate the conditions of international contests.—Yours truly,

Fair Play.

BUYING SECOND-HAND CARS.

To the Editor of *The Motor-Car Journal.*

Sir,—Buying a sound horse is difficult enough in all conscience, but most people must come to the conclusion that buying a good second-hand motor-car is much more difficult. There are many old pattern and defective motor-cars now on the market, and buyers must be careful. Many of these cars have been re-painted and also have had new outer covers fitted to the tyres—so that they look well. In all cases, if a vendor is not willing to give a fair trial, in a hilly country for choice, and will also



A Brillie Petrol Motor Wagon Hauling a Military Train.

give a written guarantee that the car is in good running order, the purchaser may then think of expert examination. It would be well to have a guarantee something like the following:—The purchaser may fairly use the car for a week from date of purchase. If at the end of that time any part be found defective the vendor to have the option of refunding the amount paid by the purchaser in full and taking back the car, or of having the defective parts repaired at his, the vendor's, sole expense. This guarantee not to apply to tyres, and not to, of course, cover accidents or ill-usage. Much the best plan for the novice is to buy a new car, but if he decides to buy one second-hand he will be advised to adopt the above plan.—Yours truly,

Caveat Emptor.

CARBURETTOR EXPERIMENTS.

To the Editor of *The Motor-Car Journal.*

Sir,—I have fitted a Cremorne carburettor to a 1902 Oldsmobile car, and, on the whole, have found it very satisfactory, especially as the engine now starts at once with, perhaps, three turns, after standing a night or more, and with a single turn at any time during the day afterwards. The inlet of hot exhaust around the jacket has been partly throttled, but a few experiments seem to show that the carburettor works better on this type of engine when fully throttled and kept as cold as possible, and more power is developed. If any of your readers have had experience with the Cremorne, perhaps they would communicate the result in these columns, and users would thus be able to help one another, since doubtless each would make experiments from different standpoints. I have not yet attempted to alter the valve spring except to relieve it a little with my finger, temporarily, when the engine appeared to yield still a little more power. If anyone has tried this carburettor with ordinary petroleum, with which the makers claim it does good work, I should be glad to know how they succeeded.—Yours truly,

Sivalo.

INCREASING ENGINE POWER.

To the Editor of *The Motor-Car Journal.*

Sir,—I am thinking of placing a four-cylinder 12-14-h.p. petrol engine, 1,200 to 1,500 revs. per minute, into my 7½-9-h.p. car, which has now a Phœnix engine (two-cylinder) 850 revs. per minute. The car weighs, when loaded for the road, one ton (without passengers) and the wheel base between axle caps is six feet two inches. The car is chain driven, and the gear is of the Panhard type and unscratched, all the bearings are practically unworn, after eighteen months' careful use. I am told this would be a success by many friends and experienced mechanics, but by others that the gears are cut for certain revolutions, and the increased speed at which they would revolve with the higher power would in some unexplained way be very detrimental to the car being satisfactory when re-engined. Can you enlighten me over this perplexing question? I have had a draughtsman and a foreman fitter to measure and examine the car, and there is no difficulty in the way of converting to four-cylinder.—Yours truly,

S. H. B.

[The increased engine speed would not have any serious effect on the gears, these being just as suitable for high speeds as for low. The only great difference will be in the increased speed of the car, which, by the speed of the new engine, would work out at almost double the present rate. The question is whether the steering, length of wheel base, etc., would be suitable for higher rates, these being points that should be carefully considered before deciding upon the new engine.]

THE WHEEL BASE OF MOTOR-CARS.

To the Editor of *The Motor-Car Journal.*

Sir,—Within a comparatively few years the wheel base for motor vehicles has increased very rapidly. From rather less than five feet during the early days of the industry it has been gradually advancing until eight feet or over is not considered unusually long, and nine feet by no means extraordinary. The improvement in riding qualities which has resulted from this increase of length, due to the perceptibly increased period of time which elapses between the respective actions of the front and rear springs when meeting road obstruction, has immeasurably enhanced the comfort of motoring. Greater roominess also characterises the long modern car, which has become a veritable vehicle of luxury.

The tendency to increase wheel base is, however, not without its drawbacks. It appears to me that the manœuvring ability of cars has decreased rather than increased, as judged by the diameter of the circle in which they may be turned, and it is more than probable that further increase in wheel base may be prevented by considerations involving the large spaces necessary for the turning of excessively long cars. Upon narrow country roads, such as are frequently encountered in touring, a corner cannot sometimes be taken without using the reverse gear, while to turn round is practically an impossibility. In my opinion, the point of maximum wheel base has already been reached, and unless designers devote more attention to making the "lock" of the front wheels correspondingly greater, I think that we shall see a return to cars of more moderate wheel base length.—Yours truly,

C. F. Parkinson.

Apprenticeships.—The replies in response to the letter from "X. M." have been forwarded to that gentleman.

The Markt Mileage Recorder.—Some correspondents wish to know where the Markt mileage recorder, recently described in the *Journal*, can be obtained retail.

Responsibility re Accident.—A reader asks whether the owner of a car, used for hiring purposes, is responsible for the claims made by passengers in the event of accidents causing personal injury.

Water Circulating Pumps.—Several correspondents have written to say that the water circulating pump inquired for by Mr. S. James in the issue of the 28th ult. is made by the Albany Engineering Company, Goschen Street, Camberwell, S.E.

Oil on Brakes.—The Herbert Frood Company, of Chapel-en-le-Frith Derbyshire, write:—"We notice from time to time enquiries for an antidote for the oil that inevitably reaches the linings of band or expanding brakes, which destroys the grip. Will you permit us to mention that we are producing a cheap lining that is even more efficient when greasy than in its original state, and they wear inch for inch as long as brass."

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CLUBS AND ASSOCIATIONS.

LEICESTERSHIRE.

At the annual general meeting of the Leicestershire Automobile Club last week the following officers were elected:—President, Mr. George Mawbey, M.I.C.E.; Vice-Presidents, Col. Lionel Powell, J.P., Mr. J. A. Corah, J.P.; committee, Messrs. W. Earp, H. A. Hamshaw, L. H. Hargrave, V. Oliver, H. H. Wildt, T. C. King, R. Sutton Clifford, jun., A. H. Faulkner; hon. treasurer, Mr. H. R. Harding; hon. secretary, Mr. A. McAlpin.

The annual dinner of the club was held on the 30th ult. at the Bell Hotel, Leicester, under the presidency of Mr. E. G. Mawbey, M.Inst.C.E. The company numbered about fifty. After the loyal toasts had been honoured, Colonel Lionel L. Powell, J.P., in giving the toast of "The Leicester Corporation and the Leicestershire County Council," said that in reference to those two bodies they ought to be very well satisfied and very proud indeed that automobilism was looked upon so favourably in town and county. The police were exceedingly judicious, and did not lay down traps in by-roads and in villages where there were no children. The Mayor, whose name was associated with the toast, replied. He was very pleased to hear Colonel Powell had no fault to find with the Leicester Corporation or the County Council. Leicester and Leicestershire would compare most favourably with any other county as to the good condition of its roads, and he had no doubt that this was one of those things which added pleasure to their favourite pastime as automobilists.

Mr. E. Manville, M.I.C.E., submitted "The Leicestershire Automobile Club and President." He spoke of the interest the parent body manifested in the affiliated societies, and said the importance of provincial clubs could not be overrated. It was true there were larger provincial clubs than that of Leicestershire, but he did not believe there was one a bit more important. Leicestershire was a great hunting county, and as such they respected it, but he supposed it might be assumed there was necessarily more prejudice to be found against the use of motor-cars in that part of England than in other counties not so much interested in horses. The chairman, in responding, expressed thanks to Mr. Manville for the manner in which he had submitted the toast. He saw a statement the other day that the Motor Car Act was working successfully in Leicestershire. This was attributable to the broad and generous way in which the Act had been administered by Mr. Lumley, the Chief Constable of Leicester, and Mr. Holmes, the Chief Constable of the county. They had only a few trifling cases against automobilists in Leicestershire, and he felt there was a marked diminution in the prejudice against automobilism throughout the country.

Mr. J. A. Corah, J.P., proposed "The A.C.G.B.I. and the Motor Union," remarking that the parent Society had done much good in the past. Mr. Staplee Firth responded, saying that the amount of prejudice which existed on the Bench against motorists was greatly diminishing. Mr. W. Rees Jeffreys also responded, pointing out that the Motor Union had done much to secure the mechanical efficiency of the motor-car. He paid a high tribute of praise to Mr. Alan McAlpin, the hon. secretary of the Leicestershire Club, and said they had found him a genuine worker on the General Committee of the Union. Their president, too, was also a very useful member of that committee.

Mr. H. A. Hamshaw gave "Kindred Clubs and Visitors," stating that no county had met with less prejudice so far as automobilism was concerned than Leicester, especially considering the position it occupied as a hunting centre. Mr. E. Shrapnell Smith and Mr. A. R. Atkey acknowledged the toast. The remaining toast was "The Officers of the Club," given from the chair. An enjoyable musical programme was submitted during the evening.

SCOTTISH.

At a meeting of the Western Section of the Scottish Automobile Club held last week, Mr. John Adam, Chairman of the Section, presiding, Dr. W. R. Ormandy, of Warrington, delivered a lecture on "Motor Fuels, with special reference to those of Home and Colonial Manufacture." The lecturer dealt first with the properties of an ideal fuel, such as heat contents, heat available, range of explosion, heat of evaporation, vapour tension, and the like, and passed on to a comparison of the similar properties of existing fuels. Dr. Ormandy dealt at considerable length with the economic side of his subject, paying particular attention to the question of the cost of the various fuels to individual motorists as well as to the relation existing between the fuel supply and the motor manufacture, and urged the importance of his subject from a national and imperial standpoint. An interesting discussion followed.

LEGAL AND LEGISLATIVE DEFENCE FUND.

The following letter has been addressed by Colonel Holden, Chairman of the Motor Union, to members of the Motor Union and automobilists generally. It is hoped that there will be a liberal response thereto.

Sir,—As you are not only the user of a motor-car but also, I believe, deeply interested in the automobile movement, I have been requested to seek your assistance in connection with the administration of the laws and regulations affecting these vehicles. It is of the greatest importance to the movement that these shall be authoritatively interpreted and justly enforced. The Motor Union has spent considerable sums of money in striving to secure this result, but unfortunately the funds at its disposal have proved inadequate to the demands upon them. The Union is in consequence unable to take up all those cases in which its assistance would be of considerable service. The legal and administrative expenditure of the Union may be said to group itself under the following headings:—

(1) Settling important points of general principle by taking test cases to the High Court.
(2) Opposing (a) applications to close roads which are suitable for motor-car traffic; (b), unreasonable applications for a 10-mile limit of speed; and (c) other proposals of public authorities unfairly restrictive of automobilism.
(3) Assisting, under special circumstances, members summoned under the provisions of the Motor Car Act.
(4). Assisting members in appeals to Quarter Sessions.

For all these purposes the Union finds that it is necessary to have a larger sum at its disposal than is secured by the ordinary subscriptions and capitation fees. Acting, therefore, upon suggestions made earlier in the year by Lord Onslow and others, it has been decided to establish a special fund, to be called "The Legal and Legislative Defence Fund," for the purpose of meeting this necessary expenditure. In asking for the liberal support both of individuals and organisations towards this fund, it is unnecessary to urge the importance of this department of the Union's work A great deal of good work has already been accomplished by the Union out of its ordinary sources of revenue. Over £1,100 has been expended during 1904 to protect the rights and extend the privileges of automobilists.

Among the results obtained may be mentioned:—

(1) A favourable decision of the High Court upon a point of law of great importance, the result of which is that motorists are no longer charged with the four offences mentioned in Section 1 of the Motor Car Act in one summons, so that the possibilities of an unfair conviction are correspondingly reduced.
(2) A number of appeals to Quarter Sessions have been successfully assisted, and the system of timing employed by the police in several districts discredited.
(3.) Effective opposition has been given to the applications in various parts of the country of local authorities for regulations for a ten mile limit of speed over large areas.

With reference to the appeals to Quarter Sessions the cost of even a successful appeal varies from £60 to over £200. Such heavy charges practically prohibit men of moderate means from taking their cases, even when unjustly convicted, to appeal, unless assisted. It is therefore only through the Union by the aid of such a fund as this that automobilists can fight unjust convictions.

Judicious expenditure of money is also necessary to pave the way for securing those amendments in the Act of 1903 which experience has already proved to be desirable. In asking, therefore, for liberal contributions to this fund, the Motor Union feel that they are inviting automobilists to aid in the most useful manner the automobile movement.—

I am, sir, your obedient servant,

(Signed), H. C. L. Holden, Chairman.

MOTOR REGULATIONS IN THE ROYAL PARKS.

Mr. H. E. Gwinner, Kensington, appeared before Mr. Marsham at Bow Street Police Court on Thursday of last week to a summons charging him with driving a motor-car in the Green Park at a greater speed than ten miles an hour, contrary to regulations.

Mr. Staplee Firth, who appeared for the defendant, raised the same point as he had done at Marlborough Street Police Court in a case reported in last week's *Journal*. Mr. Aubrey Court, an official from the House of Lords, was called and shown the printed regulations as to the speed of motor-cars posted at the gates of the royal parks. He said they had never been laid on the table of the House of Lords. The latest regulations respecting the London royal parks laid on the table of the House of Lords were dated April 28th, 1904, and they contained no reference to the speed of motor-cars. Mr. Marsham adjourned the summons until Mr. Kennedy, the Marlborough Street magistrate, had given his decision in the case referred to by Mr. Staplee Firth.

Mr. Marsham proceeded to hear a case in which Reginald Welsh, chauffeur to Lieutenant-Colonel Maxse, was summoned for exceeding the speed limit in Green Park. Two police officers stated that on the occasion in question the defendant's car was going at the rate of about seventeen miles an hour. The defendant went into the witness-box, and estimated the speed at which he was going at from eight to nine miles an hour. The Hon. Mrs. Maxse said she was seated in the car at the time with another lady. The vehicle was going at the same rate as an ordinary carriage when it was stopped by a police constable, Other police officers ran up with stop-watches in their hands. It was snowing at the time, and she said, "Why do you set traps on a day like this?" One of the officers replied, "We have to follow our instructions. To-day we shall get fewer than usual because of the weather."

Lieut.-Colonel Maxse said he would raise the same point of law that Mr. Staplee Firth had done. He believed that policemen were honest, and that when they said a motorist was driving at so many miles an hour they thought they were telling the truth. They often, however, made serious mistakes owing to their absolute ignorance of the methods of using a stop watch. The police, too, looked upon catching motorists as a kind of sport, and seemed sorry when it was a wet day because they would

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have very few captures. If they would look after some of the "scorchers" they would be far better employed than in stopping two ladies who were having a quiet drive in the park. The case has been adjourned to next week on the point of law referred to.

A MOTORIST ACQUITTED.

At the Berks Assizes at Reading, on Saturday, Stanley Munro Noble, a professional motor-car driver, was charged with the manslaughter of a boy, who, while playing in the road, was run over by a motor-car at Hurley, in November last. The driver stopped his car and said he would be back in a minute, but he did not return. It was alleged it was the prisoner who drove the car, but Noble denied this, and said he knew nothing of the accident till told of it by the police. The evidence was very conflicting. In summing up, the Lord Chief Justice said there was no doubt that motor-cars were used for a useful purpose; but, unfortunately, a certain number of motorists—a small fraction he hoped and believed—pursued their pleasure in a most selfish way. Those people brought a great deal of discredit upon a large body of motorists who, on the other hand, pursued their pleasure in a proper manner and with due regard to the safety of the public. The prisoner was acquitted.

SOCIETY OF AUTOMOBILE MECHANIC-DRIVERS.

The second general meeting of this Society took place at the head-quarters, 51, Brick Street, Piccadilly, W., on Thursday of last week. Between sixty and seventy were present, amongst them being Messrs. Sidney Girling, Wood, Budd, Groves and Ebel, and the secretary, Mr. Arthur R. Ivens, was kept busily engaged before and after the meeting, the applications for membership being very numerous. Mr. Woods, President, was in the chair, and read some of the rules and articles of association of the Society, which, amongst other things, provide an employment bureau for members possessing three years' technical and practical experience before being eligible for membership, exclusion of aliens from membership, and protection of owners, members, manufacturers and the public. Mr. Groves, vice-Chairman, said that the idea of the Society was first started between two or three friends at a private meeting: it was mentioned afterwards to prominent members of the Automobile Club and also of the Motor Union, who greatly approved of the movement. The Society was not in any respect a Trades Union—wages would be simply a question between master and man. The main object of the Society was that every man should study his employer, and in the interests of all the employers bring forward the good men and eliminate the bad. A man who could do all fair and square repair work would save his employer many pounds in expenses, and that being so the employer would show every consideration to his servant.

The examination of proposed members will be held every Monday evening by the Committee. They will be handed a number of questions, to be answered in writing. In addition to this they will be asked to answer some verbal questions as to repairs, etc., put by members of the Committee. One rule is to the effect that any member of the Society proved dishonest to the "satisfaction of the Committee, be expelled the Society."

Mr. Sidney Girling, in a brief and lucid speech, said he thought the Society the very thing needed, that it would weed out the bad man and improve the position of the good one—he approved of the rules and constitution, and intended himself to become a member.

IMPORTS OF AUTOMOBILES.

Below we publish our monthly official list of the imports of motor-cars, motor-cycles, and the parts thereof, into the United Kingdom during the month of December, 1904:—

BELGIUM.

Shipped from	To	Description.	No.	Value. £
Antwerp	Harwich	Motor-car parts	—	326
„	„	„ cycle „	—	318
„	London	„ cars	2	2,000
Brussels	„	„ car parts	—	120
Ostend	Dover	„ „ „	—	74
„	„	„ cycle „	—	16
„	London	„ cars	20	13,787
„	„	„ cycles	4	79
„	„	„ car parts	—	675
„	„	„ cycle „	—	23

Total value of imports from Belgium in December, 1904 .. £17,418
Total value of imports from Belgium, Jan.–December, 1904 £235,830

CANADA.

				£
Montreal	London	Motor-cars	5	1,755
„	„	„ car parts	—	47

Total value of imports from Canada, December, 1904 .. £1,802
Total value of imports from Canada, Jan.–Dec., 1904 .. £3,737

FRANCE.

				£
Boulogne	Folkestone	Motor-cars	35	12,526
„	„	„ car parts	—	8,621
„	Goole	„ cars	2	740
„	„	„ car parts	—	120
Calais	Dover	„ car	1	560
„	„	„ car parts	—	151
Dieppe	Grimsby	„ car parts	—	224
„	Newhaven	„ cars	35	18,157
„	„	„ car parts	—	6,602
Dunkirk	Hull	„ car	1	260
Havre	Liverpool	„ „	3	1,520
„	„	„ car parts	—	420
„	Southampton	„ car	1	300
Paris	London	„ „	1	120
Rouen	Glasgow	„ car parts	—	100
Treport	London	„ cars	6	1,662
„	Manchester	„ „	1	380
„	Runcorn	„ „	1	300

Total value of imports from France, Dec., 1904 ..... £52,823
Total value of imports from France, Jan.–December, 1904 £1,927,822

GERMANY.

				£
Bremen	Hull	Motor-car parts	—	215
„	London	„ cars	11	3,620
„	„	„ car parts	—	45
Hamburg	Harwich	„ car „	—	15
„	„	„ cycle parts	—	60
„	London	„ cars	3	1,010
„	„	„ car parts	—	80

Total value of imports from Germany, December, 1904 .. £5,045
Total value of imports from Germany, Jan.–Dec., 1904 .. £66,166

HOLLAND.

				£
Amsterdam	Goole	Motor-cars	2	920
„	„	„ car parts	—	48
Rotterdam	Harwich	„ cars	2	300
„	„	„ car parts	—	45
„	„	„ cycle	—	60
„	Hull	„ car parts	—	26
„	London	„ car	1	200
„	„	„ car parts	—	25

Total value of imports from Holland, December, 1904 .. £1,624
Total value of imports from Holland, Jan.–Dec., 1904 .. £38,789

NEWFOUNDLAND.

				£
St. John's	London	Motor-car	1	2,000

UNITED STATES.

				£
Boston	Liverpool	Motor-car	1	200
New York	Glasgow	„ car parts	—	69
„	London	„ cars	15	3,120
„	„	„ car parts	—	133
„	Southampton	„ „ „	—	32
Philadelphia	London	„ cars	3	1,055

Total value of imports from United States, December, 1904 £4,069
Total value of imports from United States, Jan.–Dec., 1904 £125,679

TO CORRESPONDENTS.

All communications intended for insertion in this Journal or relating to Editorial matters should be addressed to The Editorial Department, Motor-Car Journal, 27-33, *Charing Cross Road, London, W.C., and must be written on one side of the paper only. Letters must in all cases be accompanied by the name and address of the writer, as no notice will be taken of anonymous communications.*

The Editors cannot undertake to return MSS. or drawings, although every effort will be made to do so in the case of rejected communications. Where such are regarded as of value, correspondents are requested to retain copies.

To insure insertion communications and contributions must be in the Editor's hands by Tuesday forenoon of the week in which the same are intended to appear. Disappointment may be caused by non-compliance with this rule, and to avoid this earlier receipt, if possible, is necessary.

The Editors and Publishers beg also to state that they will accept no responsibility for unsolicited contributions, even if used, unless payment for same is directly specified in forwarding, and the terms arranged before publication.

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COMMENTS.

A BRILLIANT company welcomed Field Marshal Earl Roberts to the second annual dinner of the Motor Volunteer Corps at the Trocadero, London, on Tuesday, and all went merry as the proverbial marriage bell. The discomforts of the field were forgotten—the midnight rides, the early morning struggles with unpatriotic motors that heeded not the advance of the enemy during manœuvres—all such incidental torments of the flesh and spirit were left behind as the gallant motor warriors assembled in their bright mess uniform to acclaim the father of the corps. Lieut.-Colonel Mark Mayhew, to whose initiative the formation of this arm of national defence was due, was in the chair, and modestly recalled the help rendered to generals and other officers by the Motor Volunteers. Motorists had lent their cars and given their service, and—Colonel Mayhew playfully reminded the guests—had killed no generals.

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Earl Roberts on Motors.

EARL ROBERTS was in reminiscent mood. He remembered how in India, thirty years ago, Colonel Crompton had taken out a traction engine, with the idea of helping the commissariat department. The "ironclad" clambered up a steep hill and rushed madly down the other side, flinging itself into a deep ditch, where it remained for four or five years. But in South Africa really valuable aid had been given by the traction engines of Colonel Crompton, and he had seen guns hauled up otherwise impossible ascents into positions on forts at Pretoria when the need was most urgent. He was glad to see motor vehicles advancing in favour generally. When he went to South Africa last year the highest number he had seen in London was A3000; now it was A8000—a very satisfactory advance. Having regard to what Colonel Mayhew had previously said as to the encouragement he (Lord Roberts) had given the motor volunteers, he felt he was, in a sense, the father of the corps, to all the members of which he wished success and prosperity. Lieut.-General Sir John French also testified to the value of the motor-car in modern warfare, and congratulated the corps on its energy and devotion in perfecting its methods and motors.

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The Restriction of Speed.

THE Guildford Town Council have received an answer from the Local Government Board to their application for an order to restrict the speed of motor-cars in the borough to a maximum of ten miles an hour. The Board point out the fact that they had had applications under section 9 of the Act from the City of London, Winchester, Dover, Kingston-on-Thames, Beverley, Leeds, Leigh, and Todmorden, in all of which local inquiries had been held, but the Board had not up to the present been satisfied that such a regulation was really necessary in any instance. The fact that comparatively few of the local authorities who were entitled to make applications under section 9 had up to the present done so seemed to indicate that there was generally a disposition to avoid the imposition of speed limits, and in all the circumstances it seemed to the Board desirable that the Town Council should reconsider the advisability of pursuing the application, at any rate in its present form. They would recommend that the Council should specially consider whether, if any speed limit were necessary at all, it should not be confined to streets or parts of streets where the conditions of motor traffic were of an exceptional character.

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The Postal Motor.

LORD STANLEY is an enthusiastic motorist and a business-like Postmaster-General. Both qualities have received demonstration by the way in which he has encouraged the substitution of motor power for horse haulage wherever such could be introduced with advantage to the public convenience and the public purse. The placing of the contract for the carrying of the mails from London to Brighton is but the forerunner of many such services elsewhere, and the public may regard the passing of the horse from postal work as great a certainty as the coming of the motor-'bus in the streets of the Metropolis. But care will have to be taken that in both cases the initial services are well organised; otherwise, delay may lead to disappointment, and this may give rise to longer delays. "More haste, less speed," is a proverb peculiarly appropriate to the present situation.

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The Police and Motorists.

THE unusual course taken by the Commissioner of the Metropolitan Police of inditing a defence of the police for recital at a public luncheon might cause a prejudiced person to assume that there was something wrong in his methods to cause such a defence to be made. Mr. Henry, however, has no such feeling; and, although some motorists laughed when they heard his naive sayings, we will accept his assurance with the hope that his subordinates will live up to the character and reputation he has given them. According to the Commissioner, the police select their test distances on the actual level, and when applying for permission to summon have to report upon the state of the road at the time, and also whether the car is fitted with non-skidding appliances. The chronographs used by the Metropolitan Police are supplied by a competent watchmaker, and are systematically tested. Makers of non-skids will probably find in these instructions of the Police Commissioner another reason why such devices should be affixed to tyres.

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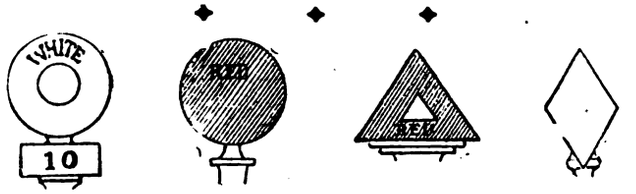
Argyll Developments.

AN important development of the motor-car industry in Scotland was foreshadowed at a dinner at the Trocadero Restaurant, W., which the Hozier Engineering Company, Limited, gave to the numerous agents of Argyll cars on Tuesday evening. Mr. W. A. Smith, the chairman of the company, presided, and he was supported by Mr. A. W. Steven and

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Mr. Alec Govan, the managing director. The latter, in proposing the health of the agents, made some amusing references to the trials and tribulations associated with the first Argyll car, and afterwards referred to the project at present under consideration by the Hozier Company of establishing a new factory which should be by far the largest of the kind in Great Britain. He pointed out that it was the agents who came into direct contact with buyers and who had the work of breaking down the prejudice of the public against automobiles, and in this connection he encouraged them to further efforts by mentioning that each order secured for a motor-car meant employment for from four to six men for a year. Messrs. A. Pereno, W. L. Sleigh, and W. R. McTaggart responded for the English, Scottish, and Irish agents respectively. Mr. Steven, one of the directors of the Hozier Company, in proposing the toast of "The Press," gave some interesting figures with regard to the economy of motor vehicles for commercial uses; while, in responding to the toast of "Our Hosts," Mr. W. A. Smith gave some further details of the great scheme of extension which the Hozier Company have in contemplation, and stated that in connection with the project the directors had visited all the leading motor-car factories not only on the Continent, but also in America, it being the intention to make the new works second to none. Altogether a very enjoyable evening was spent, and, judging from the enthusiasm displayed, there can be no question that the popularity of the Argyll cars in the past will be more than maintained during the coming season.

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For ten mile or lower limit of speed, a white ring, 18 in. in diameter, with plate below, giving the limit in figures.

For prohibition, a solid red disc, 18 in. in diameter.

For caution (dangerous corners, cross roads or precipitous places, a hollow red equilateral triangle, with 18 in. sides.

All other notices under the Act to be on diamond-shaped boards.

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Signs.

Gradually the use of signposts and warning-boards is becoming general throughout the country, and notices on boards of various shapes are appearing to grow out of hedgerows and from the edges of the highway. A circular ring eighteen inches in diameter, with the speed limit in figures below, indicates where restricted speed has been sanctioned by the Local Government Board. A solid disc painted red indicates total prohibition—happily only applied in a couple of isolated cases. Dangerous corners and descents, and other places where unusual caution should be shown, are indicated by notices in the form of equilateral triangles with eighteen-inch sides painted red. All other notices under the Motor Car Act are on diamond-shaped boards.

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Cordingley's Exhibition.

A month to-day the International Motor-Car Exhibition at the Agricultural Hall, London, will open its doors to the public, whose interest in automobilism is keener than ever. The rumours as to the new cars that, not ready in time for Olympia, will be on view at the Agricultural Hall will be fulfilled in a manner that will ensure success, while the inquiries from the Continent and from America convince us of the thoroughly representative character of the display. Previously we have referred to the great show of heavy motor-vehicles including 'buses; the display of lighter vehicles for pleasure and touring purposes will be equally satisfactory. Then the accessibility of the Agricultural Hall from all parts of the Metropolis is a factor that must not be ignored, and there is no doubt that many people are delaying making up their minds with regard to purchasing automobiles until they have seen what the next Exhibition has to offer.

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The Agricultural Hall.

In view of the fact that only a month remains, such prospective motorists are wise, for thus they will have opportunities of seeing all that is to be seen before making the plunge into automobilism. Many new firms will be represented at the Agricultural Hall Exhibition, which will be the largest and best display of automobiles ever held there, eclipsing even the splendid shows of 1904 and 1903. Of the three hundred firms that will exhibit at the Agricultural Hall more than half have not exhibited at any other display this year, so that its really representative character can be readily imagined. In addition to the motor-car section the Aero Club is organising an exhibition of airships and balloons which will be of popular interest. Compared with the letting spaces at other buildings in this country, the Agricultural Hall, with its Great Hall and wide galleries, the Minor Hall, North Annexe and other exhibiting areas, remains the premier place for an automobile show—as will be demonstrated when the Tenth Annual Exhibition opens on the 18th prox.

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Royal Patronage.

We congratulate the promoters of the exhibition at Olympia on the success which has attended their efforts, and on the fact that so many notable people have again shown their interest in motor-car exhibitions. This has always been a feature of the shows held at the Agricultural Hall, and to give a list of those who, the last few years, have attended the displays there would be to issue a second "Who's Who." The visit of the Prince of Wales to the Agricultural Hall Exhibition two years ago was really the first Royal favour bestowed on the trade, and the interest he then displayed did much for the industry. The Premier, too, has been a follower of the exhibitions there, and, with Miss Balfour and his two brothers, Colonel Eustace Balfour and Mr. Gerald Balfour, M.P., was a visitor in the old days, when the arena provided London with a new sensation. Cars intended for the use of the Royal Family are ever an attraction to the public, and the presence of vehicles for the Queen and others of the reigning house has always been associated with the Agricultural Hall Exhibition. Hence the fact that similar assistance has been rendered to popularise the Olympia Show speaks well for the impressions left on the minds of our princes and rulers by Cordingley's Exhibitions.

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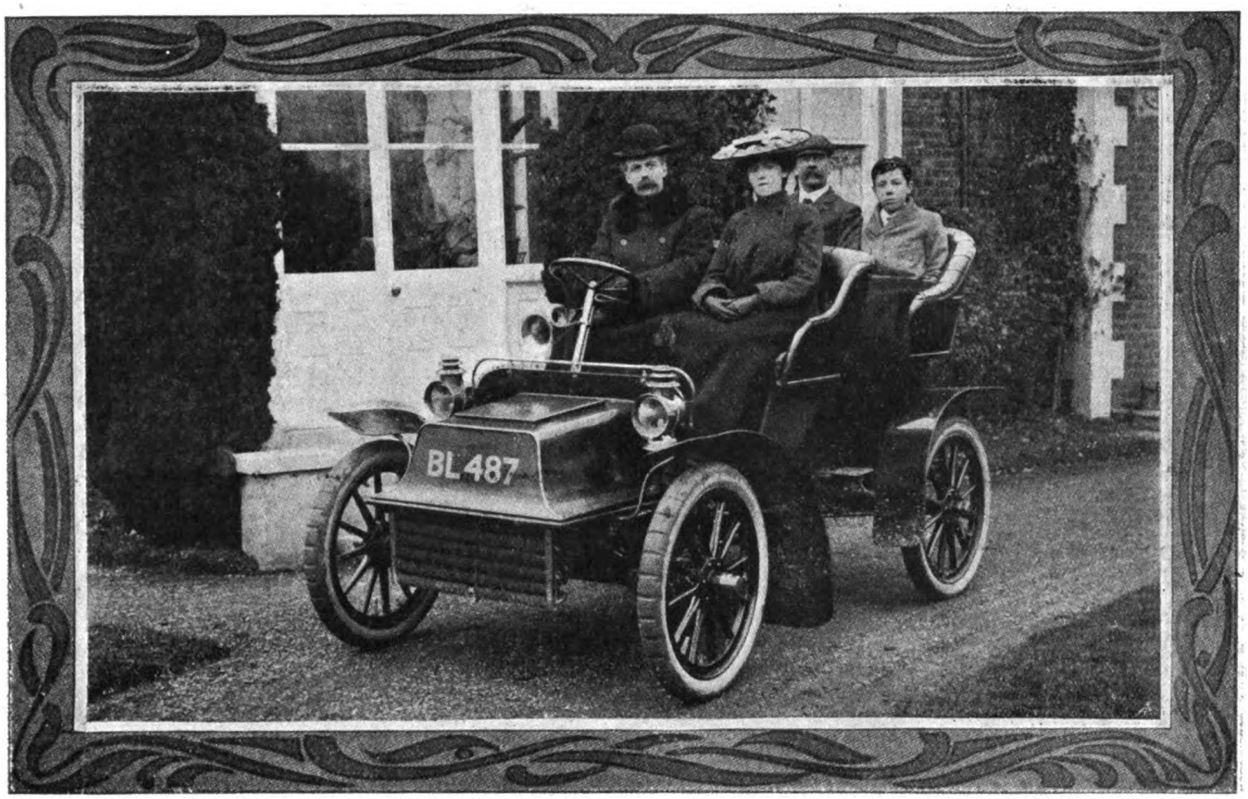
Motor-Car Registration.

In a report which they have just issued upon the procedure with regard to the change of ownership of motor-cars and cycles, the Highways Committee of the London County Council state that their attention has been drawn to cases in which cars and cycles registered by the Council have been disposed of without notice being given to the Council as required by the regulations of the Local Government Board, and have afterwards again changed hands, the facts only being brought to the Council's notice by the third owner. The fee for the registration of a motor-car is £1, and when the ownership of the car is changed a further fee of 5s. is payable. It appeared to the committee that in the cases which were brought to their attention the registration of the cars became void, and that they could not properly be used by the third owner without being registered afresh. They thought it right, however, to communicate with the Local Government Board on the matter.

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The L.C.C. View.

THE Board stated in reply that it was disposed to consider that, in the majority of cases, on the receipt of an application from a person alleging himself to be the new owner of a motor-car already registered, it was not incumbent on the Council to make so detailed an investigation of the facts as would be needed to enable it to determine what actual changes of ownership had taken place. The Board took the view that the third owner, who might wish to comply in all respects with the Motor Car Acts and regulations, should not be penalised in consequence of the delinquencies of previous owners of the car by having to register the car anew and pay the fee of £1 instead of availing himself of the ordinary procedure in regard to the change of ownership, the fee for which is 5s. The committee of the L.C.C. have given the matter careful consideration, and they have decided to ask the Council to agree that in those cases in which changes of ownership of motor-cars registered in London have not been brought to the notice of the Council every endeavour shall be made to secure the proper registration of such changes of ownership, and that in those cases in which it is not possible to effect all such registrations the registration of the car be declared void, and that the last owner of whom the Council has notice shall be required to register the car afresh.



Mr. F. C. Hopson, the Mayor of Newbury, at the Wheel of his Cadillac Car.

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The Motor-'Bus Trial.

THE 24-h.p. Straker-Squire public service *chassis*, fitted with trial body, carrying a load equivalent to twenty-five passengers, and weighing altogether 5 tons 0 cwt. 36 lbs., fitted with "Sirdar" tyres, 2 ft. 8 in. diameter by 4½ in. wide, single, on the front wheels, and 3 ft. 6 in. diameter by 4 in. wide, double, on the back wheels, has completed its trial of 2,000 miles under ordinary working conditions, and under the continuous observation of officials appointed by the Automobile Club. The daily runs consisted of approximately 100 miles on main roads, starting from and returning to the Automobile Club Motor-house, where the car was locked up each night after washing, lubricating, replenishing, and making any necessary adjustments in the motor-house, all under observation. Supplementing the official report of the Automobile Club on the successful 2,000-miles reliability trial of the Straker-Squire 24-h.p. petrol omnibus, the following figures supplied by Messrs. Straker and Squire are interesting. The work done during the trial equals 52,000 passenger miles, or, taking the gross weight of 5 tons, 10,000 gross ton miles. This has been accomplished in the total running time of 168¾ hours, an average of about twelve miles per hour, with a petrol consumption of 2,297 gallons, equal to 0·297 gallons per gross ton mile, or, approximately, seven miles to the gallon. The fuel consumption was increased by the very heavy condition of the roads during most of the trial, which was accomplished without any mechanical troubles. The involuntary stops recorded were for trivial matters almost inseparable from running a car with a heavy load over rough winter roads. Regarded from the profit-earning point of view, based on one penny per passenger mile, the revenue from a paying load during the period of the trial would have been £216, or over £70 a week. Against this a liberal estimate for working expenses would be £18 per week. The vehicle was equipped with Sirdar tyres, which behaved exceedingly well, and were not affected by the ten miles of unrolled macadam which were encountered during the journey.

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The South Wales Club.

GOOD work was done during the past year by the South Wales and Monmouthshire Automobile Club, some excerpts from the annual report of which appear on another page. The headquarters of the club include a motor house with accommodation for forty cars—a provision that no other provincial club can offer its members. We are glad to observe that the club has decided to give the free use of the head-

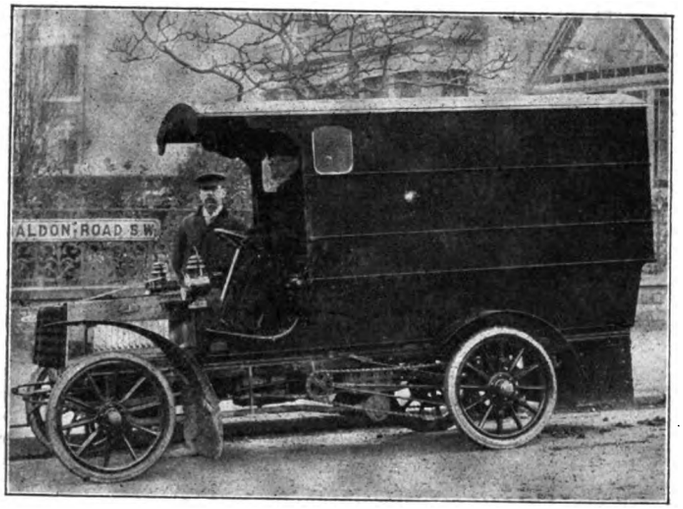
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quarters to the members of other provincial clubs who can reciprocate, and to motor volunteers when on military duty. Unfortunately, few clubs will be able to reciprocate such good services, but they can, at least, be prompt to follow so excellent an example in the way of catering for their members.

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Municipal Motor Service.

RECENTLY there was supplied to the Wandsworth Borough Council by Messrs. Coles and Co. a 9-h.p. two-cylinder "Star" van, which is now engaged in the municipal service. It is interesting in the fact that it is the first motor-van used for the purpose of collecting infected bedding, etc., and taking it to the disinfecting station which has lately been built for this purpose. The body of the van is six feet clear behind the driver's seat, and is lined with zinc throughout, being partitioned off behind the driver, and practically air tight. Once the goods are inside, the van is not again opened until it is within the special building for the reception of the goods at the station. This system has been in working order for two months, and has given satisfaction to the Wandsworth



Borough Council. The neighbouring councils are closely watching this development of motor work, with a view to possible adoption of the idea within their areas.

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Central Standards on Highways.

WITH reference to the letter addressed by the Roads Improvement Association in November last to the Board of Trade asking the Board to withdraw the sanction that they had given some months before to the erection of central standards on the Great North Road at Finchley, in connection with the construction of a light railway, the Board of Trade have informed the Association that the Finchley Urban District Council, who are the local and road authority for the district, strongly desired centre post construction instead of the side posts and span wires proposed by the Middlesex County Council, and after an inspection and report by one of their officers the Board felt unable to overrule the views of the Urban District Council. The Finchley Urban District Council adhere to their position and in the circumstances the Board of Trade cannot vary the decision previously given. The reply of the Board serves to illustrate how local considerations and local views have been permitted to prevail over national interests and national experience. It is evident that the Board of Trade have done their best to induce the local authority to withdraw their request for central poles in deference to the experience gained in other districts, which is overwhelmingly against their use. The Roads Improvement Association are introducing a Bill into Parliament during the forthcoming Session to carry out the recommendations of the Departmental Committee on Highways, one of which provides for the classification of national roads and the establishment of a central department to supervise their maintenance. The erection of centre poles on the Great North Road at the request of a small district council, against the wishes of the Middlesex County Council, the Board of Trade, and the through traffic as represented by the Roads Improvement Association, is another instance of the folly of entrusting the maintenance of trunk roads to urban and rural district councils, and affords a further argument for the early establishment of a central body to protect the nation's interest in its main roads.

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A Motor Meet at Blackpool.

THE Advertising Committee of the Blackpool Town Council have been considering the idea of holding a motor meet in the town during the summer, with a view to benefiting the resort. A scheme was drawn up, and this was presented at the last council meeting by the chairman of the committee, Mr. Alderman Bickerstaffe. The council were in favour of the scheme. July 13, 14, and 15 are suggested as the most suitable dates for the meet, but if this cannot be arranged the event will take place in the week ending July 29, so as to avoid clashing with the motor meet at Brighton. It is possible that there will be races for motor-boats as well as motor-cars.

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The Late Mr. Guy.

WE regret to learn of the death of Mr. Edward Guy, our correspondent in Algeria, whose name has frequently appeared in other journals concerned with automobile matters. He was an enthusiastic motorist, and when in England a year last summer bought a 24-h.p. Darracq at Friswell's, on which he made many excursions into the desert. A loving husband, a good son, and a faithful friend, the news of Mr. Guy's untimely death in the Atlas Mountains one day this week will be received with regret by the many friends he made wherever he was known.

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The 5,000 Miles Trial.

REFERENCE has already been made to the successful conclusion of the 5,000 miles trial of the 12-h.p. two-cylinder Siddeley car. The journey was made in thirty-three stages of about 150 miles each. Four persons were carried each day, as well as spare parts, and during the greater part of the time the roads and the weather were equally unsuitable for the enjoyment of motoring. The cost of running was less than £20, and the trip was void of mechanical troubles. The "Continental" tyres gave great satisfaction, and have disproved the contention of many lukewarm supporters of the automobile movement as to the excessive expense of pneumatic tyres. Mr. J. D. Siddeley is to be congratulated on the success of the trial.

THE motor-'buses shortly to be put upon the road by the London Road Car Company will be tyred by the Peter Union Tyre Company.

JUST as we had gone to press last week we learned of an important change which is to take place in the Siddeley Autocar Company. The Wolseley Tool and Motor-Car Company have purchased the business of that company, and will in future control the sale of the well-known Siddeley cars in addition to the Wolseley, Mr. J. D. Siddeley joining the Wolseley Company to take entire charge of the sales department of that concern, which has also acquired the extensive premises in York Street, Westminster, known as Niagara, until recently occupied by the City and Suburban Company. The premises are to be converted into a huge depot and garage, and will practically form the headquarters in London of the Wolseley Company.

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THE MOTORINA'S PAGE.

By "Petrola."



"RIDING outside to oblige a lady" on a 'bus is an almost forgotten courtesy. But I note that a correspondent in a recent issue of the *Motor-Car Journal* has instituted a new chivalry for the car. He complains that when a breakdown of his car occurred by the wayside and he appealed to a passing motorist to give the two ladies of his party a lift to the nearest railway station, the seats being filled up, the only accommodation offered to his ladies was that "they could sit on the footboard if they liked." This, he says, is the first time during his five years' motor experiences when gentlemen have not volunteered to give up their seats to ladies.

A great friend of mine prefers to personally conduct her own car, and is really a most skilful and capable driver. But it is sometimes hard to convince the mere man that any woman is clever at mechanics. Anyway, after my friend had driven her car several thousand miles without any break-down or necessity for serious alterations and repairs, it was taken to the "shop," something having gone wrong with the differential. "Ah," said one of the chief mechanics before looking at the car, "Druv' by a lady, was it"? His sly head-shake and a cunning look, as much as to say "I could tell volumes about lady druv' cars if I wanted to," was so delightfully comic that even the chauffeur had to laugh. And have you ever noticed how very grave and serious chauffeurs are as a class? They look as though the weight of a 1,000 horse, 60-cylinder racing car were pressing down their spirits.

Talking "Car."

There is not the slightest reason in the world why a woman should not drive, repair, sleep in and dream about her car. But there is one thing she never should do, and that is to "talk car." Women used to be accused of "talking servants" in season and out of season. But that is a mere trifle to discussing the inside mechanism of your car with the shocking familiarity some feminine enthusiasts display. And nothing bores a man so much as to be talked "motor mechanism" to by a woman. He feels instinctively that engineering and mechanical details do not sit prettily on feminine lips, especially on pretty lips. I suppose it is a case of "love me, love my motor," and a woman thinks if a man is interested in her, he will naturally revel in the gears, fat sparks and other jargon of the garage. But, just as every really nice man thinks ever so much more of a woman who is afraid of a mouse, so every man motorist likes to think he knows just a little bit more about motor mechanics than the wife of his bosom or the lady of his love. In fact, I heard a much married man, whose wife is motor mechanic mad, remark the other day that, "when a woman contradicts her husband before the chauffeur, and declares that she knows the reason of the breakdown while he does not, it is about time to make incompatibility of motor knowledge a ground for divorce."

My own experience is that a woman may for ever destroy a man's peace of mind, spend every farthing he has in the world, shatter his hopes and happiness, and he will forgive her; but to give him advice when a motor breakdown happens is the sure and only way to rouse his eternal unforgiveness.

A dance in a garage is rather a novel idea. Nevertheless, a most gorgeous ball was given a week or two ago in what is perhaps the most luxurious garage in the world, near Pittsburg, U.S.A. Above the actual motor stable is a magnificent room with a polished floor, decorated with palms, lounge chairs, and every luxury, including a spacious verandah, and several smaller rooms adjoining, the whole forming an ideal setting for balls and social entertainments. The chief accessory to the building which women motorists will envy is a "cedar room" for the storage of furs. Cedar wood is well known to be fatal to moths, and a room entirely lined as to floors, walls, and roof with cedar is an absolute death trap to the moth which steals in, corrupts and ruins the furry rugs, coats, caps, and kit belonging to the car.

Vanity Fair.

A remnant of pretty brocaded silk makes a charming "Vanity Bag" for feminine use on a motor-car, but the lining should be fitted with a number of small compartments run with narrow elastic to make each into a snug little pocket. A little tin of cold cream, a box of hairpins, a spare fringe net, a tiny vinaigrette, a "one night" cake of soap, small comb, powder puff or papier poudre book, two or three manicure implements, a folding motor mirror, a piece of chamois leather and a little roll of American cloth, with white silk lining, carrying a spare veil and some veil pins, and here is a "Vanity Bag" which will help the motorienne to make her toilet at a wayside hotel before luncheon or dinner and ensure a neat, smart appearance on tour whenever she "steps off." The space taken up by this miniature dressing-case is very small, nevertheless it contains all a lady needs in the way of toilet appliances. It is a wise precaution to have a mackintosh bag slightly larger into which to slip it for protection against dust, mud and rain.

No woman should start on a motor trip minus a spare veil. All sorts of things may happen to make the lack of it a small tragedy of the toilet. I once saw a well-known lady motorist come into a smart hotel for luncheon without having taken the precaution to first visit the dressing-room mirror. The lady in question is very pretty, but, unfortunately, she does not believe in the beauty which is unadorned. Therefore she rouges. *En route* a little dampness had caused the rouge to transfer itself from her cheeks to her white lace veil. The effect was startling, and the crimson outlines on the white veil had a most weird effect. Presently her husband noticed the phenomenon, whispered something, and she withdrew in confusion to reappear presently minus her veil and the artificial colouring, which she really does not need, seeing that she is a comely, attractive woman.

Proud motoring parents are always trying to prove that their baby is the record infant motor prodigy of the world. The modern baby goes to his christening on a racer, and several fond fathers are trying to arrange that baby shall have the distinction of cutting his first tooth on a motor-car. I know one precocious infant who had accomplished a 1,000 mile tour by the time he was four months old. He had a specially built basket in the tonneau, a spirit lamp for warming his milk, and plenty of "spares" in the form of patent baby foods and comforts. In fact, his earliest recollection is of meals flavoured with petrol, and the first time he ever "took notice" was when his parents fell into a police trap. He howled sympathetically, and refused to be comforted till the "force" fled from the wayside concert.

(To be continued.)

We learn that Messrs. Shippey Brothers have made arrangements to place on the market a new 24-h.p. four-cylinder touring car. The vehicle, which will be known as the "Empire," will be fitted with bevel gear and live axle transmission and ball bearings. One of the features of the new car is that it will be fitted with Swinehart 34 in. by 4 in. "Concave" solid rubber tyres to artillery wheels specially constructed by Messrs. Smith, Parfrey and Co., Ltd. Although the *chassis* will be of American manufacture, the bodies, of special design with double side-entrance, will be constructed by a well-known West End carriage builder. Messrs. Shippey Brothers inform us that one of the new cars will be finished in time for exhibition at the Agricultural Hall Show next month.

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THE "LITTLE MIDLAND" TWO-SEATED CAR.

WE illustrate herewith a new two-seated petrol car known as the "Little Midland," which has recently been put on the market by Mr. Wm. M. Cunningham, of the Midland Works, Clitheroe. The frame is of wood and steel construction, with tubular cross stays to support the engine and gear. The engine, a single-cylinder one of 7½-h.p., is located in the fore part of the frame, but at right angles to the usual

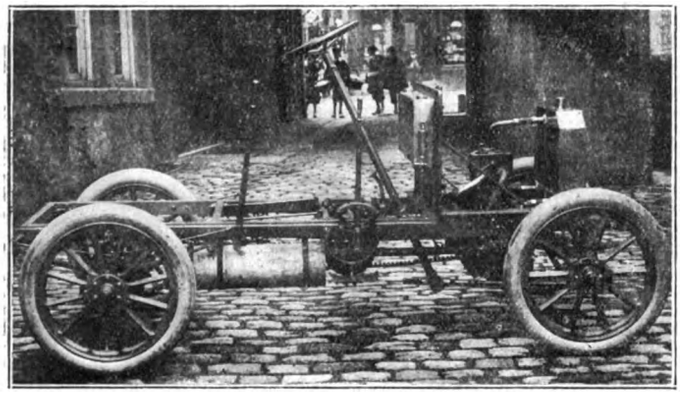


Fig. 1.—View of Chassis.

position, that is to say, the flywheel rotates in the same plane as the road wheels. The power is transmitted through a Renold silent chain to a gear-box giving two forward speeds and a reverse, the pinions being always in mesh; the gear is controlled by a single lever. From the gear-box a single centrally-located chain conveys the power to the rear live axle. The ignition is by coil and accumulator, while the radiator is of the ribbed tube variety, set in a frame which forms the water tank. The wheel base of the vehicle is 6 ft. 1½ in., and the track 3 ft. 0½in.; the road wheels are all 28 in. in diameter, shod with 3 in. tyres.

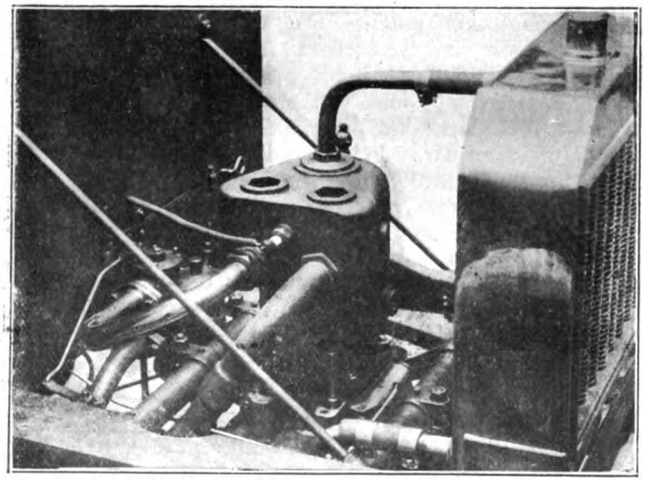


Fig. 2.—View of Engine and Radiator.

The car, which is provided with two bucket seats and ample accommodation for luggage, appears to be strongly constructed, and is stated to be speedy on the level and an excellent hill-climber. A noteworthy feature of the car is that practically all the bolts employed are of English standard sizes.

WE hear that tri-cars may shortly be utilised by the proprietors of the "Westminster Gazette" for the rapid distribution of their papers in the London suburbs.

CONTINENTAL NOTES.

The Gordon Bennett Deadlock.

The position with regard to this year's Gordon Bennett race is more complicated than ever. At a meeting of delegates of the German, Italian, Austrian, Swiss, and American clubs, held in Berlin on the 6th inst., it was resolved to ask the French Club to convene a meeting of the International Gordon Bennett Commission to consider the present deadlock. In response to this the A.C.F. has fixed a meeting to be held in Paris on Monday next, the 20th inst. In the meantime the position has become more difficult, inasmuch as the Chambre Syndicale de l'Automobile and the Chambre Syndicale du Cycle et de l'Automobile, the two French motor trade societies, have passed resolutions in favour of the Gordon Bennett race being held in conjunction with the Grand Prix, but that the latter shall be an open race, that is to say, that any number of cars can be entered by makers in the different countries. A point which renders the whole question more difficult of solution than ever is the step which has been taken by a number of the French manufacturers, who, considering that their interests deserve quite as much consideration as those of foreign makers, have decided not to compete for the Gordon Bennett if the race is not run in conjunction with the Grand Prix. An engagement to that effect has, it is stated, been signed by the following firms:—Clement-Bayard, De Dietrich, Mors. Darracq, and Renault. The Committee of the A.C.F. has decided to take no further action in the matter until after Monday's meeting of the International Commission.

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American Views on the Joint Race.

The last American mail brings with it the views of our transatlantic contemporaries on the question of the A.C.F.'s proposal to run the Gordon Bennett in conjunction with the Grand Prix race. The "Horseless Age" considers that it would have been impossible to guard more thoroughly in the rules against the possibility of the prize being secured by a non-French competitor, except by barring such competitors altogether. To propose a race with such rules as an equitable competition between the automobile industries of the different nations is simply a piece of effrontery or stupidity, and a poor testimony to the confidence of the French manufacturers in their ability to hold their own in competition with the world. The New York "Motor World" remarks that it would be interesting to discover the process by which the promoters of that French "consolation raee," styled the Grand Prix, arrived at the "relative importance" of the automobile industry of the United States. It suggests that the Frenchmen are either handing out a left-handed insult or are unconscious jokers or monumental ignoramuses, at least so far as concerns the volume and extent of the American industry. But, then, the whole race is something of a joke, if not a studied attempt to tear down the importance of the Cup contest. When the Frenchmen display such false colours it is time for the rest of the world to protest and to hold aloof and for Mr. Bennett to withdraw his Cup.

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The Official Sanction.

It is announced that the Government authorities have accorded the necessary authorisation for running the races for the Gordon Bennett Cup and the Grand Prix de l'Automobile Club de France on the proposed Auvergne Circuit. The drivers of the three Clement-Bayard cars in the eliminating contest will be Messrs. Clement, jun., Hanriot, and Villemin. The Renault team is stated to be Messrs. Sisz, Edmond and Bernin. The last-named has recently been driving a Renault racer in America; Edmond has hitherto been seen at the wheel of Darracq cars, while Sisz is a foreman in the Renault works, and acted as mechanician to M. Louis Renault in the Paris-Vienna and Paris-Madrid races. Messrs. Lancia and Cagno, who will drive Fiat

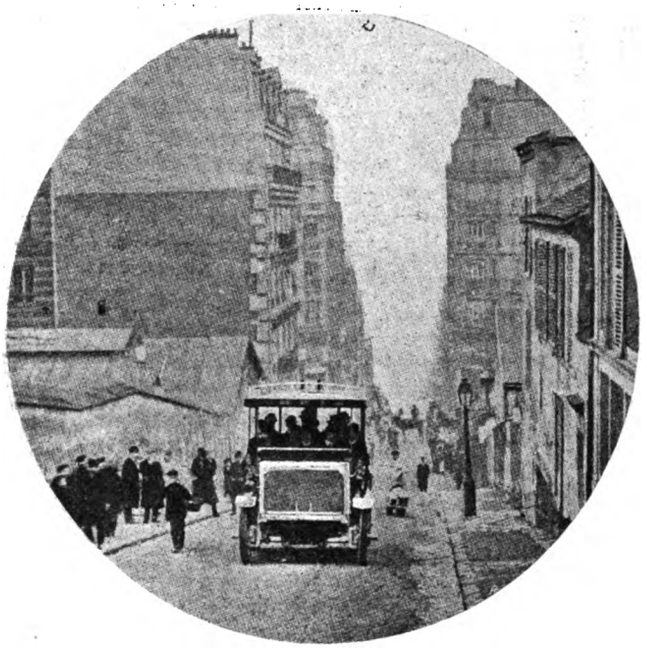
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cars for Italy in the Cup race, went for a trial spin over the Auvergne course last week.

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A Serpollet Public Service Steam Car.

An interesting trial was made last week in Paris of a new Serpollet public service steam vehicle, the car successfully mounting the steep gradient of the Rue des Saules, in the Mont-



The Serpollet Public Service Steam Car ascending the Steepest Hill in Paris.

martre district. The car is of 20-h.p., chain driven, and complete with water and fuel, and a load of seventeen passengers, weighed 3 tons 16 cwt.; it is one of a number intended for a service between Nice and Mentone. The thoroughfare referred to above is stated to be the steepest in Paris, the gradient averaging nearly 1 in 5, with one short stretch, it is stated, of 1 in 2½.

◆ ◆ ◆

The Herkomer Trophy Competition and the Bleichroder Cup Race.

The Bavarian Government has given permission for the holding of speed trials on the Kesselbergstrasse and in the Forstenrieder Park in connection with the above-named events. The races in the park are to be held on a Sunday in August next, the meeting extending altogether from the 10th to 16th August. The full rules relating to both events have now been issued by the Bavarian Automobile Club, 21, Schommerstrasse, Munich, where copies can be obtained.

◆ ◆ ◆

A Flying Machine Exhibition.

An exhibition of flying machines, "heavier than air," organised by the Aero Club of France, opened on Sunday last in the Galerie des Machines, Paris. There are twenty-nine exhibitors, several of whom show a number of models. In no case is there a balloon attachment, and some are worked by motors, whilst others imitate the movements of birds. The afternoon was devoted to a series of preliminary trials. The machines were launched from a stage 120 feet high into the immense space of the Galerie des Machines, to fly or flounder as best they were able.

◆ ◆ ◆

An International Acetylene Lamp Competition.

After ten months devoted to testing, the judges have announced their award in the competition of acetylene lamps organised jointly by the German Automobile Club, the Mid-European Motor Union and the German Acetylene Society. Fifty entries were received, and these were divided into three categories:—(1) complete lamps and generators; (2) lamps without generators; and (3) generators only. The following are the results:—Class 1: First prize, not awarded; second prize, divided between the Westfälische Metallindustrie Gesellschaft, Lippstadt, and Herr J. Schwarz, Berlin. Class 2: First prize, Messrs. A. Boas, Rodrigues and Co., Paris, for the B.R. lamp; second prize, the Westfälische Metallindustrie, Gesellschaft; and the third prize, the Oberrheinische Metallwerke, Mannheim. Class C: First prize, Messrs. E. Jul. Arnold Nachf, Dresden; and the second prize, the Oberrheinische Metallwerke.

A Bavarian Motor Volunteer Corps.

Following the example of the German Automobile Club, the Bavarian Club has decided to form a motor volunteer corps. The club has over 240 members; of these about 170 own cars, a large proportion of whom have notified their intention of joining the new corps.

◆ ◆ ◆

Public Services in Germany.

A company has been formed in Munich to be known as the Automobil-wagen Verbindung des Bayerischen Hochlandes, to establish public motor services between Garmisch-Partenkirchen and Mittenwald. The Bavarian Postal authorities are about to make some experiments with a motor-vehicle for the transport of the mails between Tolz and Lenggries.

◆ ◆ ◆

A Spanish Automobile Week.

The example set by Cannes and Nice in organising an automobile week is now to be followed at San Sebastian, where the authorities of the Casino propose to hold a series of motor-car and boat races during the coming season—probably in September next.

◆ ◆ ◆

The Kiel Motor-Boat Races.

The German Automobile Club has published the conditions for the two days' motor-boat racing to be held during the Kiel Regatta Week. The races take place on June 29th and 30th. The boats will be divided into three categories: racing, pleasure



A Typical Road in France.

and traffic, and fishing boats:—Racing Boats.—Class A is open to boats of from 60 to 82 ft. in length, of unlimited horse-power; Class B, boats measuring from 40 to 60 ft., horse-power unlimited; Class C, boats measuring from 26 ft. to 40 ft., horse-power unlimited; Class D, boats measuring 26 ft. and less. Pleasure and Cruising Boats.—Class E, boats with motors of upwards of 10-h.p.; Class F, boats with motors of 10-h.p. and less.

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THE "BROTHERHOOD" CAR.

[*Continued from page* 1035.]

THE bearings of the engine crank-shaft are provided with ring lubrication; the big ends and cylinder walls are lubricated on the splash system, the oil itself being continuously fed from a positive-action combination mechanical and hand pump lubricator, which, besides assuring a certain supply of oil under all conditions, varies the quantity of the same according to requirements and engine speeds. The lubricator is fitted

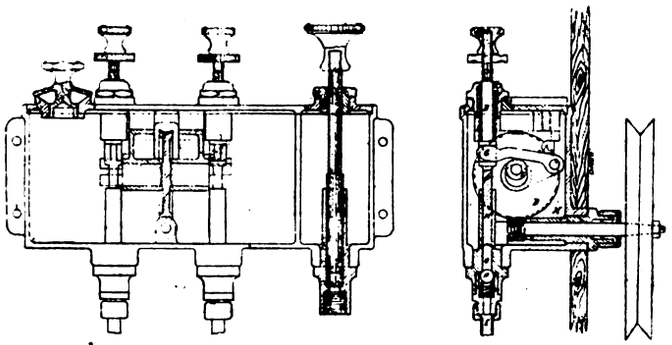


Fig. 16.—Part Sectional Elevation of Automatic Lubricator.

on the dashboard, and is driven from the half-time shaft of the engine by a belt. Referring to the sectional illustration of the lubricator (Fig. 16), it will be seen that the pulley spindle terminates at its inner end in a worm *A*, which drives the worm wheel *B*. On the spindle of the latter are a series of cams *K*, corresponding to the number of oil feeds. As the spindle rotates, the cams lift the levers *C* and the rods *N* against the action of the spring *D*, allowing a small charge of oil to flow into the

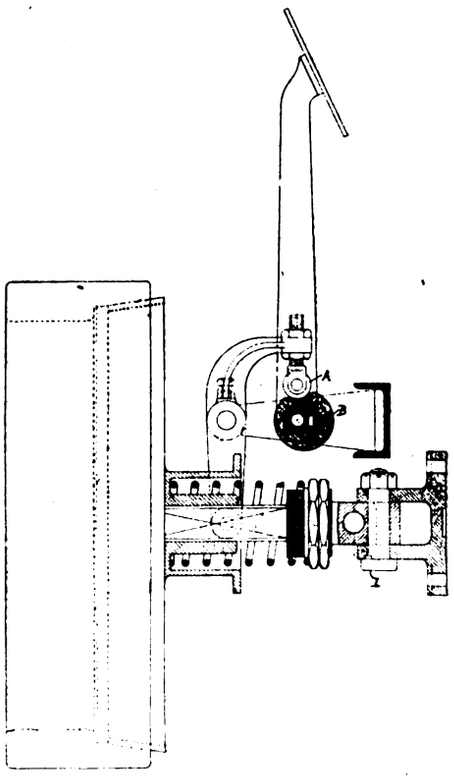


Fig. 17.—Section of Clutch Operating Mechanism.

well *O*. When the lever *C* and rod *N* are raised to their maximum they are released by the cam, and are forced down suddenly by the spring *D*, thus ramming the oil in the well *O* through the ball-valve *F* into the feed-pipe *E*, the pressure being sufficient to overcome any obstruction in the latter. Being driven by the motor itself, the lubricator works automatically, without any attention beyond filling the container with oil when required, and its action is not affected by the oil becoming thicker or thinner, as may be caused by cold or hot temperatures.

Passing now to the transmission, we come to the clutch, a view of which is given in Fig. 17; it is of the conical leather-faced type, flat segmental springs being inserted between the leather and the clutch face, to ensure gradual but positive contact. It is so arranged that it can be readily dismounted without disturbing any other part, a special joint, detached by removing one bolt, *I*, being introduced on the shaft between the clutch and the gear-box. Both the fly-wheel and male portion of the clutch are provided with arms, shaped in such a way as to act as a fan to draw a powerful current of air through the radiator. The motor and clutch are protected from below by a metal shield; the latter, which extends as far as the gear-box, is not of the usual form, but resembles somewhat a long motor bonnet inverted. The push pedal which operates the clutch and the countershaft brakes works in conjunction with a cam and roller device, A, B,

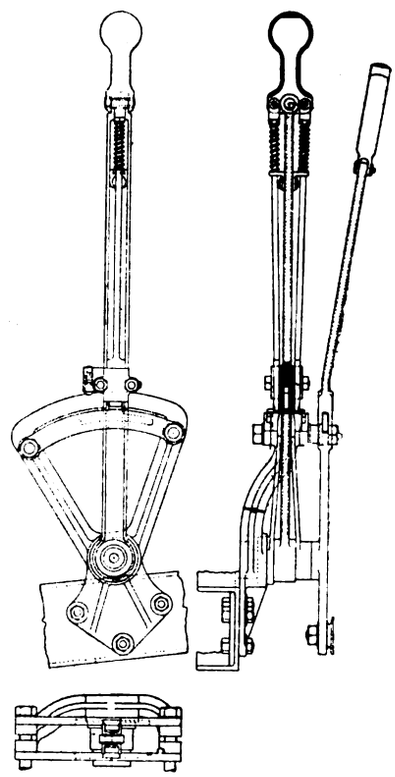


Fig. 18.—Details of Change Speed Lever.

Fig. 17, so arranged that as the roller connected with the clutch-withdrawing mechanism is raised by the cam it reaches a part of the latter the contour of which is such that the strain of holding out the clutch is taken by the cam and not by the foot of the driver; to apply the brake the latter has consequently only the exertion of further pushing forward the pedal, the clutch being held out by the cam. On releasing the pressure on the pedal, the roller readily frees itself and allows the clutch to re-engage.

Four speeds and a reverse are provided, controlled by one lever; the change-speed gear (Fig. 19) is of the sliding pinion or *train-balladeur* type, each pair of sliding pinions being mounted on a separate sleeve. Notwithstanding the favour with which ball bearings are now viewed, the builders of the Brotherhood car, while employing ball thrust bearings, have decided to retain the plain type, fitted with a self-oiling device, for the change-speed gear shafts. It will be seen that oil filters are provided to each bearing, and also that the change gear and bevel

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pinions are of ample dimensions. The gear-box, which also encloses the bevel drive and differential gear, is mounted at six points, four on the main frame, and two on the cross member at the rear of the differential shaft. Hand holes are provided to both the change speed and differential gears, the holes being covered by plates fastened down by wing nuts, which can readily be detached, while the whole gear-box can be taken out of the car without removing or affecting the driving chains, foot brakes, or any other part. The differential shaft is provided with stepped

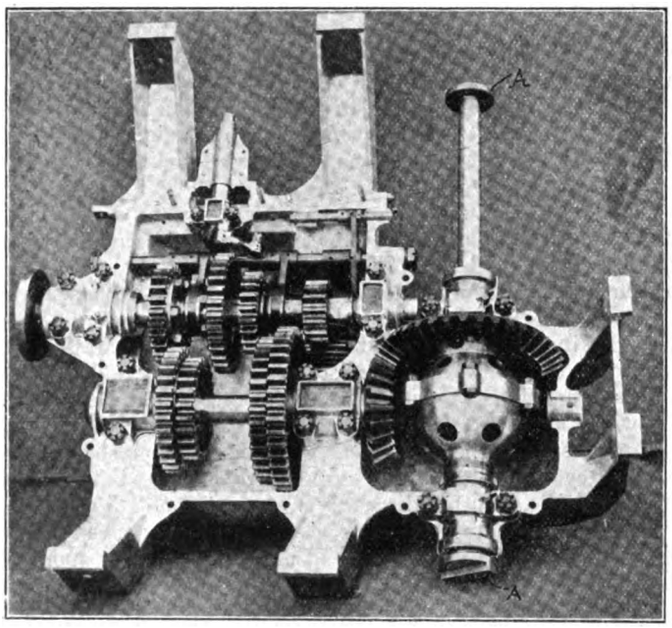


Fig. 19.—View of Change-Speed Gear and Bevel Drive.
A.—Joints on Differential Shaft.

clutch joints *A*, Fig. 19 to allow for any deflection, and also with self-oiling bearings, the oil wells of the latter being provided with locomotive-type inspection caps. From the differential shaft the power is transmitted to the rear road wheels by side chains. The rear chain rings are bolted to a steel ring forming part of the wheel hubs. Although the bolts which connect the chain ring to the steel ring also pass through the wheel spokes, the bolts are a loose fit in the holes in the latter, and therefore no strain is put on the spokes, the power being imparted from the chain wheels to the road wheels through the hubs and not through the spokes. The arrangement adopted not only adds to the strength of the wheel, but ensures perfect alignment of the chain wheels.

All forward speeds and reverse are manipulated by one lever only, Fig. 18, working in a single "gate" with a plain forward or backward motion for each gear, giving a positive thrust in each case, and preventing the possibility of missing or passing through the desired speed. The lever is really a compound one, and consists of three levers, arranged side by side, and controlled by a single ball knob. Two speeds are controlled by pulling over the knob to the left; this causes the outer lever to engage with a catch, which can then be moved either forwards or backwards along the quadrant. The two other speeds are obtained by putting the knob over to the right, so bringing its corresponding lever into engagement. For reverse, the lever as a whole, with the knob vertical, is simply pulled back the full extent of the quadrant. The lever is simple to manipulate and obviates the necessity of springing or sliding the lever sideways along the paths of a complicated gate; at the same time it indicates the position of the gears without the necessity of taking the eyes off the road.

(To be continued.)

We learn that a silver medal for elegance was awarded the "Brown" petrol car at the Turin Motor Exhibition.

HERE AND THERE.

The Motor-Car Company (1905), Limited, has been registered with a capital of £2,000.

The address of Mr. C. P. Wilson, the hon. secretary of the Yorkshire Automobile Club, is 5, Park Row, Leeds.

A motion to provide a motor-car for the electrical engineer of Aberdeen has been defeated at the Aberdeen Town Council.

A motor mail service is about to be inaugurated between Angers, St. Laud and St. Martin-du-Bois (Maine-et-Loire), France.

The Scottish Motor Garage Company, Limited, Glasgow, have been appointed the agents for the Prosper-Lambert petrol cars in Scotland.

The Great Central Railway Company are introducing motor-trains on their lines between Chester and Wrexham and between Chester and Seacombe.

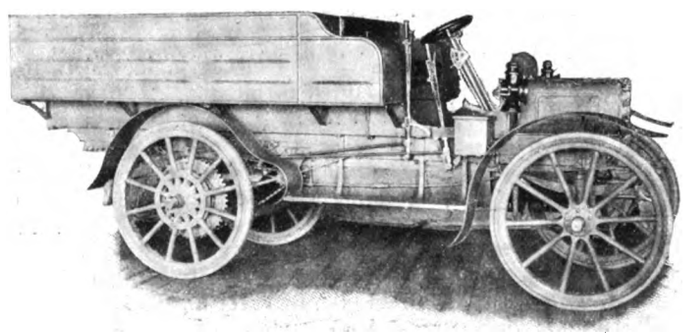
During the trial of a motor fire engine at Tottenham last week the driver lost control of it in turning a corner, and it dashed into the shop window of a firm of furniture dealers and did considerable damage.

The Eclipse Machine Co., Limited, Oldham, have just delivered to their London agents, the Balcombe Motor Co., 12, Balcombe Street, Marylebone, a Rothwell 10-12-h.p. tonneau car, for inspection and trials in the London district.

Messrs. Jonas' Wheels, Limited, has been registered with a capital of £5,000, to adopt an agreement with Mr. G. Jonas, to carry on the business of manufacturers of and dealers in pneumatic and other tyres, wheels, and rims for automobiles. The first directors are Messrs. G. Jonas, M. J. Jonas, B. Jonas, G. H. Bramson, and S. F. Edge.

The Greyhound Motors, Limited, has been registered with a capital of £1,000 to acquire the business carried on by Messrs. W. H. Watson and A. F. Oliver, at Woodthorpe Road, Ashford, Middlesex, as Watson and Oliver, to adopt an agreement with the said vendors, and to carry on the business of manufacturers, builders, and repairers of, agents for, and dealers in motor-cars, etc.

We illustrate herewith a petrol motor lorry which has just been sent out to South Africa by the Motor Manufacturing Co., Ltd., to the order of one of the leading firms there. It is fitted with a 12-16-h.p. two-cylinder motor and a new three-speed gear of the sliding sleeve type with direct drive on the top speed. The motor is fitted with concentric balanced cranks, mechanically-operated valves, high tension electric ignition, and is exceedingly quiet in operation. The wheels are 46 in. dia., shod with large solid rubber tyres, the large wheels being fitted



in order to raise the lowest part of the mechanism 18 in. from the ground. The body is a very roomy one, and 30 cwt. of bulky merchandise can be carried up any gradient likely to be encountered on South African roads. The bottom boards of the body are so arranged that they can be lifted out to provide ready access to the gear-box, bearings, etc. The petrol and oil tanks are fitted each side of the driver's seat. Three sets of brakes are provided, these acting respectively on the differential shaft, the rear sprockets, and the tyres.

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To the many devices for readily attaching and detaching the ignition wires to and from sparking plugs, recently described in the *Journal*, has now to be added the "Universal," of which we give illustrations herewith. It is made by La Société L'Automatique, of Paris, and is being introduced into this country by Messrs. Janvier and Pouderoux, of 9, Great Castle Street, London, W. The device consists of two parts. The one seen to the left of Fig. 1 is arranged to be permanently connected to the end of the plug, the hole 1 being provided for this

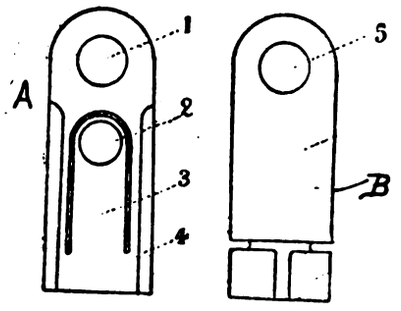


Fig. 1.



Fig. 2.

purpose. A part, 3, of the piece *A* is cut so as to act as a spring, and terminates in a small round projection, 2. The high-tension wire is attached in the usual way to the piece *B*, which is slid into *A*, the sides of which are turned over to form a guide. As *B* is slid into *A*, the spring is depressed, allowing the projection, 2, to engage with the hole, 5, a rigid connection, but one which can be immediately disengaged when necessary, being obtained. The arrangement, which, as will be seen, is exceedingly simple, is also made for use in connection with low-tension wires and terminals.

THIRTEEN omnibus companies and firms with horse-drawn vehicles on the London streets have motor-omnibuses under construction at the present time.

THE SUSSEX MOTOR ROAD CAR COMPANY, which has established a public service between Pulborough and Worthing, are now trying to extend their motor-'bus route to Hove.

THE AUTOMOBILE CORPORATION, LIMITED, has been registered with a capital of £1,000. Mr. E. A. Mackenzie is the first director, and the registered office is at 24, Queen Victoria Street, E.C.

A MEETING of the Automobile and Cycle Engineers' Institute will be held at the Grand Hotel, Birmingham, on the 21st inst., when Mr. Dugald Clerk will read a paper on "The Testing of Petrol Engines."

SINCE the Motor Car Act came into force the Kent County Council has issued nearly 2,700 licences to drivers of motor-cars and motor-cycles. The actual number of motor-cars registered at the county offices is 858, and of motor-cycles 885.

MESSRS. JOHN PRICE AND COMPANY, LIMITED, has been registered, with a capital of £1,000, to carry on the business of manufacturers and vendors of and dealers in lamps for motor-cars, etc. Registered office: Avenue Works, First Avenue, Stechford, Worcester,

REPRESENTATIVES of twenty-two municipal tramway authorities have resolved to oppose the proposals of railway companies to run motor-omnibuses unless the routes are restricted to the railway stations of the company and fixed points in the vicinity.

MESSRS. ALFRED HERBERT, LIMITED, of Coventry, have lately brought out a new combination turret lathe, which is of interest to motor-car builders. It is designed to bore and finish complete, including the four valve holes, the double cylinder of a 12-h.p. motor in 2¼ hours.

THE ANGLO-FRENCH MOTOR COMPANY, LIMITED, has been registered in Guernsey with a capital of £20,000.

THE Italian War Office is reported to have given out orders for ten motor-vehicles for use in connection with the commissariat department.

A NEW price list of the Bleriot lamps, to which reference was made in our report of the show at Olympia last week, has been issued by Messrs. Weldhen and Bleriot.

AN unusually large sale by auction of motor-cars and accessories commenced at the Motor House, Euston Road, N.W., on Tuesday, and was continued on the three following days.

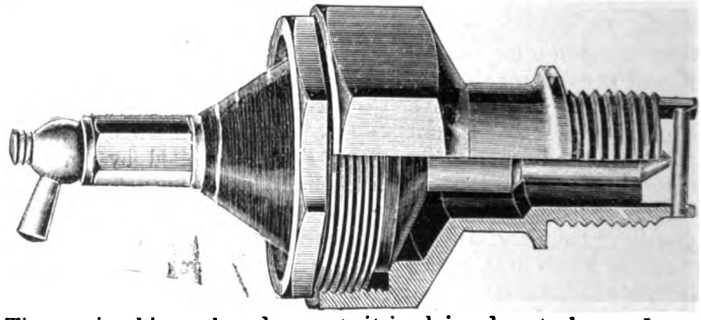
MESSRS. J. E. HUTTON, LIMITED, have on view at their showrooms in Shaftesbury Avenue, W.C., a unique display of different models of Mercedes cars; among them are specimens of the 90, 70, 60, 40–45, 28–32, 24–28, and 18–28 h.p. cars.

THE CIVIL SERVICE MOTOR AND CYCLE AGENCY, LIMITED, of Featherstone Buildings, High Holborn, W.C., have been appointed exclusive agents (under licence from Messrs. C. S. Rolls and Co.) in London and district for the new two-cylinder 10-h.p. Minerva car.

THE Middlesex County Council are commencing the widenings in the Harrow Road at Willesden in preparation for the electric tramways from Harlesden to Wembley. The Brent Bridges are being strengthened and widened, and Deadman's Hill widening to 50 ft. will effect a vast improvement to a dangerous spot. The hill deserves its name from the motor, trap, and cycle accidents that have occurred there; but it really derived its title from the discovery a century ago of a returning party of body-snatchers, who, alarmed by a police patrol, bolted and left behind a cart load of their gruesome spoils of village cemeteries.

AT Bow Street Police-court, London, on Tuesday, Mr. Marsham was occupied with an adjourned summons against H. E. Gwinner, of Holland Villas Road, Kensington, charging him with driving a motor-car in the Green Park at a greater speed than ten miles an hour. When the case was previously before the court, it was argued that the regulations under which the proceedings were taken were *ultra vires*, as they had not been laid on the table in both Houses of Parliament. Mr. Bodkin, representing the Public Prosecutor at the adjourned hearing, submittted that for all practical purposes the regulations were tantamount to an Act of Parliament, and were perfectly good. Eventually the magistrate adjourned the case in order that he might consider his decision.

THE accompanying illustration depicts the "Amac" sparking plug recently introduced by the Aston Motor Accessories Company. It is designed in such a way as to form a very long gas pocket between the combustion chamber and the insulation



The gas in this pocket does not, it is claimed, get changed, consequently no sooting can possibly take place, either from too rich a mixture or from lubricating oil. The arrangement of the mica insulation is such that it is impossible for short circuiting to take place between the layers of mica, as the distance between the central conductor and the body of the plug will not allow it. The "missing" of motors when throttled right down does not occur, as the gas pocket always permits the new charge to reach the spark.

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CORRESPONDENCE.

Letters to the Editor should be addressed to the offices, 27-33, Charing Cross Road, London, W.C.]

AN INTERESTING MOTOR QUERY.

To the Editor of *The Motor-Car Journal.*

Sir,—I have been greatly interested in the discussion on the question as to why a petrol engine runs, or appears to run, so much better at night than during the day, and, moreover, have been considerably amused by the reasons advanced by some of your correspondents. Particularly so as regards the motorist who accounts for the phenomenon "by the higher atmospheric gases that come from the leafage, trees, etc., which does not show itself in the daytime. This causes a richer mixture, a better explosion, and so more power in the engine."

I hardly know whether he meant this to be taken seriously or as a joke. As I think it must be the latter, I venture to send you my contribution to the discussion. The various suggestions that have been advanced may have something to do with the engine running better at night, but it is my belief that the secret of the whole thing lies in the fact that the number plates are less in evidence at night than during the day!—Yours truly,

Farago.

THE ARRANGEMENT OF CHANGE SPEED AND BRAKE LEVERS.

To the Editor of *The Motor-Car Journal.*

Sir,—One serious objection to the present arrangement of the controlling devices on practically all cars is that the entrance to the drivers' seat is obstructed by the change gear and brake levers, both occupants of the front seat being forced to enter and alight at the left hand side. The result is that whenever a vehicle is drawn up with its right side to a kerb, the occupants of the front seat must walk around the vehicle, perhaps through mud, every time they enter or leave. The disadvantage of this arrangement is obvious, and it seems certain that something more practical will be found in the future. In some cars this objection is overcome by mounting the change gear lever on the steering column, as in the Darracq, and placing the brake lever comparatively far back at the side of the seat. The present arrangement of the controlling devices, when the steering column has the proper tilt and height, and the levers are at a suitable distance from the seat, seems to be ideal so far as convenience of operation is concerned, but it should be quite possible to find an equally convenient arrangement that is also free from the objection of obstructing the most convenient entrance to the front seat.—Yours truly,

P. L. Winchester.

THE GRAPHITIC LUBRICATION OF PETROL MOTORS.

To the Editor of *The Motor-Car Journal.*

Sir,—In reply to your correspondent Mr. George Gibson, and in all fairness to him, we must say we omitted reading the article to which he refers. Pure graphite should only be used, and in only small quantities, and introduced by way of the crank chamber; the ignition we use is ordinary high tension, with accumulator and Oleo plugs. Your correspondent says that graphite is a high conductor of electricity; we beg to differ, as it is generally known to be a bad conductor, and is chiefly used by electricians as resistance. In conclusion, we have used graphite as a lubricant with great success, both in cylinders, gear-box, etc.—Yours truly,

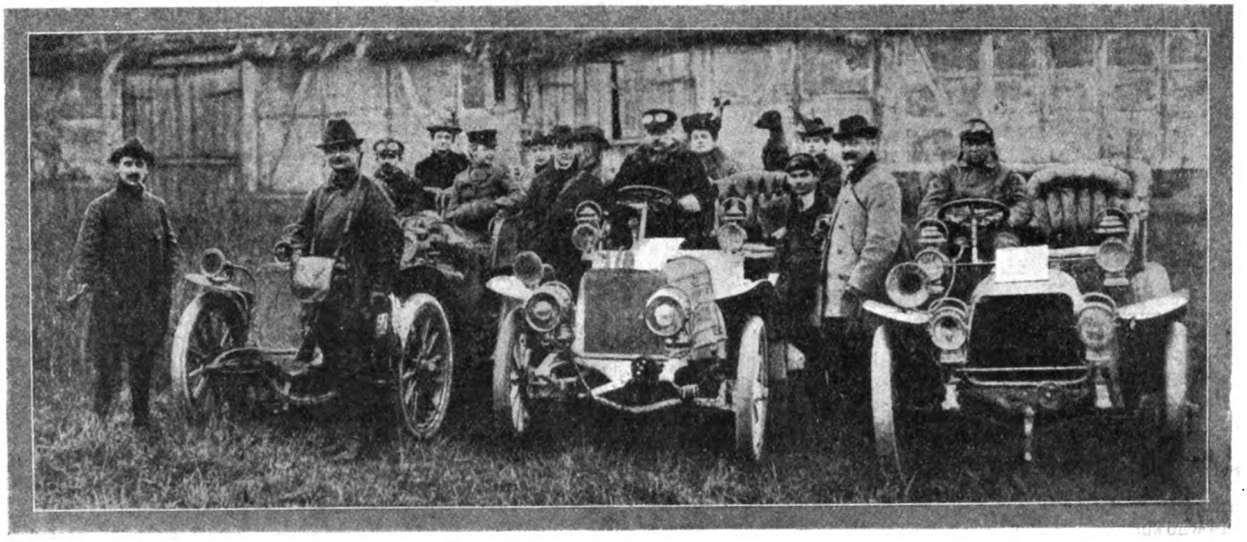
The Glasgow Motor-tyre Company.

MOTORING FOR THE MAN OF MODERATE MEANS.

To the Editor of *The Motor-Car Journal.*

Sir,—It is to be feared that the progress of motoring as a fashionable pastime may have some incidental results not for the ultimate good of the industry, at least if its plutocratic votaries rush into print about their expenses. Were horses a novelty, the publication of the outlays on them by wealthy sportsmen would be quite enough to deter the professional man, say, of moderate means, from indulging in such a costly luxury. The idea that motor-cars are necessarily costly is quite enough to frighten a large number of would-be motorists. The other day I heard the owner of two carriages and several horses lament that a car would be beyond his means, and he was quite surprised on hearing the probable actual cost of a small car, which was all he aspired to. Needless to say, the information left him a probable convert. The fact cannot be too often repeated that the cost of motoring is just what the motorist likes to make it. If it is worth his while to economise, he can run his car cheaper than any horse—if it is a good one; while if he is on speed intent, and likes to hand over all his troubles to a *mecanicien*, he can spend anything he likes. But it is the experiences of the former class that are most interesting and instructive.—Yours truly,

J. F. Fothergill.



A Motor Shooting Party in Austria.

PRIMARY BATTERIES FOR CHARGING ACCUMULATORS.

To the Editor of *The Motor-Car Journal.*

Sir,—I was much interested in a letter in the *Journal* of the 4th inst., signed "Electrical Engineer." I would be exceedingly obliged if he will inform me where to obtain such a magneto as he describes. My car is a four-cylinder 16-24-h.p. Would your correspondent also inform me whether the magneto has to be driven at the speed of the engine shaft or at the same speed as the half-time shaft? Also whether the magneto has a rotary or rocking motion.—Yours truly,

C. G. S.

To the Editor of *The Motor-Car Journal.*

Sir,—In the *Journal* of February 4th, "Electrical Engineer" says, "A small magneto driven off the engine will do the work of the accumulator, requires no attention, and will work with the common trembler coil and sparking plug." There must be hundreds of your readers who are simply longing for the advent of such a fitment, and would no doubt be grateful for full information as to where it may be obtained, how fitted, cost, etc. Will "Electrical Engineer" kindly oblige, and earn the gratitude of all who, like myself, are heartily sick of accumulators.—Yours truly,

Interested.

CARS FOR MEDICAL MEN.

To the Editor of *The Motor-Car Journal.*

Sir,—I wonder if any of your readers would inform me of the most reliable silent petrol landaulet suitable for a medical man in

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London, the price of same and cost of upkeep. Also, I should be glad to know of a good electric landaulette of moderate cost, and upkeep of same.—Yours truly,

MEDICUS.

AN ELECTRIC GOVERNOR FOR PETROL ENGINES.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—With reference to the above, described in the *Journal* of the 4th inst., I find it is a very great improvement to have the switch connected with the clutch pedal. When this is done there is no racing on pulling the clutch out for changing speeds or reversing, and in travelling down hills the engine slows at once on depressing the pedal. But it is still necessary to have another switch in the earth wire, so as to put the governor in action when you are out of the car and your foot is off the clutch pedal. This was suggested to me by a correspondent in another paper, and I am delighted with the improvement. May I also mention the absolute necessity of having platinum contacts on the governors, as otherwise it is useless? I ought to state that the governor is provisionally protected.—Yours truly,

GEO. A. E. ROBERTS.

PRIMARY BATTERIES FOR CHARGING ACCUMULATORS.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—"Electrical Engineer" states that if an accumulator cannot be sent to a charging station it ought not to be used. I in no way agree with him. I use the Boron cells for accumulators for both lighting and ignition. My man does not find it at all a messy job, although if the solutions are mixed in quantities it takes a little time. I solder the wires to the zincs so as to avoid screw connections. And although, if a dynamo was conveniently near, I should no doubt use it, yet I consider that for the country primary batteries are a very great convenience. Consequently, I should strongly advise anyone, where there is a difficulty in getting accumulators charged, to have four or five cells; I now use four only, and I keep charged up eighteen accumulators used for ignition purposes in fifteen cylinders, and for seven small lights. I may say that when I first thought of using accumulators I inquired from electrical engineers whether it was feasible to get enough current for the above number of cylinders and small 4-volt lights, and was told it would be a failure. I am very pleased I did not take their advice, as I find it a success and quite satisfactory. I will leave it to others to decide whether "Electrical Engineer's" theory or my practice is most likely to be correct, but I am satisfied after three years' use.—Yours truly,

ERNEST ESTCOURT.

MOTOR TUITION.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—In reply to Mr. Sidney R. Harbert's letter in your issue of the 4th, I beg to differ on a few points. Motor tuition is, I will admit, a mistake in some instances, but it is not the general rule to teach men on an obsolete car. It is not necessary for a man to have much workshop experience. There are very few private car owners who have a workshop fitted up. A man with a mechanical turn of mind is capable of learning to drive and do running repairs in a month, particularly if he is a constant reader of the *Journal*, from which there is some valuable information to be picked up.

A man who has had some experience in traffic driving, such as a coachman, is more likely to become a good chauffeur than a man that has spent most of his time in a workshop.—Yours truly,

V. W. FARMER.

NON-SKIDS.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—I have been reading with a good deal of interest the correspondence in your columns concerning the various non-skid devices recommended—and otherwise. But there is one form of non-skid which, after personal experience, I consider it simply a public duty to warn my motoring brethren against. I refer to the tyres advertised as "newly retreaded, fitted non-skid leather covers, never used since retreaded." I was foolish enough to buy a pair of these. They were quite pretty and substantial-looking—to look at; but a week's running settled them both. One was a worn-out old tyre, badly separated at the bead, the other had a bad burst through the middle of the tread; a neat canvas lining inside and the leather tread outside effectually concealed these defects. So "on approval" is of very little use. Instead of being vulcanised on the leather cover appeared to be fixed with office gum or some equally powerful adherent, while a bit of tape was stuck round the edge by the beading. Once the leather was loosened it stripped off easily from the cover by slipping the thumb round the tyre. Any old worn-out covers appear to be used, covered inside with canvas, outside with "'non-skid leather bands," and advertised for sale. The process is simple, and, I should imagine, profitable.—Yours truly,

HARRY LUPTON.

A SCREW-DOWN GREASE CUP was found by a working man and taken to Messrs. Ingersoll, Marter and Co.'s Garage, 45, Mitcham Lane, Streatham, on Saturday. The owner can have it on application to the firm.

GOVERNOR TROUBLE.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—I wish to know if you or any of your readers would give me your opinion on the following. I have a 1904 Argyll 10-h.p. car, two cylinders; when it is running with the lever that governs the throttle in the last notch but one, it goes at about twelve miles an hour and exceedingly quiet; if I move the lever on to the last notch, *i.e.*, when the spring of the governor is at its highest, the car at once puts on about eight or ten miles per hour and a terrible row. It is impossible for me to get any medium between the last two notches.—Yours truly,

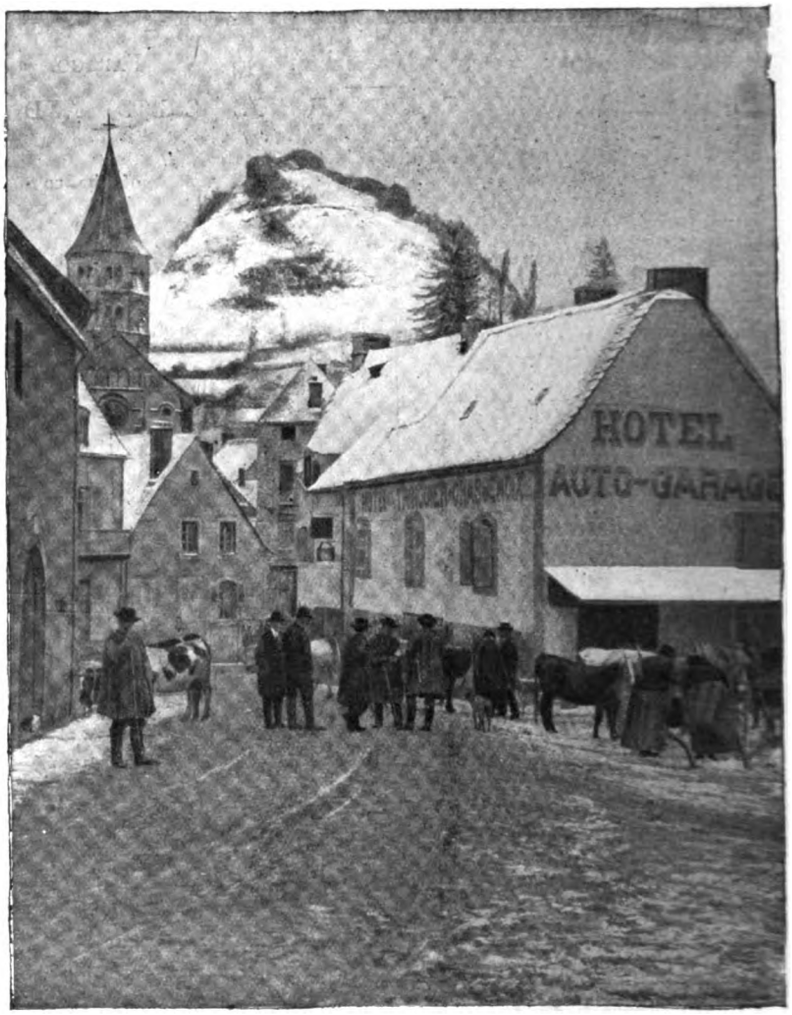
W. WRIGHT.

TRI-CARS.

TO THE EDITOR OF *The Motor-Car Journal*.

SIR,—With reference to the correspondence on the above in your paper it appears to me that the present useful tri-car has been evolved from what has proved to be—from trials and discussions—the essential requirements for carrying two persons at a maximum of speed and comfort and a minimum of cost. Such requirements as adapted by most makers are undoubtedly about 5-h.p., water cooling, two speeds, chain drive and spring frame. Personally I would like to have a reverse, which does not appear to be general. But what interests me most at present is the statement by Mr. Saunders, in one of his letters, of a reliable light four-wheeled car for from £75 to £80. I should be extremely obliged if he would kindly let me know, through your columns, where such a new car can be obtained, as I have been on the look-out for one at this price for a long time.—Yours truly

SUNRISING HILL.



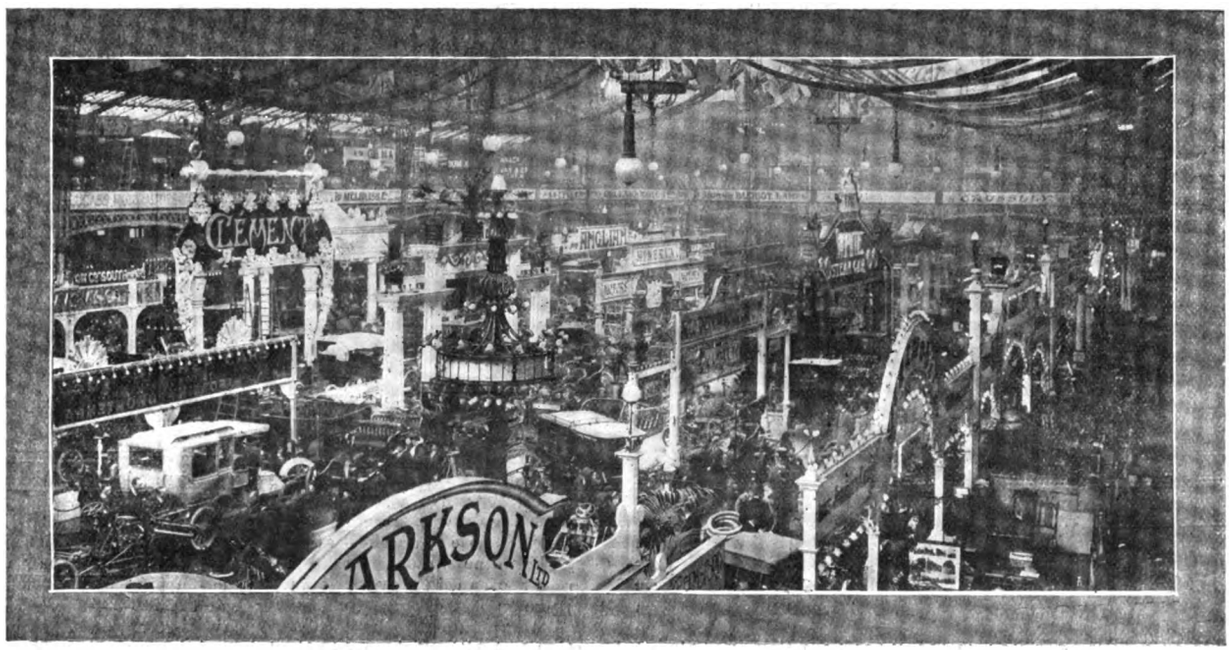
The 1905 Gordon Bennett Course—The Market Place at Rochefort.
[*La France Automobile*.

OWING to the pressure on our space this week in connection with the Show a number of letters have had to be held over.

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The Olympia Motor-Car Show.

On Friday, the 10th inst., the motor-car exhibition organised by the Society of Motor Traders and Manufacturers at Olympia, London, was opened. It will close to-day (Saturday), and the following notes on the leading exhibits will be of general interest. The report will be continued in our next issue.



General View of the Exhibition.

Messrs. T. Coulthard and Company, Limited, exhibit one of their latest steam wagons, designed to comply with the new Local Government Board regulations. It is intended for loads up to about five tons. The main frame is of channel steel, having strong cross-channel braces, and constructed to carry all the machinery, the boiler, and the water tank. The boiler is of the vertical fire-tube type; the upper tube plate and the fire box crown are stayed with a central tube of sufficient diameter to form a central firing shoot, and a door is provided for clearing the fire. The shell is arranged with two bolted joints, so that the upper half may be readily removed for inspecting and cleaning the tubes. The fire bars are of the hinged type, so arranged that when necessary the fires can be instantly dropped. The main boiler feed is by a dust-proof ram pump, directly connected to the engine; a steam pump is fitted as emergency feed. The engine is of the compound type, fitted with link reversing gear, and giving approximately 30-b.h.p. A special valve is provided, whereby high pressure steam can instantly be passed to the low pressure cylinder. An important feature, giving highly satisfactory results, is the method of suspending the engine and casing in the frame. The cylinder end of the combined engine and gear casing is secured to the frame by a double knuckle joint, whilst the other end is carried by the side channels of the frame in large overhung bushes, in spherical bearings, the bushes forming the bearings for the compensating shaft and sleeve. This method of suspension ensures perfect alignment of the various shafts, notwithstanding any distortion of the frame owing to load or road effects. The transmission of the power from the differential shaft to the rear wheels is by Renold silent chain, the chain wheels being fastened to the road wheels by a triangular attachment, whereby the drive is taken directly to the felloes of the wheels. Messrs. Coulthard have also recently taken up the construction of petrol lorries, and show one designed for loads up to four and a half tons. We give an illustration of the new vehicle in Fig. 1. The main frame is of channel

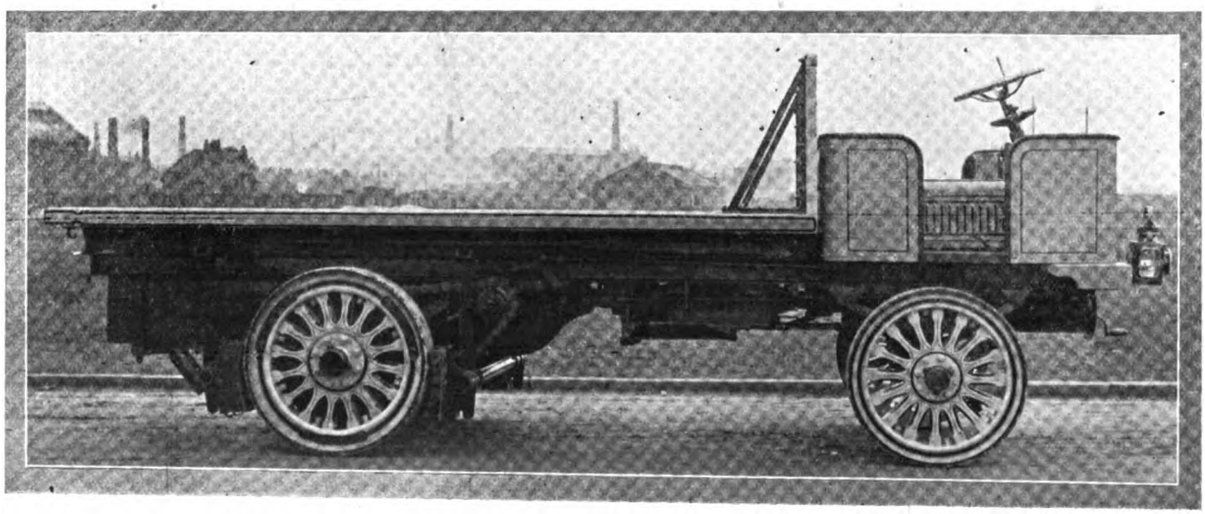


Fig. 1.—The Coulthard 4½-ton Petrol Lorry.

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steel, with strong cross channel braces, of a sufficient strength to carry the maximum load without undue distortion. The motor has four vertical cylinders, 110 mm. bore by 110 mm. stroke, and gives 26–30-h.p. It is fitted with mechanically-operated valves, low-tension magneto ignition, automatic carburettor, and a governor acting direct on the inlet. A Soames change-speed gear is provided, giving three forward speeds and one reverse, the maximum being eight miles per hour at the normal speed of the engine. The change-speed gear is automatically locked, so that it is impossible for the gears to change except through the operating levers. These are in turn so connected with the engine clutch that it is impossible

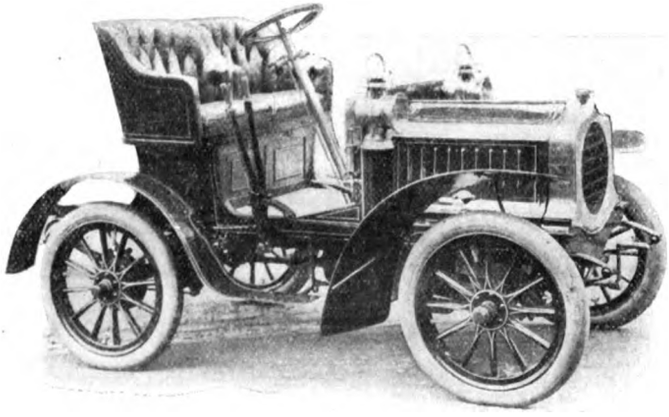


Fig. 2.—The Speedwell 6-h.p. Car.

for the driver to alter his speed without throwing his engine clutch out of gear. The differential gear is of the bevel wheel type, but the shaft is carried right through the sleeve, and provided at the sleeve end with a means for locking the gear. The rear road wheels are driven by side roller chains, the chain wheels being attached to the wheels by means of triangular attachments, whereby the drive is taken direct to the felloes.

The Speedwell Motor and Engineering Company, Limited, have an interesting display of the "Speedwell" petrol cars which have been introduced to meet the demand for vehicles at a moderate price. The 6-h.p. two-seated vehicle, depicted in Fig. 2 has been improved almost beyond recognition, and amongst the improvements to be found are the following:—New Speedwell motor, with a bore of 90 mm. and a stroke of 110 mm., mechanically-operated inlet and exhaust valve, automatic carburettor with piston control, governor, rotary commutator fixed on vertical spindle rendering it easy of access, new form of bonnet and ribbed-pipe radiator, the latter being fitted in a self-contained tank, longer *chassis*, larger wheels and tyres. Notwithstanding all these improvements no addition has been made in the price of the car, for which a very large demand will doubtless be experienced during the coming season. The new shaped bonnet and radiator also forms a distinguishing feature of the 10 and 12-h.p. double-cylinder cars, examples of which are to be seen. The *chassis* of the 12-h.p. vehicle is well worthy of inspection. The frame is of pressed steel construction, and we note that not only are all brackets and joints riveted, but also electrically welded to the frame. The transmission in all the cars is by cardan shaft and bevel gear to a well-stayed live axle. The Speedwell Company also exhibit a 24-28-h.p. Leon Bollee car and a *chassis* of the new 9-h.p. Gardner-Serpollet steam car. Although we illustrated and described the latter in our report of the Paris *Salon* it may be of interest to mention that the new model outwardly bears a close resemblance to a petrol car. The engine and fuel and water feeding arrangements are located in the fore part of the frame under a bonnet, the raising of which gives ready access to the various parts. The engine, which comprises four horizontal cylinders—two on each side of the crank-shaft—is now placed across the frame, the power being conveyed to the

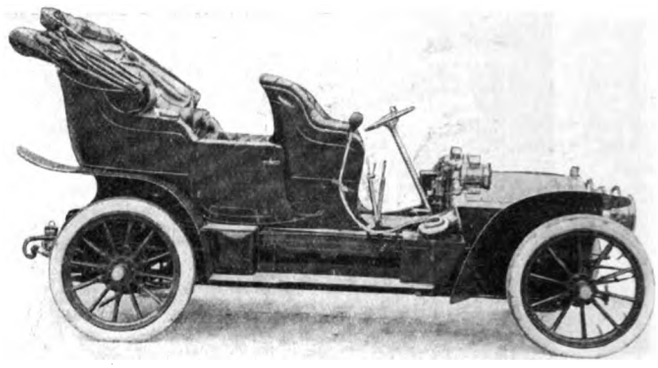


Fig. 3.—The Germain 24-32-h.p. "Tonneau Royal."

rear axle by a cardan shaft and bevel gear, in place of the single chain drive of last year. The old condenser and its piping have been replaced by a radiator placed in the front opening of the bonnet, a strong current of air being drawn through the same by means of a fan. The steam generator is enclosed in a chest at the rear, and is hardly noticeable; its weight and volume is much smaller than hitherto, these advantages being the result of an improvement in the fuel-burning arrangements. Ordinary petroleum is, of course, used as fuel, and provision is made whereby the pilot burner may be kept going for days together on a very low consumption and without danger to the tubes of the generator. One advantage of placing the engine in front is that the load is now about equally divided on the front and rear axles.

Mr. Theo. Masui has a large stand on which a number of the latest types of Germain cars are staged. As a result of the satisfaction with separate steel cylinders for the engine, these are being retained. The cylinder heads are of cast iron, while the water jackets are of brass. Three models are being made—16-h.p., 24-h.p., 35-h.p.—each with four-cylinder engines. Improvements have been effected in the water-cooling arrangements; the position of the pump has also been altered, it being now at the rear of the engine under the bonnet, and driven by friction off the flywheel. The carburettor is equipped with a jacket through which hot water can be circulated, means being provided for controlling the circulation. The inlet valves are provided with a device controlled by a pedal, by means of which the lift of the same can be varied and consequently the speed of the motor regulated. Both battery and Eisemann high-

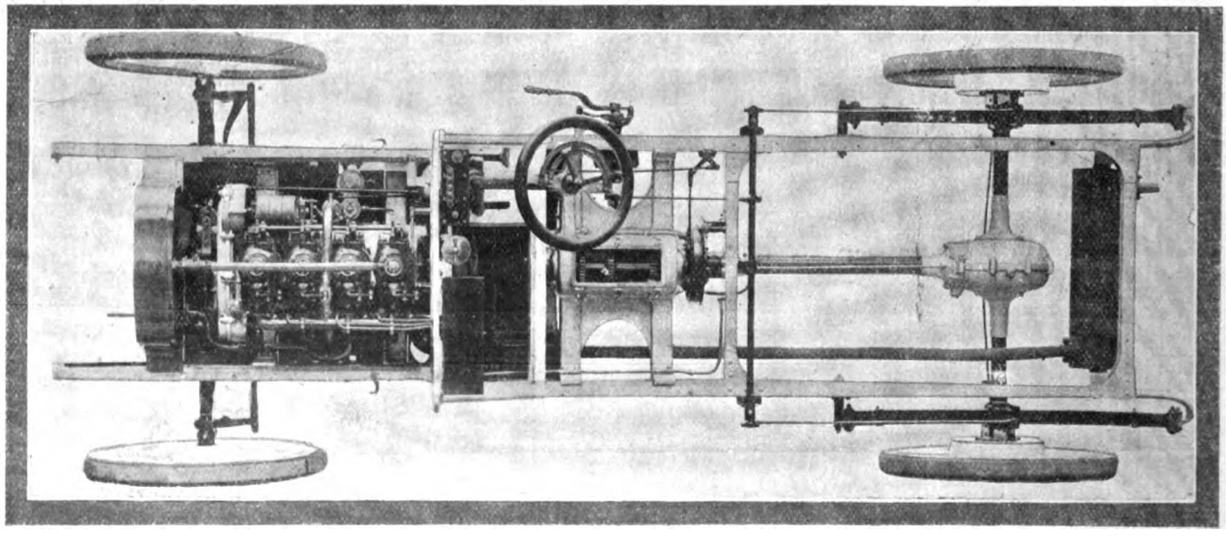


Fig. 4.—Plan View of Chassis of Hurtu 16-20-h.p. Car. (*See page* 1061.)

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tension magneto ignition are fitted, one advance and retarding lever controlling both systems. The frame is now of pressed steel construction and, with push pedals and wheel control, the vehicles are up-to-date in every respect, as an examination of the complete cars on view will show. One of these is a magnificent 24-h.p. Pullman car, with inside accommodation for six persons; a 24-h.p. side entrance Royal tonneau, Fig 3, is also

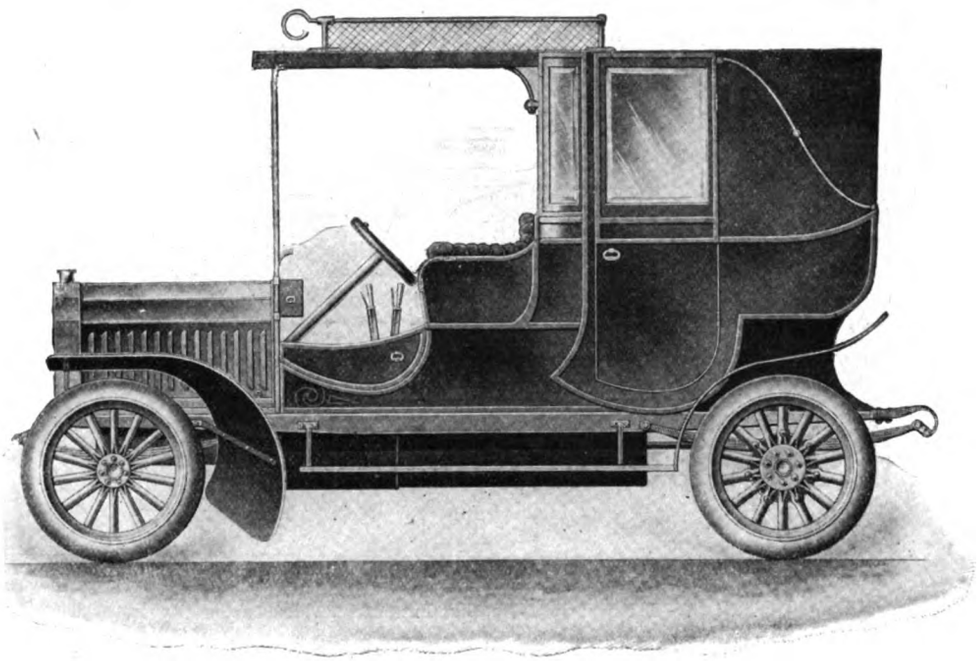


Fig. 5.—The Dennis 20-h.p. Landaulet.

to be seen, as well as a 16-h.p. coupe; the latter can accommodate four persons inside and is finished in yellow with black stripes. Altogether the Germain cars are noticeable not only as regards the high-class nature of the mechanical work, but also for the excellent bodies mounted thereon.

Messrs. E. AND H. HORA, LIMITED, the British agents for the Hurtu cars, exhibit a range of these vehicles which appear to be on soundly constructed lines. Under the guidance of Mr. Wm. M. Hodges we first inspected the *chassis* of the 16-20-h.p. four-cylinder Hurtu (Fig. 4). The vehicles have pressed steel frames narrowed at the front to increase the lock of the steering wheels. The engines have separate cylinders 85 mm. bore by 120 mm. stroke; the valves are mechanically actuated off one cam shaft, the inlets being arranged in the cylinder heads. A noticeable feature of the arrangement is that by undoing three nuts the valves together with their operating tappets and rods can be instantly taken out. The ignition is by coil and accumulator and by gear-driven magneto, both being controlled by one lever. Four speeds forward and a reverse, with direct drive on top speed, are provided. The gear-box, which is supported directly on the main frame, is provided with ball bearings. The transmission is by enclosed cardan shaft to the live rear axle. All the brakes are of the metal-to-metal expanding type. To prevent strain on the engine or gear, a universal joint is provided on the clutch shaft. The radiator is of the honeycomb type with belt-operated fan. The steering bar is placed behind the front axle, and is consequently protected. The 10-h.p. car is practically a replica of the larger vehicle, the main difference being that the engine has only two instead of four cylinders and that only three forward speeds are provided. Examples of the 8-h.p. single-cylinder two-seated car are also on view, one being fitted with a coupe body, rendering it suitable for the use of medical men. A tonneau body is shown in which is incorporated an ingenious method of obtaining a side-entrance vehicle on a short *chassis*. The backs of the front bucket seats are separate from the latter and are so combined with the side doors to the rear seats, that as the doors are opened the back of the bucket swings round and gives room for the passengers to alight. Messrs. Hora also display a 34-seated body for a motor-omnibus, this being one of a series they are building for Messrs. Tilling.

For the 1905 season MESSRS. DENNIS BROTHERS, LIMITED, are

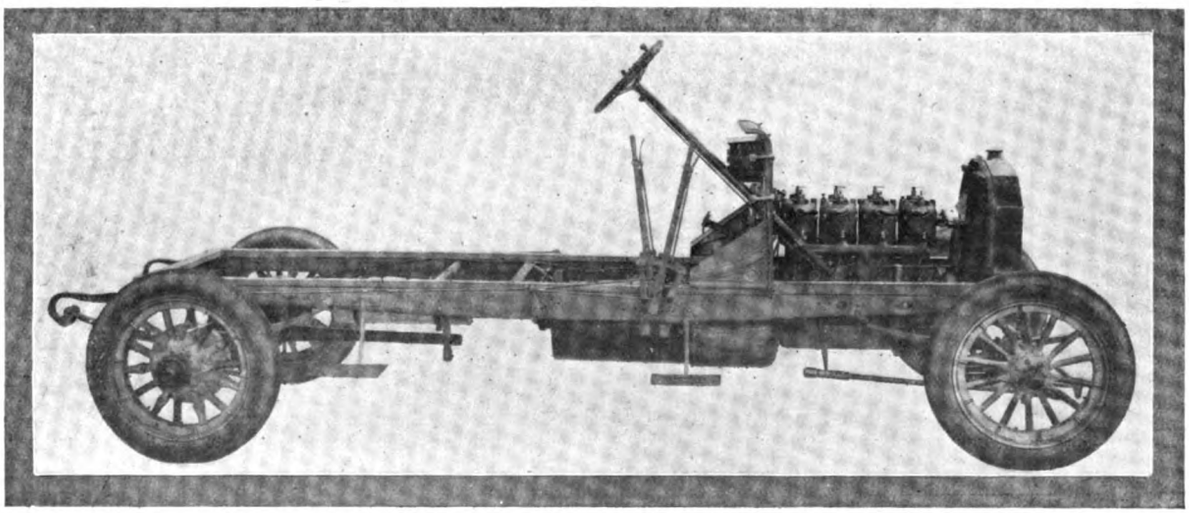


Fig. 6.—Chassis of Dennis 20-h.p. Car.

building two types of cars, 14-h.p. and 20-h.p., on the *chassis* of which various types of bodies can be fitted. At the show they have a large stand on which we first inspected a 20-h.p. *chassis*, Fig. 6, provided with pressed steel frame and the latest type of Aster four-cylinder engine, having separate cylinders and mechanically-operated valves arranged on opposite sides. The radiator is of the honeycomb type with air-inducing fan, and we notice that in accordance with modern practice the steering-bar is now

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placed behind the axle. The power is transmitted through a leather-faced cone clutch to a gear-box giving three forward speeds and a reverse, with direct drive on top speed. The Dennis spring-driving arrangement between the gear-box and the cardan shaft is still retained, as is also the worm drive on to the rear live axle. The rear road wheels are not mounted on the live axle proper but on the casing of the latter, and receive the power through jaw clutches in the hubs. In this way the live axle is not called upon to carry the weight of the car. The usual dumb irons or spring hangers are replaced by halves of semi-elliptic springs, which greatly increase the easy riding qualities of the car. The mixture is furnished by an automatic carburettor, so that the engine is entirely controlled by two levers, one actuated by hand, varying the ignition, and the other, worked by the foot, acting on the throttle. There are several other interesting details in the latest Dennis car, including an ingenious mechanically-operated lubricator, which pressure on our space prevents us dealing with at length. A complete 20-h.p. car is seen in a very handsome side-entrance double phaeton with canopy and glass panel at front and rear. So satisfied are Messrs. Dennis with the results given by the worm drive that they are now fitting this to their 14-h.p. double-cylinder cars. These follow in general arrangement the lines adopted in the four-cylinder vehicles, and that they are exceedingly quiet in operation was brought home to us in the course of a short run on a stylish laudaulet just out of the works. Messrs. Dennis, while devoting much attention to pleasure cars, are not neglecting commercial vehicles, and have on view a 14-h.p. double-cylinder delivery van, built for Messrs. Peak, Frean and Company, and designed for loads of from 20 to 30 cwt. They also exhibit the *chassis* of a thirty-six seated double-deck petrol 'bus they are building for Messrs. Tilling. This has a long channel steel frame, the motive power being supplied by a 20-h.p. Aster engine. The transmission is on the same lines as those adopted in the pleasure cars—by spring drive and worm gear to the rear live axle. The latter is not only provided with radius rods but also with vertical guides. The various parts of the mechanism have been made suitably strong for the hard work they will be called upon to perform. Heavy petrol lorries are also receiving the attention of Messrs. Dennis, who are to be congratulated on their enterprise.

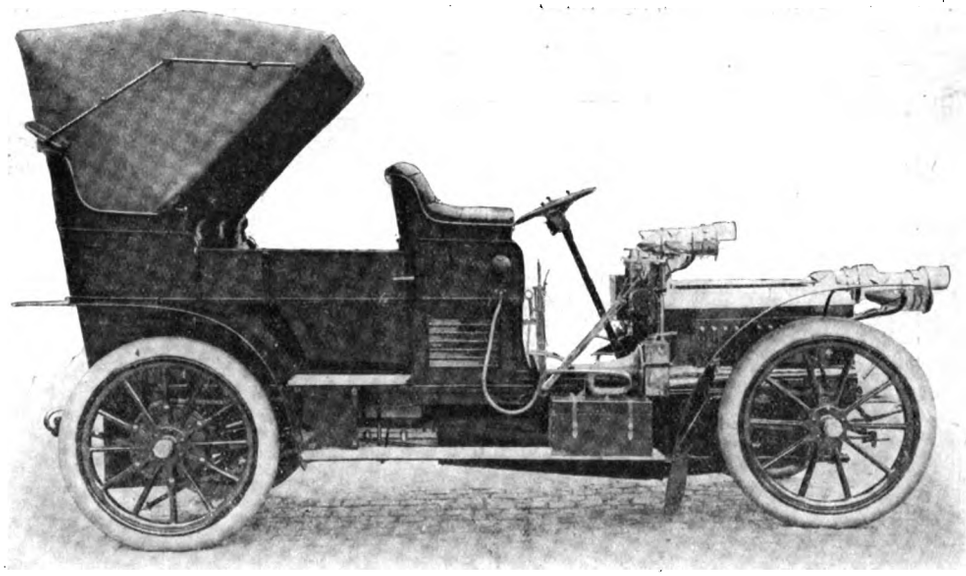


Fig. 7.—The Pipe 18-22-h.p. Side-Entrance Double Phaeton

The C.G.V. and Pipe cars are to be seen at the stand of the London Motor Garage, Limited. Of the former a *chassis* of the 1905 25-h.p. car is exhibited. The frame consists of a square steel tube filled with wood. The motor comprises four separate cylinders with mechanically-operated inlet valves. Both the pump and high-tension magneto are gear-driven. The carburettor is on the double-jet principle, with an automatic valve which closes the larger jet and opens the smaller when the engine is running at a low speed. The flywheel has its arms made in the form of a fan. The lubrication of the engine is effected be oil circulated by a pump. The clutch is of an improved type, thy aluminium male clutch member having a layer of rubber placed beneath the leather. A double cardan shaft is introduced on the shaft. between the clutch and the gear-box. The latter gives four speeds and reverse, with direct drive on the fourth; in it ball bearings are utilised. A handsome 25-h.p. C.G.V. side-entrance limousine, with body by Hoopers, is also on view. Accommodation is provided for four inside passengers, all of whom face forward. Of the Pipe cars, Fig. 7, the exhibit comprises a *chassis* of the 18-24-h.p. model

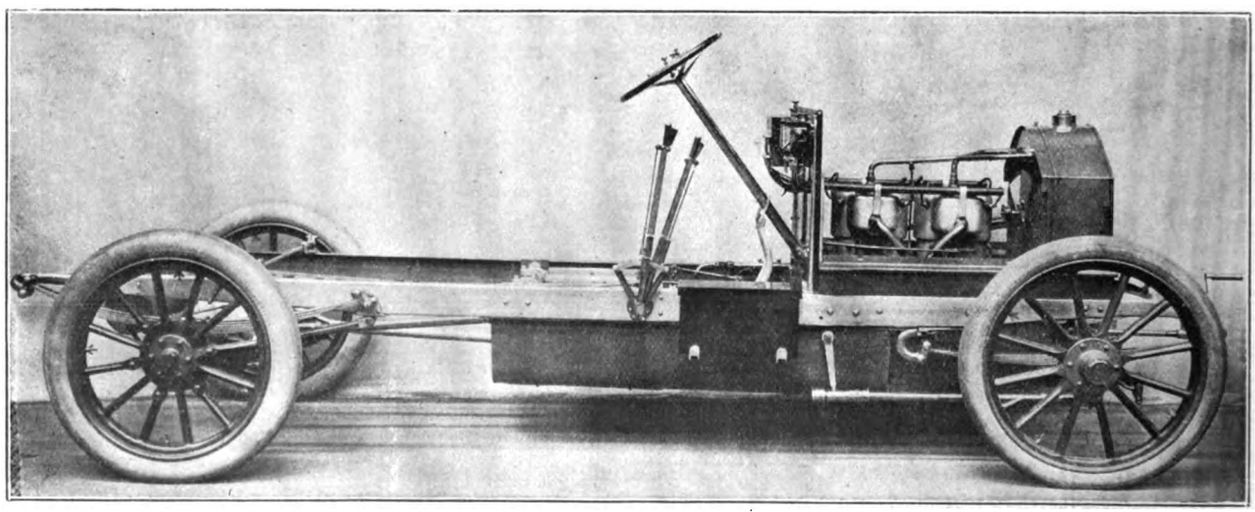


Fig. 8.—Chassis of Pivot 24-h.p. Car (*see* page 1063).

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and a complete limousine of similar power. The main new departure is found in the engine, which comprises four cylinders, cast in two pairs. The inlet and exhaust valves are all mechanically actuated off separate cam shafts. The valves are arranged in a somewhat unusual way—they open directly into the explosion chamber, not in a vertical line, as usual, but at an angle of 45 deg., the valve stems being actuated by rods and tappets. The radiator is of the framed ribbed tube variety, the flywheel having its spokes arranged to act as a fan in drawing a current of air through the cooler. The clutch is of the metal-to-metal type; the gear-box, the shafts of which run on ball bearings, is arranged to give four speeds forward and a reverse. The Pipe cars have already an excellent reputation both in Belgium and England, which should be well maintained by the new models, which, in addition to the 18-22-h.p. above referred to, include 14-h.p. and 35-h.p. cars, both with four-cylinder engines.

Dixi Motors, Limited, exhibit three models of the increasingly popular Dixi cars. We first inspected a handsome 24-30-h.p. side-entrance double phaeton with accommodation for five persons at the rear all facing forward. The *chassis* is of pressed steel construction; the car is chain driven and is provided with a four-cylinder engine having cylinders 110 mm. diameter by 130 mm. stroke. Both high-tension magneto and coil and accumulator ignition work with the same plugs, and the mixture is furnished by an automatic carburettor, and, with wheel control and push pedals, the vehicle may be classed among the high-grade types on the market at the present time. Another interesting car is a 12-15-h.p. four-cylinder car with frame of tubular construction. The transmission is by cardan shaft and bevel gear to a live axle. A feature of the four-cylinder motor is that while the valves are arranged on opposite sides of the cylinders, the inlets being in the heads, they are all operated by one cam shaft. The tappet rods actuating the inlets pass right through the walls of the head of the cylinder and operate the valves themselves by pivoted tappets. The third Dixi car on view is a two-cylinder one of 6-8-h.p.; the body is in the form of a hansom cab, there being accommodation for three persons including the driver, and a large amount of luggage on the platform. At the stand of the Dixi Company is also to be seen a 24-h.p. Pivot *chassis* and a handsome limousine coupe of the same power. The vehicles, while not comprising any startling deviation from standard practice, show evidence of careful construction. The pressed steel frame is mounted on equal sized artillery wheels running on ball bearings. The motor has mechanically operated valves, the inlet and exhaust being on opposite sides. Magneto ignition, automatic carburettor, framed radiator with vertical gilled tubes, and induced draught by means of a fan-shaped fly-wheel, are other features of the car. The water circulation is on the thermo-syphon system, no pump being employed. Four speeds and a reverse are provided, the transmission being through a cardan shaft and live axle. A view of the *chassis* is given in Fig. 8.

Messrs. Mann and Overtons, Limited, exhibit examples of the 8-h.p. and 16-20-h.p. Richard-Brasier cars, for which they are British agents. The 1905 models of this well-known vehicle comprise 8-h.p. double cylinder, and 12-15-h.p., 16-20-h.p., and 24-30-h.p. four-cylinder cars. Except that the 8-h.p. vehicle has only three speeds forward in addition to the reverse, while the others have four, the following remarks apply to all four vehicles. The main frame is of stamped steel, the engine and gear being supported on a secondary frame of tubular construction. The cylinders, which are cast in pairs, have mechanically-operated inlet valves, these being set on the opposite side to the exhaust valves. Magneto ignition is being retained, as is also the thermo-syphon system of water circulation in conjunction with a fan-cooled radiator. We noticed that the radiating surface has been increased and the fan improved. The carburettor is an automatic air-regulation one of the company's own patent; it is exhaust-jacketed and comprises two spraying nozzles set at an angle to each other, similarly to twin burners in acetylene lamps. The transmission is by means of a cardan shaft and bevel gear on to a live axle. A double universal joint is introduced between the engine and gear-box, this not only relieving the shafts of the latter of all strain, but permitting the clutch to be dismounted without interfering with the gear-box in any way. Enclosed internally-expanding metal-to-metal brakes are now fitted to the hubs of the rear wheels, while a point which will appeal to all who have suffered from "back kicks" of the motor, owing to the ignition not having been retarded, is an arrangement whereby the act of putting the starting handle into gear at the same time automatically retards the ignition; the moment the handle is released the ignition returns to its normal position. Long springs are employed, and we notice that the Truffault anti-shook device has been adopted. The frames are of sufficient length to allow roomy side entrance bodies to be fitted. Messrs. Mann and Overtons have also acquired the British agency for the "Unic" cars of the new firm of Messrs. Georges Richard and Co., and exhibit a 12-h.p. *chassis*. The feature of the vehicle (Fig. 9) is that the parts are so placed that almost any one can be taken off without disturbing another, it being this feature of simplicity and accessibility that has suggested the name to the vehicle. The frame is of pressed steel, narrowed in front to allow of a large lock on the wheels. The car is made in two lengths, one having a wheelbase of 6 ft. 2½ in. and the other 7 ft. 10½ in.; a side-entrance body can be fitted to the latter. The two cylinders of the engine are in one casting; the bore and stroke is 100 mm. bore by 110 mm. stroke, giving approximately 13-h.p. on the brake. The valves are mechanically operated. The ignition tappets for each cylinder are mounted on two plugs which cover the admission valves. These plugs are held down by a cross-piece, as are also the plugs over the exhaust valves, so that by undoing two nuts all the four valves and the whole of the ignition tappets can be taken out. The ignition is by low-tension magneto, driven by gear wheels off the half-time shaft on the carburettor side. One of the features is that it is placed upside down, which has the advantages of giving free access to the valves and at the same time the magnets are a long way removed from the heat of the engine. The shaft that drives it has a dog clutch similar to that used for the direct drive in the gear-box, so that by undoing four screws which fix down the magneto this can be entirely removed without touching any other part of the car. On the starting handle shaft a lever system is introduced, so that as the handle is engaged with the crank-shaft the ignition is automatically retarded. The pump is driven from the same shaft as the magneto. The radiator is combined with the water tank, which being placed above the engine ensures a perfect circulation, even should the pump fail from any cause. The carburettor is of a special type and entirely automatic. This is obtained by means of a float in a petrol float chamber, which opens a supplementary air valve according to the speed of the engine. By the inertia of the liquid the float is all absolutely

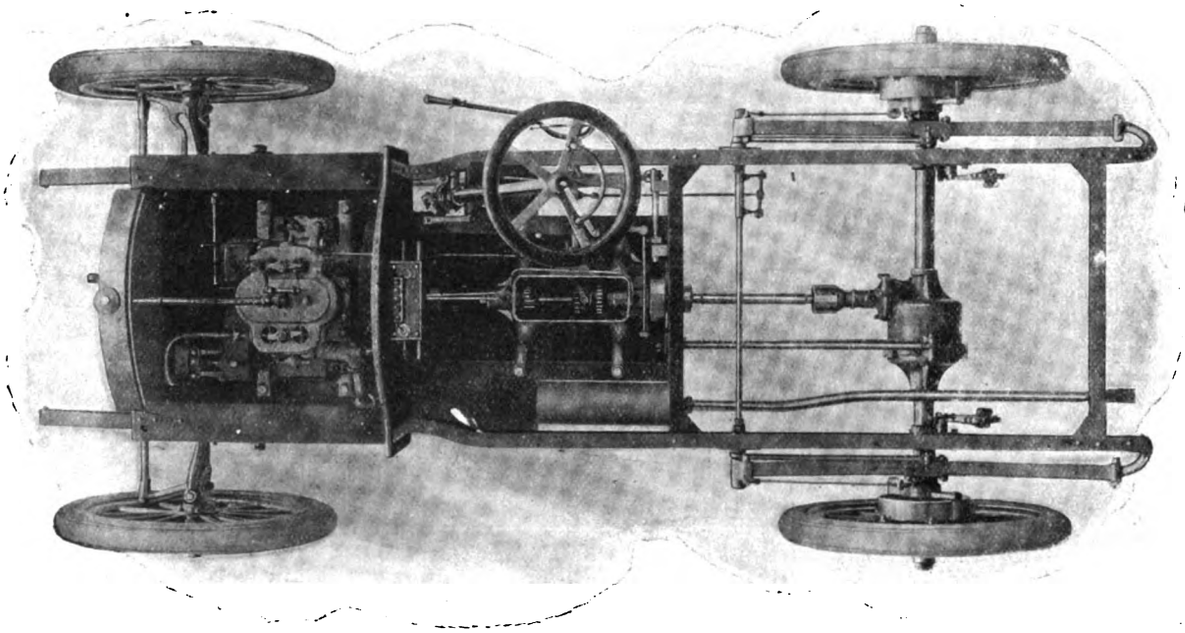


Fig. 9.—Plan of Chassis of "Unic" 12-h.p. Car.

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synchronised, according to the vacuum produced by the pistons. A centrifugal governor is fitted, acting on the admission, both foot and hand control of the same being provided. The power is transmitted through a leather-faced cone clutch and a double cardan joint to a gear-box giving three speeds and a reverse with a direct drive on the top speed. The gears are placed in the reverse direction to that usually employed, in such a manner that the idle shaft is running at about one-third the speed of the engine. A cardan shaft takes the drive from the gear-box to the live axle. The latter is kept in place by two stay rods, so that the wheels are always in line. The lifting strain which the cardan produces is taken up by two rods, which prevent the axle from twisting. In addition to the foregoing, specimens of the Lempereur non-skid, the Simplex low tension ignition device and the Aeros buffer spring, all of which have been described in the *Journal*, are to be seen at this stand.

Mr. ADAMS is demonstrating the quick lift and short looking motor jack described in our report of the show at the Crystal Palace. Messrs. JOSEPH KAYE AND SONS, LIMITED, make a feature of seamless serrated petrol squirt cans, lubricating oil cans and oil economisers. Office fittings and card index systems applicable for firms in the automobile business are exhibited by the TRADING AND MANUFACTURING COMPANY, LIMITED. Messrs. LINTINE AND COMPANY have a show of "Radium" motor-lamps and motor accessories generally. LEE'S PATENT TREAD COMPANY have on view at the stand of Messrs. McNeil, Hutchison and Company the spiral non-slip treads referred to in our issue of the 4th inst.

The H. F. vulcanisers are shown by Messrs. HARVEY FROST AND CO. They include the H.F. "Standard" vulcaniser, which embodies the essential feature of treating the repair of covers from the inside as well as the outside; the H.F. "Car" vulcaniser, a very compact little appliance for carrying on car for use in cases of emergency on the road, and the "Re-Treader" appliance, a comprehensive machine, designed for work-

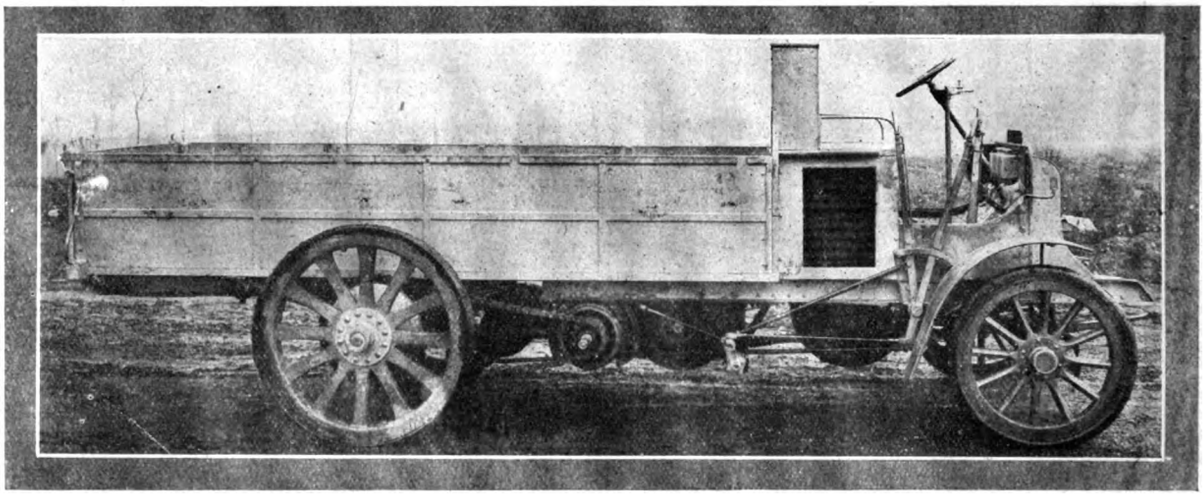


Fig. 10.—The Wolseley 20-h.p. 2-ton Petrol Lorry.

shop or factory. The latter has particular features and advantages, and practically embraces, in its compact and portable form, all the needed essentials of a re-rubbering appliance, while being most handy and economical in use, and thoroughly successful in its execution of large repairs, or of re-treading at one operation. The trade will be specially interested in this appliance, which does away with many parts and connections embodied in previous appliances, and offers every advantage to the user, with perfect repair work speedily executed on a large scale.

Some splendid specimens of carriage work are exhibited by Messrs. THRUPP AND MABERLY—one of the first carriage builders to recognise the coming of the car. A tonneau limousine mounted on a 10-h.p. Renault is a conspicuous example of high-class finish, while examples of the Roi des Belges coupé limousine, "Siamese" tonneau, and landaulet give the firm opportunities of demonstrating their position in the trade. An improved Cape cart hood which can be fitted to either a side or rear entrance tonneau is shown. When the hood is up the riders are protected from rain or sun; when it is down the device provides an effective wind and dust screen.

Mr. STANLEY W. ANDREWS, whose name has become familiar to motorists by reason of the "Stanley Perfect Silencer," is developing a business as agent for accessories. Already he has secured several good lines in honeycomb radiators, water circulating pumps, lubricators, etc. Among the minor exhibits here is a reservoir stopper permitting instantaneous opening and closing. In electrical accessories, too, Mr. Andrews makes a good start with several types of plugs, wire terminals, high and low tension wiring and the like, as well as the "Electricia" accumulator fitted with a patent gas valve which makes it impossible for the acid to be thrown out. The acid cannot pass further than the second compartment, and any gas generated passes freely to the open air. But the chief exhibit at this stand is the "Stanley Perfect Silencer," which is claimed to be efficient, silent, a reducer of vibration and free from back pressure. It was described in our issue of December 31st.

Messrs. W. AND A. BATES, LIMITED, make a display of motor-car and motor-cycle tyres, and have an extensive assortment of goods connected with the repair of motor tyres.

Among the insurance companies taking advantage of the occasion to draw attention to their policies for motor-cars and their owners are the CAR AND GENERAL INSURANCE CORPORATION, LIMITED, which also takes motor-boats into its calculations; and the GENERAL ACCIDENT ASSURANCE CORPORATION, LIMITED, which has a special motor department under the management of Mr. Alfred Nixon.

THE STERN-SONNEBORN COMPANY have their customary complete show of oils, lubricants and lubricators, and among the excellent new showcards introduced for the 1905 season is one drawing attention to the distinction achieved by their exhibit at the St. Louis Exhibition. "Speedoline" motor oils and greases are shown by Mr. C. WHITE. The "Vacuum" mobiloils, motor greases and graphite grease attract visitors to the stand of the VACUUM OIL COMPANY, LIMITED, which has been attending to the special requirements of motorists in this direction. The ANGLO-AMERICAN OIL COMPANY, LIMITED, emphasises the merits of Pratt's Motor Spirit, supplied in improved cans to meet Government regulations. The company point with pride to the fact that the 5,000 miles trial of the Siddeley car was done on 309½ gallons of Pratt's motor spirit. Lubricating oils are also part of the Anglo-American Company's display. Bowley's motor spirit, the "Champion" motor oils, "Gearolease" and motor lubricants of various kinds are shown by Messrs. S. BOWLEY AND SON, who exhibit a large red can, the colour being originally used by them to distinguish Bowley's spirit from other makes of motor spirit. The firm's greases and lubricants are of standard quality and purity.

The "Billet" non-skid and puncture preventer is on the stand of the Civil Service Motor and Cycle Agency. This is made of chrome leather with rivets in the tread. Ease of attachment and detachability are points of commendation.

Lamps of varied design constitute the main portion of the exhibits of the TWENTIETH CENTURY MANUFACTURING COMPANY, which has also a strong motor-car jack easily raised and lowered. Lamps for cars, cycles, and boats are on view, forming a useful selection for the motorist intent on securing powerful lights on reasonable terms.

Messrs. J. BARTLETT AND COMPANY have a new type of radiator which secures a maximum of cooling surface in the minimum of space. The hot water from the engine enters at the top and circulates through a series of tubes which are arranged tier upon tier, four being in each series. It then discharges into the reservoir at the bottom of the radiator. A small vent tube is provided to prevent excessive pressure of steam, and the special design of the gills secures a thorough distribution of air between the tubes to cool the water. Messrs. Bartlett and Company have also a large collection of lamps, including the "Bartlite" headlight, in which the light can be turned out without the acetylene gas escaping back through the water. The latter is completely cut off from the carbide. An ingenious arrangement is provided by means of which the headlight can be lighted from the driver's seat and also turned low when required.

The WOLSELEY TOOL AND MOTOR-CAR COMPANY, LIMITED, have no less than four large stands, devoted respectively to pleasure cars, commercial vehicles, motor-boats, and machine tools. On the first-named is shown a range of cars extending from the popular little 6-h.p. two-seater to a 16-h.p. side entrance double phaeton. The 12-h.p. double landaulet which made its debut at the Paris *Salon* is being shown in England for the first time. It has been introduced to meet the demand for covered vehicles, and, while following the usual general arrangement of Wolseley cars as regards the engine and transmission, a number of changes have

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had to be made to accommodate the new form of body. Thus the engine—a two-cylinder horizontal one—is below the driver's seat, the sides of the latter accommodating the radiator, which is thus in two parts. A light shaft extends across and above the frame just under the seat; it is driven by a belt off the engine, and carries at each end a fan to induce a current of air through the radiators. The steering is of the

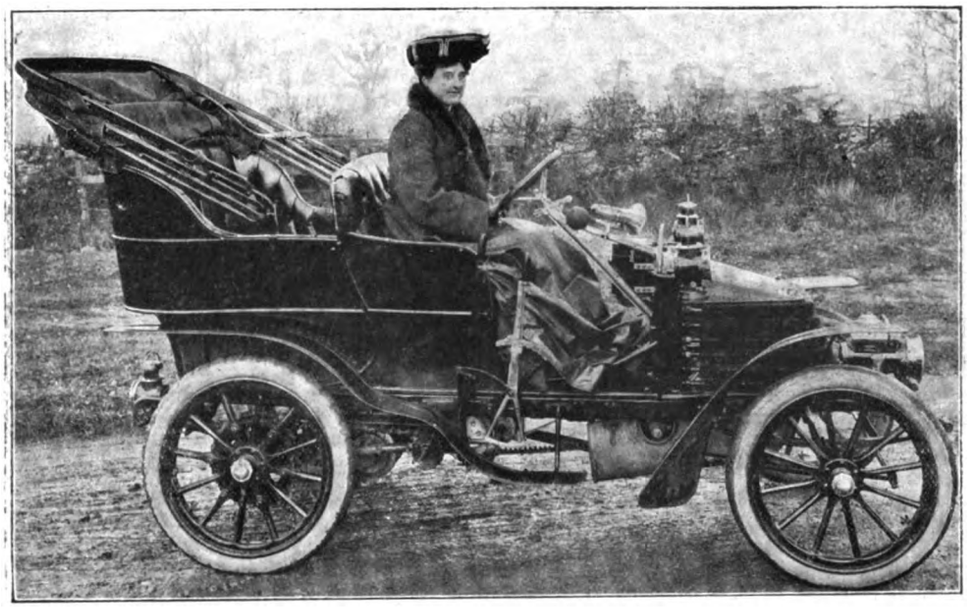


Fig. 11.—The Wolseley 8-h.p. Car.

Panhard type, while we notice that the usual dumb irons at the rear have been replaced by springs. The vehicle, which is luxuriously upholstered, can accommodate six persons including the driver, and is altogether an excellent example of modern automobiles for town work. Probably on the present occasion interest is chiefly centred on the new 8-h.p. Wolseley car. The motor is of the two-cylinder horizontal type, 4 in. bore by 4½ in. stroke and developing about 9-b.h.p. at 900 revolutions per minute. The crank shaft now runs in two bearings, one on each side. The connecting rods work on to one crank, so that there is an impulse every revolution, a heavy balance weight being provided on the shaft. The new arrangement brings the cylinders closer together and secures more equal wear on the crank-shaft bearings. The carburettor is gravity fed, and is a compensated one in which the quality of the mixture is maintained during throttling by a special form of throttle which restricts the intake of air to the jet chamber at the same time that it varies the quantity and in the same proportion. The drive is by Renold silent chain to the gear-box, which is in one with the casing to the differential on the countershaft, whence the power is conveyed to the road wheels by side chains. Four forward speeds and a reverse are provided, all being operated by one lever, which is fitted with a neat form of self-locking pawl, enabling the driver to effect the desired change in either direction without fear of overrunning the proper position. The gear-box, like the engine, is suspended at three points, and the shafts of the same run on ball bearings. Two hand-applied brakes act on the outside of drums on the rear wheels, and a pedal-actuated metal-to-metal brake operates on the inside of the same drum. The car has a wheel base of 6 ft. 11 in. and a track of 4 ft. 1 in. The exhibits of the commercial vehicle stand include a 6-h.p. car fitted with a parcels chest at the rear, and an 8-h.p. delivery van. Fig. 10 illustrates the latest production of the Wolseley Company—a 20-h.p. two-ton lorry built for the Great Western Railway Company. The main Wolseley features have not been departed from, and, speaking broadly, the vehicle may be described as a Wolseley car, enlarged and strengthened throughout to make it suitable for the work it will be called on to perform. The platform available for carrying goods has an area of fifty square feet, the maximum load being three tons. The wheel base of the vehicle is 10 ft. 6 in., track 6 ft. 2 in., and the total length 18 ft., and the tare weight, approximately, 50 cwts. The length of platform is 11 ft. 6 in., the rear overhang 5 ft., and height of frame from ground 31 in. The front wheels are 34 in. in diameter with solid rubber tyres, and the back 42 in. with steel tyres. The motor comprises two cylinders, 6 in. bore by 7 in. stroke, and develops 20-b.h.p. at 600 revolutions per minute. Half-compression cams for easy starting are provided. A Renold silent chain connects the engine shaft to the gear-box. Four speeds and a reverse are provided, the power being transmitted to the rear road wheels from the gear-box by side roller chains. Three independent brakes, all metal-to-metal, equalised in both directions, are fitted. The pedal brake operates a water-cooled drum on the side shaft of the change-speed gear. A side lever actuate two brakes, the drums of which are cast on to the sprockets of the countershaft. The third pedal controls a brake working on drums on the back wheels. The rear axle is of weldless steel tube, and the front axle is forged in one piece. The engine is located under the driver's seat, the radiator and air-cooling fans being arranged in two halves at the sides on lines similar to those adopted in the landaulet already referred to. The wagon on view, which is fitted with a canvas tilt, brought up a full load of goods from Birmingham to London one day last week at an average speed of eight miles an hour. A twenty-two seated single deck omnibus, built for the G.W.R. Co., is also on view. This is fitted with a 20-h.p. two-cylinder engine, or can be provided with a 24-h.p. motor with four cylinders 4½ in. diameter by 5 in. stroke. In other respects the *chassis* of the 'bus is similar to that of the lorry.

The "Compound" foot pump for the rapid inflation of pneumatic tyres is on Messrs. Hedley S. Hunt and Co.'s stand. This is really a high pressure pump working on the up as well as the down stroke and automatically compressing the air before forcing it into the tyre. A two-gong foot bell and specimens of "Beltine"—a preparation for slipping clutches, belts and brake bands—are also on view.

Messrs. S. Stevenson and Company come from Glasgow with a fine show of wheels for light and heavy vehicles as well as of bent timber for motor-car work. They have some artillery double-mitred staggered spoked wheels of special design and artillery wheels for thickened edged or flange fixing tyres. Good types of omnibus wheels fitted with rims for solid rubber tyres are shown, as well as those for wagons with weldless steel tyres. The firm also show steering wheels in aluminium and gun-metal covered with walnut and mahogany and presenting a most effective appearance. Wings, tonneau and other body parts are included in the large display of bent timber.

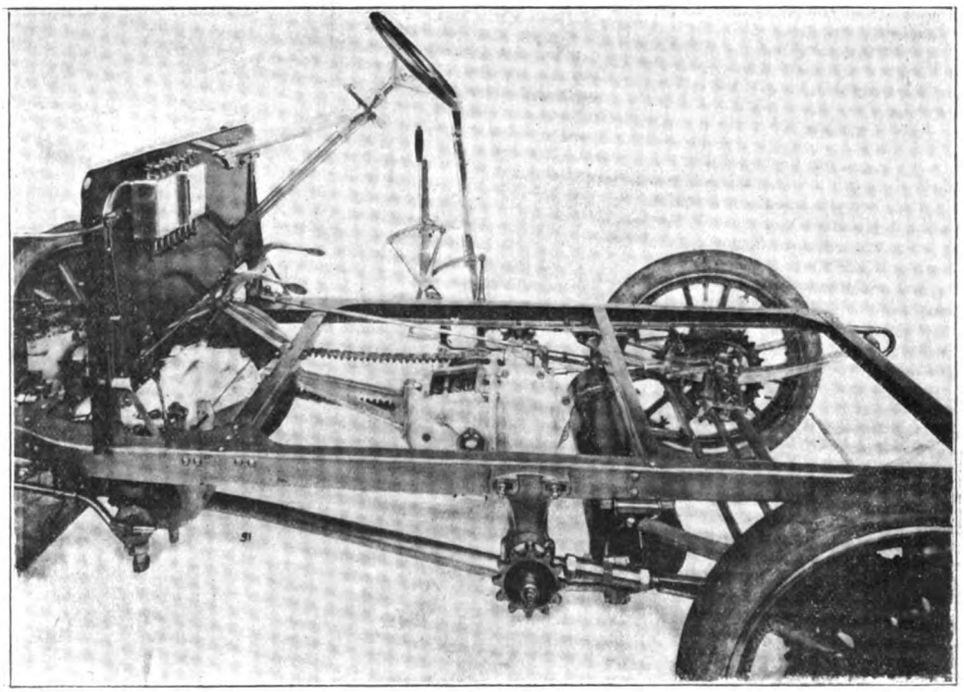


Fig. 12.—View of Chassis of Wolseley 8-h.p. Car.

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The novelty of the exhibit of the ELECTROMOBILE COMPANY, LIMITED, is an electrical ambulance, Fig. 14, introduced to meet the demand for a suitable means of removing street accidents. The body which is mounted upon one of the company's normal *chassis*, is fitted with two full length stretchers, which slide into the van from behind, one above the other. A wide passage for the attendant runs down the right-hand side of the van. The carriage is lighted and warmed by electricity, and is completely fitted with



Fig. 13.—The Electromobile Co.'s Petrol Laudaulet.

all necessary appliances for first aid. The driver's seat is covered as a protection from weather, and telephone communication is provided between the driver and the attendant. A distance of twenty-five miles can be covered on a single charge of the battery, and an exhausted battery can be exchanged for a fully charged one in two minutes. The road wheels are shod with De Nevers grooved solid rubber tyres. Several of the Electromobile Company's well-known electric landaulets and broughams are on view, these being finished with the highest class of carriage work. A *chassis* is also shown so that visitors may inspect the system. An examination of this shows that several important improvements have been introduced. The front wheels have been set forward six inches, giving a slightly longer wheel-base, and the rigid front spring hangers have been replaced by half-springs. The rear suspension has also been improved by the addition of a transverse spring which supports the weight of the body, and to which the side springs are attached in the usual manner. A new form of magnetic cut-out for current breaker has been introduced. In practice this has been found to be very efficacious, eliminating all trouble from burnt contacts. The *chassis* is fitted with a safety device, which renders it impossible for the running plug to be inserted in its socket except when the controller is on the zero or neutral position. The socket has been removed to a conspicuous position in the front of the car, so that a casual glance will show whether the plug is in position or not. A new departure by the ELECTROMOBILE COMPANY is the introduction of a petrol double laudaulet for country and suburban use. This has been specially built for the company by Messrs. S. F. Edge, Limited, and is fitted with a 15-h.p. Napier four-cylinder engine of the latest type. The *chassis* is practically identical in dimensions with those used in connection with the electric carriages, the engine being located under the driver's seat which is hinged so that it may be tilted up to give access to the motor. The transmission is by side chains; the rear axle is of special design, and cannot be well described without a drawing; it may be stated, however, that the rear chain wheels and brake drums are not located in the usual position, that is to say, between the road wheels and the springs, the latter in the new arrangement being between the wheels and the sprockets. We give an illustration of the vehicle in Fig. 13, from which it will be seen that the whole of the *chassis* is used for the benefit of the driver and occupants. The result is that with a carriage having a wheel base only of 7 ft. 6 in., six people can be comfortably accommodated. It consequently turns in a short space and is generally convenient for town work; while, if the owner wishes, it can also be used as a country carriage.

Heavy vehicles for commercial and public service work form the striking feature of the exhibit of Messrs. MILNES-DAIMLER, LIMITED. Three of the 'buses bear the name Great Western Railway, and represent further additions to the fleet of vehicles which the G.W.R. are now running in districts not served by railways. Two are double-deckers, accommodating thirty-four persons, intended for service respectively between Wrexham and Fardon and Stonebridge and Belbroughton, and the other has accommodation for twenty inside passengers. Both are fitted with 20-h.p. four-cylinder motors, the power being transmitted through a clutch and gear-box on to a cross shaft at the rear. On the ends of the latter are pinions engaging with internally toothed rings bolted to the rear road wheels. A feature of the vehicles is the provision of wood wheels, the rear pair of which are shod with twin solid rubber tyres. Other improvements consist of providing the gear-box shafts with ball bearings and the control of the change-speed gear entirely by one lever. In the delivery vehicle section is shown a 25-h.p. lorry to carry five tons. The vehicle, as regards transmission, is on the same lines as the 'buses.

The SUNBEAM MOTOR CAR COMPANY, LIMITED, which for the 1905 season are confining their attention to a 12-h.p. four-cylinder vehicle, are making a side-entrance double phaeton the standard model, the *chassis* having been lengthened to a wheel base of 7 ft. 10 in. to allow of this. As for the details of the engine and mechanism, the most noticeable change is the adoption of mechanically-actuated inlet valves and a variable lift device. The latter is obtained by tapered cams on a shaft which can be slid in or out as desired. The oil bath cases in which the side-chains run, and which form one of the peculiar features of Sunbeam cars, have been improved by the provision of an inspection plate which can be easily opened for examining the chains. Five complete cars are displayed, a noticeable one being that painted in crimson, with fine black lines. The Sunbeam Co. build not only the *chassis* but their own bodies, and an inspection of the vehicles on view will show that the finish is of a very high order.

FIAT MOTORS, LIMITED, exhibit a *chassis* of their 1905 24-h.p. car, which, while comprising no startling departure, embodies a number of detail improvements, more especially as regards the clutch, carburettor and the brakes. The pressed steel frame is now narrowed in front to allow of a larger lock to the front wheels, and the wheel base has been lengthened. The four-cylinder engine has all its valves mechanically operated. The ignition, which is by low-tension magneto with pure nickel make and break tappets, is arranged to be automatically advanced or retarded in accordance with the speed of the engine. Both hand and foot accelerator levers are provided. In the new carburettor the diameter of the opening in the nozzle of the petrol jet is variable by means of a lever on the dashboard. The clutch is of an entirely new design, it being of the disc type, with springs interposed between the discs. The change speed gear wheels are of smaller diameter than hitherto, the sprockets being correspondingly larger. The rear wheel brakes are of the internally-expanding variety; water-cooled band brakes are provided on the differential shaft and also on the forward end of the side shaft in the gear box, the latter being automatically applied when the differential brake is full on. For the 1905 season three sizes are being made—16-h.p., 24-h.p., and 60-h.p.—all with four-cylinder engines. Of the former, a handsome laudaulet is exhibited, while of the 24-h.p. type, the cars on view include a limousine, a side-entrance phaeton, and a laudaulet.

Sawyer's non-skid and puncture proof band is the feature of Messrs. SAWYER AND COMPANY'S display. The band is of chrome leather distinguished by its softness to the touch as well as by toughness, the combination preventing the loss of resiliency associated with leather of inferior



Fig. 14.—The Electromobile Ambulance.

quality. Steel studs are inserted on the top tread band, and an intermediate leather band, between this and the rubber cover, successfully protects the latter from any injury which might otherwise occur through contact with the rivets. The whole is vulcanised on to an old or new cover in such a way as to cover the whole surface of the tyre, effectually preventing any possibility of side-slips or punctures. A vulcanising fluid is also shown by Messrs. Sawyer and Company, who are also placing upon the market a good type of gaiter.

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The GOBRON-BRILLIE cars are now being handled in this country by a new agency under the style of Gobron-Brillié which has just been established at 106, New Bond Street, London, W. For the 1905 season two sizes of cars, viz., 25 and 35-h.p., are being built, the exhibit comprising a *chassis* and a couple of limousines of the large type. In both the frame is of pressed steel construction with a shield extending from the forward end well to the rear, to protect the engine and clutch from mud and dirt. The familiar Gobron-Brillié motor, which has two pistons in each of the four cylinders, is retained, the explosions taking place in a central combustion chamber. The valves are all mechanically operated and interchangeable, the inlets being on the opposite side to the exhaust. Both accumulator and high-tension magneto ignition are employed, these being so arranged that either may be brought into use by means of a switch. The pump, magneto, and carburettor are all mounted directly on the engine. The water circulation is maintained by a gear-driven pump, and a ribbed radiator set in a frame forming the water tank. A new automatic carburettor described in the *Journal* on December 10th last forms one of the features of the new cars. The clutch is also of new design, being practically in duplicate, there being two cones. The smaller one, which is metal-to-metal, engages first, followed by the engagement of the large one, the cone of which is leather-faced. Both clutches are controlled by the same pedal; the advantage of the arrangement is that the engine is put into gear without shock, while, to further reduce any strain on the gear-box, a universal joint is introduced between the latter and the clutch. Four speeds forward and a reverse are provided, with a direct drive to the countershaft on top speed.

The DARRACQ COMPANY has a large stand, on which a range of Darracq cars is exhibited. As a description of the 1905 models has already been given in the *Journal*, no lengthy mention is necessary at the present time. It will suffice, therefore, to briefly state that for this year this concern is making seven types of cars: 8-h.p. single cylinder; 12-h.p. double-cylinder; and 15-h.p., 18-20-h.p., 20-22-h.p., 28-h.p., and 30-h.p. four-cylinder. The chief object of interest is the new model 8-h.p. car. The one on view is fitted as a four-seated car, with tonneau body, but it is also supplied as a two-seater. The vehicle has a pressed steel frame, in the forward part of which is set an 8-h.p. single-cylinder engine. The inlet valve is mechanically operated, and is provided with a device in conjunction with the governor whereby its lift, and consequently the speed of the engine, can be regulated. The change speed gear-box is adapted to give three forward speeds and a reverse controlled by, as usual in Darracq practice, a lever on the steering column. On the top speed the drive is direct through the cardan shaft and bevel gear to the live axle. The brakes are of the metal-to-metal expanding type. The exhibit also includes a 30-h.p. four-cylinder tonneau, and examples of the 12-h.p. and 15-h.p. cars, among the latter being a handsome landaulet. The vehicles are on similar lines to the 1904 models, but comprise a number of changes in detail. Among these are the adoption of forged steel axles of H section; the steering column is now sloped considerably more, and magneto ignition can be fitted at the option of the purchaser, either alone or as a secondary ignition. The brakes are of the latest design, being internal expanding, metal-to-metal, and holding equally backwards and forwards. A new type of governor has been adopted, working on an eccentric controlled by hand and foot.

Messrs. CLEMENT-TALBOT, LIMITED, have a large stand, on which are shown a number of their cars ranging in power from 8-9-h.p. to 35-50-h.p. Principal interest is centred on the *chassis* of the latest type of 12-16-h.p. four-cylinder car. The engine has separate cylinders with the valves arranged on either side. Other new departures in the car are the placing of the steering bar behind the front axle, a new compensating device for the rear brakes, and the raising of the frame at the rear end. Messrs. T. J. HARMAN AND COMPANY, the British agents for the Vinot-Deguingand cars, exhibit a highly-finished *chassis* of the 20-h.p. four-cylinder car. Mechanically-operated inlet valves, on the opposite side to the exhaust, are adopted. The frames are of wood and steel or of pressed steel construction. The change-speed gear is of the *train balladeur* type, the sliding sleeves, however, working on a hexagon shaft in place of the usual square type. The change-speed lever is on novel lines. By pressing a spring it operates at three different heights; in the highest position it gives two forward speeds, in the middle two more, whilst in the lowest it puts in the reverse gear. The transmission is by side chains from the differential shaft to the rear road wheels. The 20-h.p. car is provided with both accumulator and chain-driven high tension magneto ignition, both being controlled by one switch and a single advance lever.

Interest at the stand of the LONDON and PARISIAN MOTOR COMPANY, LIMITED, is principally centred on the *chassis* of the 1905 Hotchkiss 17-25-h.p. car, the new features of which have already been dealt with in our reports of the Paris and Crystal Palace shows. A new speed indicator known as the "Cowey," made by the Cowey Engineering Company, Limited, is also to be seen. The indicator is on a new principle, and may be simply described as being mainly composed of three fundamental parts, viz.:—a heavy balance wheel, a spring, and a propelling device. The spring is connected up to the balance wheel in such a manner that it tends continuously to draw it in one direction (the direction of zero on the indicator), while the propelling device gives a series of intermittent impulses to the balance wheel which tends to draw it in the opposite direction. The faster the vehicle travels the more numerous will be the impulses given to the balance wheel by the propelling device, and the spring having more work to do in overcoming the effect of thes impulses will be deflected, and allow the balance wheel to be angularly displaced to a greater or less extent. The balance wheel in its turn operates the indicating pointer and moves it into a position which represents the speed at which the vehicle is travelling. By the adoption of this principle the indicator is enabled to do its work effectively under the worst conditions of vibration and is also unaffected by any frictional differences in the adjustment of its various parts. The indicating pointer is in consequence quite steady at all points of its dial, from 5 to 60 miles per hour as the case may be, and is entirely free from any quivering or shaking, no matter what speed the car is travelling at or how great is the vibration. Special care has been devoted to the method of connection, which is attached to one of the front wheels of the car. The connection is composed of solid shafting and bevel gearing throughout, no flexible shafting being used. In order to provide for the "locking" of the wheels one telescopic and two universal joints are employed which allow of the full angle of movement. An odometer is fitted to the indicator which shows the total mileage run. Perhaps the most noteworthy feature of the apparatus is the recording device, which gives an absolute record of the various rates of speed at which the car has been travelling at every point during the whole of the preceding quarter of a mile. This is accomplished by means of a series of small pointers arranged on a circular dial mounted on the face of the indicator. Part of the dial only is exposed to view, and immediately before each pointer appears it is automatically set to a position which indicates the speed at which the car is running. Each pointer maintains its indication for a quarter of a mile, when it disappears and is again automatically set to its new position, thus all records beyond the quarter of a mile are continually obliterated by the working of the apparatus. Should the vehicle upon which the indicator is fitted run into anyone, or meet with any similar accident, and then be stopped by a constable, the indicator will bear on its face indisputable evidence as to the exact speed at which the car was travelling at the point where the accident occurred as well as at every other point in the last quarter of a mile. At this stand is also to be seen the motor-car whistle of the Motor Patent Appliances Company, of which an illustrated notice was given in our issue of December 3rd last.

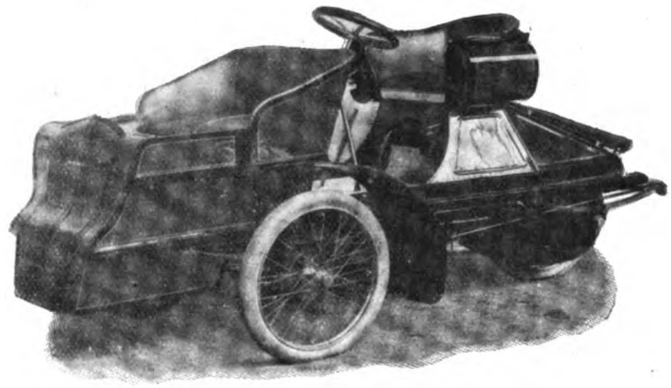


Fig. 15.—A Rexette with Special Front Seat.

The REX MOTOR MANUFACTURING COMPANY, LIMITED, display a number of the Rexette three-wheel cars, the details of which were described in our issue of the 26th November last. The machine has more the appearance of a car than a motor-cycle. A feature is the "live" tubular frame, this being suspended by long springs on the road wheels. The motive power is supplied by a 5-h.p. water-cooled engine set a little behind the centre of the frame. The water circulation is on the thermo-siphon system, no pump being used. Two speeds are provided, the engine crank case and gear-box being combined in one casting. The seats, both for driver and passenger, are of larger proportions; the petrol and lubricating oil are carried beneath the front seat. Fig. 15 depicts a Rexette, with folding dash to the front seat, which adds greatly to the passenger's comfort.

Messrs. JESSE ELLIS AND COMPANY, LIMITED, exhibit one of their standard 3-ton steam lorries. The vehicle, which is gear-driven, is fitted with one of the Ellis-Bamforth fire-tube boilers and a double-cylinder horizontal compound engine running at a speed of 400 revolutions per minute. The BRISTOL WAGON AND CARRIAGE WORKS COMPANY, LIMITED, exhibit two heavy steam wagons; one is designed to carry a load of three tons and is gear driven; the other is a new model of chain-driven vehicle and is intended for loads up to five tons. In general arrangement the wagons follow the now-accepted standard lines, the boiler being of the fire-tube type and the engine a horizontal double-cylinder compound.

A stand which seems to have a magnetic attraction for visitors is that of the BROTHERHOOD CROCKER MOTORS, LIMITED, where the new Brotherhood car, which we are at present thoroughly describing in the *Journal*, is on view. The exhibits comprise a *chassis*, a handsome double landaulet, with Mulliner body, built for Countess Amherst, a noticeable feature being the adoption of De Nevers grooved solid rubber tyres, and a side-entrance double phaeton. The body of the latter is by Hamshaw, of Leicester, and is altogether an excellent specimen of the carriage builder's art.

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Messrs. J. Keele and Co. are to be found in the Annexe, where they have on view a 10-14-h.p. four-cylinder Spyker car and examples of the 9-h.p. and 15-h.p. Darracq, all of which have formerly been described in the *Journal*. Messrs. H. E. Hall and Co. have a range of the latest models of Darracq cars, ranging from 8 to 15-h.p., the new features of which have already been dealt with in our pages, and also two Clement-Talbot cars of respectively 11-h.p. and 20-h.p. Attention may also be drawn to the Bergmann Lilliput two-seated car, for which Messrs. Hall have secured the sole agency, and which, by reason of its moderate price, is likely to become very popular. The car is fitted with a 5-h.p. single-cylinder engine. The novel feature of the car is in the transmission, which is by friction drive, consisting of one power-giving and one power-transmitting disc, by means of which any desired rate of speed can be obtained, as also a reverse motion. The car can attain a speed of twenty miles per hour, and is stated to be capable of climbing gradients of 1 in 4 with two persons up.

The "Hopkinson" patent solid tyre is shown by Messrs. J. E. Hopkinson and Company, Limited, who are sharing in the motor-bus boom and supplying their special tyre to many of the 'buses put on the road by the railway companies as well as by private concerns. The idea underlying the construction of this tyre has been to secure a combination of resiliency, durability and reliability. Resiliency is attained by the absolute security of fixing, allowing a very high grade soft rubber of such a section to be used that the free rubber outside can readily be displaced under shocks so that the concussion can run itself out circumferentially round an endless tyre without hindrance. The rubber tyre is moulded in an endless form so that the base of the rubber, when the side flange plates are bolted together, is laterally compressed into the recessed steel band as shown in the sectional view in Fig. 16. It will at once be seen that any chance of creeping is thus obviated, and that the tyre when once fixed is absolutely secure. The "Twintop" form of tread also adds enormously to the natural resiliency in taking off all first shocks before passing to the body of the tyre, the easy outside displacement of the rubber naturally reducing the friction between the road and tyre, thereby increasing the length of life so that a maximum mileage can be attained. The flange plates are of cast aluminium and the india-rubber, as we have already said, is of high grade. The principle of construction of the

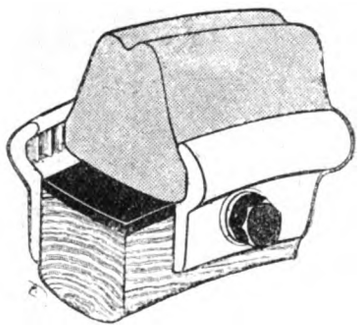


Fig. 16.—Sectional View of "Hopkinson" Tyre.

Hopkinson solid tyre is a sound one, and every care is taken in the manufacture to add to the durability.

Messrs. Renault Freres, Limited, display a range of the well-known Renault cars—a *chassis*, and a handsome side-entrance double phaeton of the 10-14-h.p. type, a 14-20-h p. coupé limousine, a 20-30-h.p. *chassis*, and a 20-30-h.p. side-entrance double phaeton. The new features of these vehicles were illustrated and described in our report of the Paris Show, so it will suffice to mention that the two-cylinder engine on the 10-14-h.p. car has mechanically-operated valves and high-tension magneto ignition. The rim of the flywheel is provided with vanes to act as a fan. The radiator is set in a frame, comprising top and bottom water tanks, the whole being mounted on the front of the dashboard. By the action of the fan-shaped flywheel a very powerful suction is caused underneath the bonnet, and thus a strong current of cold air is drawn through the radiator. The engines of the 14-20-h.p. and the 20-30-h.p. cars are similar to the 10-14-h.p., except that they comprise four cylinders. It may be mentioned, however, that the 20-30-h.p. engine is fitted with a compression release to facilitate starting. The inlet valves are provided with the variable lift device Messrs. Renault have used so successfully for several years. In the larger engines an automatic governor is provided, this acting on a butterfly valve on the admission pipe; a pedal accelerator is also fitted. The ignition is so arranged that it is automatically advanced or retarded, the hand lever usually fitted being now abandoned. A new form of automatic carburettor is also employed, enabling the air lever to be also dispensed with. The clutch is of the leather-faced cone type arranged to give a gradual engagement. The change-speed gear has been slightly modified; it is adapted to give three speeds forward and a reverse with direct drive on top speed. The cardan shaft and live axle system of transmission is still retained, but a new form of spherical universal joint is being used. The brakes are of the metal-to-metal expanding type. A shield extending well to the rear protects the under side of the engine, clutch, and gear box from mud. A noticeable departure is the adoption of pressed steel frames and the suppression of the subsidiary frame for the support of the engine and gear box. The springs are of good length, and we notice that an additional transverse spring is now provided at the rear in the case of the larger cars.

The British Automobile Commercial Syndicate, Limited, exhibit *chassis* of the 15-20-h.p. and 20-28-h.p. four-cylinder Spyker cars, the features of which were referred to at length in the *Journal* of the 4th inst., both Mr. Wellington and Mr. House being present to explain their merits.

Messrs. Peto and Radford have their usual interesting display of electrical apparatus for use in connection with the electric ignition and the electric lighting on automobiles. Their practical experience as

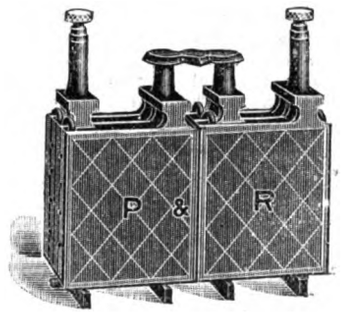


Fig. 17.—The Ashtead Accumulator.

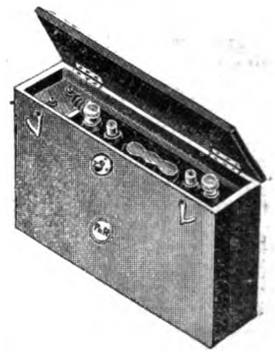


Fig. 18.—Auxiliary Accumulator. Set for Use with Low Tension Magneto.

electricians gives them a strong position from which to cater for the requirements of motorists. An interesting exhibit is that of Dr. Auer's "Osmi" lamp, fitted with a new filament, securing an illumination hitherto unobtainable from a lamp of such low voltage. Among the accumulators on view is the "Ashtead," a view of which is given herewith in Fig. 17. In this the lead support is in the form of an envelope, and the active material is in one piece, not sub-divided in any way. The containing cells are of ebonite, which are fitted into a wooden case, the whole being sealed in very carefully. Strong lead connecting bars and large terminals are provided, and although the type illustrated is one specially suitable for motor-boats, Messrs. Peto and Radford have many others designed for use on cars. In their new catalogue just issued, the firm give most complete specifications of their accumulators, adding materially to the ease with which the wants of motorists can be readily realised. Mention may also be made of the P. and R. auxiliary accumulator sets, for use with low tension magnetos. This storage battery and coil is supplied fitted as in Fig. 18, and with six volts will be found very satisfactory in use. A special size is also being made for motor-omnibuses. Other exhibits on this stand include accumulators filled with the Peto-Cadett electrolyte, the "Compound" sparking plug, the "Perfect" terminal clip with insulator voltmeters, testing and inspection lamps, a neat lamp for use inside broughams, etc., an electric rear lamp, and accumulator repair outfits.

Messrs. Hans Renold, Limited, have an effective display of samples of their roller chains, in French and English sizes, for all types of cars. They also show the well-known silent chain so largely adopted on the Mo-Car and Wolseley cars, as well as a new type of silent chain, designed with the object of increasing the wearing qualities. Elsewhere in the gallery will be found the Coventry Chain Company, Limited, with their chains made in various pitches up to two and seven-eighths inch, as well as larger chains for wagons and lorries. Messrs. Brampton Brothers, Limited, also have a display of motor lorry chains, as well as chains for lighter automobiles.

The "De Nevers" patent grooved solid tyres in all sizes, from those for light cars to the types for motor lorries and buses are shown by Messrs. J. Liversidge and Son, Limited. This tyre has come well to the front and is highly regarded by many expert motorists.

The Collier Tyre Company, Limited, have a bold display and call attention to the many special features in connection with their tyres. The security and safety of attachment of the Collier tyre is notable, for should anything penetrate the tyre and thus cause it to become deflated, there is absolutely no danger to the occupants of the car, by virtue of the fact that the tyre cannot possibly leave the wheel rim while the car is still in motion. The tyre is constructed with an extra thickness of rubber upon the tread, not only to increase its life but to afford certain protection against internal damage so commonly caused by metal, sharp flints, &c., always to be encountered on almost any road. The Collier tyres fitted to the King's 28-36-h.p. car in April of last year have from that time to the present never been touched except for inflation on one or two occasions. A similar satisfactory performance is recorded of the Collier tyres as fitted to the car of the Prince of Wales. The display on the present occasion includes outer covers of all sizes from 26 in. to 40 in. in diameter.

Aluminium castings are shown in great variety by Messrs. Williams Mills Limited. These are from alloys of great strength and are remarkable for their clean cut appearance.

(To be continued.)

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STEEL AS APPLIED TO MOTOR-CAR CONSTRUCTION.

By J. S. Critchley, M.I.Mech.E.

The importance of the study of suitable materials for the construction of motor-cars cannot be too thoroughly considered, as, in fact, the motor-car of to-day only exists in its present form by reason of the advances that have been made during recent years in the art of metallurgy. In spite of all that has been accomplished, much remains to be done and explained, and in the opinion of the writer it is evident that great developments are in progress, which will yield results of the utmost importance to the growing industry connected with the motor-car. Perhaps no industry in the world calls for closer or more direct intercourse between the metallurgist and the constructor, and it is only by the most perfect co-operation between them that the best results can be obtained. The metallurgist must fully understand all the requirements of the motorist, and must give the full benefit of his experience. The motor-car is yet in its infancy, but it is evident that steel makers in this country, and more especially abroad, are beginning to take up the manufacture of suitable steels in a very serious manner. I have been very interested in watching the development of the manufacture of motor steels during the past eight years, and while one has seen great continental firms paying a vast amount of attention to their production, one has seen little or no enthusiasm displayed in this country. The continental steel manufacturer is in evidence at the motor exhibitions, and is all the time improving his productions and assisting in no small degree the motor-car manufacturer. There is no doubt that this country produces the finest steels the world has ever seen for certain purposes, and there is no reason that for motor-car work the steels produced should not be equally as good and command a sale in foreign countries, just as many of our high-class tool steels do. However, as far as we can see at the present time, we are not only importing motor-cars, but importing materials to build them with. This is a state of things which should not be allowed, and I trust that we shall very soon see our own steel firms making and supplying a large quantity of steel for the world's motor trade.

It has been said that the motor-car, as it exists to-day, has not been designed by an engineer; further, that, if it had been, it would never have existed in its present form. There is perhaps some truth in this statement, and for this reason the part of the metallurgist is an all-important one, namely, to supply the requisite materials. The sliding tooth-gear is an appalling thing to any engineer, and it only lives by reason of the materials which are used in its construction. When one considers that 90 or more horse-power can be put into a vehicle with a total weight of under one ton, and capable of attaining a speed of over 90 miles an hour, one at once understands that it can only be done by the use of materials which, for ordinary engineering practice, would never be even suggested. Steel includes a material as soft and pliable as any wrought iron, and as hard as flint, a material with the elasticity of a Damascus blade, or as brittle as glass, a material with 25 per cent. more ductibility than the best iron, or of 100 tons tensile strength to the square inch, and with no perceptible elongation, a material that will weld nearly as well as the best wrought iron, or a material differing from chilled cast iron only in its malleability, a material varying from almost nothing upwards in any of all these properties. The varying qualties of steel are practically due to the percentages of carbon and iron contained in the material. Iron may contain anything from ·06 to 4½ per cent. of carbon, and in addition it may be alloyed with nickel, chromium, vanadium, all of which when alloyed in suitable proportions impart to steel a hardening effect, combined with toughness, and it is by the judicious alloying of one of these metals and carbon whereby steels of great strength and toughness are produced.

Steels containing over 0·5 per cent. of carbon are termed hard steels or high carbon steels, and those containing less than 0·5 per cent. are known as mild, soft, or low carbon steels. The uses and employment of different kinds of steel depends upon the percentage of carbon, the high carbon steels being almost exclusively used for the making of dies and cutting tools. For structural purposes, steels with more than ·45 per cent. of carbon are seldom used, as the higher the percentage the greater the risk. Steel with anything above a small percentage of phosphorus, say 0·4 per cent., is not suitable for any purpose where it is subjected to shock or vibration. Sulphur also has a detrimental effect, and should only be present in about the same proportion as phosphorus, *i.e.*, 0·04 per cent. Nickel, chromium and vanadium have a marked effect on steel, increasing both the ultimate stress and elastic limit, and it is in connection with alloys with these metals that some remarkable results have recently been obtained.

There are a number of tests to which steel may be put in order to determine its suitability for any particular purpose. I am of opinion that for motor-car work, or for any structures subject to alternating loads and severe and sudden stresses, the ordinary static tests should be supplemented by dynamic tests. Unfortunately, this description of test is not yet properly standardised, but many steelmakers and users of steel carry on these tests in their own particular method. These tests usually consist of impact tests on flat bars, and impact or notched bars. The impact or shock test on flat bars consists in dropping a weight on to a bar which is supported at each end and noting the deflection after a certain number of blows. The same test is also carried out on notched bars, which is a better guarantee as regards toughness. It has been proved that steel which shows a good resistance to impact always has a good elastic limit and elongation, but steels which show good static tests are often quite useless to resist shock. It further appears that oil-tempered steels show much greater resistance to impact; in fact to a much greater degree than would be supposed from the slight gain in the static tests, thus showing that the oil tempering has imparted to the steel a quality that is not adequately recorded by the improvements that may be shown in those tests.

All tests may be said to be merely indications—generally very good indications, but when steel is to be applied for a new and particular purpose—for instance, the gears of a motor-car—there is a great deal to be learned from actual use. Probably the first gear wheels which were made for motor-cars were made from cast metal, with the teeth cast in, and the next stage would probably be wheels of mild or cast steel with machine-cut gears, probably very good material for certain purposes, but totally unsuited for the rough usage of sliding gears. The next stage in the evolution of gears was doubtless the case-hardening, with all the difficulties and troubles of overheating, warping, improper quenching, etc. The improved methods of dealing with this material in order to obtain a very hard outer surface, which would not chip, and a soft and ductile interior, are the next stage. We then come to the use of nickel steels, and nickel chrome steels. Many of these steels do not require case-hardening at all, while others are made of a special quality which case-harden very well. The great art in case-hardening gear wheels is to prevent distortion on quenching. This can only be accomplished by a man who has had a lot of experience in the work. The temperature of quenching is also a very important one, as if quenched at too high a temperature the surface of the metal is very brittle. Some nickel chrome steels do not require case hardening, are oil tempered, and the material is in itself tremendously hard, in fact so hard that special tool steel has to be obtained in order to shape the gears. I well remember the first nickel chrome steels which I applied to gear wheels in the year 1900. I submitted a sample of the steel to some tool makers who were at the time supplying a special machine for gear work. This material quite upset all their preconceived ideas as to the cost of production; the cost of cutting these wheels was quite double the cost of cutting ordinary mild steel. But so satisfactory were they that many of them are to-day practically as good as when they were put in.

A new steel for gears which has just been put on the market is a French invention, the sole rights for France having been taken up by one of the largest builders of motor-cars in Paris. This steel is carburised in the usual way by heating in boxes with the usual case-hardening substances, the time required being about seven hours, at the usual temperature of about 1,470 deg. Fah. The parts are, however, not quenched, but allowed to cool gently, when they become quite hard. As it is not necessary to quench in water the parts are not distorted. However, the most remarkable characteristic of this steel is that as it is subjected to strain and friction the harder and tougher it becomes. The physical tests of this steel are as follows:—Tensile strength, 33·4 tons per square inch; elastic limit, 24·8 tons per square inch; elongation in 2 in., 31 per cent.; and contraction of area, 69·5 per cent. Messrs. Shipman, of Sheffield, well-known steel manufacturers, have taken up this steel in this country. In all cases where case-hardened steel is used tests of the material should be made, both before and after case-hardening. The carbon content should be a low one, otherwise the steel may become brittle on being quenched, the essential point in case-hardening being to harden the surface only, while leaving the metal under the hard skin soft and ductile. Messrs. Fairley and Sons, of Birmingham, to whom I introduced the nickel chrome steel before referred to, have since made and supplied it. Practically it is a tool steel of high quality, containing, in addition to carbon manganese and silicon, nickel, chromium, tungsten, together with traces of cobalt molybdenum.

(*To be continued*).

* Abstract of Paper read at a meeting of the A.C.G.B.I. on February

We learn that the new London Motor Omnibus Co. have placed an order for twenty-five Wolseley 'buses, with seating accommodation for thirty-four passengers. Some of the chief points in the design of the Wolseley 'bus are:—(1) The employment of a pressed steel frame. (2) Slow running motor, which gives a wide range of effectiveness. (3) A reasonable length of wheel-base, with the same capacity for passengers as that provided by 'buses fitted with vertical motors.

The authorities of the City of London have received an official intimation to the effect that the Local Government Board does not propose to make any alteration in the existing law as regards the speed of motor-cars in the City. It is suggested that the present speed limit of twenty miles an hour should remain unaltered for at least another year. While the speed limit of motor-cars passing through the City is twenty miles an hour, the actual pace is never on an average more than eight miles an hour.

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CLUBS AND ASSOCIATIONS.

NOTTINGHAM.

Members of the above club gathered in good numbers at the Black Boy Hotel on Friday of last week to hear a lecture on "Motoring Experiences in South Africa," by Mr. A. R. Atkey, a vice-president of the organisation. Amongst those present was the president (Mr. C. Hardy). Messrs. Wells-Lucas, S. Harvey, A. Watts, F. Pearson, J. C. Bennett, R. Harbidge, H. Bircumshaw, H. Kirk, Dr. Gass, E. A. Stevens, C. L. Stevens, H. V. Stevens, W. M. Hutchinson, A. Metheringham, B. Winter, G. Cowen, M. Ross-Browne, W. B. Wells, and Booth Granger, hon. sec.

Mr. Atkey said that during his various visits to South Africa he had made motor trips through Cape Town, Bulawayo, Port Elizabeth, Ladysmith, Mafeking, and all the principal towns in Cape Colony and Rhodesia. A slide illustrative of a meeting of the Cape Town Automobile Club was thrown on the screen, and the lecturer said it used to be a rule that no man should, on a club run, pass the leader. As the roads are in some places covered with two or three inches of fine white sand the condition of the last man might be better imagined than described! Mr. Atkey said the roads were almost impassable in certain parts of the country, and he gave many original slides showing the stiff gradients, frequently averaging 1 in 6, which South African automobilists had to overcome. The difficulties of crossing the veldt and negotiating the water spruits and other natural objects encountered out there were described and illustrated. At one place they overtook Sir Hely Hutchinson, the then Governor of Cape Colony, making a tour of the different towns. Entering one place about two hours before the Governor was due, Mr. Atkey and a friend found it lavishly decorated, with the local band and all the population lining the streets. As the car ran along the two occupants were greeted with acclamation by the whole populace under the impression they were the representatives of the Government. Mr. Atkey was the first to accomplish the journey between Johannesburg and Mafeking, a distance of, roughly speaking, 200 miles, in one day. To do that he was driving a car 14 hours continuously. His was only the third car to enter the famous siege town. "We left Johannesburg," said Mr. Atkey, "twelve hours later and arrived at Mafeking 36 hours earlier than the train," which is, of course, explained by the fact that he followed a cross-country route direct to his destination, whilst the train made a detour of about 1,000 miles.

LINCOLNSHIRE.

At the annual general meeting of the Lincolnshire A.C., to be held at headquarters, the Saracen's Head, Lincolnshire, on Saturday, the 25th inst., the statement of accounts will show a profit of £22 7s. 2d. on the year, which makes the total balance in hand £52 14s. 6d. An important proposal is that for the committee two members shall be resident in each of the three county divisions, Holland, Kesteven, and Lindsey, these six being virtually district representatives.

SOUTH WALES AND MONMOUTHSHIRE.

The report and balance-sheet just issued covers only the nine months since March 31st, 1904. After considerable trouble the special sub-committee appointed to select a site or buildings for the club headquarters and motor-house were fortunate enough to secure a piece of ground in an admirable position at West Wharf, in the centre of Cardiff, at a low rent. There was a ruined cottage on the site, but this is now transformed into the headquarters, with committee, ladies', caretakers' rooms, and lavatories. In addition, an excellent motor-house with accommodation for about forty cars has been built. It is equipped with examination pits, hose, cement floor, etc. The thanks of the members are due to the sub-committee, consisting of the Chairman, hon. Secretary, Mr. J. J. Neale, Mr. J. L. Proger, and Dr. Pritchard, for their enterprise in securing such a convenient site, and in arranging for such a rapid erection of the buildings. The proposal of the Newport Borough Council to restrict the speed of motor-vehicles to ten miles per hour, in certain streets of Newport, was strenuously opposed. Although the Glamorgan County Council is far ahead of many other County Councils in widening and looking after the roads within its territory, it is backward in erecting the necessary signs provided for in the Motor-Car Act. It has been suggested that if there is to be further delay in fixing up these notices, the Council should, meanwhile, repaint the cyclists' "danger" and "caution" boards that are already erected on many dangerous hills and corners.

Another matter in which the protest of the club has been ineffective, is in respect of the first electric tram standard (after passing under the railway bridge) on entering Cardiff by the Newport road. This standard is in the middle of the road, and, being unlighted, and within the shadow of the bridge, constitutes a real danger to motorists—strangers especially. In reply to the Committee's protest, it is stated that the Council intends to light up all Newport Road with electricity at some future date. This is all very well, but, in the meantime, there may be some terrible disaster. Surely if there is any difficulty about placing an electric light on this dangerous standard, an ordinary lamp might be fixed. Perhaps Cardiff motorists will bring pressure to bear through the Councillors of their wards.

The balance-sheet shows the club to be in a thoroughly sound position. The assets amount to £329 12s. 4d., and the total liabilities (loans by members) only amount to £215. A surplus of £56 4s. 5d. is the result of the nine months' working.

THE HARTLEPOOL CLUB.

The annual general meeting of the Hartlepool Club has been held at the Grand Hotel, when a large number of automobilists were present. The balance-sheet for the past year's work was presented and showed a substantial balance in hand. In the course of the evening the Chairman dealt with the doings of the club during the year, remarking that these were very satisfactory for a new association. Two cups were presented to the Committee, one for competition among the cars, given by Mr. C. E. Smith, C.E., and the other for motor-cycles given by Mr. Harold E. Pyman. The following officers were appointed:—President, Mr. D. Jones, J.P.; Vice-Presidents, Drs. F. H. Morison and A. E. Morison and Mr. J. R. Fothergill; Committee, Messrs. A. G. Rickinson, C. E. Smith, R. Lauder, jun., C. McAdam, and Dr. Wall; hon. Treasurer, Mr. H. H. Barraclough; hon. Secretary, Mr. C. C. Brown.

The annual general meeting of the Southern Motor Club will be held at the Canterbury Hotel, Brixton, S.W., on Thursday next.

The address of the new hon. secretary of the Yorkshire Club, Mr. C. P. Wilson, is 5, Park Row, Leeds.

In our next issue we shall give a report of the annual meeting of the Gloucestershire Automobile Club.

The Yorkshire Club has celebrated the refusal of the Local Government Board to restrict the speed of motor-cars to a maximum of ten miles an hour by holding a smoking concert at their headquarters.

TYRE FITTING COMPETITION.

At the Motor Car Show at Olympia the tyre removing and refitting competition at the "Continental" tyre stand has been a popular feature. Up to Tuesday night the times of the best fifteen competitors were as follows:—

	Min.	Sec.
A. Merry, Coventry	6	41 4-5
G. Pallat, London	7	1 3-5
C. Alsop, Coventry	7	42 2-5
H. Jennings, London	8	11 3-5
A. Bond, Crayford	8	35
G. Mordon, Croydon	9	45 1-5
W. Blackmore, London	10	5 1-5
C. W. Siebert, London	10	8 2-5
R. R. Cox, Surbiton	10	9 3-5
E. Barnfather, Croydon	10	53 3-5
L. Piechawrcz, Peasmarsh	10	59
J. Green, Manchester	11	3 2-5
R. Brewer, London	12	11
C. F. Drewry, London	12	47 4-5
L. Jennings, London	13	23

CASES AGAINST MOTORISTS.

Place.	Summoned for	Fine.
Acock's Green	Not exhibiting a red light at the rear of the car	5s., etc.
Southport	Reckless driving	Dismissed.
West London	Dangerous speed	Dismissed.
Derby	Furiously driving a car	£6.
Oakham	Excessive speed	10s. 6d.
Cheltenham	Furious driving	£2.

TO CORRESPONDENTS.

All communications intended for insertion in this Journal or relating to Editorial matters should be addressed to The Editorial Department, Motor-Car Journal, 27-33, *Charing Cross Road, London, W.C., and must be written on one side of the paper only. Letters must in all cases be accompanied by the name and address of the writer, as no notice will be taken of anonymous communications.*

The Editors cannot undertake to return MSS. or drawings, although every effort will be made to do so in the case of rejected communications. Where such are regarded as of value, correspondents are requested to retain copies.

To insure insertion communications and contributions must be in the Editor's hands by Tuesday forenoon of the week in which the same are intended to appear. Disappointment may be caused by non-compliance with this rule, and to avoid this earlier receipt, if possible, is necessary.

The Editors and Publishers beg also to state that they will accept no responsibility for unsolicited contributions, even if used, unless payment for same is directly specified in forwarding, and the terms arranged before publication.

The Editors do not hold themselves responsible for the opinions expressed by their correspondents, or for statements and facts which do not appear in the editorial columns.

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THE

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COMMENTS.



MR. HENRY GWINNER appeared at Bow Street Police Court on Tuesday to answer an adjourned summons charging him with driving a motor-car in the Green Park at a greater speed than ten miles an hour. At previous hearings it was contended by Mr. Staplee Firth, who appeared for the defence, that the regulations under which the proceedings were taken were *ultra vires*, and the case had been adjourned for the magistrate to consider his decision. Mr. Marsham now said that the question was an important one on which he would willingly state a case. The regulations had not been laid before the Houses of Parliament, but he held that it was not necessary they should be before becoming operative, as his view was that that was not a condition precedent to their validity. There might be some doubt whether the Commissioners had power to make regulations, but taking all things into consideration he had come to the conclusion that they had such power. In these circumstances he fined defendant 40s. and 2s. costs. Mr. Staplee Firth asked for a stay, to enable him to consider whether he would take a special case or proceed by writ of *certiorari*. This was granted.

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Support Wanted.

THE importance of this case and the care and energy with which Mr. Firth has followed up the point he disclosed to motorists on the occasion of Mr. Moresby White's paper at the A.C.G.B.I., has already been referred to in our columns. It is to be regretted that Mr. Marsham, who doubts the power of the Commissioners to make regulations, should, nevertheless, fine the defendant in this case, and thus clear the way for further expense and trouble. The evidence called by Mr. Firth should have settled the matter, which seems to be one of fact rather than of law. We hope motorists generally will give all the support they can to both Mr. Gwinner and Mr. Firth, who are stoutly fighting the battle "for the parks."

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In the House.

MR. CATHCART WASON is the illustrious Parliamentary representative of the Orkney and Shetland Islands in the House of Commons. He occasionally blossoms into prominence as the opponent of automobiles, or, perhaps, we should be more correct in saying the legislature querist who generally gives folks the impression that motor-cars are not the objects of his particular fancy. On Monday he asked a question of the Secretary of the Local Government Board practically suggesting that compensation should be paid by the Government to local authorities for damages that "might be done to roads, bridges, sewers, gas and water mains by such heavy vehicles." He also wanted the House of Commons to be given an opportunity of expressing its opinion—if it has one—on the new orders before bringing them into force. Mr. Grant Lawson, who replied on behalf of Mr. Walter Long, was able to point out that the regulations were mainly in accordance with the recommendations for a departmental committee on the subject, and rightly declared that there was not sufficient reason for the proposal that compensation should be given to local authorities. In accordance with the Statute, the Order of the Local Government Board has been laid on the table of the House. And that was all the satisfaction he could give Mr. Wason.

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Names in Hamlets.

SOME correspondents in the Press have lately been calling attention to the difficulty of discovering their whereabouts when arriving in some of the smaller villages and towns of the country. It is pointed out that this is particularly irritating on night trips, and that it is almost impossible on such occasions to ascertain the name of the hamlet in which the motorist or other wayfarer may find himself. The suggestion that the signposts at the entrance to such localities should bear the name conspicuously painted thereon is an admirable one, and we would take this occasion to remind motorists that the Postmaster-General requires rural post-offices to have the name of the village placed conspicuously over their doors. This is unfortunately sometimes ignored, or the wear and tear of time has obliterated the lettering. A communication to the Postmaster General, however, calling attention to omissions of this kind, will ensure a prompt remedy. Those who discover instances of local neglect will be doing useful service in bringing such matters to the notice of the authorities.

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Motor Car Imports and Exports.

THE New Year has brought with it no diminution in the importation of foreign motor-cars and parts into this country. No less than 362 cars were imported in January, their value being returned at £149,578, which, added to £36,608 of parts, gives an aggregate of £186,186 for last month, as compared with only £120,772 in January of last year. As regards the exports of British motor-cars, these show a slight progress. The number shipped last month was seventy-seven, of a value of £25,590. To this have to be added £7,480 of parts, giving a total of £33,070, as against only £28,636 in the first month of 1904.

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The Road of the Future.

BEFORE the Royal Scottish Society of Arts the Right Hon. Sir J. H. A. Macdonald, K.C.B., Lord Justice Clerk of Scotland, has been giving his views as to the future of British roads. The revival of the use of the road which was upon us in the form of nearly 80,000 motor-vehicles, the establishment of long-distance road motor-omnibuses in many cases by railway companies themselves, and the now certain fact that the great omnibus companies of London had definitely determined to abandon horse-haulage—all of which were only the harbingers of the coming great change—had once more aroused interest in the road, as a possession which might no longer be neglected, but must have earnest thought directed to its improvement. The improvement of our ways must be considered in two

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aspects:—(1) Could we find modes of surfacing our roads according to the requirements of the traffic, which, if adopted, would give satisfactory results; and (2) if we could not now say that any such road had been invented, how could we best, in the meantime, improve what we had, so as to minimise the disadvantages of our present system? The lecturer proceeded to criticise such materials for road construction as wood, val de travers, stone, and macadam. His lecture should have a good effect on the road surveyors of Scotland.

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Throwing Stones at Motor-Cars.

THE Committee of the South Wales and Monmouthshire Automobile Club has been in communication with the chief constables of the borough and county police in respect of the great danger to motorists through stones being thrown at passing cars by boys. This practice is, unfortunately, on the increase, and has recently been the cause of seriously injuring at least two lady occupants of cars, and of causing more or less damage to several motor vehicles. One has promised that "the matter shall receive the immediate attention of the borough police," and the other suggests that when stones are thrown "the motorists be requested to at once communicate with the police, who are instructed to render them every assistance in tracing the delinquent." It is to be hoped that motorists will comply with this suggestion in future, so that an example may be made of the next culprit. The nuisance is one not confined to Wales.

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A Novelty in Motor-Cars.

A motorist at Salina, Kansas, who, as a result of an accident, broke the front wheels of his Oldsmobile, managed to get home under his own power in the novel way depicted in the above illustration. He commandeered an old sulky, to which he connected the front of his car in such a way that the wheels of the sulky acted as the steering wheels, while the shafts formed the steering tiller!

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Motor-'Buses in the Provinces.

PROVINCIAL borough councils, as well as the public 'bus companies of London, are looking to the motor-'bus to ease some of the stress of traffic in large towns. At Wolverhampton, the Tramways Committee of the Corporation have been considering the matter, and recently asked sanction to obtain tenders for the supply of three double-decked motor-'buses. Naturally some difference of opinion was raised at the meeting of the Council, but it was significant that no general opposition to the principle of the motion was heard. Some councillors spoke of the passing of the tramcar before the advance of the motor-'bus, and advised a postponement of the matter, so that a really adequate scheme could be produced. Finally, it was agreed to defer decision for a month, when the matter will be discussed. It is highly probable that this enterprising Midland town will be among the pioneers of the motor-'bus services in the provinces.

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In the Eastern Counties.

PUBLIC meetings in support of local motor-'bus schemes are being held in various parts of the country, and enthusiasm seems to be the order of the day. At Great Wakering (Essex) the Rev. Horace Serjeant presided over a meeting at which Mr. J. Sellar, of Southend, propounded a scheme to raise a capital of £5,000 to run a motor-'bus service between Shoeburyness and that place. The estimated weekly expenditure for two cars, drivers, petrol, oil, rent, repairs, renewals, licenses, etc., was £13, while the estimated weekly takings, reckoning the cars at only 25 per cent. of their carrying capacity, would be £18 7s. 6d. The estimated annual income of the company would therefore be £955 10s., which, after deducting £676 for the estimated expenditure, would leave a profit of £279 10s. After paying out £179 10s. to the reserve fund and for depreciation, etc., a balance of £100 would pay 10 per cent. per annum on each £1,000 of the subscribed capital. He suggested that the directors should receive no remuneration, and that no promotion money be paid until the company paid a 7 per cent. dividend. Letters which had been received from the London Motor Omnibus Company, Limited, the Birmingham Motor Express Company, Limited, and from the Hastings and St. Leonards Motor-'Bus Company, Limited, in support of the prospects of success for which the company might hope, were read. Mr. J. W. Smith, secretary to the Birmingham Motor Express Company, Limited, wrote that their 'buses ran on an average ninety miles a day, and that the net profit was 3d. per mile. This was after working expenses and management charges had been paid, and after deducting a depreciation of £20 on the cars, and charging all renewals and repairs, etc., to the revenue account. Ultimately a resolution in favour of the proposed service was carried unanimously.

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Warwickshire County Club.

A COUNTY club for Warwickshire has just been formed at a meeting held at Leamington under the presidency of the Vicar. The whole of the country is being covered with a network of such organisations, which can do most valuable work in influencing public opinion to incline favourably towards the automobile. In view of the fact that the present Motor-Car Act will expire in a comparatively short time, it is all the more necessary that educational work should be thoroughly and systematically developed throughout the country. We record with satisfaction the formation of this club in the central county of England, and hope that all the county people will give it their hearty support.

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All British.

Now that the cry of "all British" seems to be heard from the ranks of prospective motorists, it is of interest to remind readers of the exemplification it will receive at the Agricultural Hall Exhibition next month. Glancing along the plan of the Exhibition, a succession of British names strikes the eye, and it is evident that, even more than at Olympia, the national character of the display will be a notable feature. This is highly gratifying to those who have worked long and well for the success of the British branch of the automobile industry, and the reward to English and Scottish capital should not be far off. In fact, it has already come to some.

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The Scottish Trial.

THE reliability run of the Western Section of the Scottish Automobile Club will begin on May 10th, when, starting from Glasgow, a run will be made *via* Edinburgh, Stirling, and Perth to Dundee, the total distance being 135⅜ miles. On the following day the trip *via* Blairgowrie and Braemar to Aberdeen will include a hill climb at Glenshee, and total 111⅜ miles. The third day's run (162½ miles) will be the longest and most interesting of the four. Concluding at Aberfeldy it will include a hill climb at Cockridge, and a visit to Tomintoul, the highest inhabited place in Great Britain. On the 13th the motorists will return to Glasgow by way of Crieff, Lochearnhead, Dalmally, Inverary, and Arrochar, thus completing an entire journey of 560⅜ miles. Special reports will be issued with regard to the tyres used in the trials. Already the organisation is well in hand, and Mr. R. J. Smith may be expected to repeat the well-ordered arrangements that characterised the annual Glasgow to London trips, now superseded by the new Reliability Trials.

Progress in New Zealand.

AT the last meeting of the Canterbury Automobile Association, which is doing much to promote automobilism in New Zealand, reference was made to the opening up of reciprocal operations with motor-car organisations in Great Britain and elsewhere. Doubtless when some definite proposals are made to our English clubs they will be favourably entertained, and anything that can promote the interchange of visits, or increase the facilities for motorists when on tour in the colonies, is to be heartily commended. The Canterbury Association has already been able to secure some improvement in the roads of the district, while the city authorities are to be approached with a view to providing a motor-car drive through one of the leading parks of the city. Apparently the association has been met with friendliness from the police and other authorities, and is on the high road to prosperity.



Photo by] **A Familiar Week-end Scene at the Hut Hotel, Wisley.** *[Shawcross, Guildford.*

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The Berkshire Main Roads.

SATISFACTORY is the news that from April 1st the County Council of Berkshire will take over the direct management of all the main roads in the county, and that a surveyor has been appointed to devote the whole of his time to their care. Reference to this fact is made in the annual report of the Berkshire Automobile Club, and the pleasure of the local automobilists is enhanced by the knowledge that the new surveyor is an enthusiastic motorist. That is the type of man who should be appointed to such posts—one who can appreciate the growing necessities of main road traffic, and who can realise that the efficient supervision of the highways is really a source of assistance to the people of the district.

The Fire in Long Acre.

EARLY on Wednesday morning the biggest fire that London has seen for some months broke out on the premises of the Ariel Motor Co. and Messrs. Slatter and Sons, in Long Acre. The flames rapidly spread to other buildings in the vicinity, and a large number of firms interested in automobilism were threatened. Motor-cars were quickly run out therefrom to places of safety, and a long line was soon formed in Charing Cross Road and neighbouring thoroughfares. Thirty horses were also removed from a 'bus-owner's stables in Castle Street. But many carriages were destroyed, and others in a charred condition were taken into St. Martin's Lane, where the London premises of the Star Engineering Company are situated. The adjoining place was attacked, but it fortunately did not reach the Star depot. The warehouses of the Collier Tyre Company and several other firms were saved, but several cars were destroyed, including, it is rumoured, a 70-h.p. Mercedes.

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An Anecdotal Evening.

Last week's meeting at the A.C.G.B.I. was hardly a serious affair, and Mr. Mecredy's fund of humour and anecdote provided a full hour's laughter and amusement. Attracted by the name of the writer of the paper, a fairly large gathering of members took place, who delighted each other with reminiscences of early motoring. Less than a decade ago motoring provided some exercise and was as varied and changeable as the weather, and the motorist was trained in resourcefulness; nowadays, however, reliability has taken the place of uncertainty, and motoring has been divested of many of its pleasures, incidents and anecdotes. Hence, possibly, some of the delight derived from listening to Mr. Mecredy's paper, some serious conclusions from which are given on another page.

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Motors for the Sick.

A Scottish sportsman has presented an Albion motor-car to the Dundee Consumption Sanatorium, to be employed in conveying patients to and from Auchterhouse Station, which is some distance from the institution. Although such luxuries have been denounced as adding to the cost of maintaining institutions of the kind, experience is proving their economy, while the fact that they are engaged in ministering to the comforts of the old, sick, and infirm should



The Church of St. Liphard, Merry, France.

be appreciated by those who have any regard for the condition of less fortunate human beings. At Edmonton a motor-'bus is being used with success in Poor Law work, and the Metropolitan Asylums Board is now endeavouring to find a motor-ambulance suitable for the conveyance of sick persons to and from its various institutions.

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Huddersfield Humour.

The Huddersfield town councillors, or at least some of them, seem to have a very perverted view of humour. We had thought that the motor-car as a means of oratorical display at meetings of such bodies were quite past, but the Huddersfield folks seem to have delighted themselves, if not their constituents, by attempting to ridicule one of their number who lately took to automobilism. Councillor Tetlow, when the minutes of the Watch Committee were read, drew a highly-coloured picture of the "disgraceful" and "abominable" way in which motor-cars sped through the streets of the town. He had seen a vehicle travelling at a rapid pace, and had intended to call the attention of the nearest policeman to its speed, when he discovered that the only passengers besides the driver were a couple of constables. Apparently his idea is that the automobile education of the police is being provided by some of the local motorists, who, in order to convince these "limbs of the law" that motoring is quite safe, have arranged to give the police some practical acquaintance with the subject—not a bad way of preventing the police displaying ignorance when they find it necessary to haul their victims to the courts.

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Highway Protection Leagues.

Mr. J. H. Nunn writes from Lealands, Hellingley, Sussex, that in connection with his proposed "Anti-Speed Motor League" he has received numerous replies from all classes of society urging him to take active steps in the matter, and offering their support both practically and financially. Among the replies, however, was one from Mr. W. L. L. Bell, stating that he and some other gentlemen had started a "Highway Protection League." Mr. Nunn found that these gentlemen were working on the lines he had advocated, and therefore he has decided to work with them and give the Highway Protection League his hearty support. Funds and names are of the utmost importance, and he urges all who do not wish to see "our countryside transformed into a huge scorching track" to send in, without delay, their names and addresses, with a subscription, to Mr. W. L. L. Bell, 4, Harcourt Buildings, Temple, London, E.C., and also to state if they are willing to act on local branches. Mr. Bell, the hon. secretary, will send to anyone who writes for them the rules of the league, the scheme decided upon, and all information regarding branches and other details. Evidently other people besides motorists are hasty in their attempts to be first even in forming a league to thwart the progress of a rapid movement.

A garage, with repair shops, etc., has been opened in Phœnix Street, Derby, by Mr. E. V. Clarke.

Mr. P. G. Hawkes has been enrolled as a member of the Motor Volunteer Corps. Owing to pressure of Parliamentary duties Captain (Brevet Major) A. H. Lee, M.P., has been compelled to sever his connection with the Corps. Captain H. H. Paynter and Mr. H. N. Watson were employed under Major-General Sir Leslie Rundle, K.C.B., &c., commanding the North-Eastern District, on a staff ride in the neighbourhood of Beverley and Driffield at the end of last week.

Mr. John Stirling, who was an early pioneer of the motor-omnibus, has, we learn, taken up residence in London for the special purpose of dealing with motor-omnibuses for the metropolis. During the past three years Mr. Stirling has made a close study of the problem, and has carried out many experiments with the view of arriving at the design of omnibus best suited to meet the special conditions of London traffic, and his new company—Stirling's Power Traction Co.—is now beginning the manufacture of motor-omnibuses embodying the features he considers necessary for permanent success. Some of the points relate to the simplifying of the mechanism, and the consequent easy management, with the view of assisting in the more rapid absorption of the best class of "'busmen" as drivers. The wearing parts are being made of great strength and durability, and Mr. Stirling claims that his new "power" omnibus will be the most economical in operating costs yet produced; as proof of which the company offers to undertake a "maintenance" contract for a period of years on the basis of the mileage run. Mr. H. A. Smith is the company's works manager, and the head office, at which Mr. Stirling will be found, is Granville House, Arundel Street, Strand, W.C.

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THE "BROTHERHOOD" CAR.

[*Concluded from page* 1055.]

FOUR brakes are provided, two on the differential shaft located at the side of the spockets and operated by the clutch pedal, and two on drums connected with the rear road wheels actuated by a pull-up hand lever. They are all of the contracting metal to-metal type. The band *A*, Fig. 21 and Fig. 22, is composed of two semicircular stiff steel pieces fitted with easily renewable gun-metal liners *B*, carried on two pivots, so as to exert uniform pressure on all points of contact with the circumference of the steel brake drum *F*. An extended spring scissor motion *E* is provided at the fixed pivot to assure the immediate release of the band when thrown off the drum, and preventing contact when not in use. Owing to their even contact on the circumference of the brake drum the bands can be applied either very gradually or suddenly, and, being constructed of stiff steel rings with the spring scissor motion, and suspended on two rigid points, they cannot bind on, obviating any risk of accident through the wheels being locked involuntarily, or offering any resistance by causing friction by rubbing when not in use. Further, they provide the advantage of the drums (which have no flanges) or bands being removed independently without affecting each other or any other part.

The brake drums and chain sprockets are attached to a spider, C, Fig. 21, mounted on the differential shaft, so that to change the sprockets it is only necessary to remove four bolts to each, or eight in all. The pivots of the bands of the brakes on the differential shaft are carried on studs formed on special brackets bolted to the frame, while those on the rear brakes are supported on arms attached to the axle, independently of the brake rings. While dealing with the subject of brakes we may refer to a useful provision in the shape of a small lubricator in

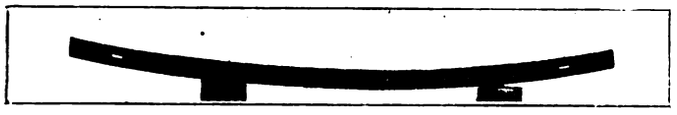


Fig. 20.—View of Plate of Spring showing Oil Groove.

the bands, through which paraffin may be squirted to clean the drums should they at any time become greasy.

The steering gear is of the worm and worm wheel type and is irreversible. The steering bar is arranged behind and slightly above the rear axle, so that should the car run into a dog or other obstruction on the road there is no danger of the steering gear being damaged, as the axle would take the first blow. The steering pivots, which are neatly arranged in a box, have a ball bearing at their lower end. The steering gear is controlled in the usual way by an inclined hand wheel, the column of which is, however, so mounted that its inclination may be varied to suit the convenience of individual motorists by loosening only three nuts. The inclined steering pillar is hollow, forming the tube connected with the horn, the bulb being screwed into the centre of the steering wheel so as to remain constantly in the most convenient position.

The springs are of good length, being 36 in. by 1½ in. at the front and 50 in. by 2 in. at the rear, the latter being outside the frame. The plates of the springs are of special construction, being tapered down by hand, while an innovation is found in the provision of an oil groove in each plate, to which oil may be fed, the trouble of squeaking and rusty springs being thus avoided. In making up springs, the usual custom for providing lubrication between the plates is carried out by introducing grease at the time of assembling, and in such a manner that, to replenish this, it is necessary to take the springs apart. If the grease is not renewed excessive friction takes place between the plate surface, destroying the flexibility of the springs to a large extent. Fig. 20 shows the oil groove in the plates, with holes communicating from the top to each individual one. A small lubricator is fitted at either end of the top plate, which permits of oil being introduced between all the rubbing surfaces of the springs, which not only preserves the flexibility, but gradually increases the same as the plate surfaces wear smooth. The wheel gauge, or width between the wheels, is of an increased

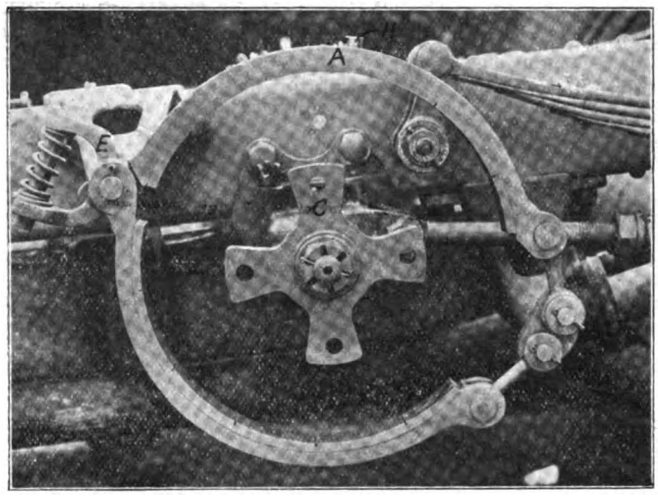


Fig. 21.—View of end of Differential Shaft with Chain Sprocket and Brake Drum detached.

dimension, viz., 4 ft. 6¼ in., allowing the load to ride easily between the wheels, whilst the overall dimension outside the axle caps is normal, being 5 ft. 2 in. The front of the frame being made specially narrow, in conjunction with the wide wheel gauge, provides an exceptionally large steering look, enabling the car to turn in short and narrow spaces. The road wheels, which are of the artillery type, are all of equal size, 870 mm. diameter, and run on Hoffmann ball bearings. The weight of the shortest *chassis* complete is 16¼ cwt. Three different lengths are made to suit various types of bodies, viz., 8 ft. 3 in., 9 ft. 3 in., and 9 ft. 9 in.

From the exhaustive description we have given of the "Brotherhood" car it will be seen that the builders have left

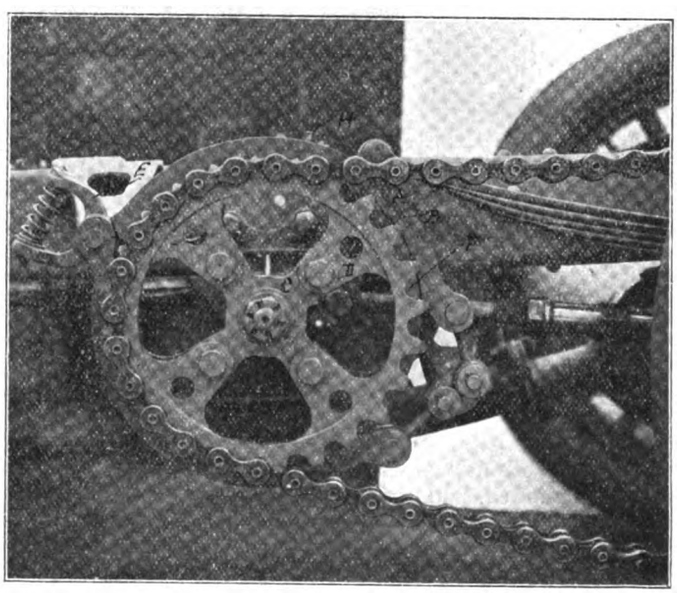


Fig. 22.—View of Brake and Chain Sprocket on Differential Shaft.

A. Steel brake band. F. Brake drum.
C. Brake drum and sprocket spider. H. Brake cleaning lubricator.

no stone unturned not only to produce an all-British car, but one which will quickly rank among the highest grade productions of the international automobile industry.

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THE GORDON BENNETT DEADLOCK.

A SATISFACTORY SOLUTION.

THE race for the Gordon Bennett Cup and the Grand Prix of the French Automobile Club are to be separated and run with a fortnight's interval between them upon dates yet to be decided upon. Such is the result of the important meeting of the International Committee of the Gordon Bennett Cup which took place at the A.C.F. Club House in Paris on Monday, when the representatives of eight national automobile clubs met to discuss the situation created by the French Club in deciding to amalgamate the Cup race with a Grand Prix event founded by itself. The decision to separate the two races was not arrived at without considerable discussion, and at one time it looked as if the meeting would prove futile. M. de Knyff especially took up a strong attitude, and declared that the French Club could not go back upon its decisions, and that the foreign clubs were dealing a death blow to the sport of automobile racing. In view of the strong opposition of the foreign delegates, the representatives of the A.C.F., however, held a private meeting, the result of which was made known at the afternoon gathering. It amounted to a decision to give way under certain conditions and to separate the races. A further discussion followed, and the details were soon arranged. When the committee rose it had been decided that the race for the Cup and that for the Grand Prix should be two separate events. No dates for the two races were fixed, but it was agreed that a fortnight's interval should take place between them, the Cup event to be decided first. It was also agreed that in so far as the expenses for the Cup race were concerned, they should be shared by all the competing clubs.

The resolutions also included one to the effect that from 1906 the Gordon Bennett Cup race shall be transformed into an open race, in which the contesting nations shall be represented in proportion to the importance of their industry. The method of fixing this representation was, however, left in abeyance. As the decisions of the International Committee force the A.C.F. to organise three races on the Auvergne circuit, namely, the French eliminating race for the French Cup team, the Cup race proper, and the Grand Prix, it was agreed that in the improbable circumstance of the Government refusing to authorise an additional race, the Cup race should be run in Belgium.

The deadlock caused by the A.C.F. has now been entirely removed so far as concerns the dispute between that body and the various other clubs which will take part in the Cup race. The only obstacle now in the way is the recent manifesto of certain French manufacturers announcing their decision to boycott both the Cup race and the Grand Prix if the two events were divided, but it is hardly likely that they will carry their threat into effect, seeing that the rules of the Cup event permit the A.C.F. to select three cars to represent France in the race without an eliminating contest.

The decision has naturally aroused considerable discussion in French motoring circles, but the more moderate section recognise that the A.C.F. only acted for the best by avoiding an international split which would probably have been more serious to the French motor industry than the threatened split at home. The general opinion in Paris is that after a little grumbling French manufacturers will accept the modified situation, particularly in view of the fact that the A.C.F., in agreeing to the representations of the foreign clubs, has secured concessions from the latter both with reference to the cost of organising the Cup contest and also as regards the conditions of future races.



Mr. and Mrs. Granville M. Kenyon on their Panhard Car. Mr. Kenyon is Honorary Secretary of the Kent Automobile Club, and is an Enthusiastic Motorist, this being his Twelfth Car.

A MOTOR-BICYCLE with a trailer parcel carrier is being employed in the postal service between Sittingbourne and Greenstreet.

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CONTINENTAL NOTES.

The Republic Grand Prix Race.

The surprise of the week has been furnished by the new daily, "Les Sports," which announces that during the second week of June it will organise, in concert with the town of Aix-les-Bains, an important 500-kilometre race, to be run under the rules of the French Automobile Club. The race will be open to cars of all nationalities and of all makes, the only limitation being that any one manufacturer cannot enter more than three cars. The first prize, offered by "Les Sports," "Le Journal," and the municipal authorities of Aix-les-Bains, will be of the value of no less than £6,000, out of which the driver of the car will receive £800, and the mechanician £200. The entrance fee has been fixed at £160 per car, or £400 for a team of three. This is, of course, "Les Sports" answer to the "Auto's" £1,000 prize for the Grand Prix race. The municipal authorities of Aix-les-Bains were anxious to secure the Gordon Bennett contest for their district, and, having been unsuccessful, are throwing their energies into the Grand Prix de la Republique, which will be made the occasion of an automobile week, comprising motor-car, cycle and boat races, a gymkhana, and a battle of flowers.

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Details of New French Racers.

Some particulars of the new Clement-Bayard racers which are being built for the Gordon Bennett eliminating contest have just been made known. The engine will have four cylinders, 160 mm. diameter by 160 mm. stroke, and at a speed of 1,400 revolutions per minute is expected to develop about 120-h.p. The cars will have cardan shaft transmission to a rear live axle. The Panhard racers will, according to current report, be chain-driven, and fitted with four-cylinder engines 180 mm. diameter by 180 mm. stroke.

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A French Touring Competition.

The touring competition organised by the Automobile Club de Seine-et-Oise commenced on Sunday last, and will continue during the whole of the present week. Altogether fifty-two entries were received, these being divided into a number of separate categories. The programme consists of seven daily runs of about 200 kilometres each, starting and finishing at Versailles.

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Automobilism in Roumania.

Even in Roumania the automobile movement is making progress, as is evidenced by the recent formation of a Roumanian Automobile Club, with Mr. D. M. Sutgu as president, and headquarters at the Grand Hotel du Boulevard, Bucharest. The new club has just issued its annual handbook for 1905; this is printed in both Roumanian and French, and gives a good deal of useful information with regard to motoring in Roumania, and also for Roumanian motorists who intend touring in other countries.

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A French Light Car Competition.

It was remarked at the last Paris *Salon* that but few French manufacturers were devoting attention to popular-priced light cars, for which there are in France, as well as in England, great opportunities, if only makers will make serious efforts to cater therefor. With the view of encouraging the development of the light car, the "Auto" proposes to organise a "voiturette" reliability trial in July or August next.

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A Dutch Automobile Week.

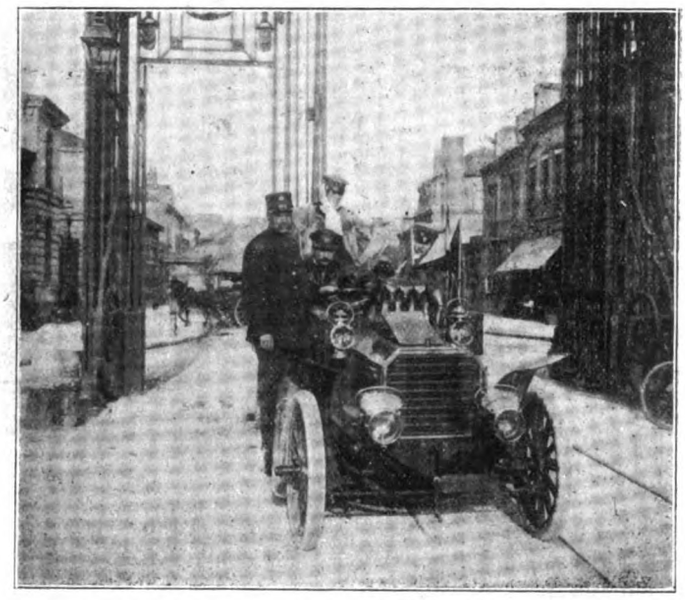
The Dutch Automobile Club has drawn up the preliminary programme of the automobile week to be held at Scheveningen in July next. The meeting will commence on the 10th with a series of kilometre speed trials for touring cars on the promenade. The tests will be from a standing start and a stopping finish. On July 11th kilometre speed trials for racing cars and motor-cycles will be held. Motor-boat racing will take place on the 12th, while driving and elegance competitions will form the programme for the 13th. The meeting will be brought to an end on the 14th July, when the start of a tour will take place from Scheveningen to Ostend.

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The Cannes Automobile Fortnight.

The automobile fortnight at Cannes commenced on the 12th inst. with an elegance competition, in which a large number of motorists took part. On Tuesday, the 14th inst., the contest for the Cannes Automobile Club Cup was commenced, the day being devoted to two of the different categories, viz., brake and consumption tests. The brake trials were held on the Vallauris hill, the object being to see which car could be pulled up in the quickest time after a signal. The Chevalier Florio on a 90-h.p. Mercedes pulled up in a distance of 36 ft., and M. Mounier on a 8-h.p. Renault in 39 ft. In the afternoon trials were held on a private track to ascertain which car could cover the greatest distance on a litre of petrol (1 litre equal 1·76 pints). M. Quinson on a 10-h.p. Gladiator proved to be the successful competitor, his distance being 15·4 miles. Wednesday, the 15th inst., was devoted to other categories of the cup contest, viz., speed over the level kilometre and a hill climb. The flying kilometre was held on the Jean Hebert Boulevard, and proved a victory for the Chevalier Florio's 90-h.p. Mercedes, the time being 30⅖ sec. The best time in the hill-climbing competition was made by the same gentleman's 60-h.p. Mercedes with seven persons up. In the general classification the 90-h.p. Mercedes of M. Florio secured the largest number of points—179·81—so that this gentleman carries off the Cup. M. Gallice on a 12-h.p. Clement-Bayard was second with 166·15 points, and M. Rouff on a 16-h.p. Rochet-Schneider third with 133·25 points.

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At the Octroi Gate at Rheims.

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Public Services in France.

A company is being formed in Paris to establish a public motor-car service between Libourne and St. Emilion, in the Bordeaux wine-growing district. The French postal authorities are also about to invite tenders for the establishment of a motor mail service between Tenay and Hauteville (Ain).

In the famous police trap at Bolney on Sunday a constable hiding in the hedge caught fourteen victims.

The Gloucester Motor Company has established itself at 41, Northgate Street, Gloucester, where repairs to cars, as well as the supply of accessories, will be undertaken.

At the meeting of the North Metropolitan Tramways Co. on Wednesday the suggestion was made that they should seek a motor-car to run on the tram-lines, in order to meet the coming competition of motor-'buses.

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LONDON TO NORTH WALES ON A MOTOR-CYCLE.

By the Rev. Edwin Noyes, M.A.
(St. George's, Hanover Square, W.).

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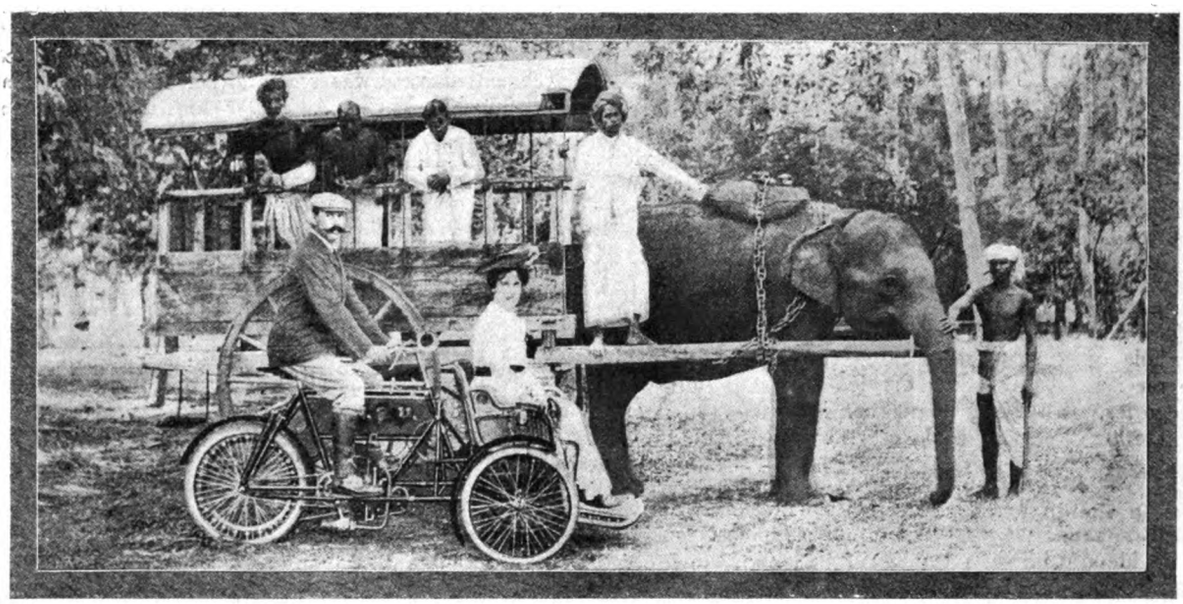
SOME sixteen months ago the *Motor-Car Journal* published an account of a journey made by my wife and myself on our motor-cycle, from London to Buxton, in thirteen consecutive hours. I have now the pleasure of offering to the readers of this most useful paper an account of a similar journey we undertook last August, and successfully accomplished on the same machine, from London to North Wales in seventeen and a-half consecutive hours. When, however, I say the same machine, I must qualify the statement by adding that, instead of the 2¼-h.p. Kerry engine used on the Buxton journey, I now have a 3½-h.p., but this has scarcely given as much satisfaction as the old one, as the following account will show.

We left our home in the west of London at ten minutes to nine in the evening of July 31st, 1904, intending to travel all that night and all next day. The weather was all that could be desired, and half-an-hour after our start the moon rose, and the moonlight continued with us until dawn, so that there was practically no darkness. We got out of London by way of Wellington Road and Finchley Road, heading off for Chipping Barnet. At that hour of the evening there was but little traffic in our way, and we soon left London behind us. I found that our engine began to get uncomfortably hot with any hill work, and it was with some difficulty that I drove it up Barnet Hill. From Barnet we went quickly through to St. Albans, the moonlight now flooding the countryside and lighting up our road very distinctly. We passed on, following the Holyhead road, through Dunstable and Towcester without any incident worth recording except that the motor refused the hill at Foster's Booth, and we had to push the machine up.

The dawn of August 1st was very lovely, and the stillness was unbroken save by the noise we ourselves continually made, and shortly after daylight we arrived at the good old town of Daventry. Here, having had nothing to eat or drink since our start, we came to a halt, and, sitting on the kerb stones of the little town, we made tea. There was no one stirring. Never had tea tasted so good! The sandwiches we had brought were shaken into crumbs by the vibration, so that we had not much to eat; however, we pushed on in the strength of the tea, and in due course arrived at Coventry, and between six and seven o'clock we were in Birmingham. Here there were signs of life and of the August Bank Holiday. Enquiring the way to Wolverhampton, I received so many suggestions and contrary directions that I got completely out of my way, and went a long way round through Dudley and a host of other places, and over several appalling hills, arriving at Wolverhampton somewhere about half-past seven. Here we waited until the shops were open, and then had breakfast, and took in a fresh supply of petrol. On the way to Shrewsbury the luggage carrier gave way, and deposited tools, petrol cans, sandwich bags, and other articles with a crash in the middle of the road. Having repaired this damage with the help of the invaluable bifurcated copper rivet, and of the useful wire nail, we proceeded without further mishap to Shrewsbury and thence to Oswestry. Here the engine commenced seriously to overheat, and our progress became somewhat slow. However, in spite of the heat of the engine and the heat of the day, we passed on through the Vale of Llangollen, and Llangollen itself, to Corwen, and thence to our destination, some seven or eight miles farther on.

I afterwards found that the reason of the overheating of the engine was partly due to a defective inlet-valve spring, which had been practically burnt away, so far as its elasticity was concerned, and partly, of course, to the sheltered condition of the engine behind the fore-carriage. The fans with which the engine was cooled were of but little use. Deducting the time we stopped for meals and repairs, we had travelled for 17½ hours, and had covered a distance of 202 miles, including the seven miles travelled out of our direct way, owing to being misinformed as to the road. By that time we had had enough, and were glad to stop for the night.

After staying some weeks in North Wales, we returned from Llanfair, in Anglesey, to Birmingham by the coast road in one journey, about 145 miles, and then finished our holiday by an eight hours' run from Birmingham to London. In my opinion, there are few vehicles for two to equal the fore-carriage for reliability, for interest, and for the dash of adventure which lends motoring its charm. But, to be perfect, the machine should have three things:—(1) A water-cooled free engine of 4 to 5 h.p.; (2) a chain drive; (3) a two-speed gear; and then I believe this vehicle, properly driven, would carry two persons anywhere in reason.



A Contrast in Locomotion in India.

[*Automobil Welt*

A motor garage at Bishopton Lane, Stockton-on-Tees, has been opened by Mr. J. Dawson.

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HERE AND THERE.

THE Bell Hotel, Derby, is specially catering for the wants of motorists.

A SCHEME of technical instruction in motor-car driving is being arranged at Redhill.

IT is reported from Nice that King Edward will probably be present at the Monaco motor-boat race meeting.

FOUR HUNDRED THOUSAND passengers were carried by the road motor-cars of the Great Western Railway Company during the past half-year.

THE SALE ELECTRICAL INSTALLATION COMPANY have made arrangements for the recharging of accumulators at their premises at Sale, near Manchester.

THE AMERICAN COULTHARD COMPANY has been formed at Minneapolis, U.S.A., with a capital of £40,000, to manufacture Coulthard steam wagons in America.

THE WHITLOCK AUTOMOBILE COMPANY, LIMITED, have sent us a copy of their new catalogue of Whitlock cars, which are being made in five sizes, 12-h.p. and 14-h.p. double-cylinder, and 15-h.p., 22-h.p., and 28-h.p. four-cylinder. The cars throughout are on modern lines, being fitted with the latest types of Aster engines.

UNDER the direction of Captain Bagnall Wild, R.E., Secretary of the War Office Committee on Mechanical Traction, some experiments with the Pedrail have been conducted at Aldershot. The machine passed with great ease over the loose sand of the Long Valley, drawing a wagon loaded up to five tons, and climbed some very stiff gradients.

A STAFF RIDE conducted by Major-General Sir Reginald Hart, V.C., commanding the Thames District, has been held between London and Brighton, at which the following members of the Motor Volunteer Corps were employed:—Captain A. Booth-Hearn, Captain L. E. Scarth, Lieutenant F. W. Leith, Messrs. H. Baker, J. Rochford, and A. Cox.

A CORRESPONDENT, writing from Naples on the 3rd inst., says, "You may be interested to hear of a splendid run made by my 6-h.p. Wolseley light car. It ran from Rome to Naples, a distance of 140 miles, in six and a-half hours, an average speed of twenty-one and a-half miles per hour, a wonderful performance for such a small car considering the bad Italian roads."

MR. W. LESLIE, of Calcutta, has won the first prize in the Bengal Reliability Trials on a 12-h.p. Lanchester car. This exploit, with the excellent performance of Prince Ranjitsinhji's car in the Delhi-Bombay trials, proves that the Lanchester car is an excellent one for touring in hot, rough countries, and the fact that Mr. Leslie has no trained mechanic is a further point in its favour.

THE LONDON MOTOR-CAR COMPANY, LIMITED, has been registered with a capital of £15,075, to carry on the business of hirers or letters of vehicles, motor-vehicles of all kinds, and to adopt an agreement with Mr. G. H. Baillie. The first directors are Messrs. G. H. Baillie, R. H. E. Stevens, and W. W. Claypoole, and the registered office is 82, Victoria Street, Westminster, S.W.

THE HOZIER ENGINEERING COMPANY, LIMITED, has sent us a copy of the 1905 catalogue it has just issued. The production is in all respects worthy of the company, as not only are the various types of Argyll cars illustrated, but the different parts of the *chassis* are described and shown in detail in clearly-drawn sketches. Several pages are devoted to useful hints for owners of Argyll cars.

MESSRS. J. P. HOWARD AND CO., Sun Street, London, E.C., have sent us a sample of a new soap, known as "Ahoy," they have recently introduced, and which is specially prepared for removing dirt and grease from the hands. The advantages claimed for the soap are that it is equally effective with hot or cold water in removing grease or oil, that it has a softening effect on the skin, and that it cleanses and heals cuts and scratches.

ATTEMPTS are being made to restrict the speed of motor-cars within a three-mile radius from the centre of Johannesburg to eight miles an hour.

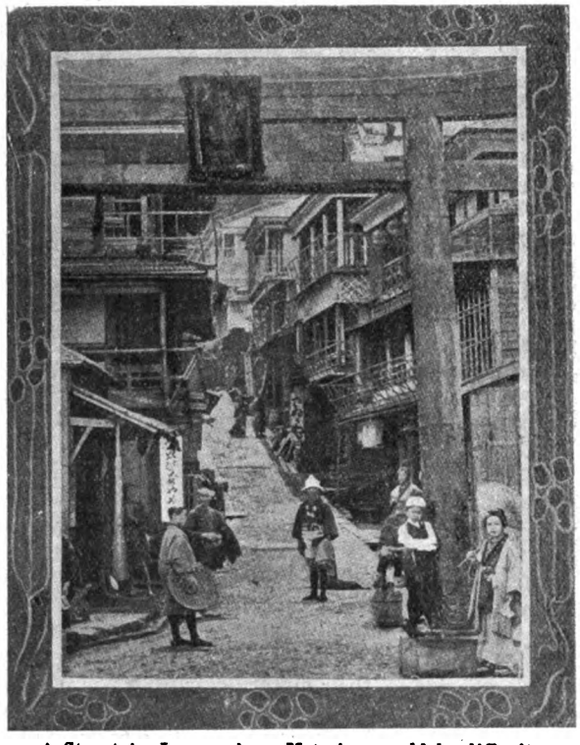
MOTOR-CARS and automobile parts to a value of £379,502 were last year exported from the United States, as compared with only £328,605 in 1903.

THE PEACOCK AUTOCAR COMPANY has taken premises on Royal Exchange Square, Glasgow, where they will repair old cars and act as agents for new ones.

THE White steam cars are now being introduced into Holland, Messrs. L. R. Goettsch and Co., of Utrecht, having been appointed the agents in that country.

MR. W. F. BAILEY, Estates Commissioner of the Irish Land Commission, recently purchased a 10-12-h.p. Argyll car, which he has been using in the west and south of Ireland.

RECENT elections to the A.C.G.B.I. include the Marquis of Headfort, the Earl of Dunraven, Sir J. Brunner, Bart., M.P., Sir Thomas Sutherland, G.C.M.G., Sir Alfred Sharpe, K.C.M.G., and Sir George Bullough.



A Street in Japan where Motoring would be difficult.
[*Motor, New York.*

MR. REGINALD HADDON is the author of "The Inventor's Adviser"—an instructional guide to the commercial development of inventions, their protection by patents at home and abroad, and the valuation and disposal of patent rights. It is published by Messrs. Harrison and Sons, and will be found useful in view of the new law which came into operation with the beginning of the year.

IN their half-yearly report the directors of the London General Omnibus Company say that they have decided to make extensive trials of automobile traction, and have several types of motor-omnibuses on order for that purpose. Under these circumstances they recommend that £20,000 be placed to the account of a special motor fund, to be expended in carrying out the proposed experiments.

MESSRS. ALFRED DUNHILL, LIMITED, have received the awards at the Crystal Palace Show for the most complete outfit for car, the best summer outfit for owner, lady passenger and man, and also for the best winter outfit for owner, lady passenger and man. Special awards were made to Messrs. Longstreths, Ltd., for the Lithanode unspillable accumulator, and to Gratz Patents, Ltd., for the Gratz speed indicator and recorder.

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A MOTOR-'BUS service is being established between Leamington and Warwick.

THE three Fiat racers for the 1905 Gordon Bennett race will, it is stated, be fitted with engines of 120 h.p.

A MOTOR-CAR exhibition, under the patronage of the Hungarian Automobile Club, is to be held in Budapest from May 7th to 21st next.

THE MANCHESTER MANUFACTURING COMPANY, of the Carwal Works, Manchester, have just brought out a steering wheel wind shield, of which we give an illustration herewith. As will be seen, it is designed to clip on the steering pillar and to protect the driver's hands and chest from the wind and weather. It is made in tinned steel, aluminium, copper and brass, a ⅜ in. brass bead giving a neatly-finished appearance.



MR. A. P. TYLER has joined Messrs. Wilcocks and Son, and they will now trade as motor-car repairers under the style of Wilcocks, Tyler, and Co., at 54, St. Andrews, Uxbridg·

THE Eastbourne Motor Works have erected six lock-up motor houses at their fire-proof garage in the southern resort, and are making arrangements for the letting of motor-cars on hire during the forthcoming summer.

DRIVING from London to Birmingham last week on a 12-16-h.p. two-cylinder M.M.C. car which he had just purchased from the London showrooms of that company, a budding motorist, who had never driven such a car before, completed the journey without a stop, save for purposes of refreshment.

THE NEW MOTOR SYNDICATE, LIMITED, has been registered with a capital of £5,000, to carry on a business not particularly described except in the title. The registered office is Basildon House, E.C., where, too, are the headquarters of the Motor Omnibus Construction Company, Limited, which has been registered with a capital of £10,000.

IT is not generally known that Messrs. S. Bowley and Son, in addition to their red-can motor spirit, are large manufacturers of motor-lubricating oils. We have received a sample tin of the water-cooled variety known as "Champion B," which we are submitting to trial, and hope to report on the same in the course of a week or so.

A NEW catalogue of their motor accessories has been issued by Messrs. Markt and Co. These include the well-known Veeder odometers, the Jones odometer, the Veeder speed indicator, motor horns, foot-bells, wrenches, volt and ampere-meters, sparking plugs, goggles and masks, jacks, oils, and the score of other accessories necessary to the complete equipment of the modern motorist.

A SERIOUS motor-car accident has occurred at Kingston Hill. A car with Captain H. Walker and Lieutenant Eyre, of the 1st Life Guards, on board, was being driven down the hill, when, in passing a carrier's motor-wagon, the vehicle skidded and collided with a lamp-post, throwing out the occupants. Captain Walker sustained an injury to the brain, and was taken to a neighbouring doctor's house, where he was detained. His companion and a chauffeur escaped with a shaking, but the car was much damaged.

THERE can be no question that the motor-car industry in this country is rapidly attaining the position of importance that it merits, and in this connection we are pleased to be able to announce, on the authority of the Star Motor Agency, Limited, that an agency in Paris for the well-known Star cars has been arranged with M. Lamberjack, who has been connected with the sport and trade in France since its inception. M. Lamberjack has ordered one of the Star 10-h.p. four-cylinder cars for his own personal use, and hopes to be able to secure many orders in Paris for similar vehicles.

THE Harrogate Corporation have been approached by a local firm of estate agents with a view to sanction being given to run a service of motor-'buses in the town.

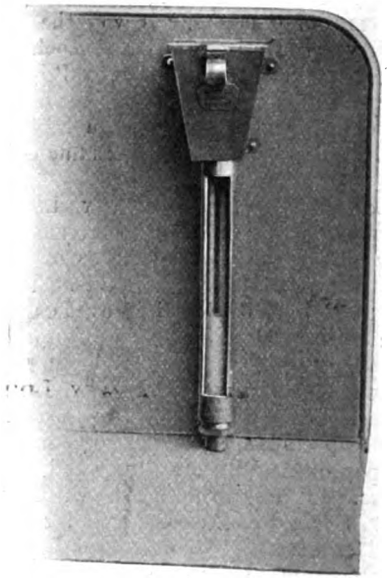
THE Derbyshire roads are in such a bad condition that the Sheffield and District Automobile Club is suggesting that the county road authority should make improvements before the commencement of the touring season.

THE WILKINSON TYRE AND TREAD COMPANY (1905), LIMITED, is inviting subscriptions towards its capital of £14,000 to acquire the business and patents of the Wilkinson Tyre and Tread Company, Ltd., of Huddersfield.

THE Local Government Board has intimated to the Kingston-on-Thames Town Council that it is prepared to entertain an application for the closing of Bank Lane, a narrow thoroughfare leading to the riverside, to motor traffic. It is not satisfied, however, that the safety of the public demands the imposition of a ten-mile motor speed limit to the whole borough. The council has now formally applied for an order for the closing of Bank Lane and for the imposition of a ten-mile speed limit in the case of a number of narrow streets in the borough.

PRIOR to the Brussels Salon, Messrs. Gregoire, represented in this country by Messrs. Osborn and Lord, subjected one of their 6-8-h.p. two-cylinder light cars to a long test run. The tour took in the following places:—Poissy, Paris, Meaux, Reims, Rethel, Sedan, Arlon, Liege, Namur, Charleroi, Mons, Courtrai, Ghent, and Brussels. The trip extended over five days, and the distance covered was about 700 miles. Very bad weather was encountered, in addition to the wretched roads in Belgium, but the only trouble was the breakage of one front spring, due to a slight collision with a wall.

WE illustrate herewith a combination filler, strainer and gauge for use in connection with the petrol tanks of motor-cars, which has recently been put on the market by Mr. A. C. Davison, of Pleasant Road, High Street, Camden Town, N. The device, which is arranged to be fitted on the dash-board of the car and is more especially designed for use in connection with tanks located beneath the driver's seat, consists of a metal box or funnel with hinged lid and containing a removable strainer of fine phosphor bronze gauze. This box is fitted, underneath, with a large size magnifying gauge glass, and this again communicates by means of a ¾ in. pipe with the petrol tank. The apparatus is substantially made and is supplied with pipes cut and fitted to suit any car, the only work required being the attachment of the union to the bottom of tank and the screwing of the filler to the dash. By its use the driver can also see by a glance the petrol level, while the tank can be filled without him leaving his seat or disturbing passengers or cushions. Furthermore, no funnel or strainer are required.



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The Olympia Motor-Car Show.

(*Continued from page* 1068).

A NEWCOMER to the ranks of the list of builders of all British cars is Messrs. LEGROS AND KNOWLES, LIMITED, who have on view a 20-25-h.p. *chassis*, a feature of which is the accessibility and detachability of the various parts. In general arrangement the car follows the general lines of chain-driven vehicles. The engine (Fig. 20) has four cylinders 4¾ in. diameter by 4¾ in. stroke, the normal speed being 750 revolutions per minute. The inlet valves are in the cylinder head, and the exhaust valves in side pockets, both operated off one cam shaft. The brasses and guides throughout are of a special aluminium bronze. The amount of opening of the inlet valves can be varied by an eccentric shaft controlled by a handle on the steering wheel. The two cam shafts—valve and ignition—are held up into their casing in the same way as the crank shaft. The casings are entirely closed in and are so designed that it is possible to remove the whole of either cam shaft with its pushers and guides without disturbing any other part of the engine. The bottom half of the crank case can be removed, the crank shaft bearings being held up to the frame by the caps instead of the usual practice of supporting the lower half of the bearings in the base chamber itself. This allows the main bearings to be adjusted separately without removing the shaft and flywheel. The big ends are also immediately accessible for adjustment when the base chamber is removed, and large, easily-removed inspection doors are provided to permit of inspecting the big and little end bearings.

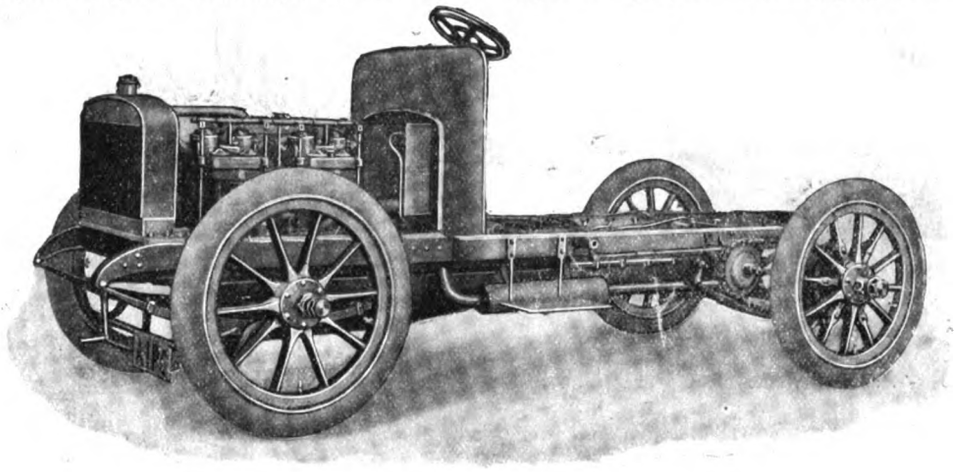


Fig. 19.—View of Chassis of Legros and Knowles 20-25-h.p. Car.

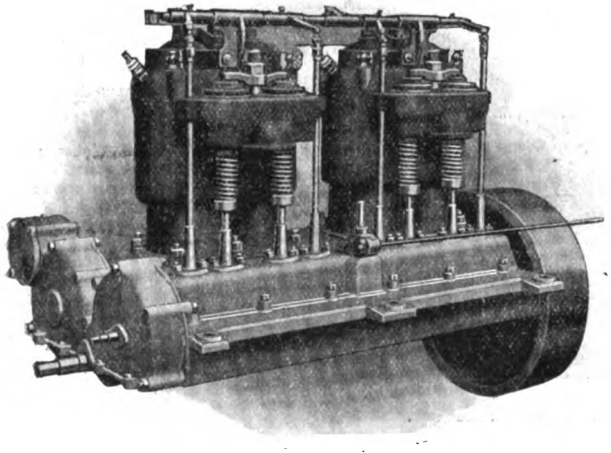


Fig. 20.—The Legros and Knowles 20-25-h.p. Motor.

Low tension magneto ignition is fitted with automatic advance gear, operated by a special governor. Provision is also made for fitting high tension ignition if specially required. A separate governor, acting on the inlet, keeps the engine at a normal speed, which is quickly reduced when the clutch is disengaged. The motor is bolted to the main frame between springs, which prevents the engine frame being distorted by the car-frame strains and diminishes the vibration communicated to the car by the engine. The carburettor has been designed to give increased air admission with increase of speed, the variation in mixture being automatically adjusted. This renders the engine extremely flexible and permits variation of speed within wide limits without changing gear. Under some conditions, for example when starting on a rising gradient, it is necessary to run the engine at high speed before engaging the clutch. The controlling gear has consequently been so designed that the accelerator and the clutch pedal both act quite independently of each other on the governor gear. The clutch is of the leather-faced cone type; the spring is placed away from the clutch in such a position that it is easy of access for adjustment. The power is transmitted from the clutch by a double driving arm through a cardan shaft to the gear box. The clutch can be withdrawn for re-leathering by merely disconnecting the cardan shaft. The gear-box is suspended from three points, the front being pivoted so that any movement of the frame produces no distortion of the box. The same facility for adjustment from below is afforded as in the case of the engine. Four speeds forward and a reverse are provided, the connections being such that when any one gear is in mesh all the others are automatically locked. From the differential shaft the power is transmitted to the rear-road wheels by side chains. The car is provided with three brakes—one on the differential shaft and one on each of the two back wheels. The former is operated by a pedal, and the latter by a hand lever which pulls towards the driver. A compensating gear is provided for the side brakes, which ensures equal effect on each wheel independently of the adjustment. All three brakes are internally expanding, cast iron on steel; the design is such that the brakes may be readily and quickly adjusted from accessible positions and without requiring the removal of the wheels to take up wear. Altogether it would appear that the new Legros and Knowles car has been the subject of much thought, not only as regards

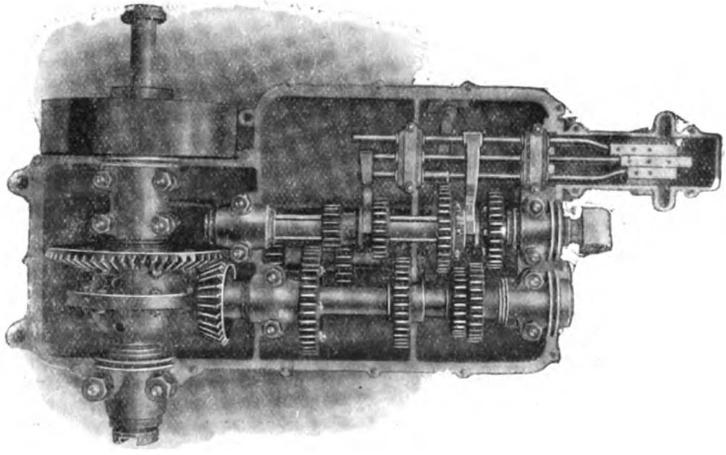


Fig. 21.—The Legros and Knowles Change-Speed Gear.

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design, but also as regards materials, nickel steel entering largely into the construction of the various parts.

The VULCAN MOTOR COMPANY, LIMITED, Southport, exhibited three sizes of cars, which, without comprising any striking departure from the standard practice of live-axle vehicles, were worthy of close inspection, being of sound construction and of moderate price. We first examined a neat 10-h.p. tonneau. The engine comprises two vertical cylinders, 3¼ in. bore by 4¼ in. stroke, fitted with mechanically-operated inlet valves. The carburettor is of the automatic air-regulating variety, fitted with throttle, acted upon both by the governor and by hand and foot levers.

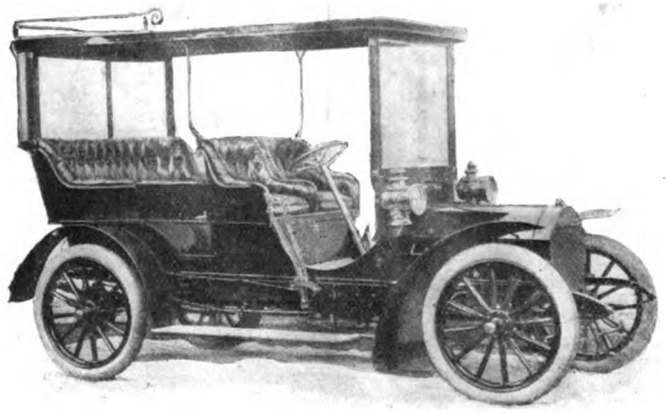


Fig. 22.—The Vulcan 18-20-h.p. Side-Entrance Double Phaeton.

engines, the dimensions of the largest size being 125 mm. bore by 140 mm. stroke. The carburettor has been improved, the jet being mounted on a conically-seated plug, held in position by a spring underneath the mixing chamber in such a way that it can be quickly removed for cleaning purposes. A useful fitting in the form of a lever, easily operated from the driver's seat, is also provided to entirely shut off the petrol supply to the jet, when coasting down long hills, enabling a considerable economy of petrol to be effected. The change-speed gear, the bevel drive to the

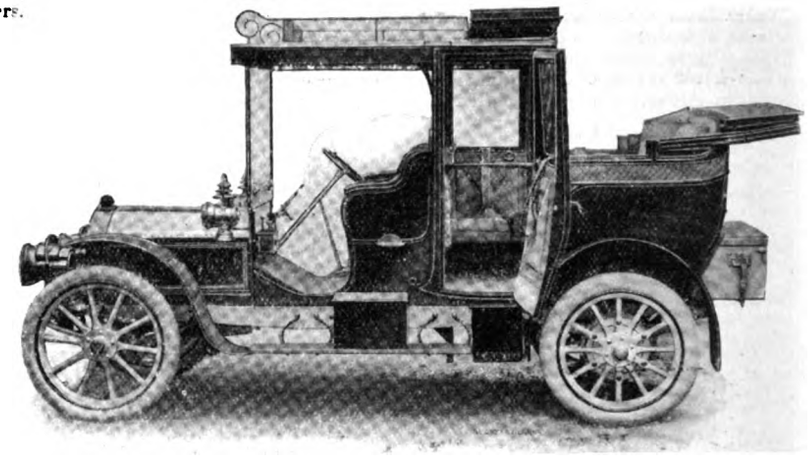


Fig. 23.—The Martini Saloon Car.

The transmission is through a leather-faced, cone-clutch gear-box giving three speeds forward and reverse on one lever, cardan shaft and bevel gear to the live axle. The latter is well supported, and the differential is of the straight pinion type instead of the usual bevel wheels. The Vulcan 12-14-h.p. car was next inspected. This is on modern lines throughout, having a pressed steel frame, and honeycomb radiator with fan. The engine has four cylinders, 3-in. stroke by 4-in. bore, the normal speed being 1,000 revs. per minute. The Vulcan 18-20-h.p. car has a four-cylinder engine, consisting of two pairs of the motor fitted in the 10-h.p. cars; except that the ignition is by high-tension magneto, its details are similar to the 12-14-h.p. car. The brakes are all centred on drums connected with the rear road wheels, a pedal actuating bands expanding within the drums while a hand lever controls bands contracting on the exterior surface of

countershaft, and the differential on the latter, are all enclosed within one case. A long shaft fitted with a universal joint transmits the power of the engine through the clutch to the gear-box. Four speeds and a reverse are provided, the two shafts in the gear-box being now in the same horizontal plane. The differential runs on four sets of ball bearings, the outer pair being close to the chain wheels, in order to obviate any danger of the shaft springing owing to the pull of the chains. The petrol is pressure fed, but the pressure is kept up not by the exhaust, as usual, but by a special air pump. The complete cars on view included a 20-24-h.p. landaulet with Thrupp and Maberly body and a special 30–40-h.p. touring car (Fig. 23). The body of the car is unique of its kind and attracted great attention at the last Paris Show. It is very handsomely fitted inside, a special table being provided for card playing. There are also writing

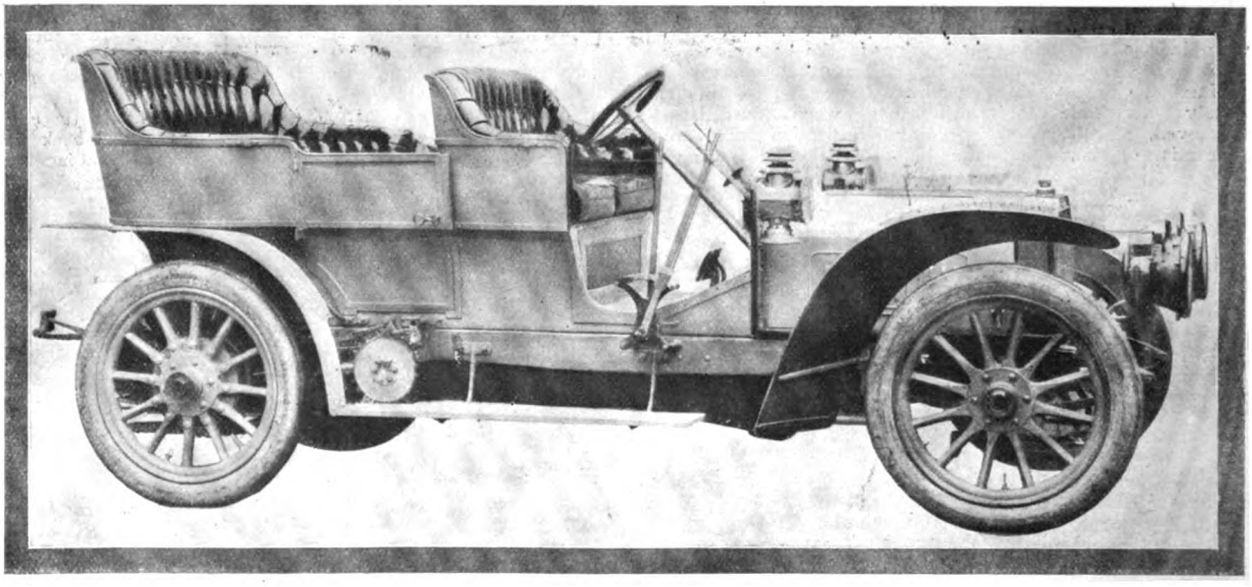


Fig. 24.—The Rochet-Schneider 24-30-h.p. Side-Entrance Car.

the same. The Vulcan cars are better known in the North than in the South, but we have heard very good reports of the 1904 models, and the reputation they have earned should be more than maintained during the coming season.

Messrs. H. H. P. DEASY AND COMPANY, LIMITED, displayed the features of the well-known Martini cars by means of a 20–24-h.p. *chassis*. We learn that for the 1905 season the cars are to be made in three sizes—16–20-h.p., 20–24-h.p., and 30–40-h.p. All are fitted with four-cylinder

materials, dressing-case, and so forth, and the seats can be arranged so that the occupants can recline.

The 1905 models of the Rochet-Schneider cars were so fully described in our issue of the 24th December last that it is only necessary to mention that the British agents, Messrs. DONNE AND WILLANS, LIMITED, exhibited a Lonsdale wagonette fitted on a *chassis* of the 24-30-h.p. type. The engine comprises four cylinders, 120 mm. bore by 140 mm. stroke. The inlet valves are mechanically operated and are interchangable with the

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exhaust valves. A device is now fitted whereby on placing the starting handle in position the compression is automatically released, so facilitating the starting of the engine. The low-tension system of magneto ignition is still retained; the water is circulated by a gear-driven pump through an improved form of honeycomb radiator with fan; the latter runs on ball bearings, and is driven by an adjustable belt. The change-speed gear has been considerably modified, the two shafts being now arranged in the same horizontal plane. Four speeds forward and a reverse, with direct drive on top speed, are provided, the transmission from the differential countershaft being by side chains. The clutch is of the metal-to-metal type; the axles are of nickel steel of H section, while the equal-sized road wheels run on ball bearings. Messrs. Donne and Willans have also taken up the British agency for the "La Locomotrice" cars built by Messrs. Nagant and Company, of Liege, under the Rochet-Schneider licence, and of this Belgian model a very fine specimen of engineering was to be seen in a 24-30-h.p. *chassis*. A new car was also to be seen in a 16-24-h.p. "Belgrave" side-entrance double phaeton. This is built on the usual lines of cardan shaft and live axle cars, and is fitted with a four-cylinder engine, 110 mm. diameter by 130 mm. stroke. An automatic carburettor furnishes the mixture, and with wheel control, metal-to-metal expanding brakes, honeycomb radiator, and automatic lubrication, appears to well meet the demand for a powerful car at a moderate price.

Ryde Motors, Limited, had two stands, on one of which is shown a well-finished example of the "Ryde" 14-16-h.p. three-cylinder tonneau car, of which an illustrated description was given in the *Journal* early last year. The vehicle is driven by cardan shaft and bevel gear on to a live axle, and has three speeds and a reverse, with a direct drive on the top speed. The mixture is furnished by an automatic carburettor of the company's own design. The Ryde Company are also now devoting much attention to heavy commercial and public service vehicles, and exhibited the *chassis* of a new two-ton petrol lorry they have lately introduced. This has a channel steel frame, in the fore part of which is set a vertical 15-h.p. two-cylinder engine 4½ in. bore by 6 in. stroke, the valves being all mechanically actuated and arranged on opposite sides of the engine. A special form of framed ribbed-pipe radiator is used in connection with

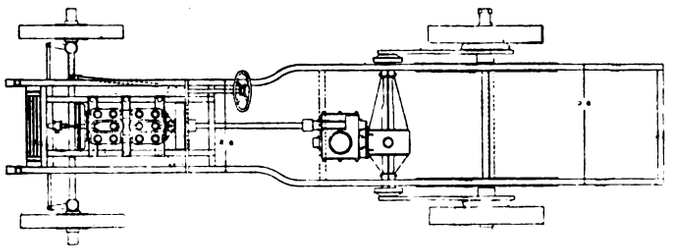


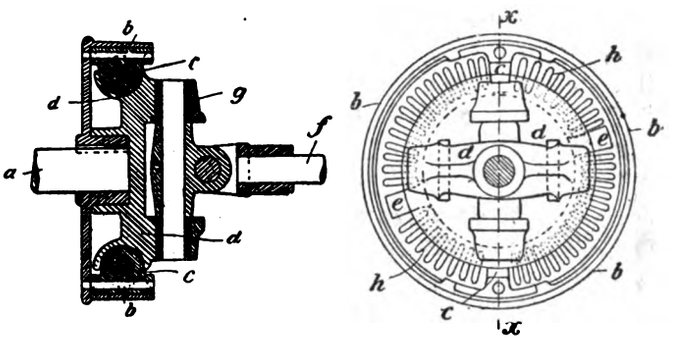
Fig. 25.—Plan of Chassis of Ryde Five-ton Motor Lorry.

the water circulation, which is maintained by a slow-running pump. Four speeds, with a maximum of about twelve miles per hour, and a reverse are provided, the transmission being through a leather-faced cone clutch, gear box, and side chains. The gear-box has three point suspension, the forward support having a spring interposed to take up any strain. The vehicle appears to have been well thought out in its various details, and the company are to be congratulated on their enterprise in the field of commercial automobilism. A 30-h.p. engine intended for a thirty-four-seated double deck omnibus they are building was also on view. This comprises four cylinders, 4½ in. diameter by 6 in. stroke, and represents the type which are to be fitted to the Ryde five-ton petrol lorries.

A selection of motor clothing for ladies, gentlemen and their servants was shown on Messrs. Burberry's stand, where the "Viator" motor ulster, in both tweed and frieze, was a notable exhibit. An assortment of accessories illustrated the firm's desire to completely equip their clients with all their motoring requirements.

The "H.F. Standard" and "H.F. Car" vulcanisers have already been illustrated in the *Journal*, while their excellent features are generally recognised by motorists and the repairers of tyres alike. A new self-contained vulcanising appliance is being introduced, by means of which two tyres can be completely retreaded at one operation. The "H.F. car" vulcaniser is specially intended for repairing tyres by the roadside should sudden emergency arise, and can be carried on the car. Messrs. Harvey Frost and Company have certainly devoted much study to the vulcanising of tyres and their experience has resulted in some good types of appliances.

The Institute of Chauffeurs, Limited, the British agents for the cars made by the Société Metallurgique, of Marchienne, Belgium, exhibited for the first time a couple of the "Metallurgique" cars. These are built in a number of sizes, including 8-h.p. and 12-h.p. two-cylinder and 12-h.p., 16-h.p., 24-h.p., and 30-h.p. four cylinder. The main features are pressed steel frames, an internally expanding metal clutch, and a spring drive on the rear end of the cardan shaft, the transmission being by live axle. The expanding clutch takes the form of two brake segments, which are expanded against the inside surface of the fly-wheel rim by means of a cone sliding on the clutch-shaft, and actuating the segments by means of short arms carrying rollers at their ends. The spring drive is mounted in a drum, *b* (Fig. 26), set on the end of the bevel pinion spindle, *a*, having two lugs, *c*, opposite to each other projecting inwards from the rim. The cardan shaft ends in a forked piece, *d*, each end of which bears against one end of a spiral spring, *h*, laid round the disc, and bearing as to its other end on one of the projecting lugs, *c*, the power being transmitted through the forked ends, the springs, and the lugs on the drum, and by the latter to the bevel pinion. The device is claimed to prevent shock on the bevel drive and to considerably reduce the noise.



Figs. 26 and 27.—Details of La Metallurgique Spring Drive.

The four-cylinder engines have mechanically operated inlet valves with variable lift device. The ignition, which is by coil and accumulators, with friction-driven dynamo to keep the latter recharged, is so arranged that when the clutch is withdrawn or the brakes applied it is automatically retarded. The cars exhibited included a 16-h.p. *chassis* and a handsome 24-h.p. coupé limousine.

The Cadogan Garage and Motor Company, Limited, had on view a 15-18-h.p. Durkopp side entrance double phaeton. The engine comprises three cylinders, 94 mm. bore by 120 mm. diameter. The inlet valves are mechanically operated and are located on the opposite side to the exhaust. Three speeds and a reverse are provided, the transmission being by means of side chains from the differential shaft. The novelty at the stand was the "Octopus" hydraulic clutch which is being introduced by the Wilkinson Sword Company, Limited, of Acton. The device, which has been designed by an Italian engineer to take the place of the ordinary leather faced clutch, is illustrated in Fig. 28, from which it will be seen that the flywheel rim 1 is cast eccentrically with regard to its thickness, but for the purpose of balancing the wheel the eccentricity of the circles forming the inner edges of the rim are opposed to each other. On a squared portion of the clutch shaft 12 is mounted the clutch body, which is cast of phosphor bronze, to form four plunger barrels and four valve chambers. In the plunger barrels are set plungers 6 carrying at their outer forked ends friction rollers. In view of the fact that the

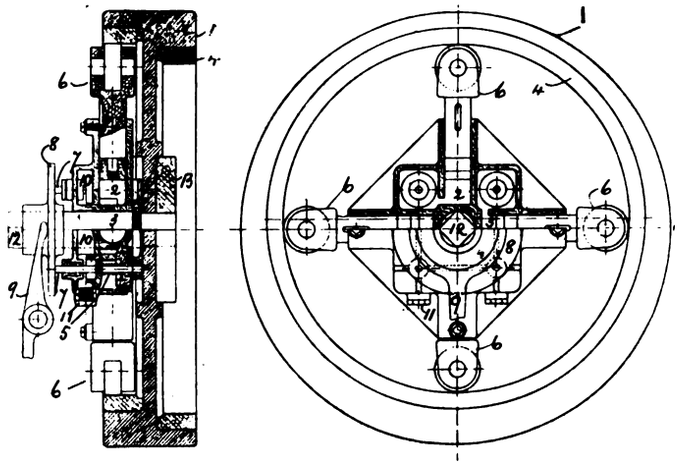


Fig. 28.—Sectional Elevation and Front View of Octopus Hydraulic Clutch.

1. Fly-wheel.
2, 3. Passages for the liquid.
4. Eccentric ring fixed to the flywheel.
5. Spring.
6. Plungers.
7. Valves.
8. Disc to release the valves.
9. Lever to operate the disc from the pedal.
10. Central chamber.
11. Screw tap.
12. Shaft.
13. Flange.

clutch body is mounted on the clutch shaft, the centre of which is the centre of the flywheel, it will be seen that as the flywheel revolves the plungers 6 must move up and down in their respective barrels, if there is nothing therein to impede such movement, or if the clutch body is held stationary. This reciprocating movement of the plungers is, of course, due to the eccentricity of the inner periphery of the steel ring 4 to the centre of the clutch shaft. The two vertical plungers are shown at either extreme of their strokes, the upper one being right out and the lower one right in, while the two in

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the horizontal position are at half-stroke. The hollow parts of the clutch body are filled with oil, and the plungers can make the up and down motions in the respective barrels so long as the oil is free to flow from one part to the other; but when the clutch is in, or driving, the oil cannot so circulate, this being only possible by the lifting of the valves 7 from their seatings. While they remain closed the oil cannot pass from beneath a descending plunger to below a rising plunger; consequently, the eccentricity of the inner surface of the flywheel causes the flywheel and the clutch body to become locked together, the power of the engine being

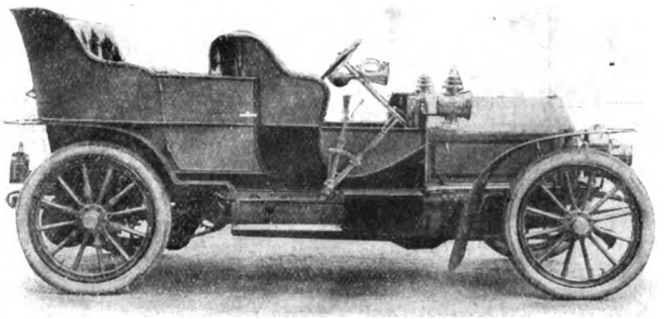


Fig. 29.—The Siddeley 18 h.p. Side-Entrance Double Phaeton.

transmitted to the gear-box. When the clutch has to be disconnected the fork arms 9 are caused to exert pressure upon the sliding disc 8, which in its turn conveys this pressure equally upon the four projecting ends of the valve spindles 7. By these means the four valves can be raised from their seatings to any desired degree, so bringing about as much or as little slip of the clutch as is desired. The valves are so arranged that the higher the lift of the same the greater the quantity of oil circulating through them. The clutch is claimed to be both smooth and certain in its action.

The great centre of attraction at the stand of the SIDDELEY AUTOCAR COMPANY was the identical 12-h.p. vehicle which recently completed the 5,000 miles trial. The engine, change-speed gear, and other parts of the transmission had been taken down and opened out so as to enable visitors to see for themselves the very small amount of wear that had taken place during the exhaustive trial. Of the 18-h.p. four-cylinder cars a *chassis* was shown, as also a handsome limousine with Hooper body, the wheel base being 10 ft. 6 in. In addition to the popular Siddeley two-seated car with 6-h.p. horizontal engine, a car of similar power, but with

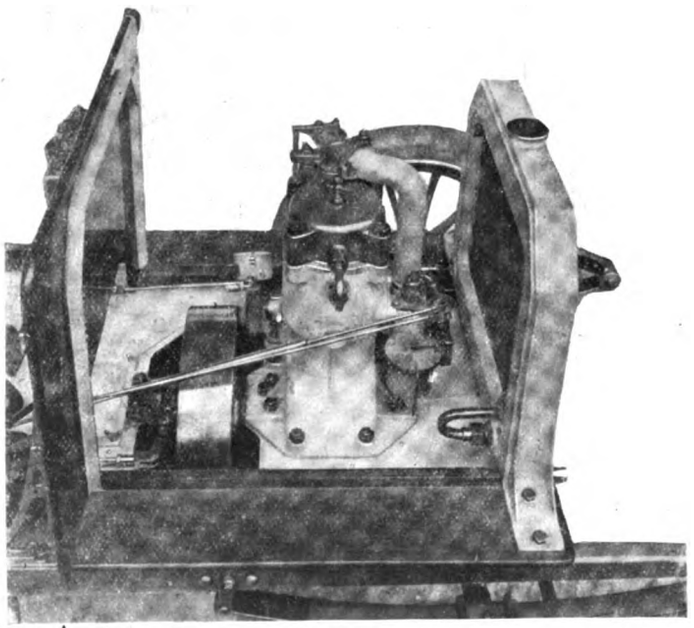


Fig. 30.—The Siddeley 6-h.p. Vertical Motor.

a vertical motor, is now being introduced. A view of the engine of this is given in Fig. 30. The cylinder is 4½ in. bore by 4½ in. stroke, the normal speed being 900 revolutions per min. The water-jacket and upper half of the crank-case are in one casting. The explosion chamber, with its water-jacket and valve chest, is a separate casting bolted on to the lower part. The valves are mechanically operated off one cam shaft, the inlet valve being located in the cylinder head. The pump is driven off the cam shaft. The commutator is also actuated off the cam shaft through bevel pinions, so that it is brought into a most accessible position. The radiator is of the ribbed tube type set in a frame forming the water tank. The transmission is also a new departure for the Siddeley Company, being through an internal cone clutch, gear-box, cardan shaft, and live axle. The change speed gear-box, which is supported directly on the pressed steel frame, is adapted to give three forward speeds and a reverse. The cardan shaft and the axle are completely enclosed in an aluminium casing.

The foot brake acts upon a drum on the cardan shaft, and the hand brakes on drums connected with the hubs of the rear wheels. The clutch and brake pedals are of the push-forward variety, and the hand brake lever of the pull-up type. The brake pedal is connected with the throttle in such a way that when the brake is applied the speed of the engine is automatically reduced.

Messrs. F. G. PICKERING AND COMPANY, LIMITED, who have devoted much attention to heavy commercial vehicles, exhibited one of their two-ton petrol lorries. The engine is a four-cylinder one of 20-24-h.p. fitted with magneto ignition. The change speed-gear, which gives three forward speeds and a reverse, is of the Soames type, the transmission being by side chains. The vehicle is fitted with a special form of artillery type road wheel introduced by the firm. The wheel is a twin spoke one, a feature being a fixed centre flange which divides the lateral strain equally, so that each side takes up its share. The hub is composed of a boss with a fixed centre flange and two loose flanges, the spokes being divided into two sets on the hub by the centre flange, but all run into the same centre line in the felloes. The fixed centre flange is bevelled on either side, but the two loose flanges have parallel faces. The bases and the bottom end of each of the spokes are cut at angles which permit the bolts

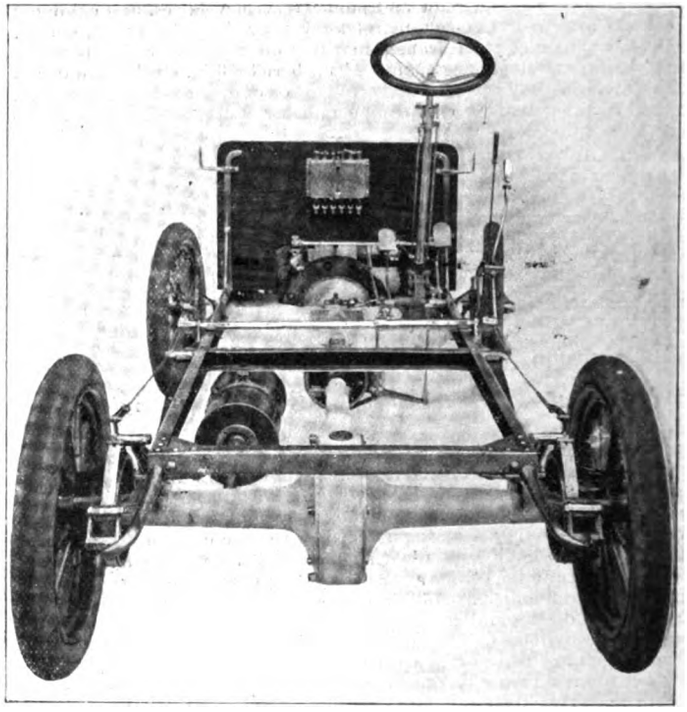


Fig. 31.—Rear View of Siddeley 6-h.p. Vertical Engine Car.

to draw the flanges and spokes close together, making the whole as if it were one solid piece. In this way, also, the grain of the spokes is allowed to run straight, although the spokes are lying at an angle from an horizontal base. The main advantages claimed for the wheel are that it takes up side strain much better and is not so liable to collapse with a twist or a blow.

The IVANHOE MOTOR COMPANY made its *debut* with a couple of excellently-finished "Mercury" cars. In general arrangement the usual lines of chain-driven vehicles are followed, the chain drives being, however, very short. The engine comprises four cylinders, 110 mm. diameter by 130 mm. stroke, having mechanically-operated inlet valves on the opposite side to the exhaust. The carburettor is of the automatic air regulation type, a feature being that no springs are used in its construction. The engine is not supported by projections from the crank case but rests directly on an underframe. We note also that the quadrant on which the control levers are mounted does not rotate with the steering wheel but maintains a constant position. The cars exhibited included a side-entrance double phaeton and a double landaulet, the finish of which reflected much credit on the new firm.

A good display of carriage work was made by Messrs. J. A. LAWTON AND COMPANY, whose touring bodies are characterised by adaptability for long journeys. Plenty of room is allowed for riders, and the workmanship as well as the design are notable.

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The exhibit of Messrs. S. F. Edge, Limited, consisted of four complete Napier cars and two *chassis*, each a fine specimen of its particular type. Broadly speaking there were four distinct models on view: Four-cylinder 40-h.p., six-cylinder 30-h.p., four-cylinder 24-h.p., and four-cylinder 18-h.p. The Napier synchronised ignition, and the hydraulic air regulator are prominent features of these cars; while a new metal-to-metal clutch, which enables the car to be started on top speed if desired, was seen for the first time. Two views of the clutch are given in Fig. 32. The special points may be summarised under four headings, as follows: 1. Designed so that it is possible to run in oil. 2. All end thrust on engine obviated. 3. Simplicity and compactness of design. 4. Very light revolving parts, making change of speed easy. The clutch itself is of the internal cone type. The internal member, A, which is of aluminium, has a cast-iron facing, B, riveted to it, forming one friction surface. It is dished considerably, so as to accommodate the clutch spring, K, which presses against it, at one end, and against a flange, J, at the other end, a ball-thrust bearing, F, being interposed between the spring and the flange. The latter is bolted to the fly-wheel of the engine, so that the shaft upon which the inner member, A, is freely mounted practically

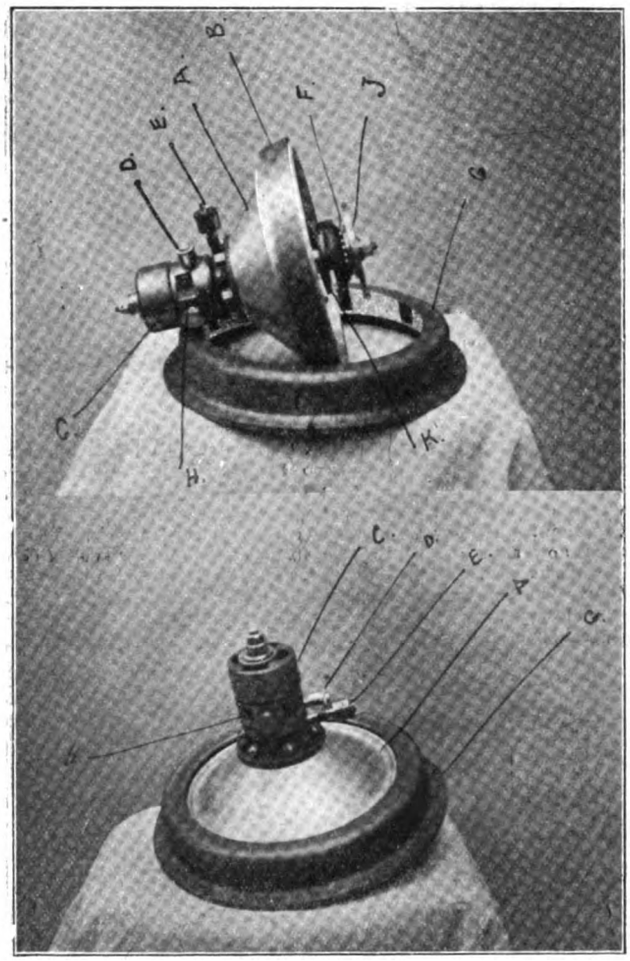


Fig. 32.—The Napier Metal-to-Metal Clutch.

forms part of the crank-shaft, so ensuring proper alignment of the parts. Bolted to the fly-wheel is the cast-iron ring, which forms the outer member of the clutch, encircling the internal member, A. The pressure of the spring, K, acts between them, and forces out the member, A, so causing the two friction surfaces of the clutch to come into contact. In order to ensure the proper lubrication of the surfaces, grooves are cut at intervals across the inner surface of the outer member; the oil remains in these grooves while the clutch is engaged, in readiness to lubricate the surfaces directly the clutch is allowed to slip. To disengage the clutch, a fork, not shown in the illustrations, is connected with the boss H, which is thrust forward by the pedal, causing the member, A, to move inwards against the action of the spring. A universal joint is enclosed in the box, C, this ensuring flexibility between the clutch-shaft and the gear-shaft. By means of the new clutch it is possible for the car to start away from a standstill without a jerk and to glide into motion smoothly, the reason being that the oil on the surfaces of the cones B and G allows a certain amount of slip to take place until the full power is required to be transmitted, and immediately this takes place the oil from off the surfaces is forced, by the pressure of the spring, into the grooves in the outer member. Having dealt with the clutch, we may refer to the new type of car which has been introduced, viz., the 40-h.p. chainless car, in which the power is transmitted to a live axle by a cardan shaft and bevel gear, as has hitherto been done in the Napier racers. Passing now to the actual cars exhibited, we may first mention a 30-h.p. six-cylinder touring carriage fitted with a side-entrance body and canopy. The latter is, perhaps, worth special notice, as it is arranged so that the rear portion of the body can be completely enclosed so as to form a covered-in car. A 24-h.p. limousine (Fig. 34) was also shown, the body of which is by Mulliner, and

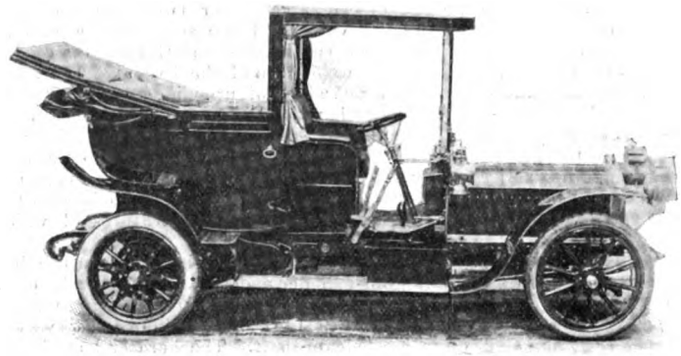


Fig. 33.—A Napier 30-h.p. Six-Cylinder Landaulet, built for Countess de Grey.

is a distinct departure from the lines of the usual covered-in car. Accommodation is provided for six passengers and the driver, the interior of the car being arranged so that all the passengers face forward. A noteworthy point is that the roof throughout its entire length has a "clerestory," which not only considerably enhances the appearance of the car, but is so arranged as to admit light and ventilation. A new 18-h.p. Popular Napier was also on view for the first time; it is a four-cylinder car with roomy four-seated side-entrance body. The engine has its cylinders arranged in pairs, and is fitted with single coil synchronised ignition. The inlet valves are mechanically operated, and the carburettor is fitted with the hydraulic air regulator. The frame is of wood armoured with steel flitch plates. The transmission gear gives four changes of speed and a reverse, all actuated by one lever. Altogether the 1905 Napier cars appear fully destined to maintain their high reputation.

The Metropolitan Engineering and General Motor Car Company, Limited, displayed a neat little two-seated car with hood and front glass, designed for the use of doctors. The engine is a 6½-h.p. Aster single-cylinder, the transmission being by a cardan shaft and bevel gear to a live axle. At this stand were also to be seen a couple of strongly-built light delivery vans. The larger one was fitted with a 12-h.p. two-cylinder engine, the transmission being by side chains. The frame is of channel steel, while the van body is intended for loads up to 12 cwt. The other van was a small one to carry 6 cwts.; it is fitted with 6½-h.p. motor and live axle.

Messrs. Cottereau and Company, represented in England by Messrs. McNeil, Hutchison and Company, had an extensive display of cars fitted with one, two, three and four cylinder engines, each of which comprise a number of new features. The 8-h.p. single-cylinder car has a tubular

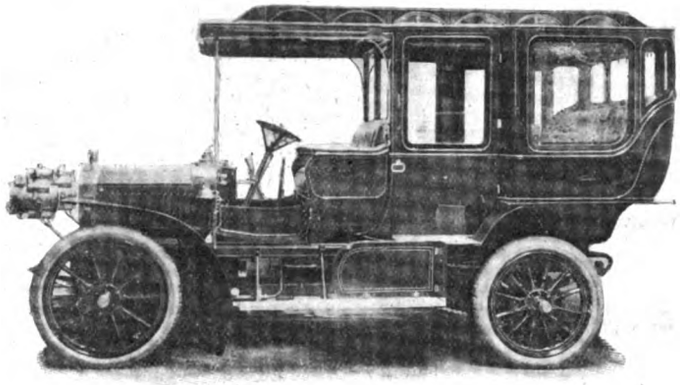


Fig. 34.—The Napier Limousine with Clerestory Roof.

frame. Three speeds and reverse are provided, transmission being by a single chain to the rear live axle. The motor has mechanical valves, and is governed on the inlet. An 8-h.p. double-cylinder car was also shown, this having side chain transmission. Much interest was displayed in the 18-h.p. three-cylinder car, which has a gear-box running on ball-bearings, pressed steel frame, and rear internal metal brakes. The 24-h.p. four-cylinder car was also well worthy of close examination. The Cottereau engines have separately cast cylinders with mechanically-operated valves,

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arranged on opposite sides. The speed of the motor is regulated by means of a variable lift device on the inlet valves. With the exception of the small car, the frames are of pressed steel construction. A display of radiators made by the Lune Valley Motor Carriage Company, Lancaster, was also to be seen at this stand.

The Croxted cars, which are being made in four sizes—6-h.p. single-cylinder, 10-h.p. double-cylinder, and 14-h.p. and 20-h.p. four-cylinder—were shown by the CROXTED MOTOR AND ENGINEERING WORKS. The 6-h.p. car is a two-seater on the usual lines, the motor being a De Dion. The 10-h.p. vehicle, which is supplied either with a tonneau body or as a two-seater, is fitted with one of the latest Aster two-cylinder engines having mechanically-operated inlet valves. Three speeds and a reverse are provided, the drive on the top speed being direct through the cardan shaft to the live axle. The 14-h.p. car is also of the live axle type, the motive power in this case being furnished by a four-cylinder engine, 90 mm. bore by 110 mm. stroke. A very handsome car was to be seen in a 20-h.p. side-entrance double phaeton with Mutel four-cylinder engine and side chain transmission. Without comprising any startling departure from standard practice it may safely be stated that the Croxted cars are excellent specimens of their class. At this stand was also to be seen the "Armoured," a tyre introduced by Mr. MEADOWS, the features of which were recently described in our columns.

The ENFIELD AUTOCAR COMPANY exhibited at the show, for the first time, examples of their 20-h.p. four-cylinder and 10-h.p. two-cylinder cars. A pressed steel frame is adopted, the engine being carried directly thereon. The cylinders are cast in pairs, with the inlet and exhaust valves mechanically actuated off a single cam-shaft. The bore and stroke of the cylinders of both engines are 4 in. by 5 in. A tubular radiator combined with a tank fills in the forward end of the boiler-shaped bonnet. No pump is fitted, the circulation being on the thermo-syphon system. The flywheel rim is provided with external vanes shaped to act as a fan. Ordinary high-tension ignition is provided, the commutator being on the incurved dashboard. The latter is illustrated in Fig. 36, from which it will be seen that it accommodates accumulators, coil, engine lubricators, tool cupboards, &c. The power is transmitted on the 20-h.p. car through a combined clutch and brake similar to that adopted in the Chenard-

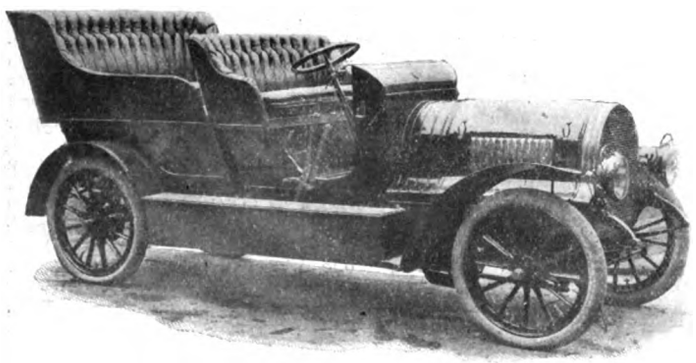


Fig. 35.—The Royal Enfield 20-h.p. Side-Entrance Double Phaeton.

Walcker car, the pedal withdrawing the clutch applying the brake when fully depressed. The gear-box gives three speeds and reverse with direct drive on top speed. The transmission is by bevel gear to a live axle. The cardan shaft on the larger car is provided with a universal joint at each end; it is formed of three spring steel rods, which twist to the extent of 50 per cent. in taking up the drive, and thus avoid all shock to the gear and bevel driven pinions. On the smaller car the spring rods are replaced by two spring blades. The back wheel brakes are of the internally expanding type, and are applied by a pull-up lever. Other features of the cars are found in the provision of an automatically engaging starting handle and special twin radius rods extending from the differential casing to a joint on a bracket behind the gear-box. The 10-h.p. car is especially interesting in that it is so made as to serve a variety of purposes; it is made in the form of a two-seated car, the rear part being, however, so designed that either a detachable tonneau or van body can be readily fitted to it. By purchasing all three, the vehicle can thus be used not only for commercial purposes but also as a pleasure car for two or four persons. The various details appear to have been well designed; and now that the Enfield Company have entered the motor world their cars should quickly become as popular as the cycles turned out from another branch of the same factory.

The stand of the DE DIETRICH Co., represented in this country by Messrs. Jarrott and Letts, Ltd., was one of the most striking in the Exhibition. The sign was of iron construction with revolving centre announcing the name of the firm. Three types of the cars were shown, viz., 16-h.p., 24-h.p. and 40-h.p., in which several striking alterations and a number of important modifications have been made. The length of the wheel base has been increased, and they are now arranged for the fitting of side entrance carriage bodies. The appearance has been considerably changed by the adoption of a honeycomb radiator. Cooling is assisted by a belt-driven fan, the fly-wheel being also of fanlike design to induce increased draught. The motor, Fig. 37, itself is of an entirely new model. The inlet valves are arranged in the cylinder heads, and are actuated off the same cam shaft as the exhaust valves. It is fitted with an improved carburettor with a very finely-graduated throttle to enable the motor to be set to run at any speed. The throttle is worked by a lever arranged on the steering wheel, a second lever controlling the ignition. An accelerator is also arranged for easy and quick acceleration in traffic driving and starting up-hill. An ingenious device whereby, when the throttle lever is opened wide, the action of drawing out the clutch

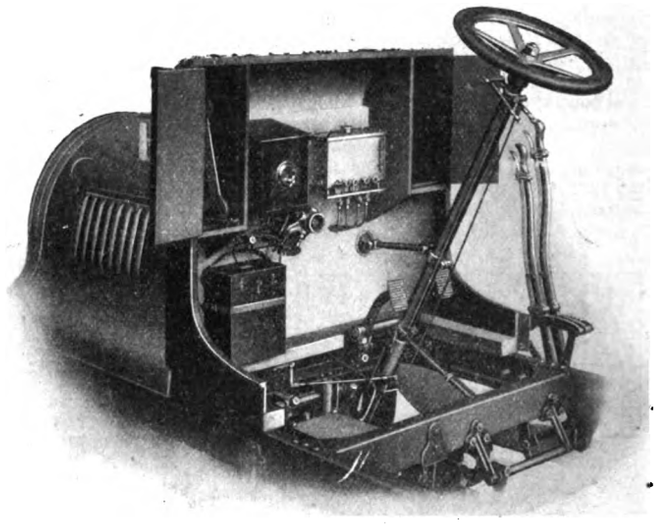


Fig. 36.—View of Dashboard of Royal Enfield 10-h.p. Car.

immediately throttles the engine, is another important improvement. On the 40-h.p. *chassis* we noticed that a half-compression lever is provided for easy starting. The change-speed gear-box is of a new pattern, and cardan joints are provided on the differential shaft to obviate any strain being transmitted to the gear-box bearings, and for the same purpose a cardan joint is arranged between the gear box and the clutch. Ball bearings are fitted to the gear-box shafts and the road wheels. The side brakes are of a much lighter design than formerly; they are internal expanding, and enclosed from dirt and mud. A compensating arrangement is fitted whereby equal tension is put upon the brakes on both the road wheels. The steering bar is now arranged behind the front axle. A new type of bonnet, with low dashboard, sloping footboard, and sharper rake of the steering wheel, give the cars a considerably smarter and more stylish appearance than the old type, and as the *chassis*, to ensure stability, is much lower, the general effect is very pleasing. The great feature of the De Dietrich

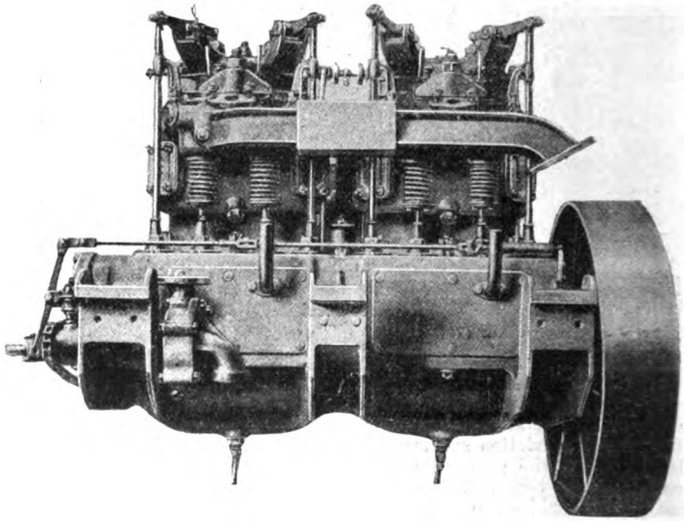


Fig. 37.—View of Exhaust Side of De Dietrich Engine.

display was a 40-h.p. touring vehicle, which embodies a saloon provided with beds, seats, writing table, electric light, electric bells, and dressing-room. It is completely equipped with every requisite, and was one of the attractions of the show.

Mr. G. GOLDSCHMIDT had his customary good display of motor-lamps, including head, side and rear lights of the Zanardini and Jupiter models, which secure a capital illuminating efficiency. The "Octopus" and "Doubletwist" horns, the "Merz" motor goggles, and various other accessories made up a display of considerable interest.

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The Albion Motor Car Co., Limited, in conjunction with the Lacre Motor Car Co, Limited, showed various types of Albion cars, including touring and commercial vehicles of different types. The speciality of the company has been in the construction of cars suitable for running on solid tyres with the same comfort as on pneumatics, at speeds up to about twenty miles per hour. The vehicles exhibited included a 16-h.p. tonneau de luxe, with body constructed by Messrs. James Henderson and Co., Glasgow, fitted with 5 in. pneumatic tyres, and speeded to thirty-five miles per hour. The *chassis* of this car has a wheel base of 7 ft., and an over-all length of about 11 ft. A side-entrance car, having an 8 ft. 9 in. wheel base and Lacre body fitted with solid tyres on all four wheels, was also shown. A type of vehicle specially constructed for hotel proprietors, shooting boxes, &c., was an eleven-seated wagonette, with detachable canopy, glass screens, and storm curtains all round, while among the commercial vehicles were several types of vans and lorries The motor (Fig. 40) of all the above cars is of 16-h.p., and is of the two-cylinder vertical balanced type, the cylinders being 4⅛ in. bore by 5 in. stroke. The inlet valves are mechanically operated, and by the loosening of a single nut each pair of exhaust or suction valves may be withdrawn.

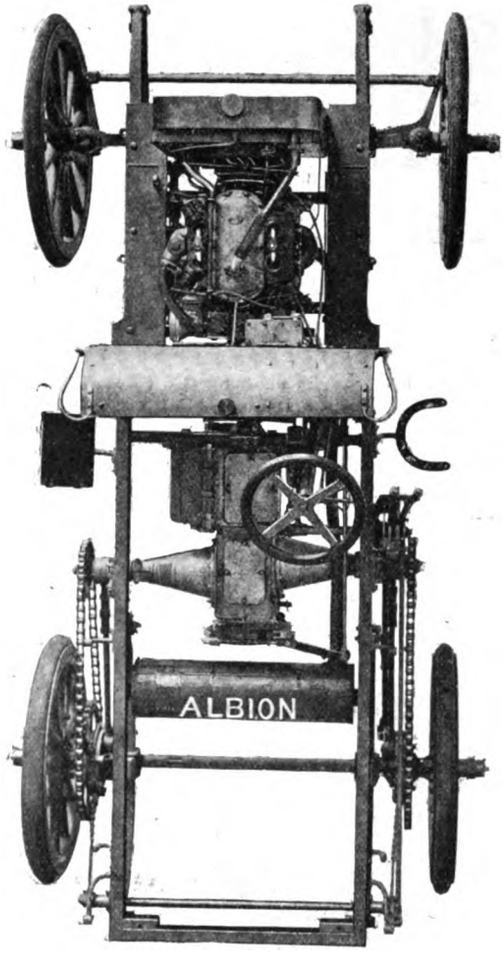


Fig. 38.—Plan View of Chassis of Albion Car.

Relief cams are provided, which make the starting of the engine a simple and easy matter. The ignition is magneto electric, the current being generated by the Albion patent magneto generator, mounted directly on the crank-shaft. The armature and coils are stationary, there being no sliding contacts, commutators, or brushes, and consequently nothing to go wrong. There is no complicated wiring, only a single conductor leading from the generator to the plugs. The ignition is timed at all speeds by the Murray patent governor to take place at the most effective point of the stroke. The ignition trip gear has been completely silenced by the introduction of a new buffer hammer. The motor is governed on the inlet by a governor, which automatically regulates the speed, mixture and ignition advance, the action of the governor itself being controlled by a single lever, which therefore simplifies the driving. The centrifugal part of the governor (Fig. 33), is so designed that the sliding sleeve A begins to move along the shaft when the engine is running at 180 revolutions per minute, and only reaches the limits of its travel when a speed of 1,000 revolutions is attained; there is therefore a definite position of this sleeve for every speed of the engine. Within these limits and by means of a hand lever B, fitted below the steering wheel, the driver can determine at will the speed at which the governor will close the throttle. The governor may, therefore, be set to hold the car at any desired speed, or, in other words, to follow up the desires of the driver. At whatever speed the governor is set the car will, it is claimed, maintain this steady speed up and down hill and on the level without any attention, provided the hill is not too steep for the engine on the particular gear of the change-speed mechanism in action. The correct instant for ignition for each speed of the engine has been carefully determined by experiment, and a simple mechanism designed,

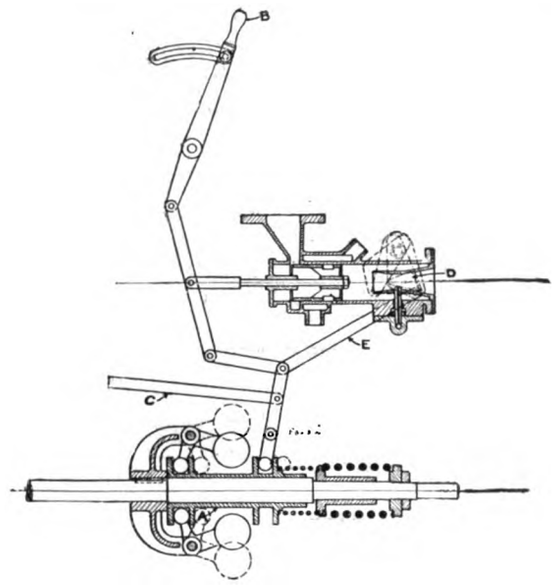


Fig. 39.—Diagram of Arrangement of Murray Patent Governor.

controlled from the governor by the connecting rod C, which automatically advances and retards the ignition. The correct mixture of gas and air at various speeds and loads has also been experimentally determined, and from the data obtained an automatic carburettor has been designed to give the best mixture under all conditions. The opening of the extra air port D is controlled for this purpose by the governor through the connecting rod E. The carburettor is provided with a hot water jacket to prevent freezing in cold weather. The power from the engine is transmitted to the gear case through a leather-faced clutch and an improved form of spring

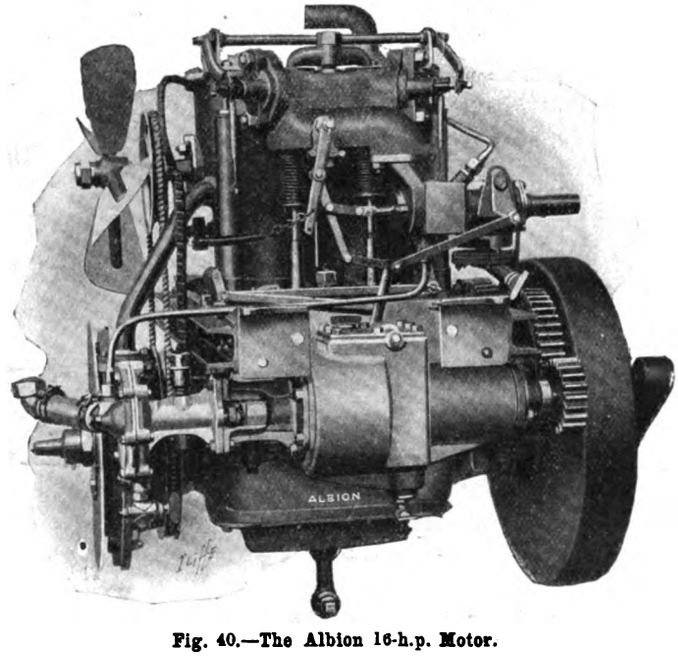


Fig. 40.—The Albion 16-h.p. Motor.

drive, whereby the torque or driving strain from the engine passes through a set of springs which absorbs any jerks or shocks due either to uneven roads or to careless manipulation of the clutch, and adds greatly to the smooth running of the car, reducing, at the same time, the wear and tear on the engine and gearing. The speed change gear provides three speeds forward and a reverse. The two higher speeds are operated by positive clutches. The wheels for these are always in mesh, the

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top speed being a direct drive from the engine to the bevel gear. The low speed ahead and the reverse are obtained in the usual way by sliding the wheels sideways into gear. The changes of speed are all operated by a single lever, and the driver can change direct from one speed to any other without passing through intermediate gears. Two powerful independent double-acting brakes are provided. The foot brake consists of a metal drum, having shoes fitted with cast-iron liners, which can be renewed when worn. The band brake is similar in construction, and acts on drums fixed to the rear wheel hubs, the pressure

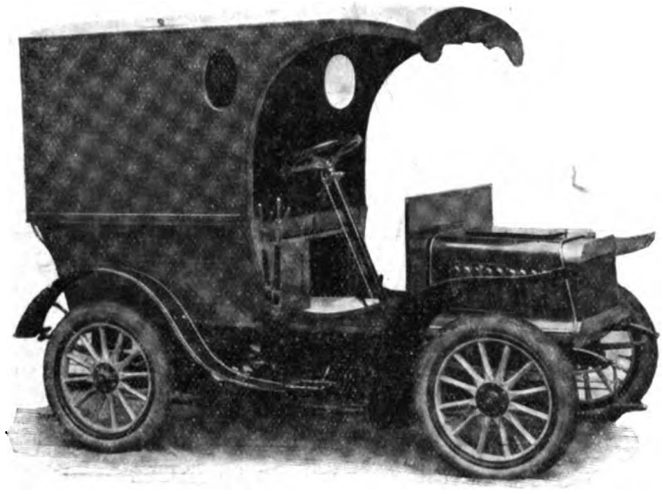


Fig. 41.—The Alldays and Onions Delivery Van.

on the two being balanced by a simple arrangement of levers. There are several other points of interest which pressure on our space prevents us referring to on the present occasion, but from the foregoing it will be seen that the Albion cars are the outcome of careful study, the result of which is seen in the reputation for reliability which they have earned, not only at home but abroad.

The Alldays and Onions Company, Limited, exhibited several of their latest 8-h.p. single-cylinder cars fitted with different types of bodies. The engine, which has mechanically-operated valves, is fitted in the fore part of a channel steel frame. The carburettor is of the spray type, having float feed and automatic air regulator. The change speed gives three forward speeds and a reverse, actuated by one lever. The transmission is by cardan shaft and bevel gear to the live axle. The cars exhibited included a two, three and four-seater, a neat coupè, controlled from the inside, for doctors' use, and a serviceable looking light delivery van, with movable top, Fig. 41. The vehicle is fitted with detachable seats for four passengers when used as a pleasure car, and is shod with pneumatic or De Nevers solid tyres.

For the 1905 season the Mors cars are being made in five different sizes, viz., 12-16-h.p., 14-19-h.p., 19-24-h.p., 25-32-h.p., and 40-52-h.p., all having four-cylinder engines and frames sufficiently long to take side-entrance bodies. Mors, Limited, the new concern which is now handling these well-known cars in this country, had a large stand on which were shown a 24-32-h.p. *chassis*, a 14-19-h.p. coupè-limousine (Fig 42), and a 14-19-h.p. landaulet with Rothschild body. All the cars have pressed steel frames; the motors have low-tension magneto ignition and a new form of automatic carburettor; the latter has two air inlets, the mixture being regulated in accordance with the requirements of the engine at different speeds. The four cylinders are cast in two pairs, and a noticeable feature lies in the fact that the vertical axis is not coincident with that of the crank shaft, the cylinders being displaced slightly to the right, towards the magneto side. The object of this is to reduce the friction between the pistons and the cylinder walls on the explosion stroke; the obliquity of

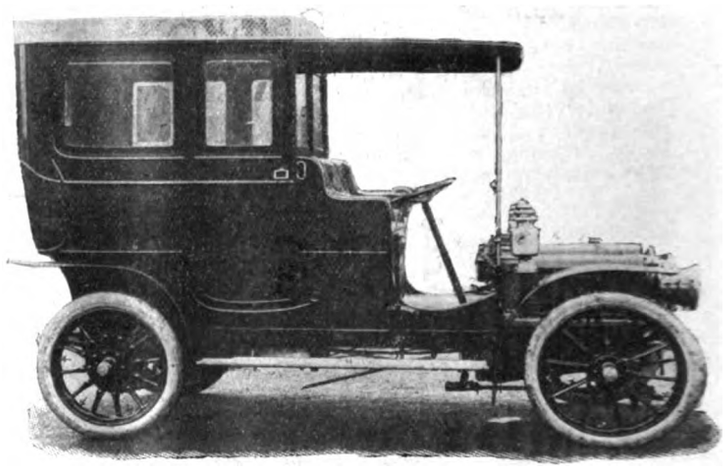


Fig. 42.—The Mors 14-19 h.p. Coupe-Limousine.

the connecting rods being less. It is also possible to use shorter connecting rods, and shorter and lighter cylinders. Another point of note is the manner in which the time of the lift of the valves and ignition stems is varied. The rod which lifts the valves is no longer placed immediately over the cam, but is pivoted at the end of a lever, in the middle of which a roller is fixed. This roller is raised by the cam, the valve spring causing it to descend again. The relative position of the lever and cam is variable, being regulated by a screw and lock nut outside the crank chamber; in other words, the roller is moved to and fro so as to receive at an earlier or later period its impulse from the cam. By this means the time of the closing of inlet and exhaust valves, and the advance of the spark, can be regulated to a nicety. The advance-spark lever is entirely dispensed with, so that the engine can be started without fear of back-fire; when once in motion the voltage of the magneto, and consequently the temperature of the spark, varies directly as the speed. No centrifugal governor is fitted, the speed of the engine being controlled by the throttle valve, which is closed as soon as the driver de-clutches. To obtain, however, absence of noise and the minimum consumption of petrol, in addition to the admission being throttled, the lift of the inlet valves is reduced by two cams joined together by an inclined plane. In one position a lift of twelve millimetres is obtained, in the second position only four millimetres. A lever placed near the steering column causes the whole of the cam shaft to slide along horizontally, and brings the different steps of the cam underneath the

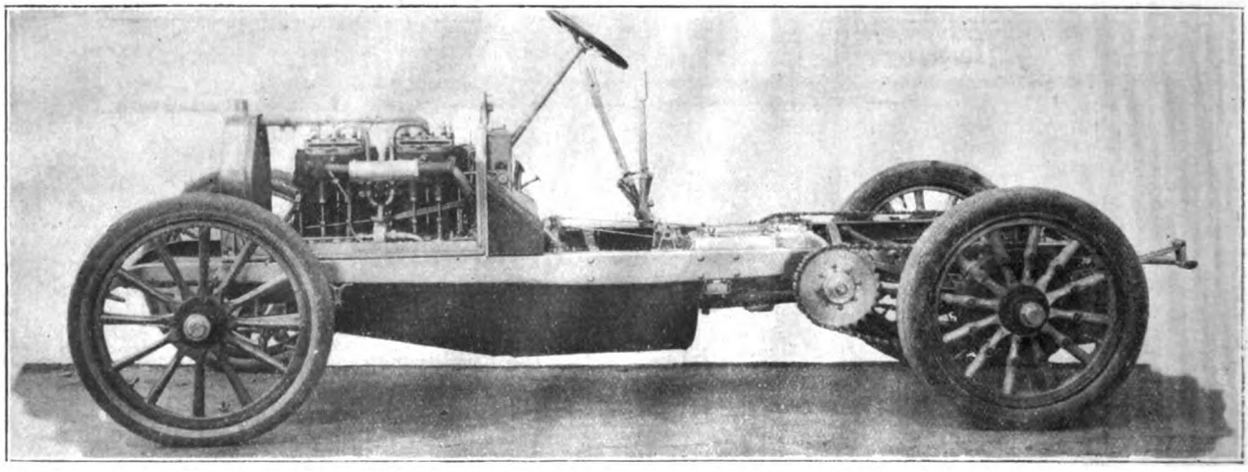


Fig. 43.—Chassis of Fiat 24-h.p. Car. (*See page 1066 last issue.*)

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rollers attached to the valve-lifting mechanism. The spur wheel keyed to the crank-shaft is made twice the normal thickness, so as to drive the cam shafts in both positions. The cooling of the cylinders is effected in the usual manner by a pump which forces water, already cooled by the radiator, through the water jackets. The pump is driven direct off the inlet valve cam-shaft, and is attached by a bayonet joint. By removing one nut and giving half a turn to the body of the pump the latter is detached. No fan is fitted either in the fly-wheel or behind the radiator. The Mors Company state that they have proved by experiment that the best fan cannot produce a current of air of a velocity greater than eight miles an hour, so that when the car is travelling quickly the fan offers a back pressure to

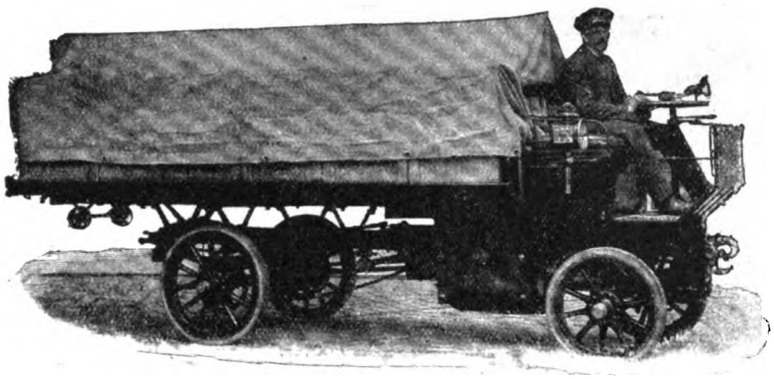


Fig. 44.—The Frick Petrol Lorry.

the natural current of air. The lubrication is effected by a small pump, analogous in construction to the water-circulating pump. An oil reservoir of a capacity of 12 litres is provided, which allows of a two-days' journey without attending to the lubrication. The pump is placed underneath the bonnet, and is actuated by the lift of the exhaust valve mechanism. It forces the oil into a set of sight-feeds on the dash-board, from which it falls by gravity. To start the engine the exhaust valves are kept slightly lifted during the compression stroke; this is effected by moving the cam shaft horizontally, and allowing differently shaped cams to raise the exhaust valves. The Mors system of change-speed gear, in which the power is transmitted through one or other of two bevel gears to the differential shaft is still retained. The clutch is extremely simple; the male portion turns freely on a prolongation of the crank shaft, and is therefore always in line. The first-motion shaft of the gear-box is coupled to the crank-shaft by two spherical cardan joints. An interesting improvement has been applied to the steering mechanism, all back-lash being automatically taken up by a moveable sector, attached to a fixed sector by a screw, and which is always pressed home against the screw-thread by a wedge under pressure of a spring. The brakes are three in number: there is an ordinary band-brake on the differential counter-shaft, operated by pedal; another pedal controls a compensated contracting brake on the two back wheels; thirdly, an internal expanding brake on the back wheels applied by a hand lever, connected up to the clutch. The frame is suspended by two rear semi-elliptical springs placed longitudinally and by a transverse back spring. Both sets are supported on ball-joints at the end of a rod about four inches in length, uniting the two and allowing full play in all directions. The care which has been used in the design of all details makes the 1905 model a perfect car. Messrs. Mors, Limited, have also taken up the agency for the Cardinet electrical vehicles made by La Compagnie Francaise de Voitures Electromobiles, and exhibited a luxuriously finished brougham. The motors in these carriages are located in the fore part of the frame, and drive the rear axle through bevel gearing. They are provided with two armatures and two fields, which allow of four speeds without changing the battery connections.

Messrs. A. Dougill and Company, Limited, of Leeds, who are now represented in London by Messrs. R. G. Batchelor and Company, of Phipp Street, Finsbury, exhibited a petrol lorry designed to carry a load of 30 cwt. (Fig. 44). The feature of the vehicle is found in the transmission system adopted. The engine is a single-cylinder one, of 9-h.p., with mechanically-operated inlet valve, low-tension magneto ignition and automatic carburettor. The usual friction clutch is replaced by a disc. At right angles to this are two friction wheels, one being fixed on the shaft, the other, while forced to rotate thereon, is free to slide on the shaft and its position in relation to the disc varied as desired. By this means any speed can be obtained, and when the sliding friction wheel is brought over the centre of the engine shaft disc, a reverse motion is obtained. The fixed friction wheel is only employed to increase the friction, and has contact both with the forward disc and one at the rear. From the friction wheel shaft to the rear live axle the power is conveyed by a single side-chain. A neat 7-h.p. van designed for loads up to 8 cwt., and provided with friction drive, was also exhibited. Many experiments have been made in the past to introduce a successful friction-driven car, and in the Frick vehicles the makers claim to have overcome the difficulties hitherto encountered.

Messrs. Michelin and Company had a good show of tyres, including some of general interest which have done duty in the classic motor-car races. A neat and effective forked lever used for taking off or putting in the security bolts and the valve was also on this stand. Near by Parsons' non-skids for motor-cars, tri-cars and motor-cycles were shown by the Parsons Non-Skid Company, Limited. Since they were shown at the Agricultural Hall Exhibition these have secured a wide recognition. The "Seddon" tyre in red rubber and Moseley's beaded edge tyre, previously dealt with in these columns, were to be seen on the stand of Messrs. David Moseley and Sons, Limited, who are devoting much attention to motor work.

Messrs. Ransomes, Sims and Jefferies, Limited, exhibited the three sizes of their motor lawn mower, viz., 42 in., 30 in., and 24 in., these being fitted with 6-h.p., 4-h.p., and 2¾-h.p. motors respectively. Transmission is by chain-gear through a reducing arrangement, and there is a separate clutch for putting the cutting cylinder out of gear when required to roll the grass only. The arrangement of the handles and levers for starting, stopping, steering, and emptying the grass box is simplified so that they can all be easily reached from the driver's seat. These lawn mowers have been supplied to many of the leading noblemen of the country and are doing good service on some of the largest estates.

On the stand of the Palmer Tyres, Ltd., was a pneumatic motor-'bus tyre manufactured from the airless cord fabric which is used in Palmer cord tyres, which have become so familiar. This is designed to carry three tons per wheel when inflated to a pressure of about 100 lbs. per square inch. The samples shown were 45 in. diameter to carry the centre of axle 22 in. from the road. The tread is equal to that of an ordinary pneumatic tyre, 10 in. in cross-section. This motor-'bus tyre is constructed in such a way that it more or less encloses the felloe of the wheel, so that in the unlikely event of the very thick rubber tread being punctured, there would be no risk of the 'bus overturning, because the felloe of the wheel is so near the ground. If necessary, the pneumatic tyre could be taken off and the 'bus driven home on the iron rim of the felloe. The samples shown were made plain on the tread for use on the special testing apparatus in the Palmer tyre experimental department. When made for the road the tread will be of the registered design as used for Palmer cord motor-tyres, but of course greatly enlarged; in fact, the three ribs will be equivalent to three small tyres side by side. It is anticipated that there will be no tendency to side-slip, this design having proved so remarkably successful in the case of the Palmer cord motor-car tyres. The company's ordinary tyres are still well to the fore, and in the speed trials held in Florida, Mr. A. Macdonald won the Thomas Trophy, made a world's record for the distance of ten miles, and was successful in winning the Miller Trophy for the twenty mile race. His car was fitted with Palmer cord motor-tyres of the ordinary touring class. The Palmer Tyres, Limited, also exhibited a new cord motor-tyre of a light make for racing purposes, which will show an improvement upon the ordinary motor tyre

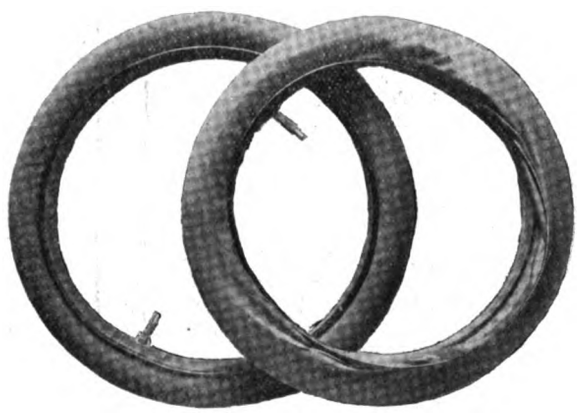


Fig. 45.—The Palmer Spare Tyre Case.

for speed. We illustrate the spare tyre-case recently introduced by this company; it is specially intended for carrying a spare cover and tube on the car. There are no projecting parts to catch the dust, and it is easily cleaned, while for preserving the tyre from risk of damage by weather, etc., it is excellent.

On the stand of the Self-Sealing Air Chamber Company, Limited, Birmingham, was found the "Hermetic" motor tyre and the Hermetic patent detachable joint for ordinary air tubes. This latter provides a means of easily connecting or disconnecting a continuous air chamber and will save much time in repairs. A display of gaiters was also included in the exhibition. The company are continuing their motor repair department, but are giving increased attention to the manufacture of new tyres.

The North British Rubber Company, Limited, had a good show of the Bartlett-Clincher motor tyres for cars and voiturettes. These have done so well in many competitions, and their characteristic features are so well known that detailed description seems superfluous.

(To be continued).

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CORRESPONDENCE.

Letters to the Editor should be addressed to the offices, 27-33, Charing Cross Road, London, W.C.]

MAGNETIC CLUTCHES.

To the Editor of *The Motor-Car Journal.*

Sir,—I noticed that in the discussion on the recent paper at the A.C.G.B.I. by Mr. Cozens-Hardy on the Paris *Salon* reference was made to the use of magnetic clutches on motor-cars. At one time it seemed that the magnetic clutch might be destined to fill a want for a means of transmitting the constantly increasing driving torque of cars, it being evident that, as the power of cars became greater and greater, the leather-faced clutch would eventually be inadequate for the purpose. Reports have been spread repeatedly that some one of the more prominent Continental makers had adopted this device on their latest cars, but when the cars finally appeared the reports always proved to have been false. In fact, the only serious attempts to develop the system have been made by individual advocates, and they have gradually faded away, as is evidenced by the fact that only a single car with magnetic clutches was seen at the Paris Show. I believe that in a number of cases the reason for abandoning the device has been its failure to perform its negative rather than its positive functions. In other words, it was found that while there was no particular difficulty in starting the car without shock, and in effecting a positive drive, the release of the driven member was not always reliable, there being a decided tendency to drag when a quick disengagement was desired. This may have been due more to faulty design than to inherent weakness of the device. Apart from this there are still sufficient reasons why the magnetic clutch has not met with a wider adoption in automobile design. In the first place, the magnetic clutch, unlike the ordinary friction clutch, constantly consumes a small amount of power when in action. It requires a source of electrical energy for energizing its coil, and this energy is consumed while the clutch is in operation. Its use means added complication and weight, and entails the installation of electrical connections of a more or less delicate character which may be expected to be productive of occasional trouble. Then, too, as Col. Holden pointed out, while magnetic clutches are very efficient when run dry, there is a considerable loss of power when they work in proximity to oil. The present indications are, therefore, that the magnetic clutch has been passed by in the progress of automobile development.—Yours truly,

Petroleo.

GOVERNOR TROUBLES.

To the Editor of *The Motor-Car Journal.*

Sir,—In answer to Mr. W. Wright in the last issue of the *Journal*, it appears from his letter that the cause of the trouble is owing to not having sufficiently sensitive movement for the altering throttle. The latter generally needs such a little movement to become effective, and unless it is possible to give the necessary movement, without going beyond it, would make the difference complained of. With regard to the noise, this is no doubt due to an inefficient silencer. Any engine will run silent if throttled down, owing to the explosion being weaker. To overcome the throttling difficulty, I would advise a more flexible spring on the governors, together with a more minute adjustment on the control. The noise can without doubt be overcome by fitting a more efficient silencer.—Yours truly,

F. J. T.

LIGHT CAR EXPERIENCES.

To the Editor of *The Motor-Car Journal.*

Sir,—I should be glad if those of your many readers who use a 6 or 7-h.p. gear-driven light car will give their experiences. I have some idea of going in for a light car, but am very undecided as to whether it shall be gear or chain drive. In their reply perhaps your correspondents will give particulars on the following points:—(1) Cost of running; (2) hill-climbing capacity; (3) does the gear drive wear the tyres out quicker than chain drive? and (4) is it as good on hills as the chain drive?

I am rather inclined towards the gear drive for cleanliness and ease of running, but, on the other hand, I am informed that the chains are much more efficient on hills.—Yours truly,

Gear Drive.

CLEAN HANDS.

To the Editor of *The Motor-Car Journal.*

Sir,—Your correspondent "Sticktite" gives yet another remedy for cleaning the hands, and as the matter is one which is all-important to most of us, I venture to offer the information that a new and entirely effective substance is about to be put on the market for the purpose of cleaning hands. "Sticktite" and others will find that after a day's overhauling, or after wrestling for an hour or as much longer as is necessary with a broken chain, clean and delightfully soft and fragrant hands can be obtained within a few moments. The invention, which is a patent, and the discovery of a chemist, is non-poisonous and harmless to the skin, containing neither acids nor alkalies. Moreover, it will be sold in small and strong tins, which a motor-cyclist can carry with him, while an owner of a car can place it in any odd corner, and thereby feel assured that in case of a breakdown he can still sit down to dinner with respectable hands.—Yours truly,

Motist.

To the Editor of *The Motor-Car Journal.*

Sir,—I have noticed "Sticktite's" letter in the *Journal* of the 11th inst., and would like to recommend him a preparation that I am using with the greatest success. It is called "Pipo," and instantly removes grease, etc., of the dirtiest kind from the hands.—Yours truly,

F. W. Clelland.

THE AUTOMOBILE AND CYCLE ENGINEERS' INSTITUTE.

To the Editor of *The Motor-Car Journal.*

Sir,—It may be of interest to your readers to learn that the last meeting of the Institute, which took the form of a number of short papers, followed by discussions, interspersed with a programme of music, was so successful that the Council purpose from time to time holding similar meetings.

The last meeting included papers on four-cylinder motor-bicycles, electroplating, and carburettors, which were very ably dealt with by Messrs. Binks, Bayley and Walford respectively, and, on behalf of the Council, I should be pleased to receive letters from any of your readers who have any subject of technical interest which they would like to lay before the Institute, or which they would like to be a subject for discussion by the Institute.—Yours truly,

Charles H. McPherson.
Secretary of the Automobile and Cycle Engineers' Institute.

THE NEW LANCHESTER CAR.

To the Editor of *The Motor-Car Journal.*

Sir,—Referring to the new Lanchester, a 20-h.p. car with vertical four-cylinder engine located between the front passengers, it would be interesting to know if these innovations in an apparently well-proved design are the result of loss of faith in the old type, or if they are in response to popular demand for a vertical engine, or possibly a desire to make the *chassis* suitable for a side entrance body, seeing that the Lanchester Company have in the past insisted strongly on the special advantages of their horizontal two-cylinder engine with its unique valve gear and balancing arrangements, &c.—Yours truly,

Enquirer.

KNOCKING IN THE ENGINE.

To the Editor of *The Motor-Car Journal.*

Sir,—Can you tell me the cause of knocking in the engine of my car, an Arrol-Johnston? It will run some days and only give a slight knock, and other days will knock badly. It cannot be the connecting rods, as I have just stripped and set the brasses, and the trouble is still as bad. Can it be the water or the ignition, which is pump and magneto respectively? When I slow down on, say, third speed, and then go on again, it knocks badly; I notice, too, that it gets worse as the engine gets hot. Can you or any reader of the *Journal* suggest the cause?—Yours truly,

Regular Reader.

[The knocking in the engine may in all probability be due to premature firing caused by the motor being foul, the carbon deposit becoming incandescent and firing the charge before the piston has passed the dead centre. It would also be advisable to see that the water circulation is in order, as if the engine overheated the effect would be the same. A knock is also occasioned sometimes by the piston rings fitting loosely in the grooves, this frequently giving a deal of trouble to locate. From the indications given, however, we are inclined to think the knocking is due to premature firing.]

TYRE AND NON-SKID BAND TROUBLES.

To the Editor of *The Motor-Car Journal.*

Sir,—In all fairness to the interests of motorists and motoring, it is well to look at both sides of a question. Now, "A Seeker for Good Tyres," in his letter in the *Journal* of the 11th inst., would rather stumble would-be motorists, for I think the question of the up-keep of the tyres is the beginner's bogey. My experience with motor tyres has been less troublesome and expensive (which I do not think should be all attributed to luck) than that of your correspondent. I, too, have been a motorist for exactly twelve months, and not being of the class who can afford to keep a vehicle solely for pleasure, have used my car, which is a 7-h.p. two-cylinder M.M.C., for business purposes, carrying about 3 cwt. of luggage, and man, in all weathers and over roads which are not of the best. My car was fitted with Continental tyres when I purchased it from the makers, and has run already 4,588 miles without a puncture. I have to say that as soon as I observed the canvas through the treads, I had the outer covers retreaded with rubber bands. One tyre ran 2,443 miles, another 2,589 miles, the third 2,733 miles, while the fourth is still in good condition. This I think is very satisfactory, and I can only hope that "Seeker for Good Tyres" will meet

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with the same success ere long. I might add that at first I feared punctures, and enquired for the best non-skid unpuncturable bands, but I was informed of their behaviour in exactly the same words as your correspondent.—Yours truly,

A Possessor of Good Tyres.

MOTOR TUITION.

To the Editor of *The Motor-Car Journal*.

Sir,—With reference to Mr. V. W. Farmer's letter in your issue of February 18th, where he says a coachman is more likely to become a good chauffeur than a man that has spent most of his time in a workshop. May I say this is wrong, as a firm of motor manufacturers are careful in recommending drivers for their own credit's sake. My attention was called a few days ago by a gentleman who has a driver. He has to attend to house work, gardening, and make himself useful; and when I examined his car, I was surprised to find that one cylinder had no compression. The gentleman said he could not understand it, as it had been running in this way for a week. I found out the cause, which was only trifling, viz, the exhaust valve stem would not allow the valve to close, which I adjusted in a few minutes. The gentleman said his driver had a certificate and ought to know, as he had a month's training, and that he was giving him £1 per week. Of course there are exceptions, but I believe every word of Mr. Sydney R. Harbert's letter of February 4th, and I contend a good man at £2 to £2 10s. per week is much cheaper then a man at £1, taking everything into consideration, viz., repairs, petrol, oil, &c. Again I say, an inexperienced man cannot take the position of a trained motor mechanic.—Yours truly,

A. B.

AN INTERESTING MOTOR QUERY.

To the Editor of *The Motor-Car Journal*.

Sir,—In my letter of the 7th ult. I mentioned that the increase of power was due to the presence of additional "atmospheric gases," and to oxygen in particular. "Farago" appears to treat the matter as a joke. It is a fact that more power can be got out of a motor in the evening after a fine or a summer's day. By this I mean to say that more power can be got out of a gallon of petrol.

The fact that the number plates are not as much in evidence after dusk does not affect the running of the motor, unless it is mechanically accelerated.

"Farago" does not appear to agree that the "atmospheric gases" have anything to do with the running of the motor. In the first place, we must mix a certain quantity of these atmospheric gases with the petrol in the carburettor before we can even obtain an explosive mixture. And the variation of the air, whether it is damp, or contains more water-vapour in it, or whether it is a dry and "brisk" air, depends to a great extent on the running of the motor, and of course on the amount of power given off by the engine. As to my statement about the "atmospheric gases" given off by plants after sunset, a good chemistry primer will soon explain this.—Yours truly,

BU-7.

NON-SKIDS.

To the Editor of *The Motor-Car Journal*.

Sir,—Reading the letter of Mr. Harry Lupton in last week's *Journal* *re* non-skid tyres which proved so unsatisfactory, I should like to give my experience, and to warn readers as to the dangers of buying through the post what are supposed to be bargains. Seeing a few advertisements at an address in London, and being in urgent need of a tyre, I journeyed from Kent with the intention of seeing the tyres and buying if satisfactory. After spending half a day the address given turned out to be a small shop to which letters may be addressed. I also went to another address not very far away and had practically the same experience, and in my opinion readers will do better to buy from recognised makers and so save money, time, and trouble in the long run.—Yours truly,

William Rosindell.

To the Editor of *The Motor-Car Journal*.

Sir,—Like Mr. Harry Lupton, I recently bought a pair of 810 by 90 mm. "newly retreaded, never used since" tyres. These were sent on approval and looked nice; naturally I did not try them before sending cheque in payment. A few weeks later I had occasion to use them; they were put on the front wheels and inflated up to 65 lbs. pressure; one ripped up after standing a quarter of an hour, the other following a little later, neither having run a yard. Needless to say I sent back both covers and demanded the return of my cheque. As no notice was taken of my letters, I have placed the matter in the hands of my solicitor. I shall be pleased to give the name and address of the vendor to interested parties.—Yours truly,

O. H. Bayldon.

We have received a number of other letters all bearing on the same point. *Verb. sap.*—Ed. *M.-C.J.*]

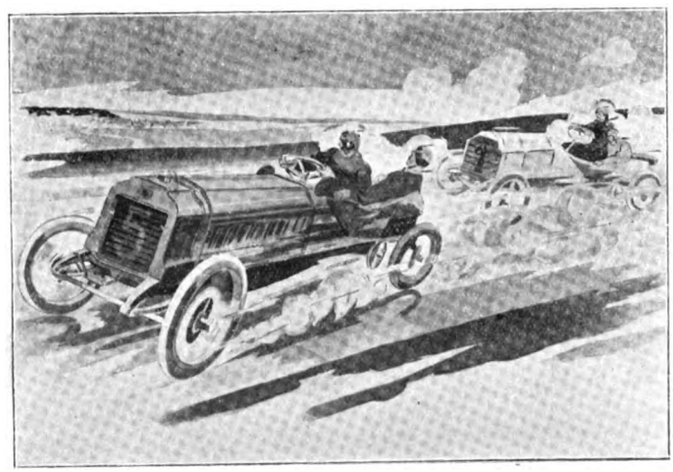
SIGNPOSTS AND NAMES.

To the Editor of *The Motor-Car Journal*.

Sir,—The signpost system of the country needs revision. I have lost myself three times during the last few days, between Whitchurch and Nantwich, York and Doncaster, and between Edinburgh and Perth, all for want of a sensible system of signposts, instead of the present anachronisms. The traveller will arrive at a turning, down which a sign asserts he will discover the town he desires to arrive at. He will follow this direction and will presently arrive at a circus where five roads meet, with a signpost there, sure enough. On it there will be five arms pointing respectively down each road, and not one of them with the name of the town itself, but of some intervening village. The remedy here is obvious.

Another important scheme of improvement should also be immediately dealt with by the respective authorities. Even during the day it is hard enough to discover one's whereabouts, on arriving at a town or village, especially when travelling in Scotland, Wales, Ireland and the North of England, owing to the dialect and to one's own English being misunderstood, and this is especially annoying and inconvenient as the authorities have depended for the traveller's guidance too much upon local information. At two o'clock in the morning, however, there is no local information, except that which can be obtained by knocking a man up; this procedure, moreover, is often attended with unpleasant consequences, generally cold water or something worse. At midnight one may arrive at a village, absolutely unable to determine where one is, and consequently unable to locate his position on the map and discover his future course.

What should be immediately installed in every village, town and city is a name board with the name of the locality written in big black letters



The above sketch is reproduced from a coloured plate forming part of the new catalogue of Richard-Brasier cars issued by Messrs. Mann and Overtons. It depicts Thery at full speed in the 1904 Gordon Bennett Race on the famous No. 5.

on a white ground, and the board should be erected near a lamp-post, so that, day or night, it might be conspicuous. At the entrance, too, of each town the name of the town should be written on the first two or three lamp-posts on its outskirts.

It has been brought to my notice that this matter has been broached before. I am all the more astonished that it has not been dealt with more effectively before. After all, besides the revision of the signpost system, I only ask that each village, town and city should have at least the self-respect of a railway station.—Yours truly,

Archibald Ford.

PRIMARY BATTERIES FOR CHARGING ACCUMULATORS.

To the Editor of *The Motor-Car Journal*.

Sir,—In confirming Mr. Ernest Escourt's opinion *re* Boron batteries for accumulator charging, I would state that I have used many so-called magneto devices; they are only toys compared with a good electrical ignition. Whilst there is such an admirable primary cell to be obtained, there should be no fear of charging accumulators. I am a very old admirer of these cells, as they have done me good service on many occasions, and fully come up to all the claims made for them. Mr. Escourt is perfectly correct in advising owners of petrol cars to obtain a set of these batteries.—Yours truly,

J. Branson.

Box Spanners.—A correspondent points out the spanners described by "R. C" in the *Journal* of the 4th inst. are known as L'Auto Cle.

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STEEL AS APPLIED TO MOTOR-CAR CONSTRUCTION.

By J. S. Critchley, M.I.Mech.E.

(*Concluded from page* 1069.)

The following table gives about the usual commercial specifications for steel suitable for forgings no diameter of which exceeds 3 in. :—

Forging Steels Oil Tempered.

	Carbon steel oil tempered.	Nickel steel oil tempered.
Tensile strength, tons per square inch ..	40	42
Elastic limit, tons per square inch ..	24	29
Elongation in 2 in., per cent.	20	21
Contraction of area, per cent.	45	50

The phosphorus and sulphur must not exceed ·04 per cent., and the nickel 3·75 per cent. A specimen 1 in. by ½ in. must bend cold 180 deg. without fracture around a diameter of 1 in. for carbon steel and ½ in. for nickel steel. For high-class motor car work much higher physical tests are often demanded, which are obtained by so-called special nickel steels and nickel chrome steels. The last named are made which show enormous tensile strength and a very high percentage of elastic limit. A comparison between a high carbon steel, oil tempered, and a nickel chrome steel is given below.

Tests of High Carbon and Nickel Chrome Steel.

	Carbon steel oil tempered, ·947 carbon.		Nickel chrome oil tempered.	
Tensile strength, tons per square inch.	102·5	Ratio 65·5 %	102	Ratio 96·07 %
Elastic limit, tons per square inch.	66·73		98	
Elongation in 2 in., per cent.	7		6	
Contraction of area, per cent.	16·9		40	

Both these steels show the same maximum strength, but the other qualities are all in favour of the nickel chrome, especially the ratio of elastic limit to the tensile strength, which always shows high in nickel chrome steel. However, the employment of either of these steels would be attended with considerable risk, as the elongation that may be looked for is in both cases very low. They would be very liable to snap under sudden impact.

Two safe examples of nickel chrome steel are given in appended table which would be very suitable material for crank shafts, driving shafts, or axles. Both these steels are tempered and annealed.

Nickel Chrome Steels.

	Poldi. Nickel chrome, C.N.S.		*Shipman.* Nickel chrome, G.S.	
Tensile strength, tons per square inch.	53·34	Ratio 77·3 %	67·1	Ratio 93·5 %
Elastic limit, tons per square inch	41		62·75	
Elongation, per cent. ..	15		18	
Reduction of area, per cent.	62·9		59·5	

The G.S. quality is exceptionally good. The test was made at the Sheffield Testing Works, although the steel is imported there from abroad. In the unannealed state the G.S. steel only gives an elastic limit of 28·8 tons per square inch, against 62·7 in its annealed state, an increase of over 200 per cent. It is not advisable for the constructor to subject these steels to any heat treatment at all, but to have his forgings made by the manufacturer of the steel. The quality of the metal can be very easily ruined by anyone not fully acquainted with the special process of its manufacture. For instance, all these high-grade steels must receive a particular treatment which is the outcome of endless trials. They must be forged just at the right temperature, and what that temperature is can only be determined by experience. The G.S. steel, for instance, is a difficult steel to forge. It must be heated up to a good red heat after forging, and plunged in water. Nickel steel, with a high percentage of nickel, 25 per cent. to 30 per cent., is now being employed for valves. It is a very hard material, will not rust or scale, it is entirely free from brittleness, and will stand repeated shocks and impacts. Valves of this material can easily be bent double when cold. Until quite recently 12½ per cent. nickel was considered the limit for valves, but improvements in steel manufacture and the demand for a higher quality have induced steel makers to produce a 30 per cent. nickel steel.

The valuable properties of an alloy of vanadium and steel have long been recognised, as it is perhaps the most powerful of any alloy yet known. Even so low a fraction as one or two-tenths per cent. will raise the elastic limit of low carbon steels by 50 per cent. Recent developments which have been carried out by Mr. Kent Smith, the inventor of a new process for producing vanadium steel, at the works of Messrs. Willans and Robinson, Queensferry, have produced some excellent results, and the steel would appear to have exceptionally good qualities. The percentage of elastic limit to ultimate stress is generally high, and the ductibility as shown by the percentage of elongation is superior to any steel of equal tensile strength. The impact and bending tests of this steel are excellent—in fact, they are superior to a 30-ton mild forging steel of good quality. This steel will weld, and is certainly not so delicate as regards heat treatment as are many high-grade steels. The comparison of this steel with Swedish quality mild tube steel, forging quality mild steel and nickel steel is set out in the following table:

Chemical Analysis.

	Vanadium steel.	Swedish tube steel.	Forging steel.	Nickel steel.
Carbon	0·297	0·129	0·262	0·320
Silicon	0·059	0·009	0·047	0·052
Manganese ..	0·394	0·266	0·572	0·512
Chromium ..	1·066	—	—	—
Vanadium ..	0·169	—	—	—
Nickel	—	—	—	2·95
Sulphur	0·04	0·04	0·04	2·04
Arsenic	0·04 under	0·04 under	0 04	0·04 under
Phosphorus ..	0·04	0·04	0·07	0·04

Description.	Tensile stress, tons per square inch.	Elongation, per cent. on 2 in.	Impact, ft.-lbs. W. and R. test.	Hand right-angle bends.
Swedish quality mild tube steel.	22½	50	15	18
Mild steel forging quality	31	32	8	12
3 per cent. nickel steel forging quality.	39	34	14	12
Chrome vanadium as rolled	53	25	5	15
Chrome vanadium, annealed for ½ hour at 1472 F.	39	34	16	18
Chrome vanadium, oil quenched at 1652 F., and reheated at 1112 F.	53	22	13	10
Chrome vanadium bolt steel.	37	30	10	15
Chrome vanadium spring steel.	72½	13	4	—

In the normal state, it will be seen that this steel has superior properties to the best mild steels as regards bending and impact tests, and more than double the elastic limit. The steel in this condition has great power to resist torsion. A 6 in. length by ·75 in. diameter will twist 3·9 turns before parting. By annealing at 1472 deg. Fahr. the tensile strength is somewhat reduced, but static ductibility is increased, and the power to resist impact and alternations by stress have also increased to a large extent, being far higher than with mild forging steel, as also has the torsional strength. A bar in this state of the before mentioned dimensions takes 4·56 twists. By oil tempering and subsequent annealing the static strength of the steel is regained, and the elastic limit being increased to 81 per cent. of the maximum stress, and the static ductibility is proved by the fact that a ¾ in. round bar can be bent double. It will be seen that the steel in this condition is probably in the best state for motor-car work, as all the dynamic tests show great resistance to impact and vibration with very high elastic limit. The impact test in foot-pounds is almost equal to the best Swedish quality tube steel, whereas the power to resist alternations of stress is 60 per cent. higher. This, taken in conjunction with the fact that the elastic limit is three times greater, shows the steel to be of excellent structure. The elongation per cent. is higher than in nickel chrome steels of the same tensile strength.

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The results obtained with this steel are much superior to steels of equal carbon content; in fact, the results are as good as are obtained by a steel with ·468 carbon content. A steel of this quality is shown in Table 2, and the result obtained in that case was considered to be an exceptionally good one. Vanadium steels, therefore, show excellent qualities, and it would appear must be suitable for motor-car constructors, and their use for this purpose must be looked forward to with considerable interest, especially as this quality of steel is one which is being manufactured in this country. The price of vanadium is high, and at one time it was worth more than its weight in gold. However, ferro-vanadium, containing not less than 25 per cent. to 35 per cent. vanadium, is now available. Probably the cost of vanadium steel will not be more than other steels of similar qualities, however, as a high-grade motor-car only exists by the employment of the very best materials that can be provided, the cost of the material being not such an important factor as in some other branches of engineering work.

TOURING IN IRELAND.*

By R. J. Mecredy.

You have all heard of Irish hospitality, but I hope that your personal knowledge of it is not wholly confined to your Gordon Bennett experiences. As an Irishman I feel that some explanation is due as to the reception the Sassenach visitor received on that historic occasion. Once upon a time, as the story-book puts it, there was a great English tourist who visited Ireland, named Oliver Cromwell, and he and a large party of friends traversed the length and breadth of the land. He was a practical man, was Oliver, and he cast his eye on the fat acres in Co. Kildare and the surrounding districts, and came to the conclusion that the Celts who were in occupation were not doing justice to the soil. Accordingly, he gave them notice to quit, and offered them the alternative of going to "Hell or Connaught." Most of them chose the latter. Those of you who have seen the barren mountains and bogs of the west will doubtless be surprised at their choice, but I only record an historical fact. For the lands thus vacated the Lord Protector found more industrious tenants from amongst his soldiers and from across the water. It was their descendants who took you in and did for you with such hearty goodwill on the historic occasion of the Gordon Bennett Race of 1903.

Seriously, however, I fear that it was the press of Ireland which was really responsible. In our anxiety that the unsophisticated tiller of the soil should support the project of holding the race in co. Kildare, we dwelt largely on the untold wealth which would thus be poured into the country by the millionaire motorists, and so it came about that the natives, who are easy to lead but hard to drive, jumped to the conclusion that golden sovereigns were to be picked up for the asking—that the motorists were coming over with the special object of distributing them, and, consequently, they were not shy about proffering their demands.

To the ordinary tourist who does not come as a millionaire anxious to scatter his gold broadcast, the people are hospitable, but more especially so amongst the genuine Celts, who preferred the unproductive soil and comparatively equable climate of the west and south to the unpleasant heat and slothful life of Cromwell's alternative.

I will give one or two typical examples of kindly hospitality. I had the pleasure of taking the Rev. A. B. Whatton for a few days' trip on my car, and while he was loitering outside a pleasant rose-covered cottage one afternoon, the elderly dame who owned the tiny domicile asked him if he would like a cup of tea. A few minutes later he was enjoying the cup that cheers, accompanied by hot cakes generously buttered, while the old lady entertained him with her quaint sayings. Before departing he asked her what he owed. The reply of this typical specimen of Nature's gentlewoman was as conclusive as it was courteous and tactful. "You are my guest," she said. "I invited you."

Again, on camping tour, we stopped at a labourer's cottage, struck by the jolly, genial face of an old woman who cheered us from the door and craved shelter to eat our lunch, as it threatened rain. We were received, metaphorically speaking, with open arms. The stove was soon at work, and the old woman supplemented the feast with potatoes or frying, home-made bread, and fresh butter and milk. Before departing, my wife asked what we owed. The old dame replied that she was proud to have us. My wife, however, did not take the hint, and on again proffering money was met by a dignified and emphatic refusal which left no room for argument. "My humble home," she said, "is at your disposal; there are beggars on the road, give the money to them."

From the point of view of the automobile speed merchant, Ireland is a barbarously uncivilised country, for the utmost that can be accomplished with safety and comfort is an average of twenty-five miles an hour, and very few reach this limit. For the tourist, however, who can appreciate the most beautiful scenery in Great Britain, and who is capable of enjoying a complete change of surroundings, and intercourse with a very interesting people, Ireland will afford a happy hunting ground. The road surface is good, bad and indifferent; and the tourist who sketches out a route at random is most likely to favour the bad specimens. For this reason it is all-important to have a suitable route sketched out beforehand. My services in this direction are always at the disposal of members of the club, and my experience extends to every part of the country, for I have traversed considerably more than one hundred thousand miles in Ireland on cycle and motor-car.

It is all-important so, to get proper information about hotels, for the average provincial hostelry is, as a rule, too awful for words, as the carman realised who hideously replied to the tourist's query, that whichever hotel he went to he would wish it had been the other. On the most favoured routes, however, most of the hotels are excellent, and include everything that the most captious could desire. The charges vary from 10s. 6d. to 15s. a day, and, as a rule, no charge is made for garaging the car.

I have heard better complaints made against Irish roads as being very destructive to tyres. I cannot help feeling that in most cases the drivers are at fault—at least, to judge from my own experience. At present I have two front tyres in use which have been running since April; one back tyre has been run since August and one since September, and all four in perfect order; in fact, there is hardly a cut on their surfaces. My air tubes have been in use for one year and nine months. A considerable amount of my driving has been done over loose roads, but I always make a point of avoiding the stones as much as possible, and run free over patches, and always take corners at a moderate speed, and apply the brakes gradually, except in case of sudden emergency.

* From a Paper read at the Automobile Club on the 16th inst.

CLUBS AND ASSOCIATIONS.

GLOUCESTERSHIRE.

The annual meeting of the Gloucestershire Automobile Club was held at the Queen Hotel, Cheltenham, under the presidency of Mr. Algernon H. Wyatt.

The committee presented the annual report, which recorded representations being made to the Gloucestershire County Council and to other local bodies in the county respecting unrolled metal left on the roads overnight, and to the lighting of all vehicles on the highway at night-time. The committee concluded the report with a statement in reference to the recently formed Bristol and District Automobile Club, and attention was called to its probable effect on the automobile movement in the county of Gloucester and its effect on the Gloucestershire club. The committee recommended that arrangements be concluded for the conveyance of the title, &c., with the object of forming one body, the new organization to be called the Bristol and Gloucestershire Automobile Club.

In moving the adoption of the report, the Chairman said the committee had undoubtedly recommended wisely. Some of the members of the club residing in the southern half of the county had already intimated their intention of joining the new Bristol and District A.C. Further, he felt sure that eventually the larger organisation would adversely affect the usefulness and success of the Gloucestershire Automobile Club, and it was consequently evident that it would be entirely to the interest of automobilism in the county to have one large and powerful body only. He had himself interviewed the chairman of the Bristol and District Club, who fully agreed with the committee's suggestion, and the Bristol club were prepared on their side to act on the proposal forthwith. It was then moved by Mr. George Young—"That, having regard to the fact that there has recently been established a Bristol and District Automobile Club, with a large and influential membership, including many of the automobilists in the county, it is considered advisable in the best interests of the movement, and it is hereby resolved, that the Gloucestershire Automobile Club do transfer its title, papers, etc., to the before-mentioned body, on the understanding that the joint organisation be called the Bristol and Gloucestershire Automobile Club.

Dr. H. P. Fernald seconded the motion. The hon. secretary (Mr. A. A. Dale) explained details of the scheme, and gave additional reasons why the present time was opportune for the proposed action of the club. The motion was carried unanimously.

Upon the motion of Mr. F. J. Bennett, the committee was re-elected to undertake arrangements with the Bristol club and bring to a conclusion the affairs of the G.A.C., under the terms of the foregoing resolution.

A hearty vote of thanks to the president was proposed by Mr. A. J. Sanders, who referred in warm terms of appreciation to the work which the president had done during the past year.

Mr. Bennett moved a vote of thanks to the hon. secretary, the hon. treasurer, Mr. F. M. Bostock, and to the assistant secretary, Mr. J. Baring Goodwin.

PETERBOROUGH AND COUNTY A.C.

The arrangements for the amalgamation of the Northamptonshire Automobile Club and the Peterborough and District Motor Club under the above title have been completed, and the new club has now settled the details of its future management. The Marquis of Exeter has been elected president, and among a long list of vice-presidents are Lord Lilford, the Hon. Leonard Brassey, Mr. G. C. W. Fitzwilliam, D.L., J.P., Major Wickham, Major Deacon, and Mr. Richard Winfrey, the prospective Liberal candidate for South-West Norfolk. A strong and influential committee has also been appointed. This includes the following well-known motorists:—Messrs. F. Heighton, B. C. Holmes, T. W. Percival, W. Walshaw, T. W. Southwell, J. Rowe, F. S. Southwell, J. Montgomery, F. Redhead, T. S. Rickman, W. Barrett, A. Morris, P. Mays, B. Gibson, R. S. Parriss, and A. Adams. The choice of captain has fallen on Mr. Richard Winfrey, and Mr. F. S. Southwell has been chosen for the office of vice-captain. Other

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officers appointed are:—Hon. solicitor, Major Dea secretary, Mr. E. H. M. Wood; hon. treasurer, Mr. B. Holmes. T eat Northern Hotel will be the head-quarters of the new club. I s already a large membership, and the committee will spare no pai make the coming season's programme as attractive as possible. In ition to a series of club meets and runs, it is proposed to hold a speed t and hill-climbing competition early in the season.

BERKSHIRE.

THE first annual general meeting of the Berkshi Automobile Club was held at the Great Western Hotel, Reading, last Major E. R. Portal presided, and there were also present Sir Gilber Clayton East, Bart., Major T. Sandwith, the Rev. J. D. Ouvry, Lieut l. W. Waring (hon. secretary), Captain Rhodes, Dr. Norman H. Joy r. J. Hopkins Walters, Dr. G. C. B. Hawes, and Dr. A. Gordon Paters A letter was read from Lord Roberts regretting inability to attend. en he took up his residence at Ascot he hoped to give more attention to business of the club than had been possible up to the present time. the report reference was made to the fact that the club has had an u ubted effect in reducing the amount of inconsiderate driving. The poli prosecutions in the county have been 124 less for 1904 than 1903, which nds to show that the police have also been more considerate, notwit nding the largely increased number of cars in use.

In the place of three members of the committee who reti by rotation, there were elected the Rev. J. D. Ouvry, Mr. George A n, and Dr. A. Gordon Paterson. On the motion of the Chairman, second by Mr. J. F. Ochs, the report and accounts were unanimously adopted.

Thanks were tendered to Sir Gilbert Clayton East for the erest he had taken in the club as chairman, to Lieut-Colonel Waring fo s work as hon. secretary, and to Major Portal for presiding.

THE FLORIDA RACE MEETING.

THE last American mail brings the results of the aut obile meeting on the Ormond-Daytona Beach, Florida, from the 24th the 31st ult. Owing to pressure on our space we are unable to deal w the meeting at length, but give in the appended table the new r rds established:—

NEW WORLD'S RECORDS.
One Kilometre.

	Min.	S
January 31.—H. L. Bowden, 120-h.p. Mercedes	0	2 5
One Mile.		
January 31.—H. L. Bowden, 120-h.p. Mercedes	0	32
Five Miles.		
January 24.—A. C. Macdonald, 90-h.p. Napier	3	17
Ten Miles.		
January 31.—A. C. Macdonald, 90-h.p. Napier	6	15
Twenty Miles.		
January 31.—E. R. Thomas, 95-105-h.p. Mercedes	13	24
Thirty Miles.		
January 31.—E. R. Thomas, 95-105-h.p. Mercedes	20	37
Forty Miles.		
January 31.—P. Sartori, 90-h.p. Fiat	31	54 2-5
Fifty Miles.		
January 31.—H. W. Fletcher, 80-h.p. De Dietrich	38	51
One Hundred Miles.		
January 30.—H. W. Fletcher, 80-h.p. De Dietrich	78	24

NEW COMPETITION RECORDS.
One Kilometre.

January 26.—A. C. Macdonald, 90-h.p. Napier		27 3-5
January 26.—L. S. Ross, 20-h.p. Stanley steam car ..		27 3-5
One Mile.		
January 25.—L. S. Ross, 20-h.p. Stanley steam car ..	0	41 3-5
Ten Miles.		
January 28.—E. R. Thomas, 95-105-h.p. Mercedes ..	6	31 4-5

NEW AMERICAN RECORD.
One Kilometre.

January 26.—A. C. Macdonald, 90-h.p. Napier	0	23

NEW MIDDLE-WEIGHT RECORD.
Five Miles.

January 24.—Guy Vaughn, 40-h.p. Decauville	4	34 2-5

NEW STEAM CAR RECORDS.
One Kilometre.

January 26.—L. S. Ross, 20-h.p. Stanley	0	24 1-5
One Mile.		
January 25.—L. S. Ross, 20-h.p. Stanley	0	38

TYRE FITTING COMPETITION AT OLYMPIA.

THE series of tyre fitting competitions which were in progress daily during the motor show at Olympia were an attraction to visitors. The competitors had to take out the inner tube of a Continental tyre, substitute a fresh one and re-inflate, the winners being those who did the quickest time. Much interest was taken in the competition, for which there were 96 entries, £45 being awarded in fifteen prizes by the Continental Tyre Company. Record time was made by the winner, and the second easily beat the 6 min. 30 sec. record set up at the Berlin Automobile Show. The following were the awards:—

	Min.	Sec.	Value of Prize. £. s. d.
J. Young, Wolseley Co., Birmingham	5	48 2-5	.. 10 10 0
J. M. Turner, Walton-on-Thames ..	5	54	.. 7 7 0
A. Merry, Daimler Co., Coventry ..	6	41 4-5	.. 5 5 0
E. Horsey, London, S.E.	6	51 2-5	.. 4 4 0
C. Pallat, London	7	1 3-5	.. 3 3 0
H. Turner, London	7	4 4-5	.. 2 10 0
J. Taylor, Hutton and Co., London	7	10	.. 2 0 0
A. Orson, Wolseley Co., Birmingham	7	13 3-5	.. 1 10 0
A. Alsop, Rex Motor Co., Coventry	7	42 2-5	.. 1 5 0
C. W. Payne, Hutton and Co., London	7	46 1-5	.. 1 1 0
F. L. Ellingham, London	7	54 3-5	.. 1 1 0
H. Jennings, London	8	11 2-5	.. 1 1 0
G. Sawyer, Guildford	8	11 3-5	.. 1 1 0
G. Pinching, Hutton and Co., London	8	11 3-5	.. 1 1 0
A. Bond, Wolseley Co., Crayford ..	8	35	.. 1 1 0

This first competition having created so much interest, Mr. Brodtmann intends having another prize competition arranged at the Automobile Exhibition which opens in Edinburgh on the 24th inst.

CASES AGAINST MOTORISTS.

Place.	Summoned for	Fine.
Wolverhampton	Damages for injuries	£7 and costs.
Slough	No rear light. In this case the defendant was the Right Hon. Graham Murray, Lord President of the Scottish Court of Session	10s.
Bournemouth	No rear light	16s., etc.
Aston.....	Reckless driving	£5, etc.
Leicester	Furious driving	Dismissed.
West London	Allowing the engine of a stationary motor-car to be in motion	18s., etc.
Torquay	No light	Dismissed on payment of costs.

EIGHT new members were elected to the Motor Cycling Club at the last committee meeting. In addition to the fixtures already announced it was decided to promote a members' hill climbing competition, to take place on a Saturday afternoon.

DETAILS have just come to hand of the first hill-climbing contest held by the Automobile Club of South Australia on a hill four miles long, the road being a winding one with a rough surface, the gradient varying from 1 in 6 to 1 in 10. About fifteen cars from 7-h.p. to 15-h.p. and eight motor-cycles competed. In the motor-cycle section the 3-h.p. Rover bicycle did the distance in 11 min. 32 sec., this time being best of all.

TO CORRESPONDENTS.

All communications intended for insertion in this Journal or relating to editorial matters should be addressed to THE EDITORIAL DEPARTMENT, MOTOR-CAR JOURNAL, 27-33, *Charing Cross Road, London, W.C., and must be written on one side of the paper only. Letters must in all cases be accompanied by the name and address of the writer, as no notice will be taken of anonymous communications.*

The Editors cannot undertake to return MSS. or drawings, although every effort will be made to do so in the case of rejected communications. Where such are regarded as of value, correspondents are requested to retain copies.

To insure insertion communications and contributions must be in the Editor's hands by Tuesday forenoon of the week in which the same are intended to appear. Disappointment may be caused by non-compliance with this rule, and to avoid this earlier receipt, if possible, is necessary.

The Editors and Publishers beg also to state that they will accept no responsibility for unsolicited contributions, even if used, unless payment for same is directly specified in forwarding, and the terms arranged before publication.

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